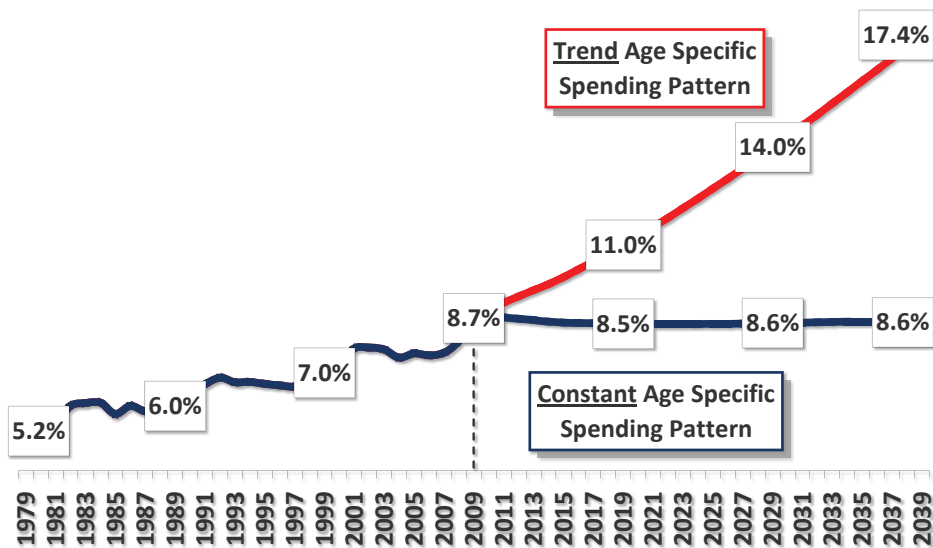

Sustainable:

British Columbia's Health Care System and Our Aging Population

Total Health Spending as a Share of Real GDP
Provincial Government Spending, British Columbia, 1979 - 2039



Sustainable:

British Columbia's Health Care System and Our Aging Population

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The Urban Futures Institute

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Preface

British Columbia's health care system as we know it today – portable, universal, comprehensive, accessible, and publicly-administered – IS sustainable: it can accommodate increases in spending due to general price inflation and due to growing and changing provincial population, given reasonable expectations of growth in our economy. Contrary to the headlines, it will not be swamped by the aging of the post World War II baby boom into the higher health spending age groups. This point is of fundamental importance and bears repeating: our current health care system IS sustainable in the face of the significant demographic changes our population will experience over the next three decades, given reasonable assumptions about economic growth.

What is not sustainable, however, is the continued growth of age specific provincial government per capita health expenditures that are in excess of inflation, and of the spending that would be reasonably expected as a result of population growth and aging.

Our aging population is therefore not the challenge for the current system; the challenge is the continuation of uncontrolled spending growth, in which there are few incentives for health care providers to find better – rather than merely more expensive – approaches to health care delivery. There are even fewer incentives for consumers to use the system wisely.

In the face of decades of research and proposed reforms, we must confront the reality that the current health care system is still just that, a *system*, with no explicit plan for the ongoing delivery of health care goods and services. Most importantly, there is no financial plan for delivering health care in the province. Just as we all must rationalize our own personal finances, the first step in developing a plan for sustaining our health care system is to require a match between our spending on health and our ability to pay for it. Sustainability will require a financial plan, and an adherence to it, involving discipline, transparency, incentives, and innovation not observed in the past, but essential to the future.

As these changes will require significant cultural shift for everyone, government, health care providers and consumers alike, we need to renew the original vision of public health care insurance in Canada: a system that is – to quote Tommy Douglas, the grandfather of Canada's universal health care system – effective, efficient and responsible, in order to be portable, universal, comprehensive, accessible, and publicly-administered.

Introduction

Provincial government health spending in British Columbia has been growing more rapidly than many other dimensions of our society or economy. Over the past three decades total nominal provincial government health spending increased at an average rate of 8.0 percent per year – much faster than our population (which grew by 1.7 percent per year) and faster than the higher health care cost 65-plus population (2.9 percent per year). Health spending also grew faster than the economy (5.3 percent annual growth in Gross Domestic Product), general price inflation (3.4 percent per year), and total provincial government spending (5.2 percent per year). This trend has also prevailed over the more recent past. The past decade saw provincial government health spending increase at an annual rate of 6.1 percent compared to annual population growth of only 1.0 percent, a 65-plus population which grew by 2.2 percent annually, nominal GDP growth of 5.3 percent per year, inflation of 1.6 percent per year, and growth in provincial government spending of 2.2 percent per year.

The rapid and continued growth of provincial government health spending has raised many concerns, ranging from fears that growing health spending will crowd out government spending on other programs, to anxiety that the system is not sustainable and will have to undergo radical changes. Few of these concerns, however, have been accompanied by empirical analyses that identify the causes of the increases in provincial government health spending, the degree to which these increases may crowd out other spending, or the likelihood that these increases will cause the system to collapse. Similarly, these concerns have not been accompanied by any empirical analyses of provincial government health spending in the context of the province's changing population and the economic resources available to support their health care system.

This report represents a step in the direction of bridging the concerns and the causes, by empirically measuring the major drivers of health spending in their demographic and economic contexts, and projecting these into the future, given trends in demographic and economic change. In doing so, the parameters under which British Columbia's health care system would be sustainable are clearly articulated.

Three specific questions about provincial government health spending in British Columbia are considered:

“Is it reasonable to be concerned about the sustainability of the health care system?”

“Will our health care system be able to cope with the significant demographic changes we will face over the next three decades?”

“Can our health care system cope with spending increases not associated with demography or general price inflation?”

After addressing these questions and identifying the major causes and consequences of increasing provincial government health spending, the report closes by raising a number of strategic considerations that can both direct future research and assist policy-makers in focusing on what can be done to ensure the sustainability of the province's health care system.

Notes to the Reader

Before considering the three preceding questions, the reasons for focusing on provincial government health spending, rather than on all health spending, must be stated. The first reason is that provincial government health spending accounts for a large proportion of total health spending in BC (67 percent in 2009), with other components including private expenditures (28 percent), federal direct spending, (3.7

percent), social security funds health expenditures (0.9 percent), and municipal government spending (0.1 percent).

The second and more fundamental reason for focusing on provincial government health spending is that it overwhelmingly supports primary health care delivery in the province, accounting for 96 percent of spending on physicians, 94 percent of spending on hospitals, and 77 percent of spending on other institutions such as care facilities. Private spending, in contrast, is primarily made up of expenditures on other professionals such as dentists, and opticians (accounting for 41 percent of total private health spending), and on prescribed and unprescribed drugs (31 percent). In short, it is provincial government health spending that represents the spending on the elements that British Columbians define as constituting their health care system.

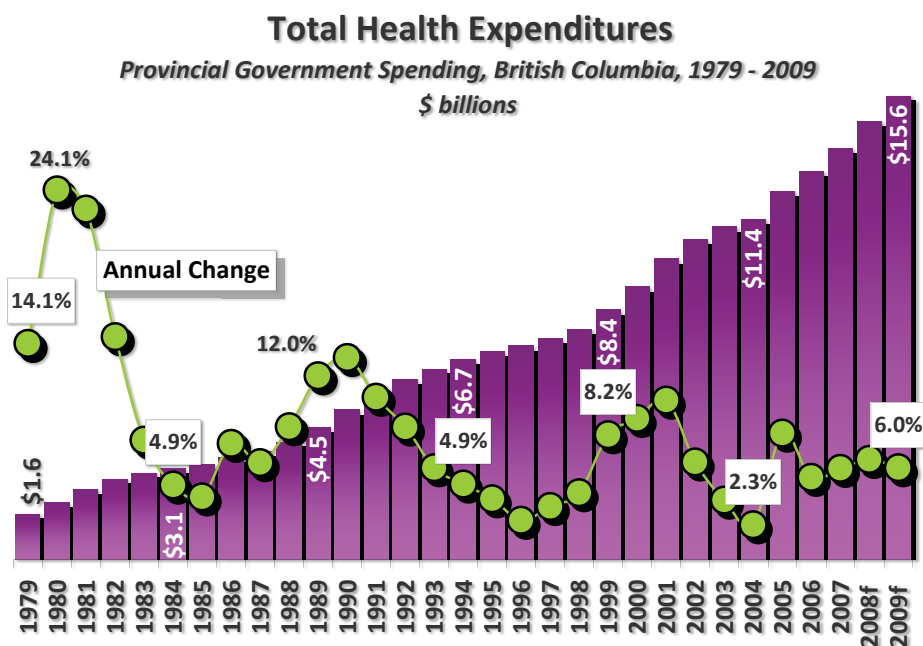
The third reason for focusing on provincial government health spending is that it is the only sector for which long-term and consistent data sets for age specific spending are available. As one of the concerns of this research is the impact of demographic change on health spending, such age specific data are essential to the analysis.

A few comments are warranted on the data used in the following analysis. The health expenditure data are maintained by the Canadian Institute of Health Information (CIHI) as part of its National Health Expenditure database, and unless otherwise noted, all health-related data referenced in this report have been obtained from CIHI's database. Annual total expenditure data are published for the period 1975 to 2009, with age specific data available for 1996 to 2007.

While age specific spending data are only available for the 1996 to 2007 period, estimates for 2008 and 2009 have been made using age specific population estimates for 2008 and 2009, average annual age specific changes in the CIHI data between 1996 and 2007, and CIHI's estimates of total provincial government health spending for those years. This allows for a more timely assessment of current spending and a more logical starting point for projections of provincial government health spending. In the following analysis we have used the past three decades of CIHI data (1979 to 2009) to compare to projections which span the coming three decades (2009 to 2039).

How We Got Here: The History of Provincial Government Health Expenditures

Figure 1



Over the past three decades provincial government health expenditures in BC grew from \$1.6 billion in 1979 to \$3.2 billion in the mid-1980s, to \$7.0 billion in the mid-1990s, and to \$15.6 billion by 2009. This \$14 billion increase in health expenditures represents a 902 percent (nine-fold) increase over the past 30 years. Annually, provincial government health expenditures have grown at an average rate of 8.0 percent each year (Figure 1).

The historical pattern of annual increases has seen significant variation over the past three decades, with the most recent decade being characterized by spending increasing more slowly than the historical average (6.4 percent annually, for a total increase of \$7.2 billion since 1999).

Similarly, growth rates were below average through the mid-1980s, mid-1990s and in 2003/2004, while they were above average in the early-1980s, early-1990s, and early-2000s.

There are a range of factors that have combined to generate these spending increases, and they are typically segmented into external and internal, or primary and secondary, drivers. The primary drivers (factors external to the health care system) include population growth, population, aging, and general price inflation. The secondary drivers (factors internal to the health care system) include inflation specific to provincial government health spending that is in excess of general price inflation, increasing consumption of health care goods and services, and increases in the quality or level of health care service provision.

The following examination measures the role that primary and secondary factors have played in shaping provincial government health spending in British Columbia over both the recent and long-term past. By extension it also indicates where efforts to mitigate future spending increases can be focused if the health care system as we know it today is to be sustained in the coming decades.

Nominal Increase in Provincial Gov't Health Spending		
Prov/Terr.	1979-2009	1999-2009
Yukon	1264%	115%
Alberta	1080%	163%
NWT	929%	63%
British Columbia	902%	86%
Ontario	890%	109%
Canada	766%	103%
PEI	751%	121%
Nova Scotia	747%	100%
Manitoba	705%	91%
New Brunswick	697%	96%
Saskatchewan	684%	100%
Newfoundland	629%	82%
Quebec	508%	85%
Nunavut	-	128%

Inflation

General price Inflation – the increase in the prices of goods and services without any change in their quality or in the quantity consumed – is an economic reality. For example, in order to buy exactly the same bundle of goods and services in British Columbia today compared to 1979 would cost 2.71 times as much as it did three decades ago. Recognizing that general price levels increase over time is an important element in discussions of increasing health spending, as price increases observed throughout the economy are the consequence of increasing incomes and an improved ability to pay for all goods and services.

That said, there are a wide range of approaches to adjusting health spending for inflation. In Canada, the broadest measure of inflation in the economy as a whole is achieved through the GDP implicit price deflator, which measures inflation in both producer and consumer prices, in both the private and public sectors of the economy. Using this broad index, inflation in British Columbia over the past three decades was 161 percent. However, while this measure provides insight into the role of inflation throughout the economy as a whole, it is not particularly useful in providing an appropriate context that relates to health spending or the experience of everyday consumers in British Columbia.

Similarly, the provincial government implicit price index tracks price changes for all provincial government expenditures, including provincial government spending on health care. Over the past three decades inflation in total provincial government spending was 217 percent. Again, while representing a narrower measure of inflation than changes in the GDP implicit price deflator, this index is not particularly useful in the context of the experiences of everyday consumers.

The Consumer Price Index (CPI) specifically tracks changes in the prices of a representative basket of goods and services that consumers purchase. While the CPI includes a 'health and personal care' category, the focus of this component of the CPI is on inflation in private, or personal, health spending; therefore, assessing changes in this sub-index to changes in provincial government health spending would not be relevant to this analysis.

The most appropriate price index to consider is the CPI. Deflating provincial government health spending by changes in the CPI places the increases in health spending in the same context as price changes experienced by British Columbians, and thus allows for a comparison of how provincial government health spending has increased relative to the general price level.

Over the past three decades, annual changes in the CPI have shown significant variability, with inflation in British Columbia reaching a high of 14.1 percent in 1981 and falling to zero in 2009 (indicating that consumers saw no increase in average prices between 2008 and 2009 – a scenario that was entirely the

result of lower fossil fuel prices in 2009 versus 2008). Overall, the CPI in BC increased by an average of 3.4 percent per year over the past thirty years, with inflation averaging 6.0 percent in the 1980s, 2.4 percent in the 1990s, and 1.8 percent in the 2000s.

If inflation in health care costs followed the same pattern of increasing prices experienced by the general consumer in BC, they would have increased by 171 percent between 1979 and 2009, from \$1.6 billion in to \$4.2 billion. Compared to actual spending of \$15.6 billion in 2009 it can be said that if inflation in provincial government health spending followed the same pattern of change as consumer prices, the \$2.6 billion increase would have accounted for 19 percent of the total \$14 billion increase in health spending over the past three decades. Focusing on more recent history, with the CPI increasing by 19 percent between 1999 and 2009, \$1.6 billion (or 22 percent) of the actual increase in provincial government health spending of \$7.2 billion that was seen over the past ten years could be attributed to general inflationary pressures.

Inflation & Contribution to Health Spending Growth				
Province/ Territory	1979-2009		1999-2009	
	Inflation (CPI)	Contribution to Health Spending Growth	Inflation (CPI)	Contribution to Health Spending Growth
Alberta	204%	19%	33%	20%
Ontario	192%	22%	23%	21%
Saskatchewan	191%	28%	27%	27%
Canada	186%	24%	23%	22%
Manitoba	185%	26%	22%	24%
Nova Scotia	182%	24%	26%	26%
Quebec	180%	35%	21%	25%
PEI	179%	24%	29%	24%
New Brunswick	176%	25%	23%	24%
Newfoundland	173%	27%	22%	27%
British Columbia	171%	19%	19%	22%
NWT	-	-	23%	37%
Yukon	-	-	19%	17%
Nunavut	-	-	-	-

Thus, while inflationary pressures throughout the economy would explain some of the historical increases in provincial government health spending (19 percent of the increase in the case of BC), other factors have contributed more significantly to increasing health expenditures. Next, the contribution of a growing and changing provincial population is considered.

Population Growth

All other things being equal, more people generally means more provincial government spending. Over the past three decades, BC's population grew by 67 percent (at an average annual rate of almost two percent), as we added 1.8 million new residents. Since 1979 there have been two periods of relatively rapid growth: the early-1980s averaged three percent per year and the mid-1990s averaged just under three percent per year. We also saw two periods of slow growth: the mid-1980s, with an average of one percent per year, and the late-1990s, when annual growth fell below one percent.

While a 67 percent increase and 1.8 million more people over the past three decades may seem significant

to some, it pales in comparison to the 902 percent increase in nominal provincial government health spending, or the 270 percent increase in spending once adjusted for inflation. More recently, as the province's population has increased by eleven percent between 1999 and 2009 (from 4.01 to 4.46 million), total provincial government health spending was well in excess of this growth, with a nominal increase of 86 percent (a real increase of 56 percent).

In the same way it was possible to isolate the impact that general price inflation would have had on health expenditures, the contribution of population growth to provincial government health spending can be specifically accounted for. This is done by applying the rate of population growth observed over a certain period of time to the base year spending. For example, with total population growth of 67 percent over the past three decades, provincial government health spending in BC would have increased to \$2.6 billion by 2009 due to population growth alone. Compared to actual spending of \$15.6 billion by 2009, the increase in spending due to population growth would have been \$1 billion out of a total increase of \$14 billion, or seven percent of the total increase. Focusing on this more recent period, the increase in population of eleven percent between 1999 and 2009 would

have resulted in provincial government health spending growing by \$940 million, or 13 percent of the total increase observed since 1999.

Together, the two factors discussed thus far – general price inflation and population growth – would have accounted for slightly more than one-quarter (26 percent) of the total increase in provincial government health spending observed over the past three decades (19 percent from inflation and seven percent from population growth), and 35 percent of the spending increases observed over the past decade. With inflation and population growth accounting for only a portion of the increases seen in provincial government health spending, other factors have also been contributing to the increases.

Population Growth & Contribution to Health Spending Growth				
Prov/Terr.	1979-2009		1999-2009	
	Population Growth	Contribution to Health Spending Growth	Population Growth	Contribution to Health Spending Growth
Alberta	73%	7%	23%	14%
British Columbia	67%	7%	11%	13%
Ontario	51%	6%	14%	12%
Canada	39%	5%	10%	10%
Yukon	39%	3%	8%	7%
Quebec	20%	4%	6%	7%
Manitoba	17%	2%	6%	7%
PEI	14%	2%	3%	2%
Nova Scotia	11%	1%	1%	1%
New Brunswick	6%	1%	-0%	-0%
Saskatchewan	6%	1%	-0%	-0%
NWT	-4%	-0%	8%	12%
Newfoundland	-11%	-2%	-5%	-6%
Nunavut	-	-	18%	14%

As indicated previously, another contributing factor in the growth of provincial government health expenditures is the aging of the province's population. With a strong lifecycle pattern to health spending, a changing population in terms of its age composition (rather than just a growing population) can have a significant impact on health spending.

Population Change

Figure 2

Age Specific Per Capita Health Spending
Provincial Government Spending, British Columbia, 2009

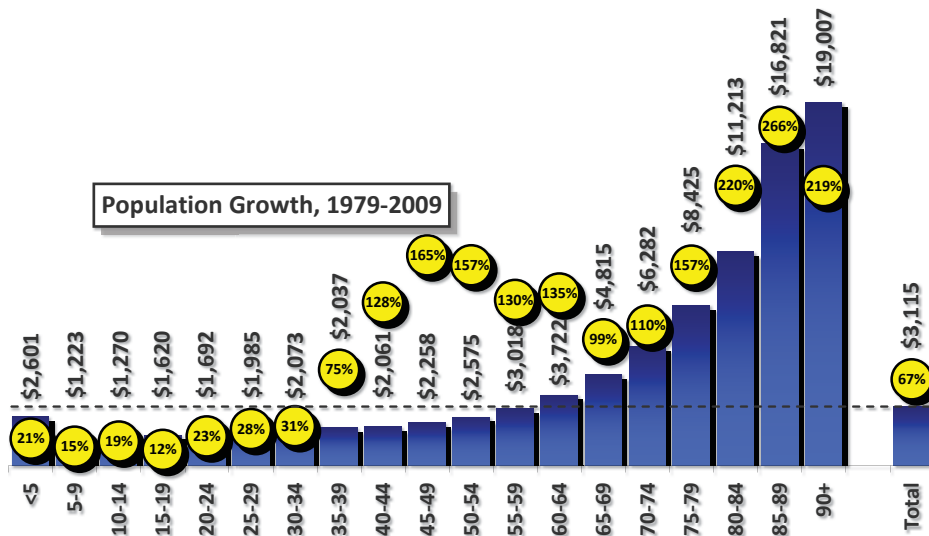


Figure 2 shows the lifecycle pattern of real provincial government health spending in British Columbia in 2009. Once a person ages beyond their first year of life there is a very strong correlation of increasing per capita health spending with age. Through the first two-thirds of the lifecycle, both the magnitude and rate of spending increases are relatively modest, only passing the \$3,115 average for all age groups once the age of 60 is reached. However, the final one-third of the lifecycle is characterized by average per capita spending almost doubling in every subsequent ten-year age group.

The consequences of this lifecycle pattern for total provincial government health spending depends on which

age groups are growing most rapidly: if the older population is growing more rapidly than the younger population, for example, then the impact on total spending would be greater than if growth is concentrated in the younger population where per capita spending is lower.

While the latter scenario characterized the situation in Canada through the late-1960s and early-1970s when members of the post-World War II baby boom generation were in their formative years, the former scenario has largely characterized Canada and its provinces over the more recent past. It will also increasingly characterize Canada's, and BC's, population over the coming decades.

As an example, while British Columbia's total population has grown by 67 percent since 1979, all of the 35-plus age groups experienced above-average growth, ranging from 75 percent growth in the 35 to 39 group, to 165 percent growth in the 45 to 49 group, to a staggering 266 percent growth in the number of people between the ages of 85 and 89. Conversely, population growth in the younger age groups fell in the range of 12 to 31 percent over this period. Even over the past decade the older age groups have grown much more rapidly than the younger ones, with all of the 45-plus age groups growing much faster than the eleven percent growth in total population.

To measure the impact that an aging population has had on total provincial government health spending in BC over the past three decades, we can hold constant both per capita spending (i.e. use the same per capita health spending profile for all years) and the size of the population. This allows for the determination of how health spending would have changed if the age composition of the province's population was the only contributing factor to those changes.

Starting from the 1979 base of provincial government health spending of \$1.6 billion, the province's changing age composition alone would have resulted in spending of \$3.6 billion by 2009. Compared to the actual spending of \$15.6 billion, the contribution of an aging population would have been \$2.04 billion out of a total increase of \$14 billion. Therefore, BC's changing demography accounted for 14 percent of the total increase in provincial government health expenditures over the past three decades, driven by the baby boomers aging from the 14 to 33 year old age group into the higher-spending 44 to 63 group by 2009. Focusing on the most recent decade, a changing age composition alone would have increased provincial government health spending by \$1.75 billion, representing 24 percent of the total increase of \$7.2 billion seen since 1999.

Figure 3

Drivers of Increasing Health Expenditures
Provincial Government Spending, British Columbia

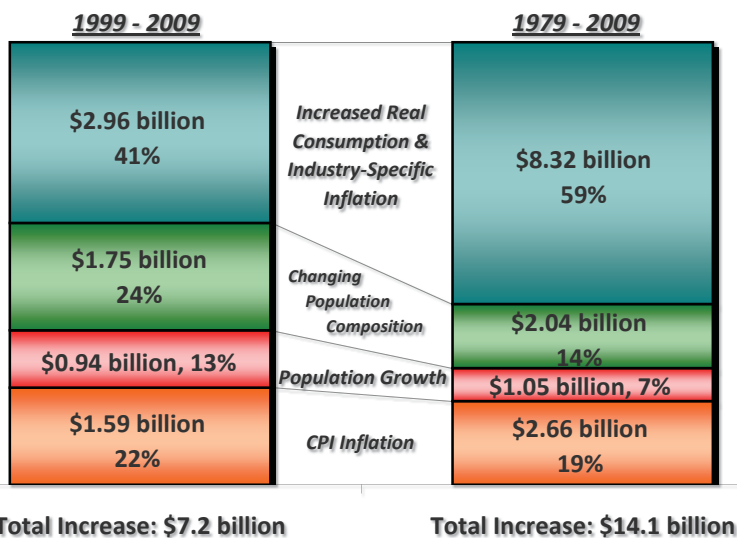


Figure 3 provides a summary of these contributions to BC's health spending over the recent and long-term past. The past three decades saw general price increases in BC's economy that would have accounted for 19 percent of the total increase in provincial government health spending, and 22 percent of the increase over the more recent past (1999 to 2009). Additionally, population growth accounted for a much smaller seven percent share of the growth since 1979 and 13 percent over the past decade. The impact of the population's changing age composition on health expenditures was slightly larger, accounting for 14 percent of the growth between 1979 and 2009 and just under one quarter (24 percent) of the growth over the past ten years.

Combined, these three factors – which represent the primary drivers to spending within the health care system – have

accounted for just 41 percent of the increase in provincial government health spending in BC since 1979, and 59 percent of the increase since 1999. This indicates that a significant proportion of cost increases have been the result of factors other than general price inflation, population growth, or changes in the age composition of the province's residents – namely, the secondary drivers.

Some of these secondary drivers could include inflation that was unique to provincial government health spending and higher than the level of inflation experienced in consumer prices. In considering changes in the implicit price index for all provincial government expenditures, the 271 percent increase that was experienced between 1979 and 2009 when compared to the CPI of 171 percent suggests that this may in part be the case. Alternatively, another secondary driver contributing to the increases may be increased utilization of the health care system by BC's residents. An increase in the amount of health care goods and services consumed per capita, or residents simply choosing to use the system more at all ages, would have also contributed to part of the increases not accounted for by the primary drivers. Finally, another contributing factor could have been the result of increases in the level or quality of health care services being provided within the province.

While it is not possible to decompose these secondary drivers into their individual elements (as we have done for the primary drivers), what this analysis points to is that in considering ways to ensure the future

sustainability of the health care system our focus can and should be on elements that are largely within our control. This refers specifically to these secondary drivers, given they were responsible for almost two-thirds of the increases in provincial government health spending over the past three decades. While we cannot put a cap on population growth, stop people from having birthdays, or halt the general rise in consumer prices, we may be able to have an impact on these other elements that potentially include cost increases specific to the health care system and the increasing consumption of health care goods and services.

Supporting the System: the Provincial Economy

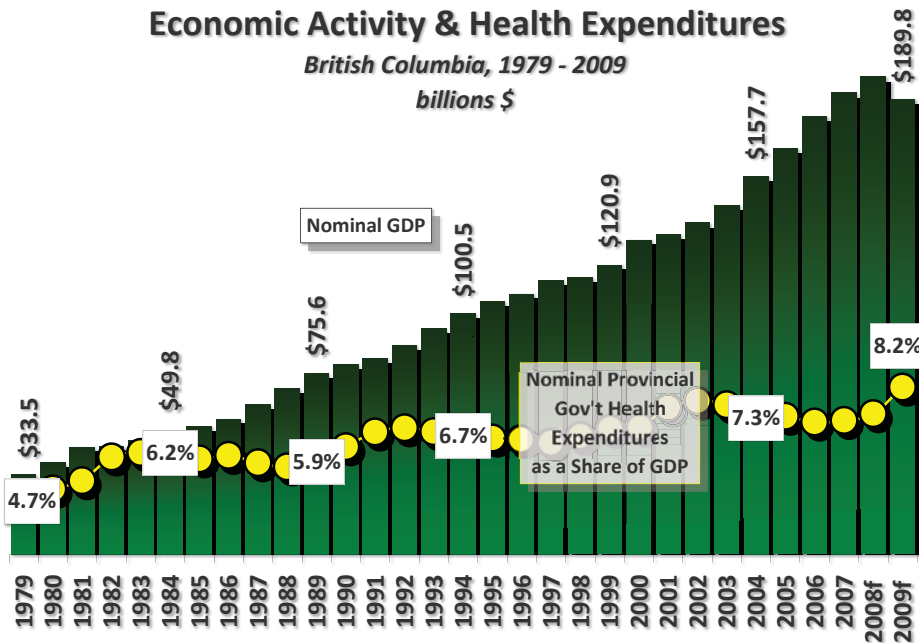
While it is informative to consider the drivers to provincial government health spending, they only represent one side of the equation when assessing the sustainability of health care in British Columbia. Fundamentally, provincial government health care (and other) expenditures are sustained by the ability of the provincial economy to pay for them. The provincial economy generates the revenues – be they resource revenues from selling natural gas or lumber to our trading partners, corporate revenues from selling video games or other services within the province, or from personal incomes – that form the financial basis on which Medical Service Plan (MSP) payments and other taxes are levied to pay for health care and other services.

To understand the extent to which provincial government health spending relies on the economy, and to provide a context for concerns about health spending crowding out other provincial expenditures or becoming unsustainable altogether, we can consider the history of provincial government health spending as a share of BC’s broadest measure of economic activity, Gross Domestic Product (GDP).

Over the past three decades nominal GDP in British Columbia has grown by \$156 billion, from \$33.5 billion in 1979 to \$189.8 billion in 2009 (a 466 percent increase). Over the same period, nominal provincial government health expenditures increased by \$14 billion, from \$1.6 billion in 1979 to \$15.6 billion by 2009 (a 902 percent increase).

Figure 4

Economic Activity & Health Expenditures British Columbia, 1979 - 2009 billions \$



Therefore, provincial government health spending in British Columbia represented 4.7 percent of the province’s GDP in 1979; by 2009 it had increased by 75 percent, representing an 8.2 percent share (Figure 4). This, in part, explains the concerns that health spending is crowding out other expenditures – the share of GDP available for other uses has effectively fallen by 3.5 percentage points (the difference between 8.2 and 4.7 percent). It is important to note that the current record share of 8.2 percent has been driven by two factors: one, the result of the slow, long-term upward

trend in its share, and two, the result of the contraction in economic activity in 2009 associated with the global economic downturn.

**Provincial Gov't Health Spending
as a Share of GDP**

Prov/Terr	1981*	1999	2009
Nunavut	-	15.5%	18.2%
PEI	7.9%	7.6%	11.0%
Nova Scotia	7.2%	7.6%	10.3%
New Brunswick	7.5%	7.2%	9.8%
Manitoba	5.7%	7.5%	9.1%
Yukon	3.2%	7.2%	8.7%
Quebec	6.5%	6.4%	8.3%
British Columbia	5.3%	6.9%	8.2%
Ontario	4.6%	5.3%	7.9%
Canada	5.2%	5.9%	7.7%
Newfoundland	7.6%	9.8%	7.4%
Saskatchewan	4.8%	6.5%	6.7%
Alberta	3.5%	4.8%	5.5%
NWT	3.5%	7.7%	5.5%

*Nominal GDP for provinces other than BC available from 1981.

Considering all provincial government expenditures, spending on health has also increased as a share of the provincial government's budget. In 1986 health expenditures of \$3.2 billion represented roughly 34 percent of the \$9.8 billion in total provincial government expenditures. By 2009 the \$15.6 billion spent on health represented 50 percent of the provincial government's \$31.4 billion in expenditures, illustrating the shift towards health spending from other provincial expenditures that has occurred over the past two decades.

Thus, given the demographic and economic context within which provincial government health spending in British Columbia has increased over the past three decades, in response to the first question posed in the introduction – Is it reasonable to be concerned about the sustainability of the health care system? – the answer is YES. In considering either the historical increases in the levels of health spending in the province or these expenditures as a share of total economic activity or of total provincial spending, there should be concern over the future sustainability of the health care system.

To this point we have considered how our current system has fared historically with changes in both the primary and secondary drivers to health expenditures. The following sections consider two projections of change in health spending: one driven solely by the primary drivers, and another by both the primary and secondary drivers. Both are measured against a projection of long-run growth in the provincial economy in order to answer the two remaining questions posed in the introduction: *Will our health care system be able to cope with the significant demographic changes we will face over the next three decades?* and *Can our health care system cope with spending increases not associated with demography or general price inflation?*

In order to assess the future sustainability of the health care system in British Columbia, it is necessary to establish a benchmark against which sustainability can be measured. In this context, to state that the goal is to maintain what we have today seems appropriate: a portable, universal, comprehensive, accessible, and publicly-administered health care system with essentially the same quality and level of service that currently prevails, and that requires essentially the same level of resources from the provincial economy to deliver those goods and services.

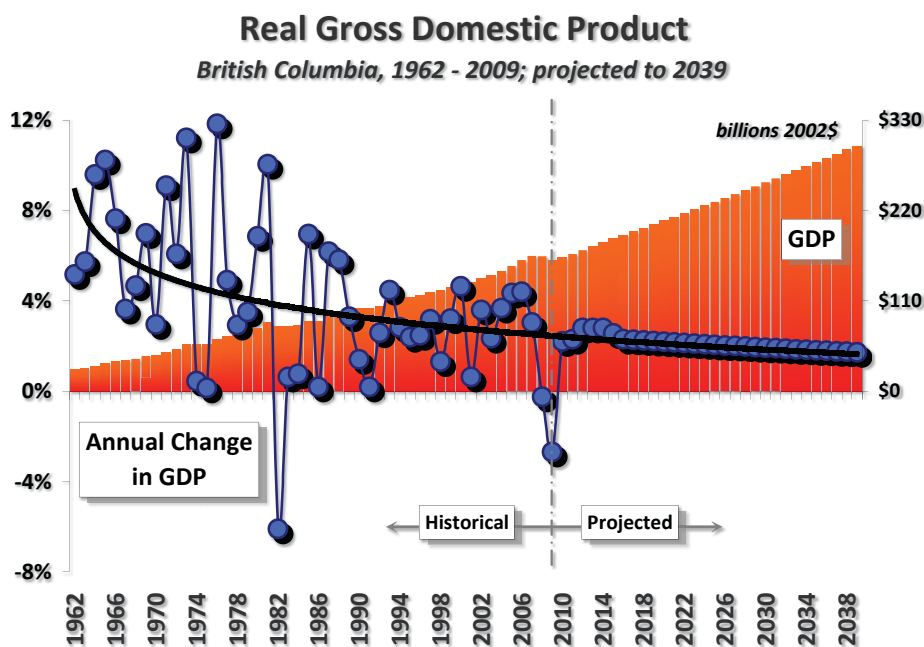
Where We Are Going: The Future of Provincial Government Health Spending

The sustainability of our current health care system will rely on the interplay between the factors that drive increases in spending and the support for this spending provided by a growing economy. As the source of funding for provincial government health spending is the economy, projections of where we are going should start with an outlook for the provincial economy. Building on this foundation, the next step is to determine how the primary drivers will shape demand for health services, thereby measuring the ability of the economy to sustain increases in provincial government health spending due to a growing and changing population in the province. The next step is to consider the ability of the economy to accommodate additional spending resulting from the secondary drivers. With data on provincial government health expenditures that extend back three decades, in this section we look forward over a corresponding three-decade period to consider the sustainability of our current health care system under each of these two scenarios.

Before considering the scenarios, the first section of the report considered the historical impact of general inflation on health spending. In considering the historical contribution of inflation, and specifically the relationship between inflation in consumer prices and inflation in the economy as a whole, real provincial government health spending (health spending net of inflation in consumer prices) was compared to real GDP (nominal GDP adjusted for inflation in consumer and producer prices using the GDP deflator). This showed that while year to year variances were seen, overall real provincial government health spending as a share of real GDP was essentially the same in level and pattern of change when compared to nominal provincial government health spending and nominal GDP. For example, in 1979 the health expenditures share of GDP adjusted for inflation was 5.2 percent (compared to 4.7 percent on a nominal basis) and in 2009 the share adjusted for inflation was 8.7 percent compared to the nominal 8.2 percent. Thus inflation in consumer prices and in the economy as a whole generally track each other. Given this, and in order to assess the real drivers to future spending increases and our ability to generate real resources to pay for health care, the report largely focuses on inflation-adjusted, or real, spending and GDP measures.

The Long Run Economic Future

Figure 5



In order to prepare a long run projection of British Columbia's GDP, a number of economic trends were considered. For the near-term however, annual projections of real GDP growth to 2014 are published by the British Columbia Ministry of Finance. The Ministry of Finance expects that after a contraction of almost three percent in 2009, real GDP growth in the range of 2.2 percent will characterize 2010 and 2011, with growth increasing into the range of 2.8 percent annually between 2012 and 2014. For the longer run, no formal projections exist for real growth in the provincial economy. Therefore, as a starting point, a trend line was fitted to historical data on change in real GDP from 1962 to 2009. These long-term

data clearly show a historical pattern of slowing growth in BC's GDP over the past half-century (Figure 5).

Further to this long-run historical trend, the projected slowing of growth in the provincial labour force which will occur with the aging of the baby boom cohort as it reaches retirement over the next three decades was also considered. Projected annual growth in the provincial labour force falling to one percent over the next three decades would logically see the labour supply contribution to real GDP fall within this range, with any growth above this level being driven by increasing productivity.

On the basis of these trends, long-range real annual growth of the economy is projected to continue to slow along its historical trend line, reaching an average of two percent by the end of this decade and 1.7 percent by the end of the projection period, moving towards levels of annual growth expected in the labour force. This would result in an 87 percent increase in real GDP over the next three decades, growing from 2009's \$159.8 billion to \$298.6 billion by 2039 (Figure 5).

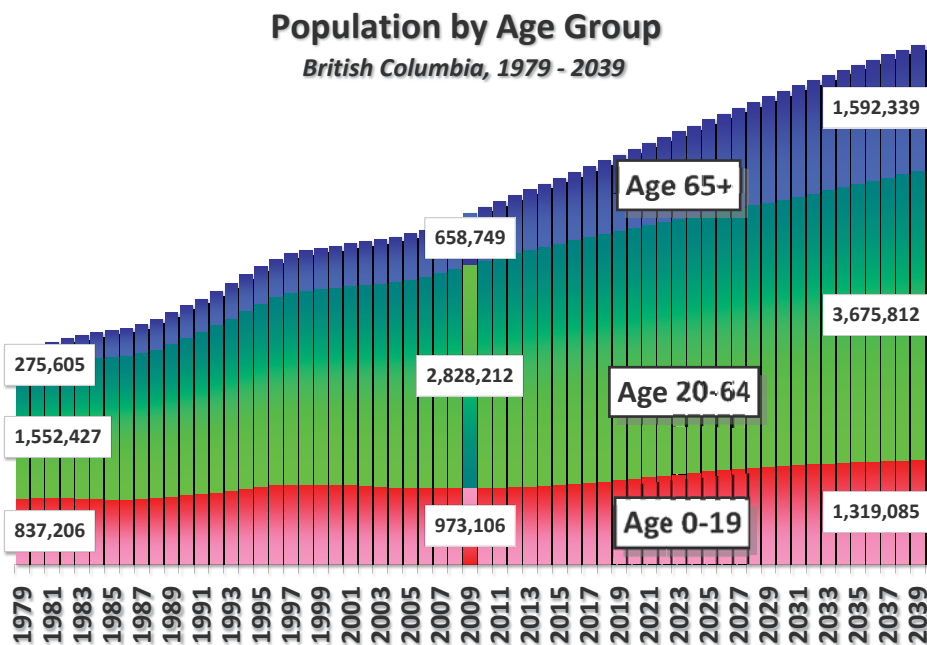
In establishing this long run projection, it should be noted that even with increased net migration to the province and increased labour force participation, the provincial labour force is projected to increase by only 39 percent over the next three decades compared to growth of 90 percent over the past three. Significant constraints to economic growth may be presented by our changing demography and the lack of substantial productivity gains that have characterized our recent history.

With this projection describing the scale of economic activity, and thus the available resources, to be drawn upon to pay for future provincial government health spending, the next step in the analysis is to measure the demands on this economic activity that will arise from projections of provincial health spending.

The Contribution of Primary Drivers to Health Spending

Within the context of this paper, the first driver of future provincial government health spending to consider is how our changing demography will change future levels of health spending – including changes in both the size and the age composition of BC's population over the next three decades. Projections for the province's population shows that while growth will be more moderate during the next three decades than

Figure 6



over the past three, change will be a more defining feature of the population.

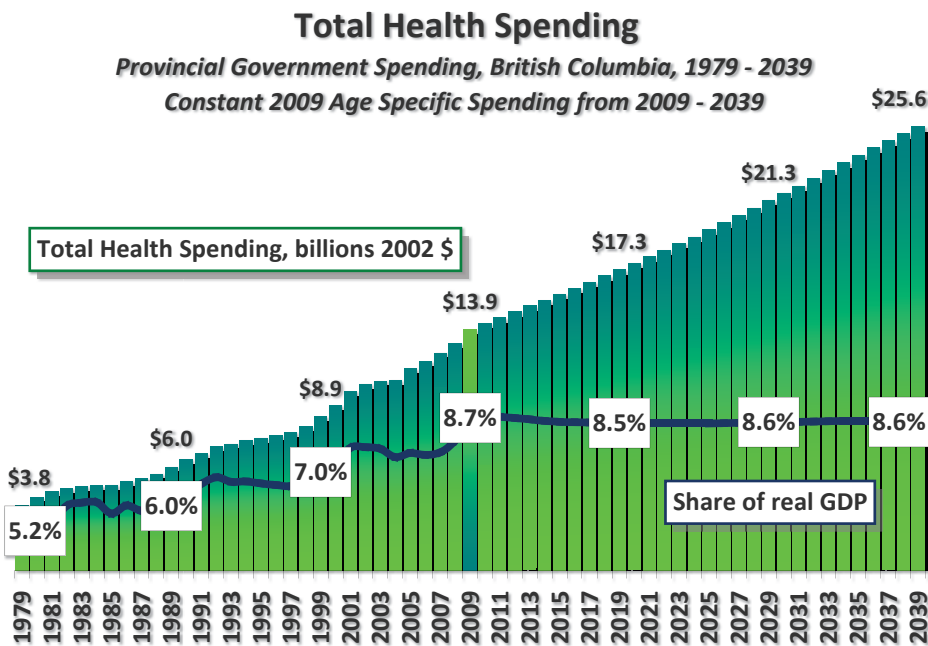
For example, while BC's population is projected to increase by 2.1 million people over the next three decades, growing by 48 percent from its 2009 base of 4.5 million to 6.6 million in 2039, the highest growth rates will be in older age groups: relative to total population growth of 48 percent, the 65-plus age group is projected to grow by 132 percent (Figure 6). Conversely, the working-aged population (20 to 64) is projected to grow by only 30 percent over the same period, and the 0 to 19 age group by 36 percent. In addition to the greatest relative increases being in the older age groups, they will

also contribute the greatest absolute number of residents: 933,590 more people 65 and older by 2039 accounts for almost 45 percent of the 2.1 million additional residents expected to call BC home over the next three decades. This concentration of growth in the older age groups is in large part the result of the thirty percent of the province's current residents – the post-war baby boom generation aged 45 to 64 today - aging into the 65-plus age groups over the next three decades.

As was done in considering the historical drivers to health spending, the future consequences of this population growth and change for provincial government health spending can be measured by holding the current age specific per capita provincial government health spending constant over the next three decades and applying the age specific spending to projected changes in the province's future population. Holding age specific health spending constant at current levels focuses the projection of health spending on the component that will be driven by demographic change alone.

Holding health spending constant at 2009's age specific levels (based in 2002 dollars) would see real provincial government health spending grow from 2009's \$13.9 billion to \$17.3 billion by 2019, \$21.3 billion by 2029, and \$25.6 billion by 2039 (Figure 6). This overall increase of 84 percent, or \$11.7 billion,

Figure 7



would result from an increase of 48 percent due to the overall growth of the population and an additional increase of 36 percent due to changes in its age composition (or a 57 percent share of total health spending growth due to population growth and 43 percent due to aging).

In other words, an aging population means that provincial government health spending will continue to increase faster than the population as a whole, growing by 84 percent versus the projected 48 growth in population. By 2039, \$1.84 would need to be spent for every one dollar of real provincial government health spending today (2009). On a per capita basis, spending would increase from \$3,115 per person

today to \$3,883 by 2039, growing at an average rate of 0.7 percent per year.

While funding the almost \$12 billion growth in real provincial government health spending over the next three decades seems like a daunting task, this 84 percent increase is slightly less than the projected 87 percent increase in BC's real GDP between 2009 and 2039. This means that demographic change on its own would result in provincial government health spending remaining relatively constant as a share of economic activity, declining marginally from its current level of 8.7 percent to 8.5 percent by 2019 and back up slightly to 8.6 percent through to 2039.

This point is of fundamental importance and bears repeating: demographic change on its own would see total provincial government health spending remain relatively constant as a share of real GDP over the next three decades in BC. This also answers the second question posed in the introduction: our current health care system IS sustainable in the face of the significant demographic changes our population will experience over the next three decades. If our economy follows its historical trends in growth, averaging

increases of just under two percent per year over the longer-term, demographic change will not cause provincial government health spending to crowd out other economic activity, nor will it become so expensive relative to our ability to pay as to not be sustainable in its current form. So while we must still be prepared for total provincial government health expenditures to increase by almost \$12 billion by 2039, our current health care system is sustainable – if real age specific provincial government spending remains at today’s levels.

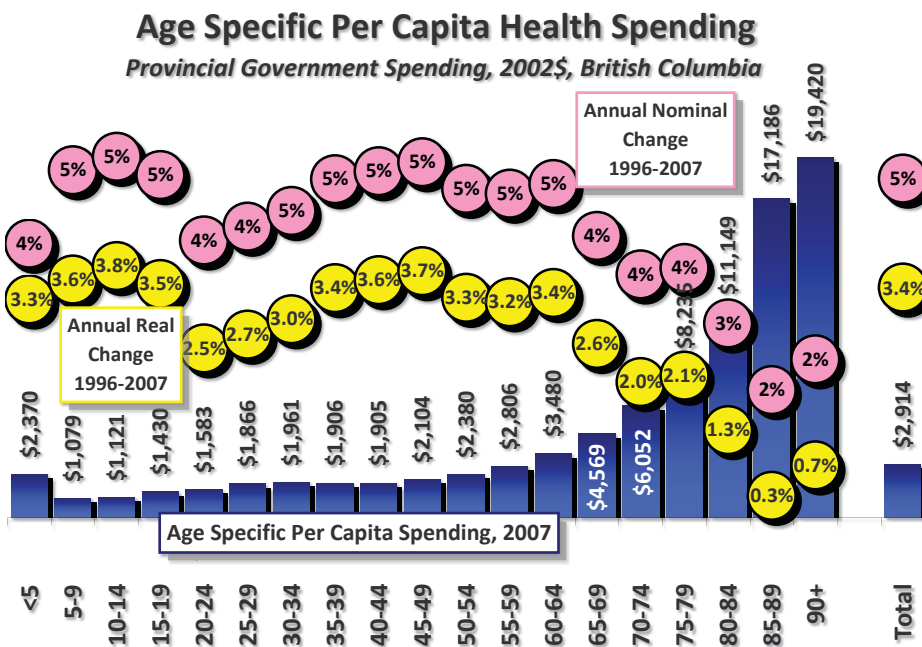
As indicated earlier, inflation in consumer prices and in the economy as a whole generally track each other so in accounting for price inflation and adjusting the projections of both health spending and GDP by the Bank of Canada’s two percent target for national inflation, essentially the same picture of provincial government health spending emerges: total health spending remaining relatively constant as a share of economic activity in the province. While nominal health spending in 2039 would increase to \$26.1 billion, total provincial GDP would increase to \$286.5 billion, resulting in total health expenditures as a share of GDP rising into the range of nine percent by 2039. Therefore, in terms of sustainability, as inflation in the overall economy moves with general inflation in prices, it is only inflation specific to provincial health spending above that of general price increases that is of concern in the discussion of sustainability.

While history indicates that the projected levels of real economic growth outlined above can reasonably be attained, and that the projected levels of population growth and change will likely occur, it does not indicate that age specific provincial government health spending will remain constant in the coming years, nor does it show that inflation specific to the health sector will be held at levels close to general price inflation. Thus, the next section considers the magnitude of change in total health spending we should expect if increases in these secondary drivers to health spending continue along their historical path, and the sustainability of the system if they do.

The Contribution of Secondary Drivers to Health Spending

In the earlier section on historical provincial government health spending it was shown that over the past decade the primary drivers to provincial government health spending (inflation, population growth, and population change) accounted for 59 percent of spending increases (22 percent from general price inflation and 37 percent from population growth and change), and the secondary drivers contributed

Figure 8



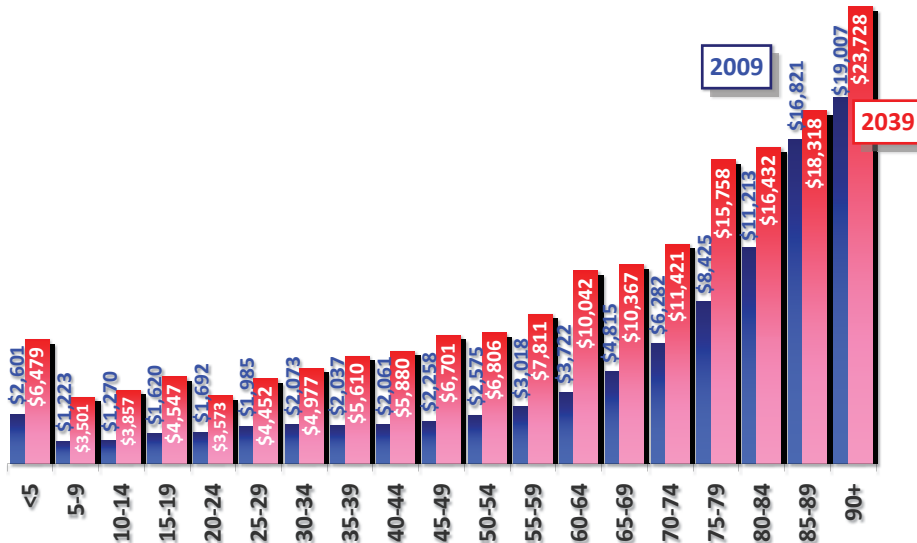
the remaining 41 percent. Given the demographic focus of the projections, the total contribution of these secondary drivers presented earlier needs to be considered on an age specific basis. The pattern of change in nominal and real per capita age specific health expenditures is shown in Figure 8, indicating that all age groups demonstrated average annual increases in spending that have exceeded inflation. Adjusting for inflation shows these increases ranged from the 0.3 percent per year in the 85 to 89 age group (versus a nominal increase of 1.9 percent) to just below four percent per year for the school-aged and 40 to 49 year old populations (where nominal increases were almost five and a half percent).

When these changes are examined on a year-over-year basis, no distinct pattern by age was seen, nor were there any large one-off increases that characterized any one particular period. This would indicate that the increases were not specific to one age group, nor were they the consequence of adjustments to spending or accounting practices. Rather, these increases are a recurring theme of annual age specific health spending growing faster than inflation. As noted earlier, it is not possible to determine the individual contribution that inflation specific to health spending, increased utilization of the health system, or the increased provision of health care goods and services have made to increases in total health spending. All that can be said is that real spending per capita has been increasing in every age group, and that these increases have historically been in excess of consumer price inflation.

With a trend towards increasing real age specific spending evident throughout the historical database, we can consider the consequences of continuing these trends on the age specific pattern of health spending. In applying the historical average annual increases in real age specific spending to the current pattern and level of spending, the future age specific pattern that would result would be similar to the age specific pattern that prevails today, but at a higher level of real annual per capita expenditures (Figure 9). The historical pattern of change would see above-average real annual increases in the five to 19 and the 40 to 49 age groups, with increases in the 50 to 64 age groups and each of the higher-spending 65 to 79 age groups falling below the overall average rate of annual increase of three percent.

Figure 9

Age Specific Per Capita Health Spending
Provincial Government Spending, British Columbia, 2009 & 2039



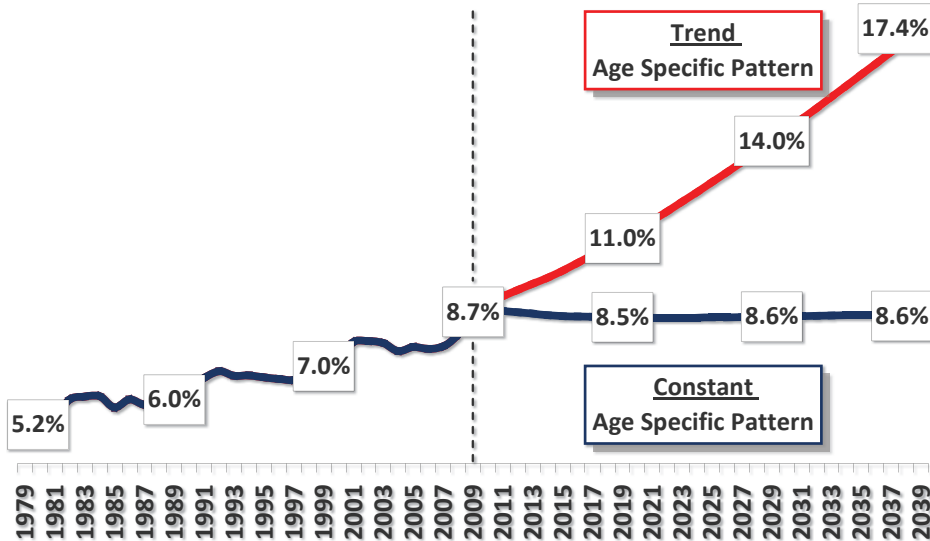
While growth in per capita spending for the older age groups is expected to be below average, it is important to note that they are expected to experience real spending increases of between two and just under three percent annually – bringing average annual per capita spending on residents over the age of 60 to between \$10,042 (60 to 64) and \$23,728 (aged 90 plus) by 2039.

Applying this pattern of annual increases in age specific provincial government health spending to the projection of BC’s changing demography results in total provincial government health spending increasing at an average annual rate of 4.5 percent over the next thirty years. By 2039, real provincial government health expenditures would increase by 275 percent, growing from \$13.9 billion in 2009 to \$22.3 billion by 2019, \$34.9 billion by 2029, and \$52.1 billion by 2039. Thus, following trends in increases in real per capita age specific health spending would mean an increase of \$38.2 billion in real provincial government health expenditures over the next three decades – more than three times the \$11.7 billion increase in health spending that would be seen if the current age specific pattern of spending is held constant.

For every dollar spent by the provincial government today on health, \$3.75 would need to be spent by 2039. This compares to the \$1.84 that would be spent by 2039 if no further per capita spending increases occurred. Under this trend-based scenario of increasing per capita spending, total per capita spending in BC would grow from \$3,115 in 2009 to \$7,909 by 2039, as it grows at an average annual rate of 3.2

Figure 10

Total Health Spending as a Share of Real GDP
Provincial Government Spending, British Columbia, 1979 - 2039



percent. This is more than four times greater than a future without increases to age specific spending.

Simply put, British Columbia’s health care system would NOT be sustainable under such conditions, as provincial government health spending would account for a rapidly-increasing share of economic output. With the economy growing at an average of just under two percent per year (to \$298.6 billion by 2039) and provincial government health spending growing at a rate of 4.5 percent per year, health spending as a share of BC’s real GDP would increase from 8.7 percent today to eleven percent by 2019, 14 percent by 2029, and 17.4 percent by 2039 (Figure 10). Under these conditions provincial government

health spending as a share of real GDP would more than double. The answer to our third question posed in the introduction – *Can our health care system cope with spending increases not associated with demography or general inflation?* – is therefore an unwavering NO as health spending as a share of total economic activity in the province would more than double.

While outside of our initial definition of sustainability for the future of BC’s health care system stated on page 13, the additional \$26.5 billion in provincial government spending on health between the two scenarios could actually be accommodated. It could be accommodated by funding acquired through increasing taxes, shifting spending from other provincial government budgets to health, or both. To fund through taxation the difference between a scenario of no increases in real per capita spending and one where age specific spending is allowed to increase along its historical path would require the equivalent of adding an annual real tax of more than \$7,600 to each person active in BC’s labour force by 2039. If funds were to come from crowding out of other sectors of government spending, the \$26.5 billion in increased spending between the two scenarios would require program cuts outside of health care that would be the equivalent of four times the value of current government spending on education (\$7.5 billion), eight times the level of current spending on Social Services (\$3.2 billion), or 30 times the current spending on transportation (\$848 million).

Strategic Considerations

This report has been written in light of the belief that with better information, better decisions can be made. The analysis shows that the health care system in British Columbia, in its current form, is sustainable: it can accommodate increases in spending due to general price inflation and due to our growing and changing population, given a reasonable level of economic growth. Contrary to the headlines, it will not be swamped by the aging of the post World War II baby boom into the higher health spending age groups.

The system cannot, however, sustain the continued rise in spending due to increasing utilization, redundancies and inefficiencies in health care provision, and inflation in prices specific to the health care sector. In light of this, discussions surrounding the sustainability of the system can move beyond the burden of an aging population on the system and focus on finding ways to curtail spending so that it does not continue to grow faster than general price inflation, population growth, and aging combined.

While written with the goal of providing better information, we also recognize that there has been a broad range of research and recommendations aimed at reforming the health care system over the past decade. From the federal Romanow Commission on the future of health in Canada and the Kirby Report on the federal government's role in the health of Canadians, to the Mazankowski report on health care in Alberta, few of them have met with success in managing spending, either in aggregate or relative to economic activity or total government spending. More recent examples show that efforts to mitigate increases in provincial government health spending are largely ad hoc and isolated, rather than coherent, comprehensive, or strategic.

For example, in the fall of 2009 BC's Minister of Finance announced that after seven years of unchanged fees, January 2010 would bring an increase in provincial Medical Services Plan (MSP) premiums. This is expected to result in annual increases in MSP premiums of six percent, which would be used to offset a portion of the expected increases in health care costs in the coming years. More recently the Minister also announced a "patient-centred" approach to health care funding and established a new Health Services Purchasing Organization that is in charge of administering \$250 million in additional funding to hospitals based on how efficiently particular services (or range of services) are provided. Commonly termed "pay for performance" in other jurisdictions, finding a means of increasing the efficiency of hospital operations is an absolute necessity given that spending on hospitals represents the largest share of provincial government health spending (35 percent of spending, or \$5.9 billion in 2009). That said, hospital efficiency is only one issue within a much larger health care system that needs to be considered.

Drugs, while representing a smaller proportion of total health spending than hospitals (seven percent of spending in BC), have been one of the fastest-growing sectors of health spending. Recognizing these rapid increases, the province of Ontario has taken a different approach to reform, focusing on placing a cap on drug spending. Their hospital approach has been to link the compensation of hospital CEOs to patient satisfaction and emergency room waiting times, and modify funding allocations to distribute more funds to hospitals who serve more rapidly-growing populations, or populations with a greater proportion of older residents.

Quebec has taken perhaps the most controversial approach in applying a \$25 user fee to doctor visits, shifting the focus from the operations of their health care system to how it is used by the residents of the province. Per-visit charges may help to rationalize the decision to go to the doctor for some, and thus help to control the contribution of increased per capita utilization to health care costs. Equally it may keep others outside the system – those who do not want to (or cannot) pay the user fee – resulting in an overall decline in health outcomes.

While the Standing Senate Committee on Social Affairs, Science and Technology, which authored the Kirby report in 2002, stated two broad objectives – to establish a concrete plan for action along with a specific revenue-raising plan – we must confront the reality that the current health care system is still just that, a system, with no explicit plan for the ongoing delivery of health care goods and services. Most importantly, there is no financial plan for delivering health care in the province. While there is much talk about the “portable, universal, comprehensive, accessible, and publicly-administered” elements of health care, there is virtually no discussion of the “effective, efficient and responsible” framework that is required in planning for the ongoing delivery of health care.

Just as we all must rationalize our own personal finances, the first step in developing a plan for sustaining our health care system is to require a match between our spending on health and our ability to pay for it. This can only be done by developing a financial plan that acknowledges the primary drivers that will set the future context for health spending: a growing and aging population, general price inflation, and reasonable expectations of a growing and changing economy. While there are many ways such a plan could be articulated, the most straightforward would be to start with the first projection of provincial government health spending presented in this report: holding age specific health spending constant at their 2009 levels, adding two percent per year for general price inflation and relating this spending to projected changes in the provinces’ population. This would establish an annual future budget for health spending in the province that recognizes that the province’s population will grow in the coming years, that it will get older, and that we will continue to see annual increases in the costs of providing goods and services in BC.

While this would be a step in the right direction, there is little point in establishing a plan if it is not going to be followed. Thus, having produced a future budget for the funding required to sustain population growth and change and general inflation, these future spending levels would need to be formalized in the form of annual sustainability budgets for health spending, subject only to annual updates in either the province’s population or expectations for general inflation. For such a sustainability budget to be effective, it would also have to be a long-term commitment, with the amount to be allocated to provincial government health spending over the next decade set equal to the required amount, in order to foster the culture of “effective, efficient and responsible” spending needed to sustain a “portable, universal, comprehensive, accessible, and publicly-administered” health care system.

Implementing such a sustainability plan for health care would require a significant cultural change – by all of us. From government in terms of how health care is managed, to the providers in terms of how health care goods and services are delivered, to the patients in terms of how they utilize the goods and services provided. But such cultural changes are difficult; we typically only change given sufficient information and incentives to do so, neither of which the current system imparts. Therefore, financial information about our health care system must be fully disclosed to all of us in a full, fair, and truthful fashion.

In addition to increased transparency, additional changes that would help this financial plan’s success would be a simplification of health care’s funding sources. The funding of the current system is done in such an indirect manner that a fundamental disconnect has developed between the costs of delivering and consuming health care (the expenditures) and paying for them (the revenues). While MSP premiums represent the most direct tie we have to funding the system, they only represent a small proportion of the total funds required by the system each year. The other sources include a complex system of taxes, royalties, fees and transfers administered by the federal and provincial governments.

On the consumer side, one approach to eliminating this financial disconnect would be to fund all provincial health spending through individual MSP payments. While this would increase the annual MSP premiums paid by individuals in the province, it would result in no additional increase in total taxation to

BC's residents, as the increase in MSP premiums would be completely offset by commensurate declines in all other taxes charged to people in the province.

In addition to recognizing the full cost of paying for health care in the province, residents might begin to appreciate the amount that was spent on them throughout the year as both premiums and details of actual spending could be included on the MSP bills. The MSP bills could also include a comparison of how one individual's actual spending compares to the average for everyone of a similar age in the province, with an eye to fostering healthier lifestyles. This may also provide a means to track the impacts of provincial government incentives to promote healthier lifestyles. Just as BC Hydro introduced its PowerSmart program to help reduce demand for energy by trading in old fridges and appliances rather than adding new generating capacity, personal health information and incentives will be a necessity in reducing demands on the overall health care system.

Health care providers must also have the necessary information and incentives required to make efficient, effective, and responsible decisions. In addition to knowing what future budget levels will be as per the provincial health sustainability budget, more information about the costs of delivering particular goods and services may also foster more efficient use of them. As a simple example, along with the product details, the cost of various health care supplies could be clearly indicated in hospital storage and supply rooms with the aim to encouraging more cost-efficient decision-making on the part of health care providers, something that can only be done if the providers are armed with the information they need to do so. On the incentive side, this could be broadened so that at the end of each fiscal year any savings realized through more cost-effective decision making could be equally split between the doctors, nurses and staff and the hospital. While the share to all workers could be delivered as performance bonuses for all staff (much as Ontario is compensating CEO's), the hospitals share could be rolled back into non-wage related operations of the hospital.

In addition to providing a greater degree of transparency about the individual and collective costs of delivering health care as a step to ensuring an "effective, efficient and responsible" health care system, incentives will be essential in rationalizing personal utilization of the system, and to encouraging the innovations required to improve the cost and quality of health care and its delivery. It is important to note that incentives should not be confused with disincentives: incentives that will work to sustain the health care system must be positive ways to reward individual health care providers and recipients for adapting in a way that improves health within the constraints of the resources our economy has to pay for care. This means shifting away from top-down regulation and programs, to bottom-up pragmatism. It means giving individual doctors and nurses rewards for improving care in a more effective, efficient, and responsible way; individual hospital administrators and suppliers of medical goods rewards for finding better ways to do things at the same cost; and individual health care recipients rewards for improving their health in ways that will help to sustain the system.

A culture of sustainability in health care may well be enhanced by bringing everyone (government, providers and users) into a room together to collaboratively determine how to stay within budget while improving the quality of health care provision and use. Such actions will require everyone to make trade-offs and changes. Engaging everyone in the process would not only improve overall understanding, but it would also support the culture of health care sustainability.

As a final comment, it needs to be stated that our health care system is incredibly robust. It can continue to be all the things that we value about it even as our population grows and ages and general inflationary pressures continue because it will be supported by a growing economy. What cannot be sustained is a continuation of the unrestrained and unbudgeted increases in age specific per capita spending observed in the historical data. The real threat to health care sustainability does not come from factors that are

external to the health care system (general inflationary pressure, population growth, and aging), but rather from those within: increasing utilization, redundancies and inefficiencies in health care provision, and inflation in prices specific to the health care sector. Sustainability will require a financial plan, and an adherence to it, involving discipline, transparency, incentives, and innovation not observed in the past, but essential to the future.