



December 16, 2014

HEALTH POLICY

## An Aging Population Fiscal Challenge: Planning for Healthcare Costs in Quebec

by

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“Spending on health and social services between 2003-2004 and 2013-2014 . . . has risen by an average of 5.6% annually. Health spending is particularly sensitive to changes in the composition of the demand for services resulting from the aging of the population . . . Aging of the population accounts for almost one quarter of the increase in health spending over the last decade.”  
(Government of Quebec, *Budget 2014-2015: The Challenge of Quebec’s Public Finances*, p. 18)

The budgetary pressures from healthcare spending in Quebec and, in particular, the demographic contribution to these pressures have been a point of ongoing tension. For years, a debate has raged over the fiscal impact of demographic change – in particular, whether providing publicly funded healthcare to an aging population will financially stress governments. One camp has emphasized that aging itself adds no more than one percentage point to annual increases in health costs. Therefore, it argues there is no urgency for reforms to healthcare treatment or financing (Barer et al. 1995; Evans et al. 2001). If taxes are allowed to rise and provider compensation can be curbed, so goes the argument, the system is as sustainable as we want it to be.

The other camp has emphasized that a one-percentage-point annual increase is substantial, especially when it compounds over many years. Moreover, it is argued that aging will slow the

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This E-Brief is part of a provincial series profiling the fiscal challenge of aging and publicly funded healthcare in each province. We gratefully acknowledge the support of Alexandre Laurin in calculating program costs and thank members of the C.D. Howe Institute’s Health Policy Council for comments on earlier drafts. However, we alone are responsible for any errors and the conclusions.

growth of the tax base, potentially compromising healthcare as well as other major programs, along with tax rates and debt control (Robson 2001, 2007, 2010; Drummond and Burleton 2010; Dodge and Dion 2011; and Emery et al. 2012). While this camp might concede that glaciers move slowly, it would emphasize their formidable impact when they arrive. So it tends to urge major reforms to healthcare delivery and financing to mitigate an otherwise painful looming collision between demographically sensitive programs and other fiscal priorities.

While the debate has raged, publicly funded healthcare in Quebec has risen from 7.2 percent of provincial GDP in 1991 to about 8.3 percent in 2014. At the same time, it has risen from 33 percent of the provincial government's program spending to about 35 percent in 2014. Whatever the precise impact of aging and its interactions with changes in treatment, publicly funded healthcare's claim on Quebec resources has increased. The above budget quotation highlights the dilemma facing the government. How badly will demography stress Quebec's budget in the future?

### Mapping Today's Spending onto Tomorrow's Population

We approach that question for the next 50-year period with a well-known, straightforward approach. We project Quebec's population growth using the following middle-of-the-road assumptions: a fertility rate stable at the 2011 provincial level; longevity rising in line with Statistics Canada's "medium" improvement scenario; net out-migration to other provinces falling to zero over 10 years and net international in-migration continuing at a rate equivalent to the 1991-to-2013 average.

We then multiply the potential workforce, which we define as Quebecers aged 18 to 64, by an index of output per potential worker. This index increases by 1.2 percent annually, the rate recorded by the equivalent national measure from 1991 to 2013. These calculations provide our model with projections of Quebec's real provincial gross domestic product (GDP), which we convert to nominal dollars. (Nominal provincial GDP is real GDP multiplied by the same 2 percent inflation rate we assume will prevail nationally.)

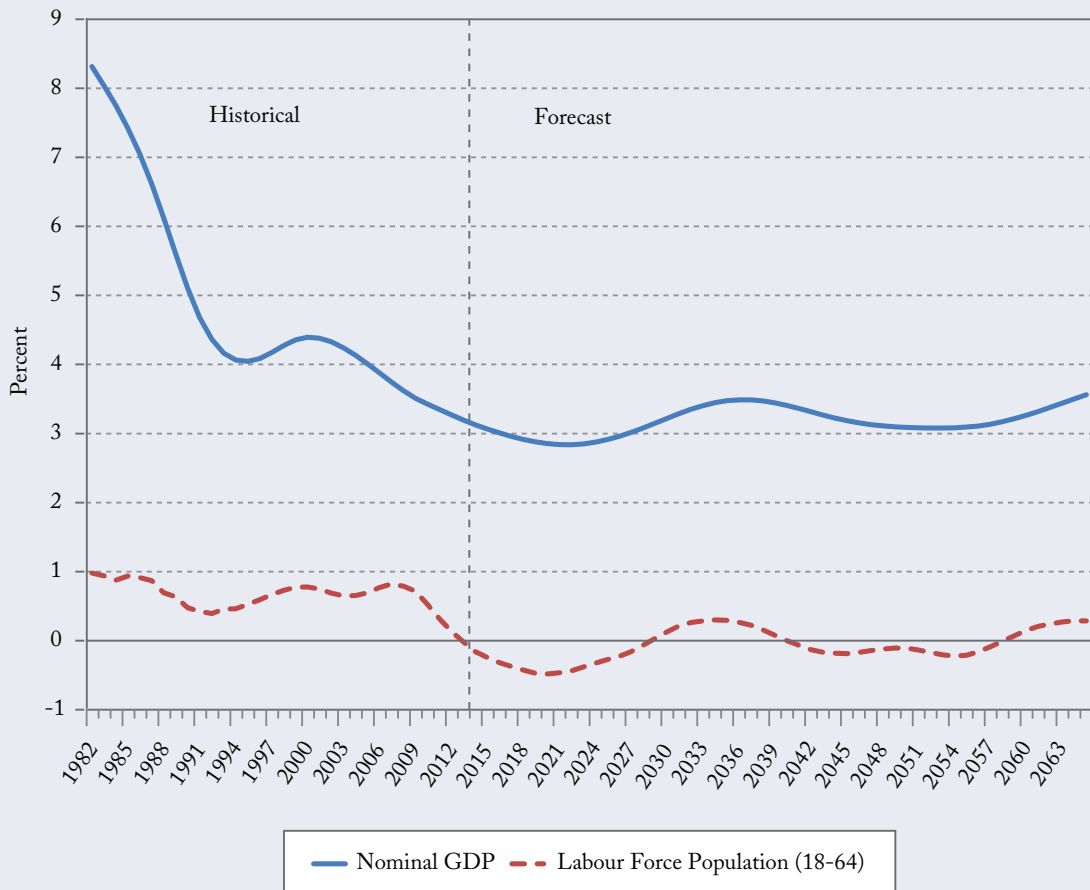
The impact of aging on future workforce growth and GDP often gets little attention in the healthcare spending debate. But they are set to grow much more slowly than they have over the past few decades (Figure 1). Hence, Quebec's tax base will grow more slowly than in prior years and further reduce Quebec's ability to accommodate the growth in healthcare costs.

Turning to the cost pressures on healthcare, we project provincial healthcare spending for each sex in 20 age groups across six types of spending. Per-person expenditure for each of these groups grows according to a measure of volume of services delivered and a cost index. The volume measure – an index of service intensity – represents spending on all services provided to a person by the publicly funded healthcare system, adjusted to remove the effects of inflation. Our base numbers for these per-person numbers are the Canadian Institute of Health Information's (CIHI) figures for 2012, pro-rated to match recent actual totals.<sup>1</sup>

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1 For our projections, we use CIHI data for spending by age and sex and by health category for 2010, and then adjust the 2011 and 2012 estimates to correspond with the actual and projected health spending results using public accounts and budget documents. This estimation method yields a similar increase to the CIHI estimates in spending for 2011 and a larger increase for 2012. Relative to the CIHI figure, total health spending in Quebec was \$13 million higher in 2012.

Figure 1: Annual Growth in Quebec’s Labour Force and GDP, 1982-2064



Note: GDP and Labour Force Population data have been smoothed to reduce the effects of short-term fluctuations in the historical data.

Source: Authors’ calculations as described in text.

Looking forward, we assume that service intensity per person will rise at the same rate as real output per potential worker – 1.2 percent annually. In terms of cost increases, the government consumption price index nationwide from 1991 to 2012 recorded annual growth at 2.5 percent annually – 0.5 of a percentage point above overall inflation.

The last few years have seen a decline in health-cost inflation, along with lower increases in overall health spending. We hesitate to project more recent moderate rates indefinitely, recalling the 1990s when a period of restraint was followed by resumed rapid growth. So we project healthcare cost inflation at 1.3 percent through 2020, followed by a slow return to the historical margin over economy-wide inflation.

Because demography also affects other Quebec programs, we use similar methods – indexes of service intensity in the case of education and an index of transfers for child/family benefits – multiplied by relevant populations and price indexes to project future spending in these areas (Box 1 spells out our approaches for

health and these other programs in more detail). In this way, we can see whether these programs offset, or exacerbate, any fiscal challenge presented by healthcare.

### Quebec's Outlook: Trends and Implicit Liability

Our projections show Quebec's public healthcare spending rising from 8.3 percent of provincial GDP this year to 12.2 percent in 2035 and to 16.2 percent in 2064. Taking account of other demographically sensitive programs does not change the prospect of fiscal stress. The government can expect to spend a declining share of GDP on child/family benefits, thanks to a shrinking population of children relative to the working-age population. In education, however, the cost of labour-intensive services more than offsets the demographic effect, pushing up the share of GDP devoted to these programs.

As a result, the GDP share of all these programs rises from 15.2 percent to 25.1 percent over the 50-year period (Figure 2). For Quebec to meet these demands from its own revenue sources would require its tax bite from Quebecers' incomes to increase by more than half.

As the budget quotation highlights, the Quebec government is not signalling reductions to healthcare. These political understandings – the same package of benefits as enjoyed now, at roughly the same tax burden – create an implicit liability on the Quebec's government balance sheet, because meeting the healthcare commitment will require it to tax a higher share of provincial income in the future.<sup>2</sup>

One way to quantify this looming liability is to calculate the present value of changes in these programs' claims on GDP over the next half-century. Discounting the cumulative increase in the province's average tax take from its current level by the yield on provincial long-term bonds,<sup>3</sup> the province's implicit total social program liability amounts to \$807 billion, nearly all of which (\$682 billion or 85 percent) relates to healthcare (see Table 1).<sup>4</sup> In other words, to cover the additional 50-year cost of these programs, the province would need about \$800 billion in assets yielding income at the same rate as its long-term bonds. That figure is almost 220 percent of provincial GDP, or nearly \$100,000 per Quebecer.

### Policy Pressures and Responses

Such a huge funding gap, implying a massive increase in provincial taxation, strengthens the case for continuing value-for-money improvements to Quebec's healthcare system. Simple compression of compensation to providers of government services will not counteract pressures this large. So, what other moves make sense?

2 The parallel with explicit liabilities is straightforward: if Quebec decides to cover the higher program costs by borrowing rather than raising its aggregate tax rate, the implicit liability would, over time, become higher public debt.

3 We use a nominal discount rate of 3.5 percent to discount future nominal costs.

4 As we explain in Box 1, the labour-intensiveness of healthcare (and education) services provides some justification for linking service intensity to economy-wide productivity. The assumption that both grow together is clearly critical to our baseline results. Should Quebec manage to constrain growth in service intensity to 0.7 percent annually, instead of 1.2 percent as assumed, demographically sensitive spending would be 22.3 percent of GDP in 2064 and the unfunded liability would be \$668 billion. Historically, service intensity has tended to outpace productivity: if it grew 0.5 percentage points – 1.7 percent annually – demographically sensitive spending would be 31.1 percent of GDP in 2064 and the unfunded liability would be nearly \$1.3 trillion.

## Box 1: Projecting Other Demographically Sensitive Program Costs

We use similar projection methods – multiplying relevant populations by program-specific indexes of service or transfer intensity – for all the programs we examine.\*

We assume that service intensity – the volume of services delivered per person in healthcare and education – rises at the same rate that output per person in the economy as a whole does. This assumption is not entirely arbitrary: absent good quantitative measures of quality of output, measures of activity in unpriced services such as health and education tend to be driven by inputs, and these are labour-intensive activities in which wages – which tend to rise with economy-wide productivity – are a key input. Historically, service intensity has grown at annual rates above the 1.2 percent we assume, and faster than productivity growth. We prefer to link them in our main projection in order to ensure that trends upward or downward in the shares of health and education spending in GDP are not a function of different assumptions about service intensity on the one hand, and productivity growth on the other, but rather products of demographic change and cost inflation in government consumption compared to cost inflation elsewhere.

Our index of transfer intensity for child and family benefits does not change over time: we assume that the real value of transfers per person in the relevant age group is constant.

Further notes on the projections for programs other than health follow:

**Education:** Base-year provincial/local spending on elementary and secondary education is calculated using data from Statistics Canada's Summary of Public School Indicators for the Provinces and Territories, 2005/06 to 2009/10. Base-year spending on postsecondary education comes from Statistics Canada (CANSIM, table 385-0001). Provincial populations aged 4 to 17 and 18 to 24 drive provincial spending on elementary and secondary students respectively. We multiply these populations by our indexes of service intensity. The population under 17 drives the federal Canada Education Saving Grant, while the population aged 18 to 24 and service intensity drive federal grants to postsecondary students. We multiply these by an unchanging index of transfer intensity.

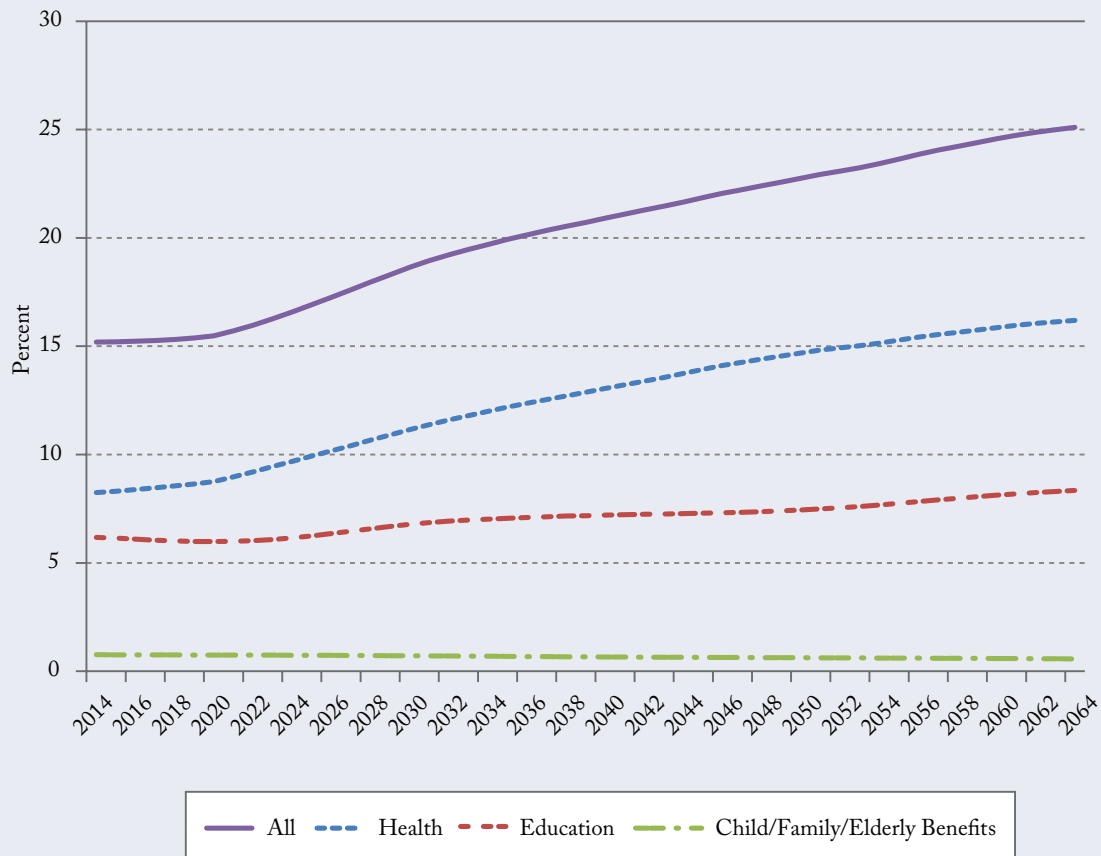
**Elderly benefits:** Base-year federal spending is from the public accounts; base-year provincial spending is from Statistics Canada's Social Policy Simulation Database and Model (SPSD/M), Release 21.0 (responsibility for use and interpretation rests with the authors). Provincial payments assume the same time-path of service or transfer intensity for provincial elderly populations.

**Child/family benefits:** Spending on the federal Universal Child Care Benefit varies with the national population of children to age 5; spending on other child-related benefits varies with relevant populations up to age 17. We assume unchanging indexes of transfer intensity. Federal family benefits delivered through the tax system, while indexed to inflation, are income-tested, so real income growth erodes their real value. SPSD/M simulations suggest that in the scenarios modeled here, these offsetting characteristics leave average nominal spending per child unchanged – an assumption that has also been made for (generally much smaller) provincial programs.

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\* For more background on the methodology used and the terminology see Robson (2002) and Drummond and Burleton (2010).

Figure 2: Quebec's Demographically Sensitive Programs as a Share of GDP, 2014-2064



Source: Authors' calculations as described in text.

### ***The False Hope of a Federal Bailout***

A regular theme in discussions of fiscal pressures affecting Canada's provinces is the role the federal government could – and, especially when the discussion is from premiers and other provincial officials, should – play in helping them out.

This prescription is suspect in principle. The provinces and territories tax essentially the same revenue bases as Ottawa: personal incomes, corporate profits and consumption spending. Much of the money the federal government already transfers to the provinces simply reflects differences in the degree to which the two levels of government tax these bases – which are a matter of history and politics, not logic or economics. If the federal government increased its transfers further, the fiscal imbalance – the degree to which Ottawa is a tax-and-transfer machine supplying the provinces with the revenues they could raise themselves to perform their constitutional functions – would simply get larger. Quebecers, like Canadians in other provinces, will be better able to hold their provincial government to account for the performance of publicly funded healthcare in Quebec if the province is raising, and is seen to be raising, more of the necessary funds itself.

Table 1: Quebec's Implicit Liabilities in a National Context

Demographically Sensitive Programs							
Region	Health	Education	Elderly Benefits	Child/ Family Benefits	All Programs	All Programs Relative to GDP (2014)	All Programs per Person
	\$ Billions					Percent	\$
BC	383.6	18.3	0.7	-1.2	401.4	171	87,029
AB	580.1	108.3	16.5	-0.6	704.3	204	171,999
SK	79.3	30.5	0.5	–	110.3	130	99,069
MB	90.6	27.4	0.0	0.0	118.0	189	92,775
ON	1,194.2	194.0	1.5	-6.4	1,383.3	195	101,265
<b>QC</b>	<b>681.9</b>	<b>139.6</b>	<b>–</b>	<b>-14.7</b>	<b>806.8</b>	<b>218</b>	<b>98,373</b>
NB	67.7	8.3	0.0	0.0	76.0	233	100,678
NS	89.1	9.3	–	0.0	98.4	247	104,814
PE	13.0	2.5	–	–	15.5	263	106,538
NL	65.1	7.4	0.0	0.9	73.4	201	140,209
YT	9.0	1.0	–	–	10.0	387	274,687
NWT	13.9	2.8	–	–	16.7	370	380,070
NU	13.9	3.1	–	–	17.0	681	464,111
Provincial	3,244.6	545.6	19.2	-22.0	3,787.4	197	107,200
Federal	0.0	-12.1	461.0	-21.1	427.8	22	12,100
Canada	3,281.4	540.4	480.2	-43.1	4,258.9	220	120,200

Source: Authors' calculations as described in text.

The lure of more federal funds is also open to a practical objection. Despite the premiers' complaints, the federal government's major continuing program transfers to the provinces – principally the Canada Health and Canada Social Transfer, and Equalization – have grown prodigiously over the past decade and a half. In dollar terms, they have more than tripled since the end of federal restraint in 1997/98, growing relative to the economy and even more when compared to other federal government programs. Indeed, Ottawa's cash transfers to Quebec have almost tripled over that period.

If more federal transfers were the answer to provincial fiscal woes, this money should have eased their plight. Yet aggregate provincial deficits are larger now than they were following the federal restraint of the late 1990s.

In fact, federal cash transfers to Quebec were \$6.5 billion in 1997/98, and the provincial deficit was \$2.1 billion. In 2013/14, federal transfers were \$18.8 billion, about three times greater, yet the provincial deficit nevertheless increased by some 50 percent to \$3.1 billion. A reasonable interpretation of that experience would be that the provinces responded to increases in federal money mainly by spending more, rather than by undertaking reforms that would let them provide more bang for the buck in their services, including healthcare, over the long term.

In Quebec's case, any hope of substantial increases in federal transfers is especially forlorn simply because the province is "too big to bail." As a scan of our results across the country in Table 1 reveals, similar – sometimes worse – pressures will afflict all jurisdictions. Since any increases in net federal transfers to Quebec would have to come at the expense of other provinces, it is hard to see such increases being economically or politically attractive. The pressure of healthcare spending on other programs and taxes is a problem Quebec should tackle on its own.

### ***The Case for Prefunding***

One way to mitigate the impact of rising costs in some healthcare services would be to follow the lead of the late-1990s reforms to the Quebec Pension Plan (QPP) that converted it from pay-as-you-go to a plan in which a portion of premiums collected from people today prefunded their future needs. Because Quebec has subsequently successfully amended the QPP to deal with adverse economic and demographic developments, this approach might be additionally attractive for having demonstrated its ability to cope with economic stress over time.

Some drug and long-term care services are like social security programs in that people can prepare for them by building a provident fund during their younger years. As the Clair Commission recommended more than a decade ago with respect to long-term care (Quebec 2000), Quebec could selectively prefund some of its pay-as-you-go programs, getting the babyboomers to share more of the costs that will otherwise fall on their declining numbers of children and grandchildren. Prefunding does not make sense for all the programs with threatened cost increases, but can spread more fairly over time the needed tax increases necessary for health services that, like pensions, are related to age.<sup>5</sup>

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5 Robson (2002) and Stabile and Greenblatt (2010) elaborate this idea for other provinces and programs. Busby and Robson (2011) explore the mechanics of pre-funding in more detail.



### ***Reducing Healthcare Spending's Sensitivity to Aging***

Unlike pensions, which are promises to pay dollars, healthcare promises services, the cost and quality of which change over time. The camp that says aging by itself is not a major problem has tended to emphasize that some factors that make per capita healthcare spending so strongly associated with age, such as high rates of hospitalization or use of certain drugs, may change over time (Evans et al. 2001). To the degree that healthcare spending is related to the end of life, the tendency of people to live longer, healthier lives could mean that future Quebecers' will incur inevitable higher healthcare costs at a later age than today, which would delay the demographic effects in our model.

Clearly, this is not a simple subject. As Felder (2013) points out, decisions to spend are at least partly driven by the life expectancy of the patient, so it is possible that a population that is living longer, healthier lives might encourage more spending on the "young elderly." Given the difficulty of making firm judgements in this area, we are driven to look at what has actually happened to the age profile of provincial healthcare spending in Quebec since CIHI's first data in 1998.

Comparing CIHI's first Quebec data in 1998 to the 2012 profile (Figure 3) reveals that the relative per capita amounts on the oldest age group (80 and up) fell over those 13 years. So a 1998 projection of the impact of demography on Quebec's healthcare spending by 2012 would have slightly overestimated total health costs.

One aspect of Quebec's healthcare bundle is particularly sensitive to the pressures of aging on costs: long-term care for the elderly. Well over one-half of the population will need continuing care support at one point in their lives – a proportion that jumps to almost three-quarters after age 65. But many citizens mistakenly believe that governments are going to cover most of their future long-term care costs. This is because public subsidies to long-term care in institutions or at home are generally opaque and misunderstood. The ambiguity of current public-private responsibilities for financing long-term care dampens private savings and pressures the public sphere to pick up the slack.

But an expanded public role here would heighten intergenerational equity concerns, which is why provincial authorities must clearly define the extent to which they will cover future costs. To minimize the connection between public health spending and aging, public subsidies for long-term care must be targeted to those without the means to pay for it. At the same time, the government should require that those who can afford it absorb a meaningful share of the cost. Doing so means setting, and publicizing, government subsidies clearly so that private options – increased savings and insurance – grow to complement public subsidies (Blomqvist and Busby 2014).

### ***Accessible Reforms and Benchmarking Best Practices***

Where might Quebec look in its search for yet more bang per healthcare buck? Among the areas that experts have identified as promising are:

- better integration of follow-up care for patients once they are discharged from hospital;
- establishment and expanded use of electronic health records that patients and their agents can access from different locations;
- renewed, determined effort at primary-care reform, financing primary care teams through a mixed capitation system that encourages patient mobility (Forget 2014);
- scope-of-practice changes that would allow providers such as pharmacists and nurse practitioners to offer services now delivered by more expensive alternatives;

Figure 3: Average Per Capita Health Spending by Age Group in Quebec, 1998 and 2012



Note: The vertical axes show nominal dollars for transparency's sake: these are the actual dollar figures from CIHI. We could have used constant dollars from either – or, indeed, any year – or index numbers, because this focus of this figure is the relative distribution of health spending by age in the two years. To facilitate comparison of the age-profiles of spending: we have set the vertical scales so roughly half the bars in each year are taller (or shorter) than their counterparts in the other.

Source: CIHI (2014).

- more use of clinical evidence to reduce variation in diagnostics and therapeutics use; and
- incentives for patients to take greater responsibility for maintaining their own health.

Turning to different delivery vehicles, Canada's provinces exhibit large spending differences in major categories that may yield insights. Quebec spends less per capita than any other province on total healthcare and, in particular, on physicians and “public health,” which includes food and drug safety, health inspections, health promotion activities and community mental health programs (Table 2 and Table 3). By contrast, Quebec spends more – and has been increasing spending faster – on “other institutions,” which include nursing and residential care homes.

These differences in spending are significant. Bringing nursing and residential home costs in line with the national average, for example, would lower Quebec's spending by some \$750 million annually. However,

Table 2: Real Per Capita Health Spending, By Use of Funds, Quebec vs. other Provinces

Region	Hospitals	Other Institutions	Physicians	Other Professionals	Drugs	Capital	Public Health	Admin	Other Health Spending	Total
<i>Per Capita Spending 2012 (in 2014 dollars)</i>										
BC	1,745	218	901	39	227	184	379	46	285	4,024
AB	2,101	395	952	59	341	217	265	39	178	4,546
SK	1,706	618	874	32	308	226	425	47	305	4,541
MB	1,950	638	832	28	271	234	292	47	363	4,654
ON	1,457	405	953	32	343	169	264	32	171	3,826
<b>QC</b>	<b>1,409</b>	<b>537</b>	<b>707</b>	<b>29</b>	<b>321</b>	<b>289</b>	<b>117</b>	<b>48</b>	<b>160</b>	<b>3,617</b>
NB	1,993	549	813	9	277	267	174	41	274	4,399
NS	1,790	681	813	14	300	334	119	105	182	4,340
PE	1,907	551	694	18	270	566	232	114	214	4,566
NL	2,350	781	867	21	299	359	189	72	364	5,302
CAN	1,627	446	876	34	316	222	245	44	203	4,013
<i>10 = lowest</i>										
QC's Rank	10	7	9	5	3	4	10	4	10	10

Notes: Spending figures from 2012 have been inflated using CIHI's Government Expenditure Implicit Price Index to their 2014 values. "Other professionals" include care primarily provided by dental and vision care professionals; "Other institutions" include nursing homes and residential care facilities; "Public Health" includes expenditures for items such as food and drug safety, health inspections, health promotion activities, community mental health programs, public health nursing, the prevention of spreading disease and health promotion.

Source: Canadian Institute for Health Information, 2014.

Quebec's overall relatively low healthcare spending may reflect the benefits of its heavier focus on care in institutions other than expensive hospitals. A more formal investigation of the costs and benefits of different modes of delivery in Quebec compared to other provinces will be helpful in giving Quebecers a better return on their healthcare spending.

## Closing Comments

Quebec's demographic situation, when coupled with a historical trend that saw major annual increases in health spending, means it must continue to focus hard on efficiencies in delivery and innovations in financing. Notwithstanding recent restraint, demographic change will stress Quebec's provincial budget in the decades ahead. The historical trajectory suggests large increases in the province's aggregate tax take over time. It also

Table 3: Real Annual Per Capita Spending Growth Rate (1991-2013), Quebec vs. other Provinces.

Region	Hospitals	Other Institutions	Physicians	Other Professionals	Drugs	Capital	Public Health	Admin	Other Health Spending	Total
<i>Real Annual Per Capita Spending Growth Rate (Percent)</i>										
BC	1.7	-2.1	1.3	-1.9	2.4	3.0	6.6	-1.7	4.3	1.7
AB	1.5	3.1	2.3	-3.5	4.1	2.8	2.7	0.4	0.9	1.9
SK	1.2	1.3	2.8	-3.5	2.6	-1.7	4.3	0.8	4.7	1.7
MB	1.2	2.0	3.3	-0.6	5.6	3.2	4.6	0.5	4.1	2.3
ON	0.6	2.3	1.4	-0.1	4.0	4.6	5.5	0.0	1.3	1.6
<b>QC</b>	<b>1.0</b>	<b>1.3</b>	<b>2.7</b>	<b>-1.6</b>	<b>4.4</b>	<b>5.8</b>	<b>1.4</b>	<b>-1.3</b>	<b>1.6</b>	<b>1.8</b>
NB	1.6	3.5	2.8	-2.8	2.7	-0.8	4.0	0.2	6.1	2.2
NS	0.8	6.3	3.5	-4.4	3.0	4.3	2.3	5.7	6.4	2.5
PE	2.1	2.5	3.0	-1.7	5.5	7.9	3.9	5.8	6.1	3.0
NL	2.3	3.7	4.1	0.6	4.7	10.5	4.9	2.8	7.4	3.5
CAN	1.1	1.6	2.0	-1.4	3.9	4.0	4.4	-0.3	2.5	1.8
<i>10 = lowest</i>										
QC's Rank	8	9	7	4	4	3	10	9	8	7

Notes: The growth rate is computed as a compound annual growth rate from three-year averages of expenditure around 1991 and 2013, where these expenditures have been inflated using CIHI's Government Expenditure Implicit Price Index. "Other professionals" include care primarily provided by dental and vision care professionals; "Other institutions" include nursing homes and residential care facilities; "Public Health" includes expenditures for items such as food and drug safety, health inspections, health promotion activities, community mental health programs, public health nursing, the prevention of spreading disease and health promotion.

Source: Canadian Institute for Health Information, 2014.

suggests that the province's implicit liability related to demographically sensitive programs is much larger than the provincial debt that has received so much attention. In the face of this challenge, selective prefunding and benchmarking against other provinces can help Quebec deliver high-quality healthcare in a sustainable fiscal framework for years to come.

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This E-Brief is a publication of the C.D. Howe Institute.

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