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HEALTH POLICY

Healthcare for an Aging Population: Prince Edward Island's \$14 Billion Healthcare Glacier

by

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"In 2007–2008, comparable health care expenditures stood at \$425 Million. Since then, these costs have grown 7 per cent annually... [S]tatus quo growth of 7 percent per year in health care spending is simply not an option. The more we spend on health, the less we are able to address the other needs of Islanders. This fiscal pressure must and will be addressed." *2012 Prince Edward Island Budget Address* (p. 8-9).

The pressure of healthcare programs on other priorities highlighted in Prince Edward Island's 2012 Budget Address will affect the province's fiscal position for years to come. A key force behind this pressure is demographic change: the fact – emphasized repeatedly in the Budget Address – that Islanders are, on average, getting older.

A central disagreement in the debate over healthcare's sustainability is whether providing publicly funded healthcare to an aging population will financially stress Canadian governments.

One camp has emphasized that aging itself adds no more than 1 percentage point to annual increases in health costs, and – drawing an analogy with a glacier rather than an avalanche – has argued that it creates no urgency around reforms to treatment or financing (Barer et al. 1995; Evans et al. 2001). If taxes can rise and curbing provider compensation can restrain costs, the system is, in a familiar phrase, as sustainable as Canadians want it to be.

This E-Brief is part of a series profiling the fiscal challenge of aging and publicly funded healthcare in each of Canada's provinces. We gratefully acknowledge the support of Alexandre Laurin in calculating program costs, and thank Don Drummond, Herb Emery, Livio Di Matteo, Seamus Hogan, Al O'Brien, Paul Kershaw, Stuart Langdon, Mel McMillan, Kevin Milligan, John Richards, an anonymous reviewer, our colleagues at the C.D. Howe Institute, and the members of the C.D. Howe Institute's Fiscal and Tax Competitiveness Council and Health Policy Council for comments on earlier drafts. We are responsible for any errors and the conclusions.

The other camp emphasizes that 1 percentage point annually is large when it compounds over many years – and, moreover, that aging will slow the growth of the tax base (Robson 2001, 2007, 2010; Drummond and Burleton 2010; Dodge and Dion 2011; and Emery et al. 2012). Glaciers may move slowly, but they transform a landscape. This view tends to see the current system as unsustainable, in the sense highlighted in the Island's 2012 Budget speech: that avoiding a painful collision between healthcare and priorities such as other key programs, manageable tax rates, and debt control will require major changes to healthcare financing and delivery.

While the debate has raged, publicly funded healthcare in Prince Edward Island has risen from 8.4 percent of provincial gross domestic product (GDP) in 1991 to about 11.2 percent in 2012. At the same time, it has risen from 29 percent of the provincial government's program spending in 1991 to about 40 percent in 2012, and its share of provincial own-source revenue – that is, taxes Prince Edward Island raises itself rather than funds transferred from Ottawa – has risen from 46 to around 67 percent. So, whatever the precise impact of aging and its interactions with changes in treatment, publicly funded healthcare's claim on Prince Edward Island's resources has increased. What might future budget speeches say about the challenge these pressures pose for Prince Edward Island's public finances?

Mapping Today's Spending onto Tomorrow's Population

We come at that question with a well-known, straightforward approach. We project Prince Edward Island's population using the following middle-of-the-road assumptions: a fertility rate stable at its 2010 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 its 1997–2011 average.

We then multiply the potential workforce, which we define as Islanders aged 18 to 64, by an index of output per potential worker – which grows at the rate recorded by the equivalent national measure from 1997 to 2011: 1.2 percent annually. This provides our model with projections of Prince Edward Island's real provincial GDP. Nominal provincial GDP is real GDP times the same 2 percent inflation rate we assume will prevail nationally.

Turning to the cost of demographically sensitive government programs, we project provincial spending on healthcare for 20 age groups of each sex across six types of spending. The per-person expenditures for each of these groups grow 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 figures for these per-person numbers are from the Canadian Institute of Health Information (CIHI) figures for 2010, pro-rated to match recent actual totals.¹ Looking forward, we assume that service intensity per person rises at the same rate as real output per potential worker – 1.2 percent annually (see Box 1). We also assume that costs rise at the pace recorded by the government consumption price index nationwide from 1997 to 2011 – 2.4 percent annually.²

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- 1 For our projections, we use the actual CIHI age and sex spending by health category for 2010, and prorate these amounts to correspond with the actual and projected health spending results using the most recent public accounts and budget documents, for 2011 and 2012. This method yields a larger increase in spending for 2011 than the CIHI estimates, and a smaller one in 2012, leaving our estimate of total health spending in 2012 some \$30 million smaller than the CIHI figure.
 - 2 During this period, the Bank of Canada targeted 2 percent inflation, and achieved an annual average increase in the consumer price index of exactly 2 percent. The overall price index for government consumption rose 2.4 percent annually over the same period. We assume the same margin will prevail in the future.

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 projections 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 the tendency for cost inflation in government consumption to outpace cost inflation elsewhere – an assumption that is explicit in our projections.

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 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 (federal): Base-year federal spending is from the public accounts. Our index of transfer intensity for federal seniors’ benefits is derived from the Office of the Chief Actuary’s projections of spending on Old Age Security, the Guaranteed Income Supplement, and Allowances per person aged 65 and up.

Child/family benefits (federal): Spending on the federal Universal Child Care Benefit varies with the national population of children to age 5; spending on other federal child-related benefits varies with relevant populations up to age 17. We assume unchanging nominal-dollar values for these (income-tested) transfers.

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

Another key program area affected by demography is education. We apply a similar method there: deriving per student costs for the elementary and secondary systems on one hand, and for tertiary students on the other, and projecting them forward using a common index of service intensity, similar to that in healthcare (Box 1 spells out our approaches in more detail). We can thus see whether education offsets, or exacerbates, any fiscal challenge presented by healthcare.

Prince Edward Island's Outlook: Trends and Implicit Liability

Our projections show the claim of Prince Edward Island's public healthcare spending on provincial GDP rising from 11.2 percent this year to 18.1 percent in 2035 and to 21.9 percent in 2062. Taking account of other demographically sensitive programs does not change the prospect of fiscal stress. Although the pressure of student numbers alone on education spending is not large, education is like healthcare in being labour-intensive, so the increase in service intensity produces a modest increase in the share of provincial GDP devoted to education as well. As a result, the share of both programs together in provincial GDP rises from 20.3 to 32.0 percent over the period (see Figure 1).

Another perspective on the fiscal pressure of rising healthcare costs is intergenerational: the liability implicit in a "pay-as-you-go" approach when a program's costs are not stable. A critical theme in Prince Edward Island's 2012 Budget Address was protecting healthcare – some enhancements, and certainly no cuts in services. While it did prefigure harmonization of the provincial sales tax with the federal Goods and Services Tax – a highly desirable move – the Budget Address did not prefigure any general rise in provincial tax rates. These political understandings create an implicit liability on the government's balance sheet, because meeting the healthcare-services commitment will require the government to tax a higher share of provincial income in the future.³

One way to quantify this liability is to calculate the present value of changes in these programs' claims on GDP over the next half-century, which is roughly the average life expectancy of the average Islander. Discounting the cumulative increase in the province's average tax take from its current level at the yield on government long-term bonds, the province's implicit liability amounts to \$15 billion, nearly all of which (\$14 billion) relates to healthcare (see Table 1).^{4, 5} In other words, to cover the additional cost of these programs over the next half-century without raising tax rates, Prince Edward Island would need about \$15 billion in assets yielding what Canadian long-term bonds do – about triple provincial GDP, and about \$99,000 per Islander.

Policy Pressures and Responses

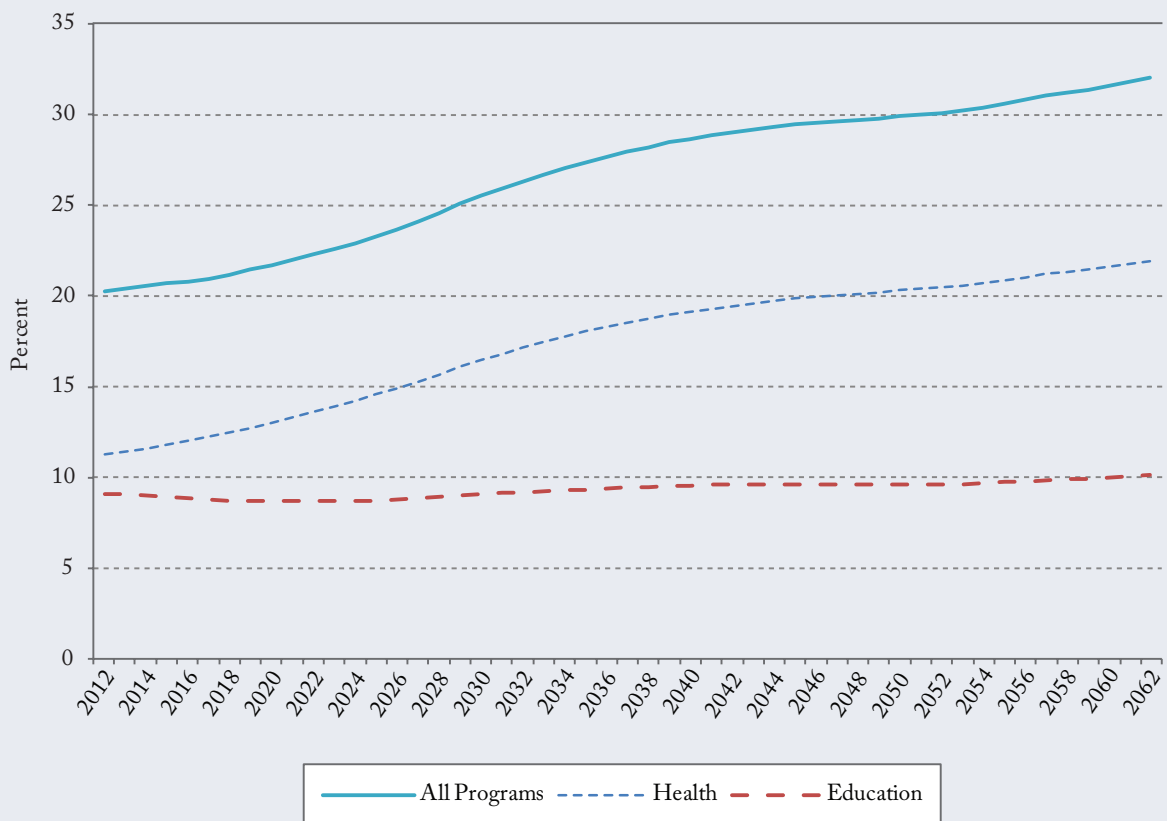
We see a funding gap this big, and the prospect of such a massive increase in provincial taxation, as strengthening the case for ambitious changes to Prince Edward Island's healthcare system. Federal-provincial

3 The parallel with explicit liabilities is straightforward: if Prince Edward Island decided 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.

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 results. Should Prince Edward Island manage to constrain growth in service intensity to 0.7 percent annually, instead of 1.2 percent as assumed, demographically sensitive spending would be 24.6 percent of GDP in 2062 and the unfunded liability would be \$7 billion. Historically, service intensity has tended to outpace productivity: if the province let it grow 0.5 percentage points faster than productivity – 1.7 percent annually – demographically sensitive spending would be 40.4 percent of GDP in 2062 and the unfunded liability would be \$23 billion.

5 This exceeds the \$12 billion calculated in Robson (2010) mainly because of the lower discount rate used in this study. We use the long-term Ontario bond for these calculations because a deep, liquid market makes yields readily available, and for the sake of using the same discount rate for all Canada's governments. Using federal government bond yields, which are lower than Ontario's, would produce larger liability figures; using Prince Edward Island-specific yields would produce smaller ones.

Figure 1: Prince Edward Island's Demographically Sensitive Programs as a Share of GDP, 2012–2062



Source: Authors' calculations as described in text.

transfers have historically been important to Prince Edward Island – and desire for more payments from Ottawa was another major theme of the 2012 Budget Address.

Scanning our results across the country in Table 1, however, shows that while the pressure will be particularly intense in the Island – where the ratio of implicit liability to GDP is relatively high – it will exist everywhere. So significantly larger net transfers from the federal government are unlikely. Prince Edward Island will have to deal with these pressures with tools it controls itself. What kinds of moves make sense?

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 Canada Pension Plan that converted it from pay-as-you-go to a partially funded state, in which a portion of premiums collected today prefunds the benefits of those same participants in the future. Some drug programs, and potentially long-term care as well, are like social security programs that many people will need, and can prepare for by building a provident fund during their younger years.

Table 1: Prince Edward Island's Demographically Sensitive Programs, Implicit Liabilities in a National Context

	Health	Education	Elderly Benefits	Child/ Family Benefits	All Programs	All Programs Relative to GDP (2012)	All Programs Per Person
	<i>\$ Billions</i>					<i>Percent</i>	<i>\$</i>
BC	415.2	6.4	0.4	(0.1)	421.9	192	91,474
AB	615.4	65.0	13.6	(0.8)	693.2	227	180,332
SK	82.0	15.3	0.3	-	97.6	131	91,897
MB	100.8	15.4	0.1	(0.1)	116.3	197	92,493
ON	1,398.3	89.8	2.4	(6.3)	1,484.2	223	109,920
QC	767.7	79.0	-	(17.3)	829.4	242	103,344
NB	78.2	5.5	0.4	(0.1)	84.0	266	111,745
NS	99.1	2.4	0.2	-	101.7	263	107,713
PE	14.0	0.6	-	-	14.5	269	99,244
NL	75.3	4.5	0.9	(0.1)	80.6	240	158,905
YK	9.0	0.6	-	-	9.5	369	263,744
NT	12.5	1.4	-	-	13.9	278	321,187
NU	13.8	1.6	-	-	15.4	801	457,690
All Provinces and Territories	3,681.3	287.3	18.3	(24.6)	3,962.3	222	113,935
Federal		(13.5)	424.7	(25.0)	386.2	22	11,105
CANADA	3,681.3	273.8	443.0	(49.6)	4,348.5	244	125,040

Source: Authors' calculations as described in text.

Like other provinces, Prince Edward Island could selectively convert pay-as-you-go programs so that the babyboom Islanders, rather than their inadequately numerous children and grandchildren, pay some of the higher costs that loom (Robson 2002; Stabile and Greenblatt 2010). Prefunding does not make sense for all the programs that threaten cost increases, but can spread the tax increases necessary for some health services that, like pensions, are geared to age more fairly over time.⁶

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), which could mitigate the demographic effects in our model.

While such changes are possible in the future, they do not appear to have had much impact on the age-profile of provincial healthcare spending in Prince Edward Island in the past. A comparison of the first year of health spending by age published by CIHI, 1998, to the latest data in 2010 shows little net change in the overall spending profile – a slight decline in relative per-person spending on the younger elderly on the one hand, but an increase in relative per-person spending on the older elderly on the other (see Figure 2). So a 1998 projection of the impact of demography on Prince Edward Island's healthcare spending by 2010 would have been pretty close to the mark.

Benchmarking Best Practices

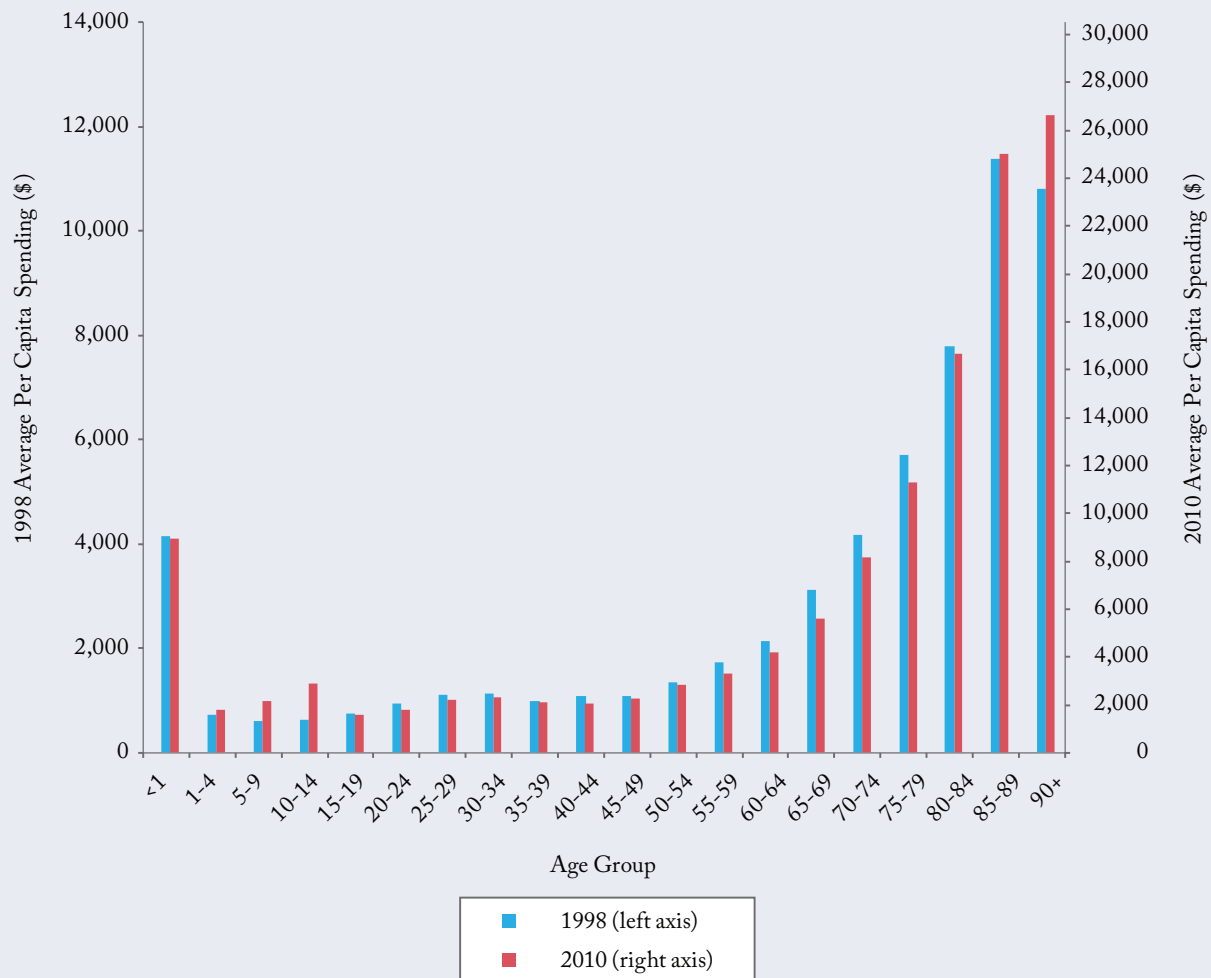
Where might Islanders look in search for yet more bang per healthcare buck? As in many other provinces, areas that commentators have identified as promising include:

- more coordinated team-based primary care, giving patients comprehensive non-acute services from practitioners such as doctors, nurses, dieticians, and physiotherapists;
- scope-of-practice changes to substitute services from such specialties as pharmacists and nurse practitioners for similar services provided by more expensive physicians;
- integration of follow-up care for patients once they are discharged from hospital;
- improvements in, and more use of, non-institutional care for seniors with chronic conditions – a key commitment in the province's 2012 Budget; and,
- the establishment of electronic health records.

Turning to different delivery vehicles, Canada's provinces exhibit large differences in spending in major categories that may yield insights and potential areas for provincial collaboration (see Table 2). At one end of the cost scale, Prince Edward Island spends less than most provinces on physicians and drugs. By contrast, Prince Edward Island spends much more on administration.

⁶ For a detailed exploration of prefunding and its mechanics, see Busby and Robson (2011).

Figure 2: Average Per Capita Health Spending By Age Group, Prince Edward Island, 1998 and 2010



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 the 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 (2012) and authors' calculations.

These differences are large. Having administrative costs in line with the national average, for example, would lower PEI's spending by some \$14 million annually. Perhaps Islanders get appropriately greater coordination in their care from their administration than other provinces do – but absent reliable calculations of the payoff from these expenditures, it seems reasonable to squeeze them to help shift dollars to areas where they will do more good.

Closing Comments

The 2012 Budget Address's observation that aging-related costs, and rising healthcare spending generally, threatens to crowd out other fiscal priorities, underlines the fact that demographic change is an unhelpful complication in Prince Edward Island's budgetary position. The current configuration of demographically sensitive spending threatens large increases in the province's aggregate tax take over time, and Prince Edward Island's implicit liability related to demographically sensitive programs is much larger than the provincial debt or deficit that regularly receives media attention.

In the face of this challenge, selective prefunding and benchmarking against other provinces that allocate their healthcare budgets differently are two steps that could help Prince Edward Island deliver high-quality healthcare in a sustainable fiscal framework.

Table 2: Real Percapita Health Spending, By Use of Funds, Prince Edward Island vs. Provinces, 2010

	Hospitals	Other Institutions	Physicians	Other Professionals	Drugs	Capital	Public Health	Admin	Other Health Spending	Total
<i>Per Capita (in 2012 \$)</i>										
BC	1,466	245	796	34	213	245	310	33	310	3,652
AB	2,109	403	905	57	323	311	285	60	202	4,655
SK	1,657	638	793	24	301	146	379	27	274	4,239
MB	1,799	595	783	24	250	167	271	45	329	4,264
ON	1,380	389	901	28	344	236	292	34	161	3,765
QC	1,392	531	653	24	316	220	122	59	150	3,468
NB	1,987	515	763	9	266	118	154	53	266	4,130
NS	1,789	624	767	13	344	157	143	98	170	4,105
PE	1,787	514	<u>733</u>	20	<u>260</u>	<u>271</u>	230	<u>141</u>	193	4,148
NL	2,352	763	810	16	276	296	171	63	202	4,948
CAN	1,545	436	815	30	310	233	248	47	198	3,861
<i>Real Per Capita Growth Rate 1991 to 2010 (percent)</i>										
BC	1.1	-1.5	1.2	-3.2	2.5	4.4	6.2	-2.4	4.8	1.5
AB	1.2	2.7	2.1	-3.6	4.4	6.3	5.1	3.2	2.2	2.2
SK	1.4	2.0	3.0	-4.2	3.7	-1.4	5.9	-1.1	5.1	2.1
MB	1.5	2.3	3.6	-1.0	6.3	1.6	5.3	0.9	4.7	2.5
ON	0.7	2.6	1.4	-1.3	4.7	6.9	6.9	0.8	1.0	1.9
QC	0.2	5.5	2.0	-3.5	5.2	5.3	3.0	-0.5	4.5	1.9
NB	2.0	3.3	3.1	-3.3	3.4	-0.7	4.6	1.8	6.5	2.6
NS	1.5	6.8	4.1	-4.6	4.6	3.0	3.5	7.1	7.3	3.0
PE	<u>1.5</u>	<u>2.1</u>	3.5	<u>-1.5</u>	<u>5.6</u>	<u>7.2</u>	<u>3.7</u>	<u>7.6</u>	5.0	<u>2.7</u>
NL	3.0	5.2	4.4	-2.4	5.4	10.2	5.8	4.1	3.7	4.0
CAN	0.8	2.9	1.9	-2.5	4.5	5.2	5.8	0.4	3.2	2.0
Blue (with underline): among lowest third; Red (with double underline): among highest third										
PE: Ranking Among Provinces (10 being the lowest; 1 being the highest)										
Per Capita Spending	5	3	7	9	2	8	9	2	8	7
Growth Rate	5	1	2	10	6	7	9	2	1	2

Notes: 2010 data are converted into 2012 dollars using the government current expenditure implicit price index. And because growth calculations are sensitive to the base year chosen, we took an average of the three years around 1991 and the two years prior to, and including, 2010 to smooth out the swings in the economy. "Other professionals" includes care primarily provided by dental and vision care professionals; "Other institutions" includes 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: CIHI (2012).

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