



January 6, 2015

HEALTH POLICY

Managing Healthcare for an Aging Population: The Fiscal Impact of New Brunswick's Demographic Glacier

by

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"New Brunswick's health care system represents about 40 per cent of the provincial budget. Growth in health expenditures had reached unsustainable levels, with annual increases in the six to eight per cent range." (2014-2015 Budget Speech, p. 14.)

New Brunswick – like all Canadian provinces – is grappling with a fiscal sustainability challenge in healthcare financing. Will the fiscal impact of demographic change – in particular, providing publicly funded healthcare to an aging population – further stress New Brunswick and other Canadian governments? That question has prompted years of debate. One camp, developing a theme that the pressures are a glacier rather than an avalanche, 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 significant 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 Canadians 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, aging will slow the growth of the tax base, potentially compromising healthcare as well as other major government programs, 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

This E-Brief is part of a provincial series profiling the fiscal challenge of aging and publicly funded healthcare in each province. It updates a previous series in 2013. 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.

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, the cost of publicly funded healthcare in New Brunswick has risen from 8.1 percent of provincial GDP in 1991 to about 9.6 percent in 2014. At the same time, it has risen from 30 percent of provincial program spending to about 43 percent. Meanwhile, its share of own-source revenue – that is, revenues the province raises itself rather than funds transferred from Ottawa – has jumped from 47 percent to about 66 percent.

Whatever the precise impact of aging and its interactions with changes in treatment, publicly funded healthcare's claim on provincial resources has increased. The New Brunswick 2014/15 budget highlights the ongoing effort to reduce health spending's growth rate. How might an aging population complicate that task in the future?

Mapping Today's Spending onto Tomorrow's Population

We project healthcare spending in New Brunswick over the next 50 years based on a well-known, straightforward approach. We forecast the province's population growth using the following middle-of-the-road assumptions: a fertility rate stable at its 2011 level; longevity rising in line with Statistics Canada's "medium" improvement scenario; net inter-provincial in-migration falling to zero over 10 years and international in-migration continuing at a rate equivalent to the 1991-to-2013 average.

We then multiply the potential workforce, which we define as New Brunswickers age 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 New Brunswick's real gross domestic product (GDP), which we convert into nominal dollars. (Nominal provincial GDP is real GDP times the same two 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, New Brunswick's tax base will grow more slowly than in prior years and will further reduce the ability of provincial finances to accommodate the growth in healthcare costs.

Turning to the cost pressures on healthcare, we project 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 figures for these per-person numbers are the Canadian Institute of Health Information (CIHI) figures for 2012, pro-rated to match recent actual totals.¹

1 For our projections, we use CIHI data for spending by age group from 2010-2012 to compute the three-year average share of the total spending for each group. We then use CIHI's 2013 and 2014 provincial spending forecasts and Statistics Canada's population data to compute per capita costs by age group, assuming that relative spending on each group will be similar.

Figure 1: Annual Growth in New Brunswick'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 (see Box 1 for more detail). In terms of cost increases, the government consumption price index nationwide from 1991 to 2012 recorded annual growth of 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 forecast 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 programs, we use similar methods – indexes of service intensity in the case of education and indexes of transfers for elderly and child/family benefits – multiplied by relevant

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. These are labour-intensive: 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 inflation elsewhere.

Our index of transfer intensity for 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. Because many of those programs are geared to income, and the Chief Actuary's model assumes that incomes rise over time, this index tends to fall somewhat in real terms.

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). As just noted, 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 provide estimates for other provincial programs.

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

populations and price indexes to project future spending in these areas (Box 1 also 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 healthcare presents to New Brunswick.

New Brunswick's Outlook: Trends and Implicit Liability

Our projections show New Brunswick's healthcare spending rising from 9.6 percent of provincial GDP this year to 15.5 percent in 2035 and to 20.9 percent in 2064. Taking account of other demographically sensitive programs does not change the message of fiscal stress.

New Brunswick spends very little on family programs, so the relative decline in its young population will not reduce spending by much. Seniors' benefits will grow slightly, although they, too, are small.

In education, rising service intensity more than offsets the declining number of students. As a result, the GDP share of all these programs rises from 16.3 percent to 29.7 percent over the 50-year period (Figure 2). For New Brunswick to meet these demands from its own revenue sources would require it to more than double the provincial tax bite.

The 2014 provincial budget emphasized maintaining services, but did not warn of future tax hikes to pay for them – and in that, it was consistent with other government messages. These political understandings create an implicit liability on the government's balance sheet, because meeting its healthcare commitment will require the government to tax a higher share of provincial income in the future.²

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,³ New Brunswick's implicit liability amounts to \$76 billion, nearly 90 percent of which (\$68 billion) relates to healthcare (see Table 1).⁴ In other words, to cover the additional 50-year cost of these programs, the province would need about \$76 billion in assets yielding income at the same rate as its long-term bonds. This figure is more than double the provincial GDP, or some \$100,000 per New Brunswicker.

Policy Pressures and Responses

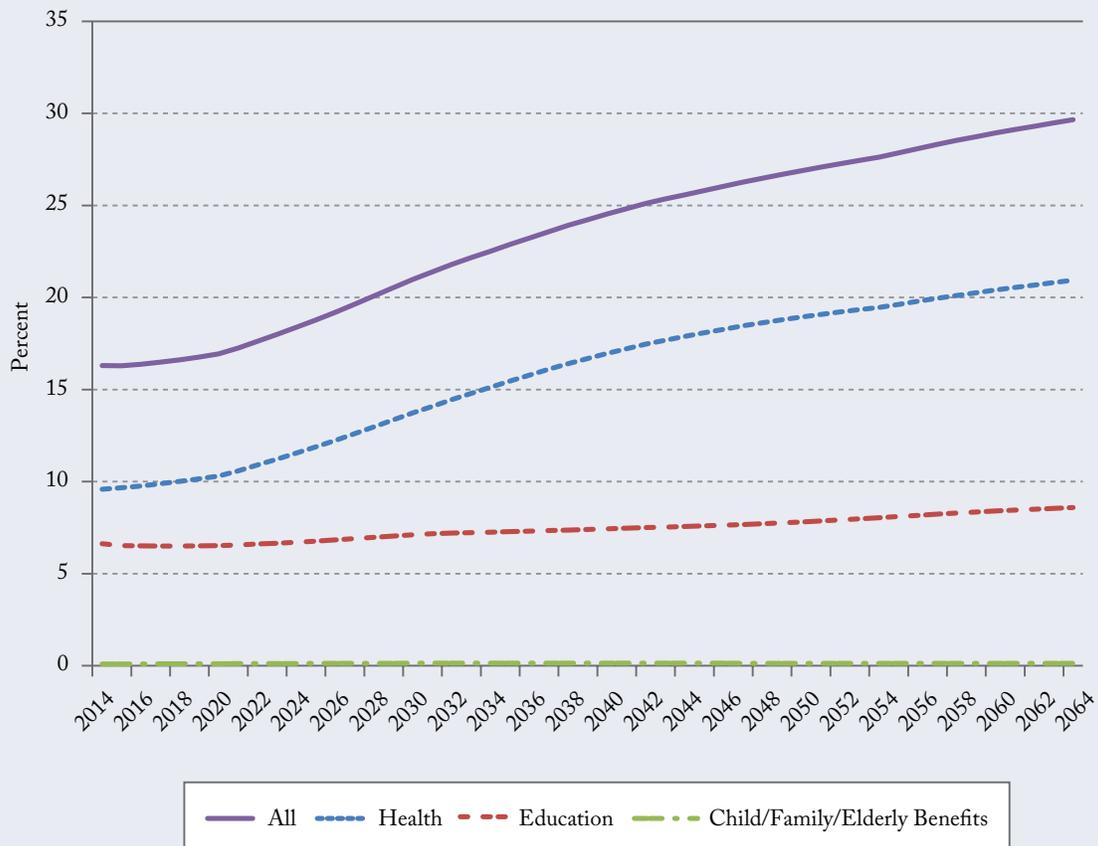
The debate over aging's impact on healthcare rages intensely partly because, implicitly and often explicitly, the two camps differ over the size and scope of changes needed in healthcare funding and delivery. Scanning our

2 The parallel with explicit liabilities is straightforward: if New Brunswick decides to cover higher program costs by borrowing rather than raising its aggregate tax rate, the implicit liability would, over time, become an explicit liability in the form of 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 results. Should New Brunswick manage to constrain growth in service intensity to 0.5 percentage points less than growth in productivity – 0.7 percent annually, rather than the 1.2 percent we assume in our projections – demographically sensitive spending would be 26.2 percent of GDP in 2064 and the unfunded liability today would be \$65 billion. Historically, service intensity has tended to outpace productivity: if New Brunswick let it grow 0.5 percentage point faster – 1.7 percent annually – demographically sensitive spending would be 37.7 percent of GDP in 2064 and the unfunded liability would be \$116 billion.

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



Source: Authors' calculations as described in text.

results for New Brunswick and other provinces in Table 1 suggests that similar pressure for change exists across Canada. While the stresses are likely to be particularly intense in New Brunswick, where the ratio of implicit liability to GDP is relatively high, the pressure elsewhere makes one response – higher transfers through the federal government – unlikely.

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 conversation is with 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

Table 1: New Brunswick'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
QC	681.9	139.6	–	-14.7	806.8	218	98,373
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	196	106,886
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	298	164,700

Source: Authors' calculations as described in text.

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. New Brunswickers, like Canadians in other provinces, will be better able to hold their provincial government to account for the performance of publicly funded healthcare if the province is raising, and is seen to be raising, more of the necessary funds itself.

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. Ottawa's cash transfers to New Brunswick have almost doubled 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 New Brunswick's case, federal cash transfers were \$1.7 billion in 1997/98, when the province just balanced its budget. In 2013/14, federal transfers were \$2.9 billion – up more than 70 percent– yet the province experienced a \$500 million deficit. A reasonable interpretation of that experience would be that the provinces, including New Brunswick, 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. The pressure of healthcare spending on other programs and taxes is a problem New Brunswick 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 Canada and Quebec Pension Plans, which converted them from pay-as-you-go to schemes in which a portion of premiums collected from people today prefund their future needs. Some programs, such as long-term care for the elderly, are like social security programs in that many people can prepare for predictable expenses by building a provident fund during their younger years.

New Brunswick could selectively convert pay-as-you-go programs so that the babyboomers, rather than depend on their declining number of children and grandchildren, pay some of the higher costs that loom (Robson 2002; Stabile and Greenblatt 2010). Prefunding does not make sense for all programs with threatened cost increases, but can spread more fairly over time the needed tax increases for some health services that, like pensions, are related to age.⁵

Reducing Healthcare Spending's Sensitivity to Aging

Unlike pensions, which are promises to pay dollars, healthcare promises services, the cost and quality of which are not fixed. The camp that says aging by itself is not a major problem has tended to emphasize that some factors that connect healthcare spending so strongly to age, such as high rates of hospitalization or use of certain drugs, may change over time (Evans et al. 2001).

5 Busby and Robson (2010) explore some prefunding possibilities and their mechanics in more detail.

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 New Brunswickers will incur inevitable higher healthcare costs at a later age, 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 judgments in this area, we are driven to look for any changes to the age profile of provincial healthcare spending in New Brunswick since CIHI’s first data in 1998.

Comparing the 1998 numbers to their 2012 counterparts (Figure 3) shows that the overall sensitivity of New Brunswick’s healthcare spending to aging had increased in 2012 relative to what it was 14 years earlier. So, a 1998 projection of the impact of demography on New Brunswick’s healthcare spending by 2012 would have understated the increase. Changes to give an aging population more value for the healthcare dollar in New Brunswick are possible, but will require conscious effort.

One aspect of New Brunswick’s healthcare bundle is particularly sensitive to the pressures of aging – 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 reduce 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 to absorb a meaningful share of the costs. 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

To go into detail in areas where New Brunswickers might look for more efficiency in its healthcare budget would take several additional studies. Particularly when caring for seniors, however, opportunities to get more bang per healthcare buck exist in New Brunswick as they do elsewhere. Among them:

- more coordinated team-based primary care, giving patients comprehensive non-acute services from a group of practitioners such as doctors, nurses, dieticians and physiotherapists;
- better use of information technology, particularly in coordinating patient continuing care;
- scope-of-practice changes that would allow less expensive providers such as pharmacists and nurse practitioners to offer services currently, and unnecessarily, performed by more expensive physicians;
- better follow-up care for patients discharged from hospital to cut down on complications and readmissions;
- incentives for patients to take greater responsibility for maintaining their own health; and
- more use of clinical evidence to reduce variation in diagnostics and therapeutics use.

Figure 3: Average Per Capita Health Spending by Age Group in New Brunswick, 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).

As well, Canada's provinces exhibit large differences in spending in major categories that may yield further insights (Table 2 and Table 3). New Brunswick spends less per capita than most provinces on physicians and other health professionals. By contrast, New Brunswick spends much more on hospitals.

These differences are large: if New Brunswick brought its hospital costs in line with the national average, for example, it would save \$330 million annually. Perhaps, New Brunswickers get appropriately greater value from their hospitals than other provinces do, but we do not know. More rigour in addressing that and related questions is clearly vital in the effort to limit the impact of healthcare spending on other fiscal priorities.

Table 2: Real Per Capita Health Spending, by Use of Funds, New Brunswick vs. Other Provinces, 2012

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
QC	1,409	537	707	29	321	289	117	48	160	3,617
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>										
NB's Rank	3	6	8	10	7	5	8	8	5	6

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.

Closing Comments

The challenge of quality, affordable healthcare for New Brunswick's seniors is not a small one. The current period of health spending restraint does not diminish the looming impact of demographic change on New Brunswick's provincial budget. New Brunswick's implicit liability related to demographically sensitive spending is much larger than the provincial debt and threatens a massive increase in the government's draw on income. Selective prefunding and benchmarking against other provinces' best practices can help New Brunswick deliver high-quality healthcare in a sustainable fiscal framework for years to come.

Table 3: Real Annual Per Capita Spending Growth Rate (1991-2013), New Brunswick 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
QC	1.0	1.3	2.7	-1.6	4.4	5.8	1.4	-1.3	1.6	1.8
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>										
NB's Rank	4	3	6	7	8	9	6	7	4	5

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" 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: Canadian Institute for Health Information, 2014.

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