



**HEALTH  
ASSOCIATION  
NOVA SCOTIA**

# A Comparison of Nova Scotia and British Columbia's Health Expenditures

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## Comparison of the Nova Scotia and British Columbia Public Healthcare Expenditures

### Key Messages

- The most recent spending estimates from CIHI indicate that there are marked differences between Nova Scotia and British Columbia, with NS spending substantially more in most categories with the exception of public health and capital.
- Within the context of this review, the scope will be limited to **Hospitals, Other Institutions, Drugs, Public Health, and Capital** for the following reasons.
- The main **cost drivers** in healthcare are increased *utilization* of services (e.g. drugs, specialists), *innovations* in medical science and technology, and *salaries* paid to healthcare providers. Demographics, on their own, account for a relatively small proportion of growth in health spending.
- Structural and organizational differences between NS and BC, such as number of health authorities, provision of shared services and integration of continuing care may also impact health spending
- Generally NS has an older and sicker population than BC and a less favorable socio-economic profile, thereby increasing demand for health services, influencing health spending.
- **Hospitals**
  - Wages, which are heavily influenced by collective agreements, account for 60% of hospital spending. Scope of practice of workers in hospital may also influence spending
  - BC implemented an alternative funding model for some of its hospitals in 2010. While outcomes have been favorable, the impact on overall hospital spending is still unclear.
- **Other Institutions**
  - Given the higher proportion of seniors in NS, it is not surprising that spending on other institutions is higher. This is reflected in NS's higher spending per resident day and greater number of paid hours per resident day.
  - Spending on other institutions is also influenced by HHR issues such as collective agreements and scope of practice. However, the regulation of paraprofessional staff which are more commonly found in long-term care settings, may vary between provinces, thereby impacting wages, scope of practice etc.
  - While home care does not fall into the "other institutions" category, it does have an impact on the demand for long-term care, as well as the case-mix of clients that access long-term care, as well as acute care length of stay.
- **Drugs**
  - Research suggests that the factor that accounts the most for variation in provincial drug spending is volume, which takes into account changes in utilization.
  - Nova Scotia's average annual growth in drug spending due to prescription size (which contributes to volume) was much higher than BC (2.9% and 0.2% respectively), which suggests NS has more short term prescriptions. This may be due to differences in prescribing practices or policies limiting the number of units per prescription.

- Both BC and NS have implemented 35% generic pricing policies within the last two years. However BC has recently introduced a 25% legislation cap.
- Both BC (in agreement with Alberta) and the DHAs and IWK in NS have signed on with a group purchasing organization which combines purchases of supplies, pharmaceuticals etc. The long-term impact of these policies in both provinces remains to be seen.
- **Capital**
  - Trend data indicates capital spending fluctuates annually for both provinces; however BC is always consistently higher than NS. This may represent investments in buildings, equipment and technologies that positively impact other health spending categories.
  - A further investigation of capital investments (e.g. beds, equipment, such as CT scanners etc., software etc.) and their impact for each of the provinces is warranted.
- **Public Health**
  - BC spends almost one and half times the amount that NS spends on public health. British Columbia citizens also report more favorable health behaviours and outcomes. However the relationship between public health spending and outcomes are unclear. For example, BC may have better health outcomes because of greater investment in public health initiatives, or because of more favorable socio-economic factors. Conversely, given Nova Scotia's unfavorable socio-economic profile, there may be greater need for investment in public health. Further, there are several other indicators of public health (e.g. vaccinations, food and drug safety, occupational health etc.) which have yet to be compared between the two provinces.

## Comparison of the Nova Scotia and British Columbia Public Healthcare Expenditures

### Introduction

The most recent spending estimates from CIHI indicate that there are marked differences between Nova Scotia and British Columbia (see Table 1). With Nova Scotia looking at adopting a shared services structure similar to that in British Columbia it is important to ascertain where and why spending differences currently exist. The health spending categories defined by CIHI include: Hospitals, Other Institutions, Physicians, Other Professions, Drugs, Capital, Public Health, Administration, and Other (see definitions in Appendix A). Within the context of this review, the scope will be limited to **Hospitals, Other Institutions, Drugs, Public Health, and Capital** for the following reasons: (1) there are marked differences in spending in these categories, (2) DHAs have some level of control over these categories and (3) some of these categories (hospitals, other institutions, drugs and capital), would presumably be the most impacted by a shared services organization.

**Table 1: Public per Capita Expenditures, 2011 Estimates.**

	NS	BC	Difference	% Difference
<b>Hospitals</b>	1776	1630	146	9.0%
<b>Other Institutions</b>	662	285	377	132.3%
<b>Drugs</b>	372	236	136	57.6%
<b>Capital</b>	62	192	(130)	(67.7%)
<b>Public Health</b>	202	372	(170)	(45.7%)

Source: National Health Expenditure Database, CIHI

It is important to note that when examining expenditures, it is not always clear if spending more or less is good or bad; the appropriateness of spending and impact that spending has must first be ascertained. Furthermore, a clear link between spending and its impact on the health system and ultimately population health needs to be established. While making the linkages between different policies and and outcomes, especially long-term outcomes (both health and financial), is often difficult, it is still useful to study other high performing jurisdictions, in order to learn, and apply these learnings where appropriate.

### Background

Before examining the different spending categories, it is important to take into account contextual and demographic differences between the two provinces which can explain some of the variation in spending.

### *Demographics*

Nova Scotia has a higher proportion of seniors, which account for higher health spending (see Table 2). For example it has been estimated that seniors account for 45% of provincial/ territorial health spending (CIHI, 2011). As can be seen in Table 2, population aging accounted for 1% of spending growth in NS, just slightly more than 0.8% in BC, and nationally, this makes sense given our higher proportion of seniors. So while aging on its own has a minimal impact on increasing health costs (see **Cost Drivers**), health system utilization of this population can potentially contribute substantially to costs, depending on policies and system organization (e.g. continuity of care). Nova Scotia also has lower average income, higher unemployment, and lower educational attainment than BC (see Table 2). Given the relationship between

socio-economic factors and health behaviours and outcomes, it is not surprising that there would be higher need for, and utilization of health services in NS, thereby driving up health costs.

**Table 2. Demographic Profile of British Columbia and Nova Scotia**

	NS	BC	Canada
Percentage of population 65+	16.1%	14.9%	14.1%
Average after-tax family income (2009)	\$50,700	\$60,000	\$59,700
Percentage of adult population (25-64) with a University degree (2006)	20%	24%	23%
Unemployment rate (March 2012)	8.3%	7.0%	7.2%
Contribution of population growth to spending increases	0.1%	1.0%	1.0%
Contribution of aging to spending increases	1.0%	0.8%	0.8%

Sources: Statistics Canada, National Health Expenditure Database, CIHI

### **Health System Cost Drivers**

Several sources have recently suggested the main cost drivers in healthcare are increased *utilization* of services (e.g. drugs, specialists), *innovations* in medical science and technology, and *salaries* paid to healthcare providers (CIHI, 2011, CHSRF, 2011 Morgan & Cunnigam, 2011), all factors which are under some level of control of policy and decision makers. Demographics, on their own, account for a relatively small proportion of growth in health spending (see Table 2).

### **Health System Organization**

There are also structural and organizational differences between NS and BC which may contribute to variations in health spending. Nova Scotia has nine District Health Authorities (DHAs) plus the IWK health centre which offers tertiary care to women and children to the entire Atlantic region. Despite having a substantially larger population and geography, BC has five DHAs plus another Provincial District Health Authority which coordinates select specialized health care services, including Health Shared Services BC, which was established in 2009 to coordinate support services across the health authorities.

### **Health Status**

Health behaviours and outcomes speak to the level of need for healthcare services. Generally Nova Scotians report more unhealthy behaviours and worse health outcomes (see Table 3). For example, Nova Scotia has double the rate of self-reported obesity compared to BC, and substantially higher rates of daily smoking and incidence of cancer.

**Table 3: Health Behaviours and Outcomes of Nova Scotia and British Columbia as of 2010**

	NS	BC	Can
Overweight or Obese	58.3%	42.1%	50.6%
Obese	24.9%	12.4%	17.5%
Arthritis	21.7%	12.8%	13.6%
Asthma	10.0%	7.9%	8.6%
COPD	5.2%	3.6%	4.1%
High Blood Pressure	15.9%	12.2%	14.2%
Mood disorder	9.1%	6.9%	6.4%
Cancer incidence per 100,000 (2007)	453.0	379.7	405.2

<b>Current daily smoker</b>	19.2	12.5	15.5
<b>Heavy drinking</b>	21.7	17.2	18.4

Source: Statistics Canada, 2011

## **Hospitals**

### ***Wages***

Nationally, hospitals represent the largest category of public-sector spending, accounting for 37% of public health expenditures. Compensation to hospital employees, which has been identified as a one of the main cost drivers contributing to growth in spending, accounts for approximately 60% of total hospital budgets. Further, wages paid to health care providers have increased faster than general population wages, possibly due to tighter credentialing for many of the health professions, and increasing competition between provinces to recruit and retain health professionals (CIHI, 2011). Although wages account for a large proportion of hospital spending, the heavily unionized environment of healthcare leaves little room for change. However, scope of practice and different models of care have been explored as a potential cost-saving strategy in many jurisdictions. An exploration of differing practices between NS and BC is warranted.

### ***Funding Models***

In 2010 BC implemented an alternate funding model for some hospitals. Patient focused funding, a combination of activity-based funding and pay for performance has resulted in an increase in the number of procedures and decreases in waitlists, including wait times in ER which have been cut by 50%. Overall about 17% of BC's hospital funding is covered in various ways by the new approach and \$250 million has been earmarked for the program's first two years, money which is spent only when performance targets are met. In order to avoid some of the drawbacks of solely relying on ABF, additional funds go to hospitals which take on complex cases, and non-performance can also result in penalties. Just recently it was announced the \$7 million was withheld from BC health authorities collectively for failing to meet wait time targets for hip, knee and cataract surgery, with the withheld money going towards government deficit. However, CIHI data does not indicate there has been a substantial decrease in hospital expenditures since the inception of patient-focused funding (see Table 4). That said, these are forecasted, not actual expenditures.

**Table 4: BC per Capita Hospital Spending, Pre and Post Patient-focused Funding**

<b>Year</b>	<b>Per Capita Expenditures</b>	<b>Percent Increase</b>
<b>2007/08</b>	\$1358.64	4.8%
<b>2008/09</b>	\$1476.10	8.6%
<b>2009/10</b>	\$1513.54	2.5%
<b>2010/11f</b>	\$1551.64	2.5%
<b>2011/12f</b>	\$1615.37	4.1%

Source: National Health Expenditure Database, CIHI

## Other Institutions

Other institutions generally refer to residential care facilities (e.g. nursing homes). Despite spending more than double per capita than BC on “other institutions”, NS has fewer nursing home beds per 1000 of the senior population (see Table 5.). Given the higher proportion of seniors, who make up the vast majority of residential facility clients, in NS it is not surprising that spending on other institutions is higher. Nova Scotia provides more paid hours per resident day and spends more per resident day, which contributes to higher overall spending. Again, it is not entirely clear if this higher spending is necessarily good or bad. It may be appropriate to meet client needs. For example, if there are generally higher acuity patients in nursing homes with more complex needs, this higher spending may be appropriate.

British Columbia spends less per capita on home care, yet serves a slightly greater proportion (of seniors). While home care does not fall into the “other institutions” category, it does have an impact on the demand for long-term care, as well as the case-mix of clients that access long-term care, as well as length-of-stay in hospitals.

**Table 5: Continuing Care Comparison, Nova Scotia and British Columbia**

	BC	NS
Number of nursing home beds per 1000 of the 65+ population	47.9	42.6
Occupancy rate (homes for the aged)	95.1%	96.6%
Expenditures per resident day (homes for the aged)	\$167.7	\$178.1
Paid hours per resident day (homes for the aged)	3.6	5.9
Percentage of 65+ served by home care program	8.8%	8.4%
Per Capita spending on home care <sup>1</sup>	\$82	\$105

Sources: Canadian Policy Research Network, National Health Expenditure Database, Statistics Canada

Spending on other institutions is also impacted by health human resources issues previously identified in **Hospitals** (e.g. union agreements, scope of practice etc.). However, the regulation of paraprofessional staff which are more commonly found in long-term care settings, may vary between provinces, thereby impacting wages, scope of practice etc.

## Drugs

### **Utilization**

There has been ample research on the source of variation in provincial drug spending (Morgan, 2004, 2005, 2006). Generally the factors influencing drug expenditures fall under pricing effects, volume effects, and therapeutic choice effects (see Appendix 2 for explanation). Research suggests that the factor that accounts the most for variation in provincial drug spending is volume, or utilization, followed by therapeutic effects, then price, which accounted for only 4% of variation, when dispensing fees are held constant (Morgan,2004)<sup>2</sup>. Volume takes into account changes in utilization, which includes both increases in number of users and volumes of drug used. This is also where population factors are implicated, such as the number of potential users and health status. Nova Scotia’s average annual growth in drug spending

<sup>1</sup> CIHI data from 2003-04

<sup>2</sup> Looked at oral solid prescriptions which accounts for 79% of the market

due to prescription size was much higher than BC (2.9% and 0.2% respectively), which suggests NS has more short term prescriptions (Morgan, 2005). This may be due to differences in prescribing practices or policies limiting the number of units per prescription.

### **Generic Pricing**

British Columbia implemented a generic price policy in 2010, capping payment of generic drugs to 35% of the brand name equivalent. However, the province has recently announced they are cancelling this agreement and legislating a 25% cap. This change is due to the shortfall in expected savings. Originally the province estimated \$70 million in savings and has fallen \$46 million short of that number. Just this past summer NS implemented similar legislation which aims to reduce generic drug prices to 35% of the brand name equivalent by July 2012. However, policy experts argue that basing generic prices on a percentage of a brand name drug is arbitrary and problematic, resulting in prices which do not reflect the actual cost of manufacturing and distribution (Law, 2012). Consequentially, there will be overpayment for some drugs and underpayment for others. The suggested alternative is to use competition to set prices whereby manufacturers would compete to supply an entire province in exchange for market exclusivity in that province. This can drive down prices, and ensure that they are reflective of actual production and distribution costs. Pharmacies would most likely oppose, as this could impact their revenues, however this can be offset with higher dispensing fees to pharmacies. The long-term impact of these policies, for both BC and NS remains to be seen.

### **Group Purchasing**

In 2009 a bulk purchasing agreement was signed by the Health Shared Services British Columbia and Alberta Health Services, which combines purchases for the two provinces' health care systems.

In 2010 the DHAs within Nova Scotia all signed a group purchasing agreement with HealthPRO, the same GPO which BC and Alberta signed with, which included the purchase of pharmaceuticals.

Trend data from CIHI does not indicate there has been a substantial change in public drug spending in BC since implementation of group purchasing and generic pricing (see Table 6). NS trend data indicates that there has been a decrease in growth in provincial drug spending, however whether this can be attributed to changes in these specific policies. The long-term impact of these policies, for both BC and NS remains to be seen.

**Table 6: Changes in Provincial Drug Spending**

<b>Year</b>	<b>NS Per capita</b>	<b>NS Percent change</b>	<b>BC Per capita</b>	<b>BC Percent change</b>
<b>2006/07</b>	262.09	29.0	188.74	6.1
<b>2007/08</b>	271.95	3.8	192.13	1.8
<b>2008/09</b>	291.95	7.4	195.92	2.0
<b>2009/10</b>	318.08	8.9	198.36	1.2
<b>2010/11f</b>	328.2	3.2	206.62	4.2
<b>2011/12f</b>	330.53	0.7	208.80	1.1

Source: National Health Expenditure Database, CIHI

## **Capital**

Trend data indicates capital spending fluctuates annually for both provinces; however BC is always consistently higher than NS (see Table 7). This may represent investments in buildings, equipment and technologies that positively impact other health spending categories. Interestingly, the directions of the fluctuations align between NS and BC year-to year. A further investigation of capital investments (e.g. beds, equipment, such as CT scanners etc., software etc.) and their impact for each of the provinces is warranted

**Table 7: Changes in Provincial Capital Spending**

<b>Year</b>	<b>NS Per capita</b>	<b>NS Percent change</b>	<b>BC Per capita</b>	<b>BC Percent change</b>
<b>2007/08</b>	\$108.19	33.7%	\$152.67	2.6%
<b>2008/09</b>	\$139.32	28.8%	\$246.00	61.1%
<b>2009/10</b>	\$69.58	-50.1%	\$190.21	-22.7%
<b>2010/11f</b>	\$107.5	54.5%	\$259.84	36.6%
<b>2011/12f</b>	\$69.44	-35.4%	\$169.10	-34.9%

Source: National Health Expenditure Database, CIHI

## **Public Health**

British Columbia spends almost one and half times the amount that Nova Scotia spends on public health. British Columbia citizens also report more favorable health behaviours and outcomes (see Table 2). It is difficult to directly link the higher spending with better health outcomes, especially given the link between outcomes and with social determinants of health. For example, BC may have better health outcomes because of greater investment in public health initiatives, or because of more favorable socio-economic factors. Conversely, given Nova Scotia's unfavorable socio-economic profile, there may be greater need for investment in public health. Further, there are several other indicators of public health (e.g. vaccinations, food and drug safety, occupational health etc.) which have yet to be compared between the two provinces.

## Appendix A: Categories Defined by CIHI

**Hospitals**—institutions where patients are accommodated on the basis of medical need and are provided with continuing medical care and supporting diagnostic and therapeutic services. Hospitals are licensed or approved as hospitals by a provincial/territorial government, or are operated by the government of Canada, and include those providing acute care, extended and chronic care, rehabilitation and convalescent care, psychiatric care, as well as nursing stations or outpost hospitals.

**Other institutions**—include residential care types of facilities (for the chronically ill or disabled, who reside at the institution more or less permanently) and which are approved, funded or licensed by provincial or territorial departments of health and/or social services. Residential care facilities include homes for the aged (including nursing homes), facilities for persons with physical disabilities, developmental delays, psychiatric disabilities and alcohol and drug problems, and facilities for emotionally disturbed children. Facilities solely of a custodial or domiciliary nature and facilities for transients or delinquents are excluded.

**Physicians**—expenditures include primarily professional fees paid by provincial/territorial medical care insurance plans to physicians in private practice. Fees for services rendered in hospitals are included when paid directly to physicians by the plans. Also included are other forms of professional incomes (salaries, sessional, capitation). The physician expenditure category does not include the remuneration of physicians on the payrolls of hospitals or public-sector health agencies; these are included in the appropriate category, for example, hospitals or other health spending. Physician expenditures generally represent amounts that flow through provincial/territorial medical care plans. Provinces/territories differ in terms of what the medical care plans cover. CIHI has not attempted to make adjustments to physician expenditures to reflect these differences because only a few provinces, to date, can net out these differences from their data.

**Other professionals**—services at the aggregate level represent expenditures for the services of privately practising dentists, denturists, chiropractors, optometrists, massage therapists, osteopaths, physiotherapists, podiatrists, psychologists, private duty nurses and naturopaths. Discrete identification of many of the professions included under other professionals is often possible only when they are reported by provincial medical care insurance plans.

This category has been disaggregated at the Canada level in the data tables to provide information on the following subcategories:

- *Dental services*—expenditures for professional fees of dentists (includes dental assistants and hygienists) and denturists, as well as the cost of dental prostheses, including false teeth, and laboratory charges for crowns and other dental appliances.
- *Vision care services*—expenditures for the professional services of optometrists and dispensing opticians, as well as expenditures for eyeglasses and contact lenses.
- *Other*—expenditures for chiropractors, massage therapists, osteopaths, physiotherapists, podiatrists, psychologists, private duty nurses and naturopaths.

**Drugs**—at the aggregate level, include expenditures on prescribed drugs and non-prescribed products purchased in retail stores. Estimates represent the final costs to consumers including dispensing fees, markups and appropriate taxes. This category has been disaggregated at the Canada level in the data tables to provide information on the following subcategories:

- *Prescribed drugs*—substances considered to be drugs under the *Food and Drugs Act* and which are sold for human use as the result of a prescription from a health professional.

- *Non-prescribed drugs*—include two subcomponents: over-the-counter drugs and personal health supplies.
  - *Over-the-counter drugs*—therapeutic drug products not requiring a prescription.
  - *Personal health supplies*—include items used primarily to promote or maintain health, for example, oral hygiene products, diagnostic items such as diabetic test strips and medical items such as incontinence products.

The drug category does not include drugs dispensed in hospitals and, generally, in other institutions. These are included with the category of hospitals or other institutions. The classification system is consistent with international standards developed by the OECD.

**Capital**—includes expenditures on construction, machinery, equipment and some software of hospitals, clinics, first-aid stations and residential care facilities. It is based on full-cost or cash-basis accounting principles.

**Public health**—by governments and government agencies, includes expenditures for items such as food and drug safety, health inspections, health promotion activities, community mental health programs, public health nursing, measures to prevent the spread of communicable disease and occupational health to promote and enhance health and safety at the workplace in public sector agencies.

## Appendix B: Determinants of Drug Expenditures

Determinants of Drug Expenditures
<b>Volume Effects</b> <ul style="list-style-type: none"><li>• Changes in number of prescriptions filled</li><li>• Changes in average number of units per prescription filled</li></ul>
<b>Therapeutic Choice Effects</b> <ul style="list-style-type: none"><li>• Changes in mix of drug classes selected from within therapeutic categories</li><li>• Changes in mix of drug types selected from within drug classes</li></ul>
<b>Price Effects</b> <ul style="list-style-type: none"><li>• Changes in prices paid per unit of brand and generic versions of drugs</li><li>• Changes in prices paid per unit of drug due to use of generics</li></ul>

Source: Morgan, 2005

## Appendix C. Original Proposal

### Comparison of the Nova Scotia and British Columbia Public per Capita Healthcare Expenditures: Proposed Plan

#### Background

Recent CIHI forecasted estimates for 2011 suggest that differences exist between Nova Scotia and British Columbia in many spending categories (see Appendix A). With Nova Scotia looking at adopting a shared services structure similar to that in British Columbia it is important to get a sense of where and why spending differences currently exist. The health spending categories defined by CIHI include: Hospitals, Other Institutions, Physicians, Other Professions, Drugs, Capital, Public Health, Administration, and Other (see definitions in Appendix B).

#### Proposed Plan

We propose to examine *why* differences exist in 5 of the spending categories, namely: Hospitals, Other Institutions, Drugs, Capital, and Public Health. It was determined to limit the scope to these categories for the following reasons: (1) there are marked differences in spending in these categories and (2) DHAs have some level of control over these categories.

As part of this review, we will first compare demographic data and health indicators for both NS and BC to get sense of the health context in both provinces. We will then review available data, reports and policies pertaining to each of the 5 areas to determine why differences may exist. If required, we will attempt to connect with health personnel in BC to ascertain additional information.

In addition, we will also examine the data for each of the identified spending categories across time (e.g., 2007-2011) to see if there were significant changes in any of these categories after Health Shared Services BC launched in February 2009.

Finally, we will conclude with observations and recommendations based on the review of the data.

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