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Educational Note

Health Care Trend Rate

Committee on Post-Employment Benefit Plans

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Members should be familiar with Educational Notes. Educational Notes describe but do not recommend practice in illustrative situations. They do not constitute Standards of Practice and are, therefore, not binding. They are, however, intended to illustrate the application (but not necessarily the only application) of the Standards of Practice, so there should be no conflict between them. They are intended to assist actuaries in applying Standards of Practice in respect of specific matters. Responsibility for the manner of application of Standards of Practice in specific circumstances remains that of the members in the pension practice area.

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Memorandum

To: All Fellows, Affiliates, Associates and Correspondents of the Canadian Institute of Actuaries

From: Phil Rivard, Chair
Practice Council

Jeremy Bell, Chair
Committee on Post-Employment Benefit Plans

Date: May 24, 2012

Subject: **Educational Note: Health Care Trend Rate**

This educational note is intended to assist actuaries in determining assumptions for health care trend rates, which are required under current actuarial Standards of Practice, when providing advice on the financial condition of a post-retirement benefit plan. The note starts with a definition of a health care trend rate, discusses its development, considerations and limitations for use in performing a valuation, and provides more specific information on the types of claims trend rates that apply in health care benefits.

It is recognized that considerations or practices in determining actuarial assumptions would be defined for the specific purpose of a valuation, taking into account all applicable standards and regulations. As a result, not all of the considerations mentioned in this note may be appropriate for a particular situation.

In accordance with the Institute's Policy on Due Process for the Approval of Guidance Material Other than Standards of Practice, this educational note has been prepared by the Committee on Post-Employment Benefit Plans and has received final approval for distribution by the Practice Council on May 2, 2012.

As outlined in subsection 1220 of the Standards of Practice, "*The actuary should be familiar with relevant Educational Notes and other designated educational material.*" That subsection explains further that a "practice that the Educational Notes describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation." As well, "Educational Notes are intended to illustrate the application (but not necessarily the only application) of the standards, so there should be no conflict between them."

The Committee on Post-Employment Benefit Plans wishes to recognize the contribution and leadership of Christiane Bourassa, the former chair of the committee, in preparing this educational note.

If you have any questions or comments regarding this educational note, please contact Jeremy Bell at his CIA Online Directory address, jeremy@bellactuarial.com.

PR, JB

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1. INTRODUCTION

Post-employment benefit plans provide for the continuation of employee group benefits such as life insurance and health care (health and dental) benefits after active employment ceases. Most commonly, these benefits are provided at retirement but can also be provided on termination of employment prior to retirement, and on certain absences such as those due to disability or a sabbatical.

Plan sponsors are required to recognize the cost of providing these benefits on an accrual basis in their financial statements. Apart from financial reporting purposes, there are other reasons why a plan sponsor may require actuarial valuations of these benefits, e.g., for funding purposes, determining cost estimates of plan changes, for budgeting or in the case of mergers and acquisitions.

In performing an actuarial valuation, there are many assumptions that are used to determine the expected future cash flows for these benefits. These assumptions are either related to survival, e.g., future rates for mortality, retirement and termination of employment, or to the determination of the stream of future benefit payments. For most of these assumptions, there is established actuarial practice, data or industry standards that actuaries can easily access to guide their choice of assumptions. This is not currently the case for assumptions relating to trend in health care costs used to derive future health care benefit payments.

The projection of health care benefit payments, which generally represent reimbursement of actual utilization of goods or services, is challenging because of the many factors that affect utilization, and because health care costs have increased at much higher rates than general inflation in recent history. In practice, actuaries usually combine all of the factors affecting claim costs into one assumption, referred to as the health care trend rate, in order to project historic claim cost data into the future for rating purposes. For valuation purposes, the difficulty lies in determining health care trend rates for long projection periods which can extend out for 70 years or more.

This educational note is intended to assist actuaries in determining assumptions for health care trend rates, which are required under current actuarial Standards of Practice, when providing advice on the financial condition of a post-retirement benefit plan. The note starts with a definition of a health care trend rate, discusses its development, considerations and limitations for use in performing a valuation, and provides more specific information on the types of claims trend rates that apply in health care benefits.

It is recognized that considerations or practices in determining actuarial assumptions would be defined for the specific purpose of a valuation, taking into account all applicable standards and regulations. As a result, not all of the considerations mentioned in this note may be appropriate for a particular situation.

2. WHAT IS A HEALTH CARE TREND RATE?

A claims trend rate (the “trend rate”, “rate” or “trend”) can be defined as the rate of change in the annual claim cost with respect to a defined benefit or category of benefits, for a defined population, and expressed as a rate per unit of exposure, e.g., 15% per year for prescription drugs to retirees.

Health care trend rates are most commonly used to project historical claims data to the next renewal period of group health care plans, as part of the annual renewal rating process. The projection period for this purpose is usually short-term.

For post-retirement health care plans, an actuarial valuation may require the projection of expected future cash flows for periods that can extend out to 70 years or more as the projection period may include both employment years and all retirement years.

The health care trend rate assumption for valuation purposes is therefore likely to consist of short-term rates which reflect recent experience, long-term or ultimate rates which reflect the long-term view, and transitional rates that bridge the two sets of rates, e.g., initial rate of 15% per year reducing by .5% in each of the following years to an ultimate rate of 5% per year.

When credible data is available, health care trend rates are typically determined for major categories of benefits such as prescription drugs, hospital benefits or dental care. They are based on historical and anticipated changes in claim costs and applied to claim costs at the valuation date to produce expected future benefit claim costs for the projection period.

Accounting standards provide that the health care cost trend rate disclosed as part of an organization's financial statements be measured as the change in the cost of eligible goods and services provided which may produce a result that is different from the result produced with the above definition. Actuaries would clearly state how the health care trend rate applies to the claim costs used for valuation purposes.

3. COMPONENTS OF HEALTH CARE TREND RATES

In Canada, public health care programs provide broad access to physician care, diagnostics, and hospital care, and more limited access to prescription drugs and dental services. Public programs are provincially managed and can differ significantly by province in terms of coverage and cost sharing. Private health plans are therefore viewed as supplementary to the provincial plans and are generally designed to integrate with the provincial plans to fill coverage gaps or enhance coverage. Any determination of trend rates for a private health care plan therefore automatically requires consideration of the provincial plan benefits and the way in which the private plan integrates with the public plan.

General Health Care Trend Factors

There are many factors that affect the cost and utilization of health care goods and services.

In determining health care trend rates, the various factors can be categorized into three main components:

i) General Inflation—defined as price changes over the whole economy,

ii) Real Health Care Inflation—real rate of increase in the cost of health care goods and services, and

iii) Changes in Utilization—the combined effect of changes in the incidence of using health care goods and services and in the number of units of health care goods and services being used. It is important to understand the reasons for change, which may include changes to or in:

- the availability of new health products and services, e.g., new drug therapies or a medical practice, treatment or process,

- general population behaviour, e.g., healthier lifestyles, increased use of preventative or screening regimens,
- the way services are funded, e.g., by government or privately,
- access to existing service, e.g., reduced wait times for surgical procedures, increased use of ambulatory care, and
- demographics, e.g., as the baby boomers retire, the demographic profile of the retiree population profile may change from prior years and affect historic claim trend rates.

It is often difficult to analyze the different factors separately when reviewing claims experience in order to set trend rates. In those cases, the different factors are usually considered together.

Plan-Specific Health Care Trend Factors

For a specific post-retirement benefit plan, the following considerations may serve to increase or decrease the impact of any one component of trend. These considerations would be made for each major category of benefits under a plan.

i) Plan provisions such as coinsurance, cost sharing, annual or lifetime maximums, and maximum age or duration of benefits that have an impact on actual costs for which the plan will be responsible.

ii) Specific plan integration with government benefit plans, e.g., does the plan wrap around government plans and pay for deductibles, coinsurances or costs in excess of the government maximum, or does the plan exclude entirely any benefit for which the government provides any level of coverage?

iii) Participation level, e.g., expected changes in percentage of eligible individuals electing coverage may result in change in expected level of cost due to anti-selection.

iv) Recent claims trend experience of the plan.

v) Significant changes in employer practice that would result in a very different demographic profile, e.g., a change to hiring only contract employees who are not eligible for post-retirement benefits or reductions in certain types of eligible employees may change the demographic mix and affect the expected trend rate.

4. AGGREGATE AND BENEFIT-SPECIFIC TREND RATES

Health care claim costs for a post-retirement benefit plan are generally aggregated at some level for trend analysis. Most commonly, the aggregation is by major categorization of benefit type and by coverage level, i.e., by employee or employee and dependent coverage, which is a reflection of the way group plans are typically rated. Health care trend rates therefore tend to be aggregated along the same lines as for rating or at even higher levels of aggregation, e.g., all health-related benefits and all dental-related benefits and all ages.

Separate health care trend rates by major cost components would be considered when

- separate unit costs are used for each benefit component,
- there is sufficient credible and relevant disaggregated historical experience to identify recent trends by benefit component,
- it is appropriate based on the context of the valuation (e.g., trend rates by benefit may not be required based on a specific plan reimbursement limits or structure).

Aging Assumption and Trend Rates

Health care claim costs generally increase with age. If it is deemed appropriate for claim costs for a benefit to be differentiated by age, the change in rates by age represents the expected change in claim cost due to aging and can be considered as the aging assumption which is different from the health care trend rate assumption.

The health care trend rate would therefore not include any allowance for aging. The actuary would determine whether an additional aging assumption is required. Generally, plans with coverage from retirement to age 65 will exclude any aging assumption since the average age of retirees is expected to remain relatively stable. On the other hand, closed plans would allow for aging since the covered population is expected to grow older over time.

Aggregate Trend Rates

The higher the level of aggregation in determining trend rates, the more important it is to recognize that the trend rates reflect the exposures in the analysis period by coverage level and major category of benefit. If the exposure profile is not expected to be comparable in the projection period, the aggregate trend rate would be adjusted to reflect differences in composition.

In certain cases, specific information on retiree claims experience is not available or not credible and therefore unit costs are aggregated for purposes of the valuation. Aggregate trend rates are the only alternative in these cases.

Benefit-Specific Trend Rates

The plan provisions for the various components of health care plans are very different in terms of coverage amounts, cost sharing and benefit administration rules. Utilization patterns and trend rates vary considerably as a result of these factors and separate trend rates for major cost components would be considered where relevant disaggregated historical experience is available.

Major cost components include, but are not limited to:

i) Prescription Drugs,
ii) Hospital Services,
iii) Paramedical Services, e.g., physiotherapy, massage therapy, private duty nursing or continuing care and other medical services and equipment,
iv) Eye/Vision Care,
v) Out of Province/Country Emergency Medical Care, and
vi) Dental Care.

5. DEVELOPMENT OF HEALTH CARE TREND RATES

This section first provides some background material to set the stage for developing the health care trend rate addressing both national/global factors affecting trend as well as plan-specific factors. Statistics on recent trends are also provided.

The rest of the section provides considerations for setting initial short-term and long-term health care trend rates as well as the transition period between the initial and long-term rates.

National/Global Factors

When developing the health care trend rate, it is important to consider factors that have an impact on health care products and services from a national level or a global level. These are trends in health care products and services which are beyond the control of a plan sponsor, but have a significant effect on health care costs.

Inflation (General vs. Medical vs. Substitution Effect)

In the past, medical inflation has been higher than general inflation. The evolution of medical inflation in relation to general inflation will depend on the impact of recent and future changes in substitution of goods or services that are either less expensive (e.g., substitution of generic drugs after patents expire) or more expensive for the plan (e.g., substituting home nursing [paid for by private plans] for hospital stays [paid for by government plans]). However, in general, medical inflation is likely to follow general inflation plus a positive margin.

Reviewing the evolution of health expenditures in Canada between 1975 and 2008 (Graph 1 in the appendix), we can observe the following:

- Growth in total expenditure on health care has outpaced inflation for most of the 30 years between 1976 and 2006. During this period, inflation-adjusted health spending increased by 208% (3.7% per year on average) and by 61% over the last 10 years of this period (4.9% per year on average).
- When adjusted for growth in population, the 3.7% per annum real health care inflation for Canada's healthcare system is estimated to reduce to 2.6% per annum as Canada's population grew during the period.
- From 1997 to 2006, real health care inflation for Canada's healthcare system is estimated at 4.9% per annum reducing to 3.9% when adjusted for growth in the Canadian population.
- Real health care inflation, as shown above, includes the impact of aging as well as utilization and the differences in medical versus general price increases. While not easily quantifiable with currently available data, the aging component is understood to have had a significant impact.

The level of increase has been different for public and private expenditures (Graph 2 in the appendix). Private sector expenditure has three distinct components: household out-of-pocket expenditure, commercial and not-for-profit insurance expenditure and other non-consumption expenditure. Public sector expenditures represent government expenditures.

Attitudes and Behaviours

Changes in attitudes and behaviours have contributed to higher historical trends and may contribute to higher future trends. Some of these are as follows:

- Private plan health care goods and services are understood to be increasingly viewed from an attitude of entitlement as opposed to an attitude of "only if medically necessary".
- Societal views are changing regarding the use of health care goods and services to defer death rather than dying with dignity and providing only convalescent care.

- Changing behaviours and habits are impacting individual health status. For example, lower incidence rates of smoking will tend to reduce trends, while increases in obesity, stress and depression will tend to increase them.
- Increases in longevity may be associated with growing access to increasingly effective and ever more expensive medical goods and services.

Government Policy

Government monetary and fiscal policy can impact all three components of a health care trend (general inflation, real health care inflation and utilization).

Changes to government-provided health care plans (statutory and/or administrative) are understood to have increased past trends for private plans, i.e., increased private health care plans utilization rates as government plans reduce their coverage, reduce access to their coverage or freeze their maximums for goods such as hearing aids.

In 2006, 70% of health care expenses were financed by the public sector. However, the level of public share of costs varies by type of service (Graph 3 in the appendix).

The private sector's proportion of total health expenditures in Canada has changed from 1980 to 2001 (Table 1 in the appendix).

Based on this information:

- The private sector has picked up a larger share of overall health expenditures (increase of 3.5% between 1991 and 2001).
- The increase in the share of overall health expenditures assumed by the private sector is larger for the over age 55 population; 4.7% for the ages 55–64 group and 6.4% for the ages 65–74 group.

GDP

A nation's consumption of various goods and services is often expressed as a percentage of Gross Domestic Product (GDP). Government health care program financing may be limited directly or indirectly by the growth in GDP and the proportion of GDP spent on health care programs.

These factors may put pressure to limit the utilization factor of health care products and services and consequently impact past and future health care trends.

The weight of health expenditures in the GDP in Canada has changed over time (Graph 4 in the appendix). The increase in health expenditure's share of GDP from 7.0% (1975) to 10.5% (2006) translates into an annual trend of 1.3%.

Population Demographics and Pharmaceutical Research

Ongoing aging of the first-world population has created market opportunities for pharmaceutical research in areas affecting older age health (e.g., heart disease, cancer, arthritis, etc.).

Past and future increases in the rate of new drug development and other health care goods and services to accommodate an aging population have impacted and will continue to impact all three components of the long-term health care trend rate.

Health care costs increase with age, remaining relatively low until age 45 and increasing thereafter (Graph 5 in the appendix).

Technology

Technological and medical developments can mitigate or eliminate certain diseases and conditions (e.g., polio and some cancers) and lower health care trend rates.

However, technology can also lead to new expensive treatments of old and new diseases or conditions (e.g., drugs for cancers, heart diseases and HIV) which have an increasing impact on health care trends.

Therefore the impact of technology on health care trend rate is difficult to predict.

Access to Health Care/Health Care Providers

Access to health care goods and services in a country is limited by factors such as the wealth of the nation, geographical considerations and seasonal climate changes. Past and future improvements in wealth, transportation and the accommodation of climate have and will impact health care trends.

Future changes in the delivery of health care products and services, such as a significant migration to e-commerce, might lower unit prices but increase ease of access and utilization and thereby add a further justification for projecting an increase in health care cost.

Again, the impact of changes in access to health care on the health care cost trend rate is difficult to predict.

National Education and Advertising of Health Care Issues

Increased education and advertising associated with health likely increases health care trend rates in the short term due to demands for more prevention and more treatment while holding out the potential for reducing trends in the longer term due to improvements in general health.

Private Sector Health Care trends

Average annual increases in health spending are illustrated below (in constant dollars). This information was extracted from: Canadian Institute for Health Information, *National Health Expenditures Trends 1975–2008* (Ottawa, ON, 2008), page 103.

	1976–2006	1997–2006
Public Sector	3.5%	4.7%
Private Sector	4.4%	5.3%
Total	3.7%	4.9%

When adjusted for growth in the population, the inflation in health spending was 2.6% per year for the period from 1976 to 2006 and 3.9% per year for the period from 1997 to 2006.

The inflation in health spending for the private sector, adjusted for the growth in the population, was 3.2% per year for the period from 1976 to 2006 and 4.3% per year for the period from 1997 to 2006.

Further adjustments based on the increase in the age of the population and in the private sector share of the health care costs are required to isolate the private sector health care trend.

Plan-Specific Factors

These factors are more specific to the actual plan sponsor's health care benefits plan/program.

Plan Provisions

Plan provisions for a particular health care benefit have a direct influence on the benefit's past and future health care trend rates.

Provisions to consider when setting trend rates include annual and lifetime maximum limits on goods and services, benefit deductibles, level of coinsurance, coordination of benefits clauses and plan text wording as to whether the current benefit plan is not guaranteed and may be changed in the future. (Note: for accounting valuations it is normal practice to make no allowance for future plan changes other than the continuation of regular ad hoc improvements such as adopting a recent dental fee schedule.)

Total Compensation or Company Business Model Affordability

A plan sponsor's business plan concerning employee total compensation and the proportion taken up by health care benefits may impact the design of the benefit plan and limit benefit utilization.

Benefit cost modelling may take into consideration different trend rates to reflect possible plan changes.

Union vs. Non-union

Benefits provided to unionized members may have different past and future changes in utilization rates than those experienced by non-unionized members of a plan sponsor.

Contractually, it may be more difficult to change unionized benefit plans, which results in different historical health care trend rates and, where allowance is made for future plan changes, different future trend rates.

Geographical Location of Health Care Services

Health care trends may vary depending on the location of the employees covered: by rural or urban, by population site, and by province or territory. For example, past experience suggests that urban areas experience higher trend rates than more rural areas.

Health care expenditures also vary by province across Canada (Table 2 in the appendix).

Initial Short-Term Health Care Trend Rates

It may be appropriate to adjust initial short-term health care trend rates to reflect known plan-specific experience and provisions plus the recent experience of other private plans after allowance for plan provisions.

Recent Past Experience

Recent trends in premium rates and claim cost adjusted exposure of both the plan being valued and other comparable plans are relevant items to consider when setting the initial short-term trend rates. The historical data will impact decisions regarding the number of

benefit groups with their own trend assumptions as well as the actual initial short-term trend assumptions.

When sufficient credible experience is available, recent claims experience would be reviewed when setting the short-term health care trend rate. The actuary would then consider if there is sufficient evidence to justify a change in the health care trend rate assumption for next year from the one adopted in the prior valuation for the same year. The actuary would also consider whether the observed trend is expected to continue in future years.

Size of Group

The size of a group is an important aspect for determining the relevance of the group's recent trends and thus the weight that would be placed upon the group's recent trend experience versus the weight to be placed upon general private plan trend assumptions for groups with similar benefit provisions.

Plan Provisions

The impact on health care trend rate of the following plan provisions would also be considered:

- lifetime maximums aimed at or having the effect of shrinking the plan's coverage of member's health care costs,
- annual or biannual limits on total benefits or a specific benefit such as vision care, especially if most members are likely to reach the annual limit each year, can also have the effect of modifying the plan's coverage of member's health care costs, and
- other plan features, such as deductibles and cost sharing, often combined with elective coverage, are more likely to impact the actual cost rate, rather than the initial short-term trend rate, unless there have been recent changes to such plan provisions.

The impact of the above-mentioned plan provisions on the health care trend rate would be determined by modelling the expected claims with and without the specific plan provisions. The adjustment required to the health care trend rate can be assessed based on the modelling results.

Anticipated Plan Changes

The following changes may be anticipated when setting the health care trend rate based on the terms of engagement:

- management's recent or planned activities to reverse adverse trends,
- change in carrier (e.g., may reduce short-term costs while increasing short-term trends as both the plan sponsor and its carrier reduce their focus on cost containment in the years following the change in carrier), and
- change in government programs (e.g., delisting of services from provincial plans).

Long-Term Health Care Trend Rates

Consistent with generally accepted actuarial practice, it is normal for the actuary to conclude that the level of uncertainty about trends increases as the period between the valuation date and the payout date increases. As a result it is likely appropriate that the differences between long-term

health care trends and long-term discount rates will be more stable than the differences between initial short-term health care trends and initial short-term discount rates.

While it is important that the long-term health care trend rate be consistent with other assumptions used in the valuation, particularly assumed economic conditions, the selection of the assumptions would meet subsection 1720 of the Standards of Practice, in particular the requirement that assumptions be independently reasonable unless the selection of assumptions that are not independently reasonable can be justified. In most cases, economic models will build upon expected CPI or GDP increases and assume an appropriate gap between health care trend rates and the underlying economic variables.

A model has been developed by Professor Thomas Getzen of Temple University under the sponsorship of the Society of Actuaries. This model is one of the tools available to assist with the review of the long-term health care trend rates (note: this model was designed to project U.S. growth rates). Other models or tools can also be used to analyze the reasonableness of a proposed long-term health care trend rate.

It is appropriate that the actuary will have the same number of long-term trend assumptions as were adopted for the initial short term, even when some of them have the same long-term value.

The examples below illustrate the relative sensitivity of the short-term and long-term health care assumptions. As can be seen, in the first example, a 25-year-old assumed to retire at 55, a variation of 1% in the short-term health care trend rate results in a change of approximately 5% in present value, whereas the same 1% change in long-term health care trend rate results in a change of close to 50% in present value.

In the second example, a 55 year old retiree, the difference is smaller. The 1% change in the short-term health care trend rate results in the same approximately 5% change in present value. The 1% change in the long-term health care trend rate results in about a 10% change in present value.

Sensitivity Testing for Healthcare Trends

The following illustrates the sensitivity of the short term HCT rate to that of the long term HCT rate.

Common Assumptions:

- single male Life annuity with no guarantee period
- UP94 with projected improvement to 2020
- no termination rates
- annuity certain paid monthly, starting at $1 of current value
- 5.0% per annum discount rate
- 10-year linear decrease from short term HCT rate to long term HCT rate

EXAMPLE 1

Life annuity for a 25 year old deferred 30 years.

Short Term Trend	Long Term Trend	Present Value	Annual Payment Amount Current	in 30 years	60 years
9.0%	4.0%	$ 22.5	$ 1.0	$ 4.2	$ 13.6
9.0%	5.0%	$ 32.7	$ 1.0	$ 5.3	$ 23.0
9.0%	6.0%	$ 47.9	$ 1.0	$ 6.7	$ 38.5

Short Term Trend	Long Term Trend	Present Value	Annual Payment Amount Current	30 years	60 years
10.0%	4.0%	$ 23.6	$ 1.0	$ 4.4	$ 14.4
10.0%	5.0%	$ 34.4	$ 1.0	$ 5.6	$ 24.2
10.0%	6.0%	$ 50.4	$ 1.0	$ 7.0	$ 40.5

Short Term Trend	Long Term Trend	Present Value	Annual Payment Amount Current	30 years	60 years
11.0%	4.0%	$ 24.9	$ 1.0	$ 4.7	$ 15.1
11.0%	5.0%	$ 36.2	$ 1.0	$ 5.9	$ 25.4
11.0%	6.0%	$ 53.0	$ 1.0	$ 7.4	$ 42.6

EXAMPLE 2

Life annuity for a 55 year old no deferral

Short Term Trend	Long Term Trend	Present Value	Annual Payment Amount Current	10 years	30 years
9.0%	4.0%	$ 29.8	$ 1.0	$ 1.9	$ 4.2
9.0%	5.0%	$ 32.9	$ 1.0	$ 2.0	$ 5.3
9.0%	6.0%	$ 36.6	$ 1.0	$ 2.1	$ 6.7

Short Term Trend	Long Term Trend	Present Value	Annual Payment Amount Current	10 years	30 years
10.0%	4.0%	$ 31.1	$ 1.0	$ 2.0	$ 4.4
10.0%	5.0%	$ 34.4	$ 1.0	$ 2.1	$ 5.6
10.0%	6.0%	$ 38.3	$ 1.0	$ 2.2	$ 7.0

Short Term Trend	Long Term Trend	Present Value	Annual Payment Amount Current	10 years	30 years
11.0%	4.0%	$ 32.5	$ 1.0	$ 2.1	$ 4.7
11.0%	5.0%	$ 36.0	$ 1.0	$ 2.2	$ 5.9
11.0%	6.0%	$ 40.1	$ 1.0	$ 2.3	$ 7.4

Transition from the Initial Short-Term Trend Rate to the Long-Term Trend Rate

The shape of the curve for transition from initial current trend to long-term trend, given the challenges in setting the initial short-term trend, long-term trend and transition period, suggests adoption of a simple approach such as a straight line transition as appropriate.

The period from the valuation date to the date the ultimate long-term rate starts to apply may vary by benefit type and depend in part upon plan provisions. However, the actuary should consider the sensitivity of this assumption on overall valuation results.

The transition period will depend in part upon periods adopted for the benefit type for other similar plans, in part upon the period adopted in the previous valuation, and in part upon generally accepted practice for health plan valuations, and may be influenced by plan-specific provisions not present in other similar plans.

The transition period will also depend upon the difference between the initial short-term trend rate and the long-term trend rate, i.e., the bigger the difference the longer it will take for the short-term rate to revert to the long-term rate. When reviewing the assumption concerning the transition period, the actuary will consider whether the period should remain unchanged or whether it could be appropriate to extend or reduce it.

The transition period is probably the item with the least support from past experience or other practice areas, and may well have more variability than the initial short-term rate and the long-term rate. As can be seen from the examples below, changing the transition period by five years can result in a change of 8.5–12.5% in the value of the benefits.

Sensitivity Testing for Healthcare Trends

The following illustrates the sensitivity of the relative length of the transition period between the short term and long term HCT rates.

Common Assumptions:

- single male Life annuity with no guarantee period
- UP94 with projected improvement to 2020
- no termination rates
- annuity certain paid monthly, starting at $1 of current value
- 5.0% per annum discount rate
- linear decrease from short term HCT rate to long term HCT trend rate

EXAMPLE 1

Life annuity for a 25 year old deferred 30 years

Short Term Trend	Years to Long Term	Long Term Trend	Present Value	Payment Amount Current	30 years	60 years
10.0%	5	5.0%	$ 30.6	$ 1.0	$ 5.0	$ 21.5
10.0%	10	5.0%	$ 34.4	$ 1.0	$ 5.6	$ 24.2
10.0%	15	5.0%	$ 38.7	$ 1.0	$ 6.3	$ 27.2

EXAMPLE 2

Life annuity for a 55 year old no deferral

Short Term Trend	Years to Long Term	Long Term Trend	Present Value	Payment Amount Current	10 years	30 years
10.0%	5	5.0%	$ 31.3	$ 1.0	$ 1.9	$ 5.0
10.0%	10	5.0%	$ 34.4	$ 1.0	$ 2.1	$ 5.6
10.0%	15	5.0%	$ 37.4	$ 1.0	$ 2.3	$ 6.3

6. LIMITATIONS

One limitation in setting health care trend rates is the scarcity of credible and applicable data to support the setting of trend assumptions. This scarcity is due to a number of factors:

Past vs. Future Long-Term Trends

Past health care trends may not be a good indication of future health care trend rates. This is due to the impact of changes in government healthcare programs, which can change the proportion of total health care cost paid for by the private health care plan. For example, if the government decides to remove a popular drug from its current formulary, the impact will be an increase in drug costs for private plans that include this drug under their prescription drug benefit.

Future health care trends will also be impacted by employee attitudes to health and lifestyle, such as smoking and obesity. A decrease in the proportion of the population that smokes is likely to

decrease future expenditures on the treatment of lung cancers. An increase in the proportion of the population suffering from obesity is likely to lead to a pronounced increase in longer-term health care utilization.

Future plan design changes (improvements for competitive reasons, reductions for cost control, or otherwise) will also directly influence the long-term utilization rates and inflationary pressures on the products and services covered by the plan's current design. If the plan is part of a collective bargaining contract, however, future plan changes may be limited. The plan sponsor's approach toward the administration and cost control for the current benefit plan design can often provide a good indication of possible future changes.

Sustainability of Trend Rates

Similar to the considerations discussed in section 5 regarding the long-term sustainable portion of GDP that can be spent on health care programs, there is likely an ultimate amount of total expense that a private health care plan can grow to before it becomes unsustainable for the employer.

Unforeseen Future Events

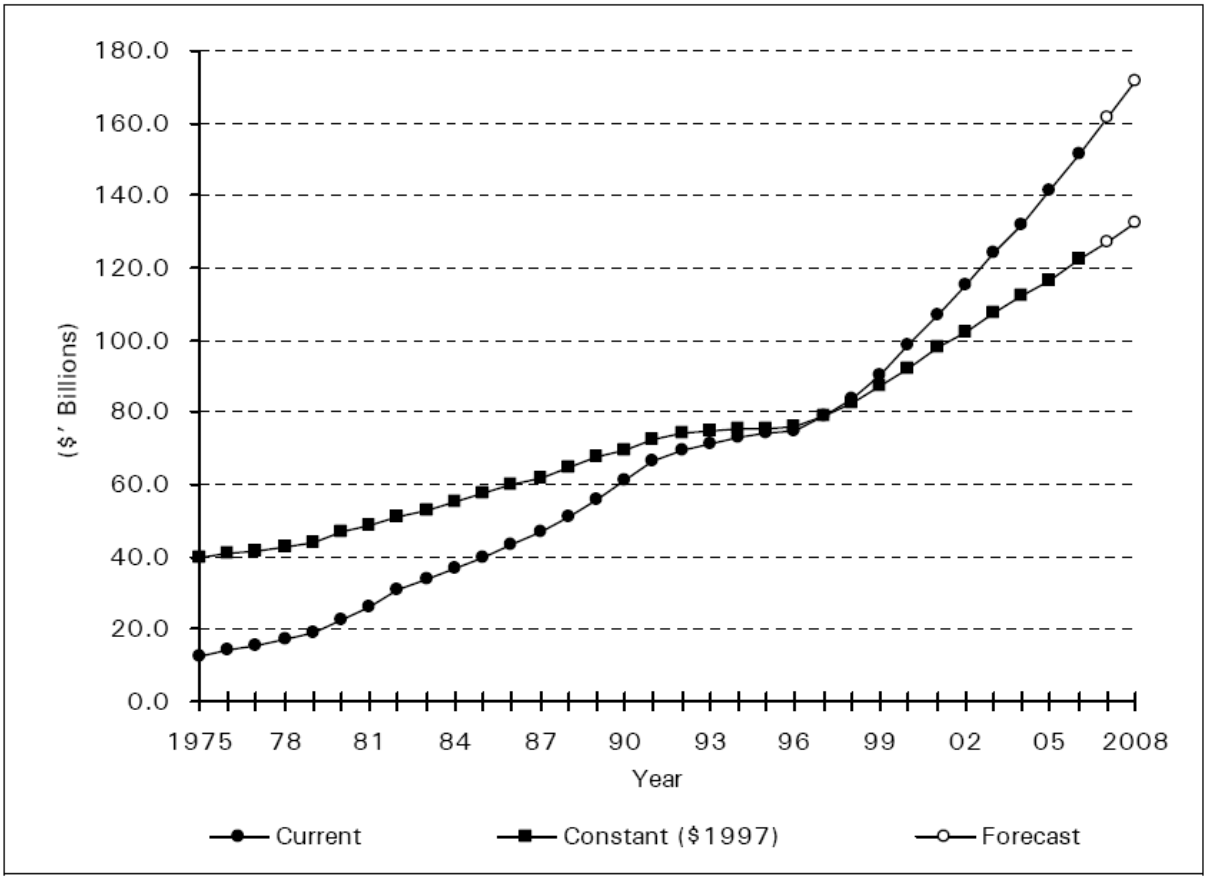
Future local or global developments are difficult to predict, but can have a significant impact on the long-term cost trends of an employee health benefit plan. Some examples of such developments are new health care treatments and procedures, new drugs or possible global epidemics (e.g., H1N1 flu). These types of events will impact long-term health care trends but their impact is difficult to quantify. As a general guideline, the anticipated effect of such a development on long-term health care trends would be recognized proportional to the likelihood of the occurrence and the magnitude of the expected impact of the factor on the claims experience of the program. Depending on the nature of the work, modelling unexpected future "shock" events may help a plan sponsor to understand their potential volatility in benefits program costs.

APPENDIX

Graph 1

The graph is extracted from: Canadian Institute for Health Information, *National Health Expenditures Trends 1975–2008* (Ottawa, ON, 2008), page 2[1].

Figure 1 Total Health Expenditure, Canada, 1975 to 2008

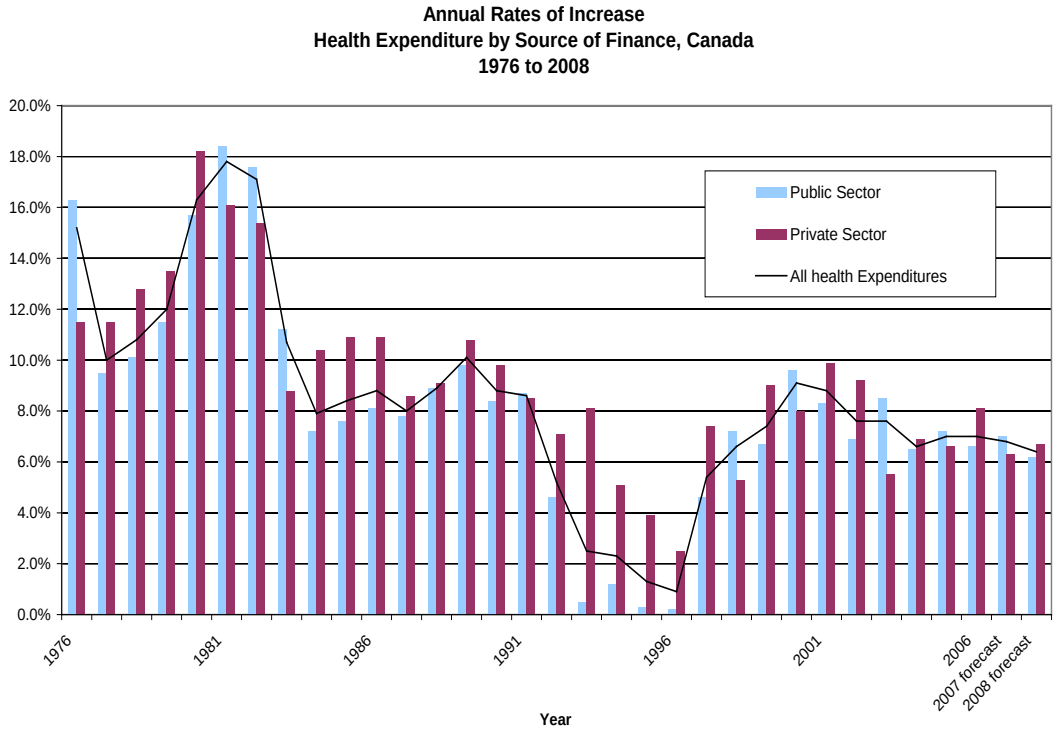


Source
National Health Expenditure Database, Canadian Institute for Health Information.

[1] Reproduced with permission of the Canadian Institute for Health Information.

Graph 2

The chart below was created using data extracted from: Canadian Institute for Health Information, *National Health Expenditures Trends 1975–2008* (Ottawa, ON, 2008), page 99[2].

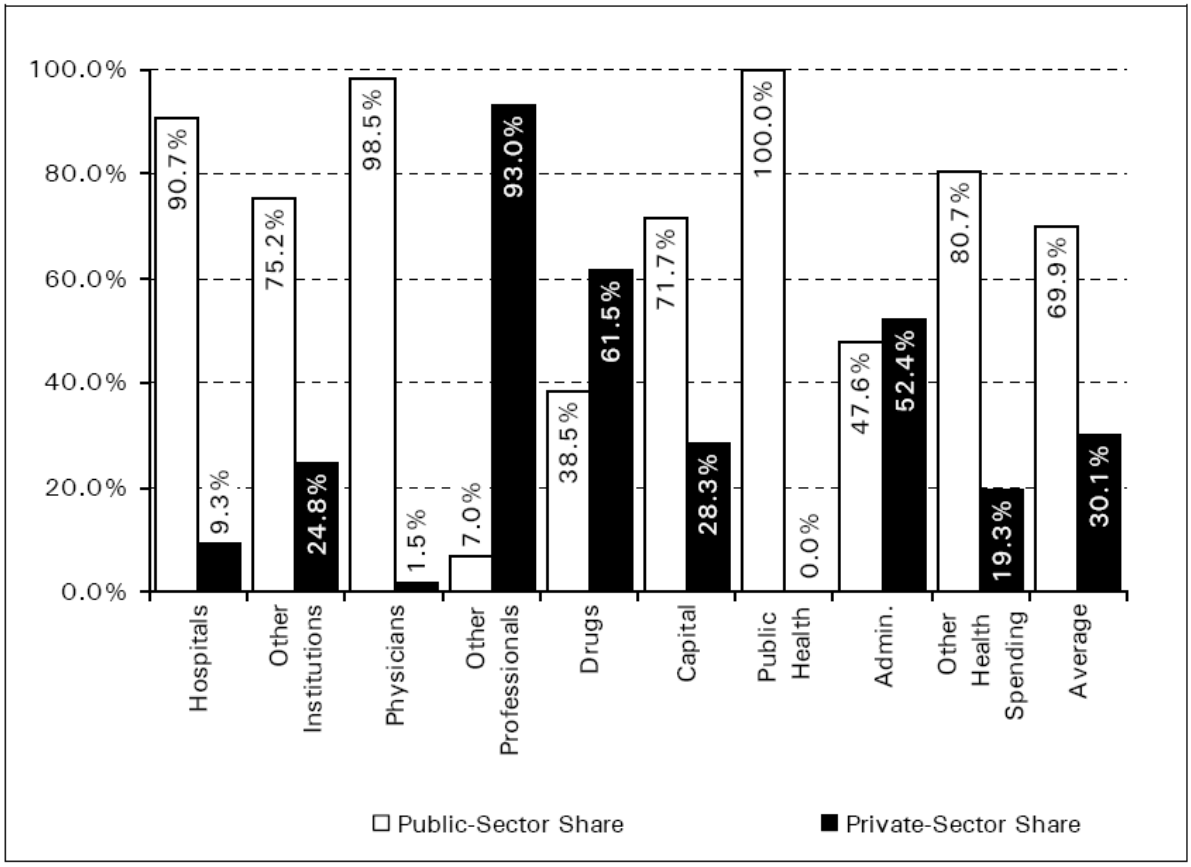


[2] Reproduced with permission of the Canadian Institute for Health Information.

Graph 3

This graph was extracted from: Canadian Institute for Health Information, *National Health Expenditures Trends 1975–2008* (Ottawa, ON, 2008), page 17[3].

Figure 12 Public and Private Shares of Total Health Expenditure, by Use of Funds, Canada, 2006



Source
National Health Expenditure Database, Canadian Institute for Health Information.

[3] Reproduced with permission of the Canadian Institute for Health Information.

Table 1

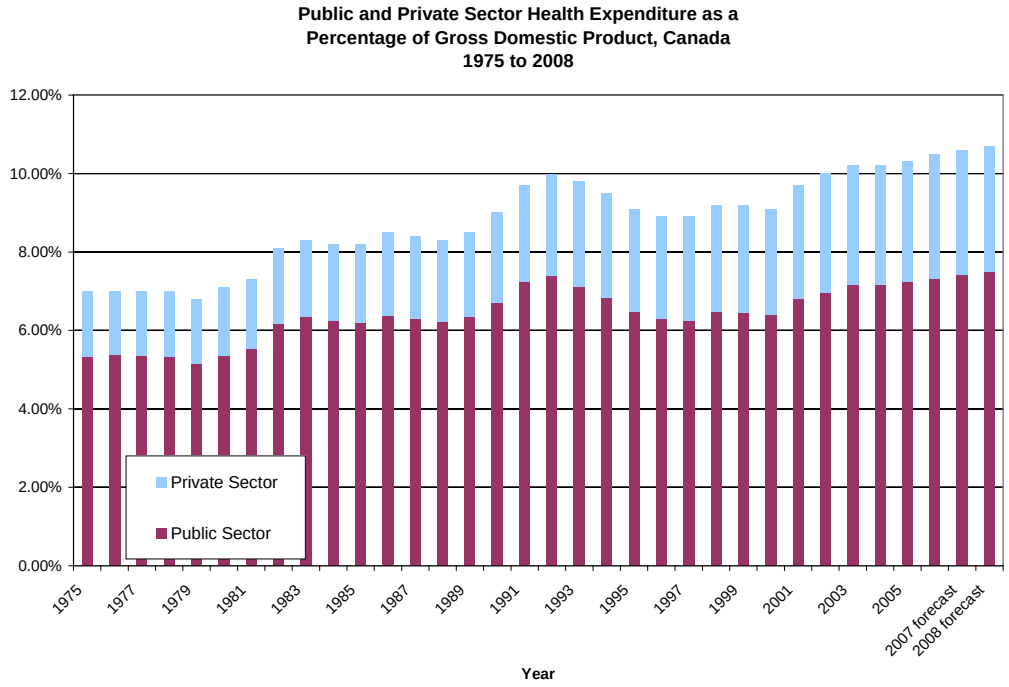
This table was created from data extracted from: Health Canada, *Health Expenditures in Canada by Age and Sex, 1980–81 to 2000–01*, page 15.

Private Share of Health Expenditures Impact on Annual Trends*					
Age Group	**1980–81 %**	**1990–91 %**	**2000–01 %**	**1980–81 to 1990–91**	**1990–91 to 2000–01**
0–14	35.1	36.2	39.8	0.3%	1.0%
15–24	21.5	22.4	33.8	0.4%	4.2%
25–34	30.8	29.9	27.8	-0.3%	-0.7%
35–44	31.9	35.1	36.4	1.0%	0.4%
45–54	29.4	34.6	38.8	1.6%	1.2%
55–64	24.2	29.1	33.8	1.9%	1.5%
65–74	17.1	18.5	24.9	0.8%	3.0%
75–84	15.7	15.9	19.6	0.1%	2.1%
85+	18.0	17.6	19.4	-0.2%	1.0%
[65+]	16.8	17.3	21.3	0.3%	2.1%
Total	24.8	25.8	29.3	0.4%	1.3%

* Impact on private plan trends will differ due to factors such as differences between the growth in private plan membership versus growth in population and the fact that the private share of health care is not limited to private health care plans.

Graph 4

The graph was created from data extracted from: Canadian Institute for Health Information, *National Health Expenditures Trends 1975–2008* (Ottawa, ON, 2008), pages 97 and 102[4].

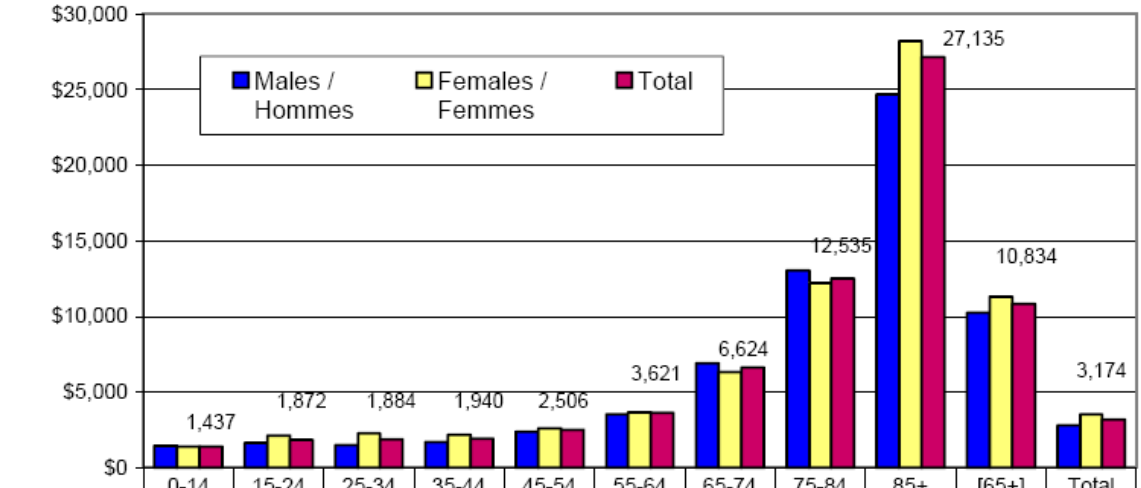


[4] Reproduced with permission of the Canadian Institute for Health Information.

Graph 5

The graph was extracted from: Health Canada, *Health Expenditures in Canada by Age and Sex, 1980–81 to 2000–01*, page 13.

Text Figure 3 - Figure explicative 3
Per Capita Total Health Expenditures by Age Group and Sex
Dépenses totales de santé par habitant selon le groupe d'âge et le sexe
Canada, 2000-01



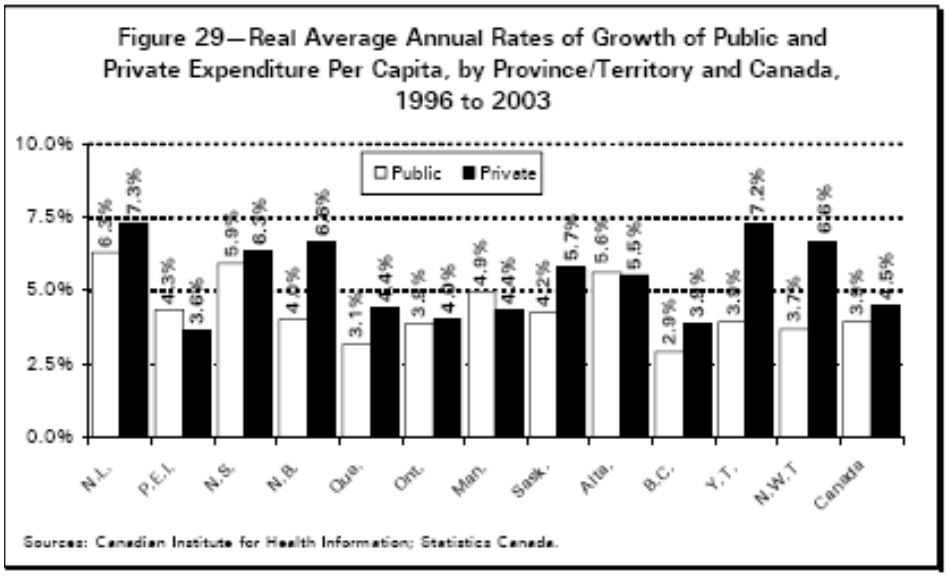
	0-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	[65+]	Total
Males / Hommes	1,476	1,639	1,505	1,696	2,391	3,561	6,930	13,033	24,703	10,218	2,806
Females / Femmes	1,395	2,116	2,272	2,186	2,619	3,679	6,353	12,205	28,197	11,294	3,536
Total	1,437	1,872	1,884	1,940	2,506	3,621	6,624	12,535	27,135	10,834	3,174

Age group / Groupe d'âge

Source: Health Canada / Santé Canada

Table 2

This table was extracted from: Canadian Institute for Health Information, *National Health Expenditures Trends 1975–2005* (Ottawa, ON, 2008), page 40[5].



[5] Reproduced with permission of the Canadian Institute for Health Information.