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# Canadian health expenditures: Where do we really stand internationally?

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## Abstract

THERE ARE DIFFERENT WAYS TO MEASURE how much Canada spends on health care and the quality of these measurements may vary. This paper examines Organization for Economic Cooperation and Development data for 3 common standards of measure: health expenditures as a proportion of gross domestic product (GDP), nominal spending per capita (US dollars) and spending per capita in purchasing power parities (PPP) equivalents. In 1994, the most recent year for which there were firm data, Canada spent 9.9% of its GDP on health care (rank 3 of 29), and \$1999 PPPs per capita (rank 3). However, actual spending was only US\$1824 per capita (rank 14). In the same year Japan spent 7% of GDP on health care (rank 22), \$1478 in PPPs per capita (rank 16), but actually spent US\$2614 per capita (rank 3). Although each measure is suitable for some policy purposes, Canadian spending remains modest by international standards.

**T**he debate about health spending in Canada centres on 2 questions. Is the system underfunded? Or would there be enough resources in the system if only they were managed better?

There is no factual way to determine how much Canada should spend on health care, so analysts have instead tried to examine how much similar countries are spending.

Drawing from these international comparisons, recent discussions about Canadian spending have started with the assumption that this country has one of the world's most expensive health care systems. Our pride in medicare was easy to maintain when the United States was the only basis of comparison, but once other industrialized countries were examined, analysts discovered that Canada appeared to be spending the 2nd largest proportion of gross domestic product (GDP) on health care, which would have given it the distinction of having the world's most expensive publicly funded system. The response was a determination to manage "out-of-control" spending; indeed, this "fact" is still widely cited to prove that Canada is spending enough for health care — it only has to manage the system better. But is that diagnosis correct?

## Limitations to international data

The invaluable resource for people trying to make these international comparisons is a series of publications by the Organization for Economic Cooperation and Development (OECD), which has been seeking to standardize how health data are reported. We have used 1994 and 1997 OECD data.<sup>1</sup> Because of revisions, the data on the OECD's 1998 CD-ROM often differ from those already published in other sources, including the 1996 edition of OECD health data that we had employed in earlier work.<sup>2,3</sup> The most recent year for which data can be considered firm is 1994; the 1995–1997 figures are designated provisional.<sup>1</sup> Rankings are based on data provided for the 29 industrialized and semi-industrialized member countries, with data for the former Eastern Bloc countries being less complete.

Although OECD data are the best available, researchers have noted some inherent theoretical and practical limitations: "Contrary to the economy at large, performance in health care cannot be studied with a simple set of indicators. . . . Simple indicators of a health system's performance do not yet exist, particularly for comparative purposes."<sup>4</sup>

The OECD describes national spending on health as the sum of personal spend-



ing, collective health services, health program administration and health insurance and investment into medical facilities.<sup>1</sup> Personal medical care is the sum of inpatient care (including nursing homes), ambulatory care (including physician and dental services) and purchases of medical goods such as drugs. Collective outlays include health promotion and prevention, school, public and environmental health and occupational health services.

There are several limitations to international comparisons. Countries may vary in what is counted as health spending as well as in how they classify expenditures into subsectors, which depends upon how care is organized and delivered. Data quality may also vary across countries and over time.

The first limitation to international comparisons arises because countries may differ in what they count as health spending. This can lead to considerable cross-national differences, although the OECD continues its valiant standardization efforts. Accordingly, numbers may vary across different OECD publications, depending upon which corrections have been made.

Classification issues cause many problems of interpretation. For example, data about hospital spending clearly depend upon how much use is made of day surgery and whether day-surgery expenditures are classified with inpatient care. (Although the OECD recommends that all services of hospital outpatient departments be reported as ambulatory care rather than as hospitals, most countries, including Canada, have not yet been able to comply.) Similarly, classification of long-term care may depend on whether it is given in hospitals, in nursing homes or at home. In Canada, data for pharmaceutical spending can be affected by the shift of care from hospital global budgets into the community.

Another limitation is that data quality may vary among countries and within health sectors. In Canada it is far more difficult to determine how much money is being spent privately — on complementary medicine, for example — than to track public payments to hospitals and physicians. Official data almost certainly underestimate private, out-of-pocket payments for many uninsured services. Indeed, without careful attention to data quality, comparisons of Canadian data for even public expenditures are likely to become more difficult, as provinces regionalize, and health authorities may change the way in which they track expenditures. For example, managers of an integrated system may find little reason to break down spending by sector.

### Measuring comparative health spending: the measures matter

The third issue concerns the choice of which metric (standard of measure) will be used to compare expenditures across countries. Indeed, 1998 OECD data include 21 different data series for examining total expenditure on health. The obvious starting point is the amount of money each

country spent, in terms of national currency units. These data, while essential for budget makers, are of no use for international comparisons: one cannot make a meaningful comparison between dollars and yen.

Data must somehow be adjusted, and the simplest way to do this is to convert spending into a common currency, usually US dollars. The resulting series are termed “nominal” expenditures, as opposed to “real” expenditures. As well, since a country with a large population will have to spend more than one with fewer people, per capita spending is also a useful tool.

Which other corrections should be included is less obvious. Indeed, changes in nominal health expenditures can be analysed in terms of changes in the prices of the goods purchased, changes in the size and composition of the populations covered and changes in the real benefits per person.<sup>5</sup>

The most common standards of measure used are spending as a percentage of GDP, nominal dollars per capita and PPPs (purchasing power parities) per capita. International comparisons can vary depending upon which of these is used.

### International spending as a percentage of gross domestic product

The most popular measure and the one usually relied upon during debates is health expenditures as a percentage of GDP (where GDP is defined as the sum of total domestic expenditure plus exports of goods and services, minus imports of goods and services. GDP closely resembles gross national product (GNP), differing primarily in its treatment of investment income of nonresidents.<sup>6</sup> The OECD health data follow most international organizations in employing GDP rather than GNP.) Health spending as a proportion of GDP measures how much of the total economy is devoted to health care.

The high mark of Canadian spending using this measure was reached in 1992/93. In 1993, the United States spent by far the highest proportion of GDP on health care (14.1%). However, Canada was 2nd, at 10.2%. Although 4 other countries (Germany, France, Switzerland and the Netherlands) spent more than 9% and another 9 spent more than 8%, some industrialized nations like the United Kingdom and Japan were spending less than 7% of GDP and appeared to be achieving health outcomes similar to Canada's. In particular, analysts held up the Japanese system as a success story. They wondered how it was able to achieve excellent outcomes when only 6.6% of GDP was being spent on health care.

Fig. 1 shows 1994 data — the most recent year for which data are no longer deemed provisional — for health spending as a percentage of GDP for 22 of the most industrialized OECD countries. In that year, the United States ranked highest of the 29 countries in the OECD database, (14.1% of GDP). Germany was in 2nd place. Canada, at 9.9%, placed 3rd. In Japan, spending had increased to 6.9% of GDP.



At first glance, this widely used measure appears to give an excellent indication of relative spending. But does it? First, just as rich people have more disposable income left after buying life's necessities, richer countries can afford to devote a higher proportion of their national wealth to health care. Indeed, various international comparisons that used data for different years and different countries have established that linear regressions with health spending as a proportion of GDP as the dependent variable and per capita GDP as the independent variable can explain between 77% and more than 90% of the variance. In these comparisons, Canada's spending falls well within the confidence interval around the regression line (it is not an outlier).<sup>7,8</sup>

Second, and crucially, because ratios have both numerators and denominators, spending as a proportion of GDP reflects not only how much is being spent for health services but also the health of the economy.<sup>9</sup> In the 1980s and 1990s, Canada experienced several recessions; had the economy kept growing at the same rate as between 1960 and 1980, health care spending would have remained at its level of about 7.5% of GDP, while spending on the public portions — doctors and hospitals — would have dropped.<sup>9</sup> Thus, by considering spending only as a proportion of GDP, we risk confounding the efficiency of a health care system with the health of an economy.

### Spending in nominal dollars per capita

The next potential standard of measure, nominal dollars per capita, converts spending into a common unit (usually US dollars) and then divides by population. This measure adjusts for population size (although not age structure) but confounds the strength of the currency, the quantities of

goods and services provided and price differences, as well as factors affecting the economy as a whole, such as capital flows by investors.

Fig. 2 presents 1994 OECD data for the same countries as Fig. 1, arrayed in the same order, but now showing each country's per capita spending on health care, converted into US dollars. The differences are striking. Although the United States remained in first place, Switzerland was now very close behind. Canada's spending of \$1824 per capita placed it 14th. In contrast, Japan, which had appeared to be a major success story when measured by percentage of GDP, was actually spending \$2614 per capita — 3rd highest in the OECD. (Comparing 1994 with 1993, Canada's spending had dropped by more than 5%, while Japan's was 14.8% higher.) This suggests that if Canada had tried to adopt more Japanese methods, actual spending would have been even higher. The United Kingdom, which was in 18th position, had increased its actual spending by 9.1%. By this standard, it is not clear that Canada has a cost crisis — at least, not in international terms.

### Purchasing power parities per capita

The third suggested standard of measure employs PPPs, which are the rates of currency conversion that allow the purchasing power of different currencies to be expressed in a common unit. In other words, they compute the sum required to buy the same basket of goods and services in each country if everyone had to pay the same prices as the United States. PPPs eliminate all differences in price levels among countries so that international variations reflect only differences in the volume of goods and services pur-

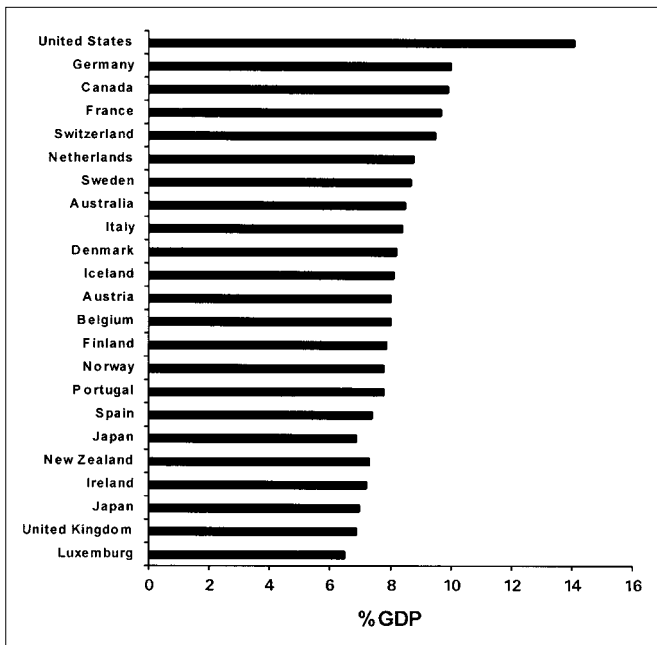


Fig. 1: Health expenditures, measured as a percentage of GDP, of 22 of the most industrialized OECD countries (1994 data).

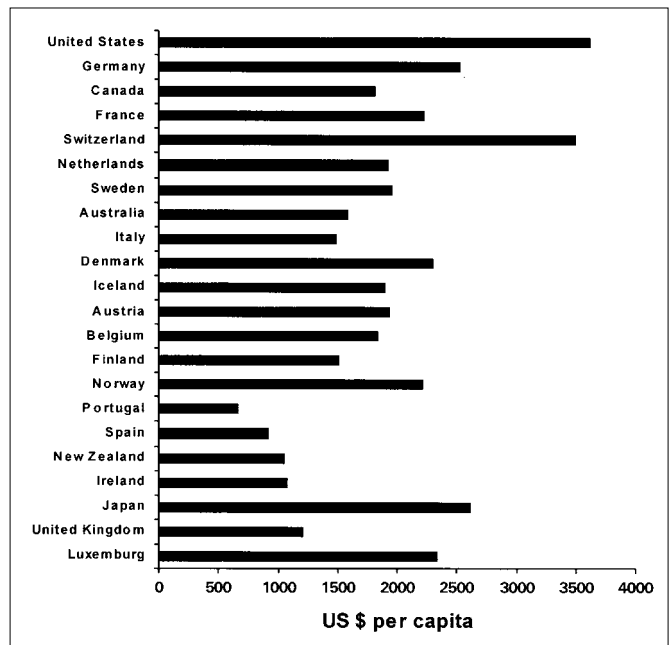


Fig. 2: Health expenditures, measured as per capita spending in US dollars (1994 data). Countries are arranged in same order as in Fig. 1.



chased. As such, they are the preferred approach for many international comparisons.

Fig. 3 shows the same countries (again in the same order as Fig. 1) but now showing per capita spending in PPPs per capita. Canada's performance once again looks questionable: it is back in 3rd place, with spending in PPPs at US\$1999 per capita. By this standard, Japan is in 16th place. This reinforces the suggestion that the primary reason the United States spends more on health care is that it pays more to buy a given amount of care.<sup>10</sup> Indeed, Canada appears to have been quite efficient: it bought a relatively high amount of services (in terms of PPPs) for a relatively low price in nominal dollars.

Most OECD studies use the per capita PPP measure, which captures differences in service volume. At present, PPPs for health care are at a relatively early stage of development and the precise values have varied considerably across data sets. Beyond these statistical issues, however, it is not clear that use of PPP conversions is the most appropriate method for examining efficiency, as opposed to examining the amount of care provided. One study noted that the differential in expenditures for physicians' services between Canada and the United States was explained entirely by US fees that are more than double those in Canada. The quantity of physicians' services used per capita was greater in Canada than in the United States. However, the US physicians did fewer procedures, had much greater overhead expenses and ended up with higher incomes. The authors concluded that "the US uses 84% more real resources than Canada to produce a given quantity of physicians' services."<sup>11</sup>

Another study by the same team found that Canada had more beds, more admissions, more outpatient visits and

double the number of inpatient days per capita, but spent less per capita. It determined that Canadian hospitals had lower administrative costs and superior utilization of available equipment and personnel.<sup>12</sup> To the extent that the PPP corrects for this delivery efficiency by adjusting for price differentials, it in effect inflates purported spending by assigning US prices to Canada's traditionally heavier reliance on institutional care.

With PPPs, efficiency involves only reductions in the volume of care, with no attention paid to whether this produces valuable outcomes, or whether it might be purchased or delivered at lower cost.

Table 1 presents preliminary 1997 data for the G-7 countries, giving the values on these 3 measures, and the rank orders among the 29 nations included in the database.

The relative rankings of Canada and Japan are very volatile when these different measures are used. In contrast, the United States and the United Kingdom, with which Canada is usually compared, tend to stay in the same relative position.

## Conclusion

There is room for improvement in every health care system, but Canada's current health expenditures do not seem to support the panicked calls for radical changes in Canada's medicare system. This is particularly true for those who have called for an expansion in private funding on the grounds that the current system is unaffordable. As the National Forum on Health demonstrated, public financing is more economically efficient for care deemed medically necessary.<sup>13-15</sup> Assuming that the economy is healthy enough to sustain the desired level of social programs, international data suggest that Canadian spending falls within the general levels found for other countries at its level of development. Indeed, Canadian spending as a proportion of GDP has declined rapidly as the Canadian economy has improved. The PPP data might even suggest that Canadian providers have been relatively efficient, in that considerable volumes of care are being pur-

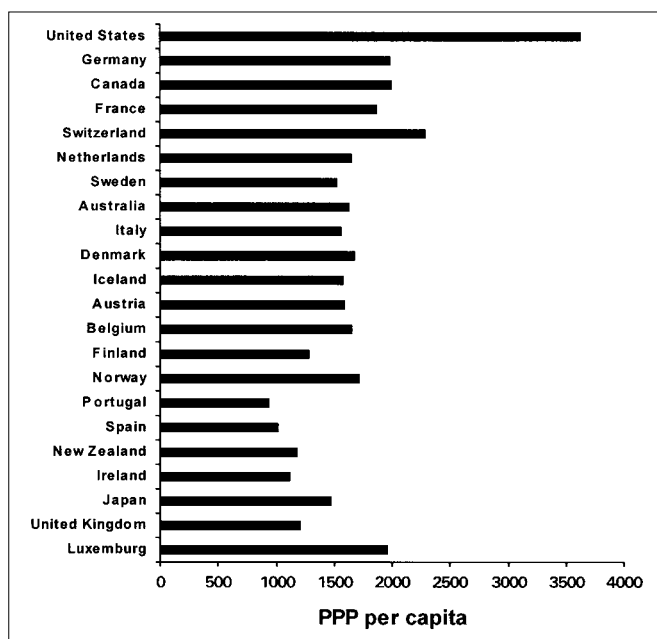


Fig. 3: Health expenditures in 1994, measured as per capita spending in purchasing power parities (1994 data). Countries are arranged in same order as in Fig. 1.

Table 1: Three ways of measuring health expenditures, G-7 countries, 1997\*

Country	% of GDP	Expenditure measure; value (and rank)	
		US \$ per capita	PPP per capita
United States	14.0 (1)	4090 (1)	4090 (1)
Germany	10.4 (2)	2677 (3)	2339 (4)
France	9.9 (4)	2348 (8)	2103 (5)
Canada	9.3 (5)	1837 (13)	2095 (6)
Italy	7.6 (14)	1515 (17)	1589 (16)
Japan	7.3 (19)	2453 (6)	1741 (14)
United Kingdom	6.7 (24)	1457 (18)	1347 (19)

Note: GDP = gross domestic product, PPP=purchasing power parities.

\*Source: OECD health data. Compact disc on the health systems of 29 OECD member countries, 1998. Rankings are based on the 29 countries included in database. All data in this table are provisional.



chased for relatively lower prices than are paid in certain other countries.

Aggregate data cannot tell us whether the care delivered is appropriate or whether it is delivered efficiently. Nonetheless, the data reported by the OECD suggest that the oft-quoted remark that Canada is spending enough on health care may no longer be fully accurate, because Canadian spending appears relatively modest in international terms. As the economy improves, Canadians may be able to afford improved absolute levels of public funding, while still maintaining what is considered an internationally reasonable relative proportion of national wealth.

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## CALL FOR PAPERS CMAJ's Osler issue

On July 12, we will celebrate the 150th anniversary of the birth of William Osler. *CMAJ's* contribution to the festivities will be a special Osler issue, to be published in October. Original articles on Osler's life and works received by June 30 will have a greater chance of acceptance. For details see the editorial in the February 9 issue (*CMAJ* 1999;160:346) or read it online ([www.cma.ca/cmaj/vol-160/issue-3/0346.htm](http://www.cma.ca/cmaj/vol-160/issue-3/0346.htm)).

Can you guess which of these men is Osler?



Answer: The one wearing the tall hat. The other is Osler's McGill cronie, Frank Shepherd.

### What's your sign?

We invite you to send us your brief descriptions (250 to 300 words) of physical signs that have been named after Osler or whose discovery is attributed to him. Documentation of the original attribution to Osler and a high-quality photograph or illustration should be provided.