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and Michael Robert Law

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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- P preliminary
- r revised
- X suppressed to meet the confidentiality requirements of the *Statistics Act*
- E use with caution
- F too unreliable to be published
- * significantly different from reference category ($p < 0.05$)

Trends in out-of-pocket health care expenditures in Canada, by household income, 1997 to 2009

by Claudia Sanmartin, Deirdre Hennessy, Yuqian Lu and Michael Robert Law

Abstract

Background

Canadian households are spending an increasing share of their household income on health care not covered by public plans. This study investigates trends in out-of-pocket expenditures for health care services and products by household income quintile from 1997 to 2009.

Data and methods

Biennial estimates from the Survey of Household Spending between 1997 and 2009 were used to examine changes in out-of-pocket health care expenditures by household income quintile. The statistical significance of these changes was assessed using linear and logistic regression.

Results

In 2009, the percentage of after-tax household income spent on health care among low-income households (5.7%) was nearly twice that of high-income households (2.6%). Approximately 40% of households in the two lowest income quintiles spent more than 5% of their total after-tax income on health care services, compared with 14% of households in the highest income quintile. The increase in spending between 1997 and 2009 was greatest for households in the lowest income quintile (63%).

Interpretation

Out-of-pocket health care expenditures have increased for households in all income quintiles, but the relative increase was greatest among households in lower income quintiles.

Keywords

Cost of illness, dental care, health expenditures, health insurance, prescription drugs

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The private sector plays an active role in financing health care services and products in Canada, most notably in the areas of prescription medication, dental care and private insurance.¹ Private sector expenditures are derived primarily from private insurance and out-of-pocket expenditures (excluding insurance premiums) and totaled \$56.9 billion in 2010, which represented about 30% of total health care spending. This percentage has remained relatively unchanged for several decades. Since the late 1980s, however, as a share of private expenditures on health care, out-of-pocket spending dropped from 58% to 49%.¹

Despite this, Canadian households are spending an ever-increasing percentage of their total household income on health care.² Between 1998 and 2009, out-of-pocket expenditures on health care services and products increased by 2.9% annually; the percentage of households spending more than 10% of their total after-tax income on health care rose by 56%.³ Out-of-pocket expenditures for health care have been shown to represent a cost burden for some Canadians, particularly those in lower income groups, which sometimes results in reduced use of services.⁴⁻⁸ It is unknown, however, whether the growth in out-of-pocket expenditures for health care services differs by household income.

Using data from the annual Survey of Household Spending, this study investigates trends in out-of-pocket expenditures on health care products and services from 1997 to 2009 by household income quintile.

Methods

Data

The Survey of Household Spending (SHS) collects information about household expenditures on a range of services and products, including those related to health care. The SHS is conducted annually in the 10 provinces. It was conducted annually in the territories until 1999, and every second year until 2009. The target

population is individuals living in private households, and therefore, excludes residents of institutions such as chronic care hospitals and senior citizens' homes, members of religious orders and other groups living communally, members of the Canadian Forces living on military bases, and individuals residing permanently in hotels or rooming houses. Also excluded are foreign countries' official representatives and their families residing in Canada, and individuals living on Indian reserves or public lands (except the territories). The survey covers nearly 98% of the population of the 10 provinces.⁹

For this study, SHS data for every second year from 1997 to 2009 were analyzed. The response rates ranged

from 64.5% (2009) to 76% (1997). The analysis excluded the territories and households that reported non-positive after-tax income or whose after-tax income was less than their total health care expenditures; these households made up 0.36% of the total sample. The final study sample sizes were: 1997 (n = 17,077), 1999 (n = 16,269), 2001 (n = 16,023), 2003 (n = 16,328), 2005 (n = 14,379), 2007 (n = 13,183), and 2009 (n = 10,099).

Data were obtained directly from respondents using printed questionnaires (until 2006) and computer-assisted personal interviews (2006 and after). The data were collected from January to March and pertained to the previous year (reference year). The SHS has been used in prior research, and is the official source of information for out-of-pocket expenditures for the annual *National Health Expenditure Reports* produced by the Canadian Institute for Health Information.¹

Total household health care expenditures include direct expenditures and insurance premiums for a range of services and products including dental care, eye care, and prescription medications. Direct expenditures are defined as those not covered by insurance, such as exclusions, deductibles and expenses over limits, and exclude payments for which individuals have been or will be reimbursed. Insurance expenditures include premiums for provincial or territorial hospital, medical or drug plans, private health insurance plans, dental plans sold as separate policies, and accident or disability insurance.¹⁰

Analytical techniques

Total after-tax income was calculated by subtracting self-reported income tax paid from self-reported income. Income quintiles were created and adjusted to account for household size by dividing total after-tax income by the square root of household size.^{11,12} All dollar amounts were adjusted for inflation (converted to 2009 constant dollars) by dividing by the Consumer Price Index.¹³ While various

options for inflation adjustment are available, the selection of price index does not detract from the results.

Average out-of-pocket expenditures are expressed both in terms of the percentage of total household income (after-tax) spent on health care services and products, and the percentage of households with health care expenditures amounting to more than 5% of total household income (after-tax). This threshold is used by Statistics Canada and other government agencies to report on the burden of out-of-pocket expenditures.^{14,15}

The overall percentage change in out-of-pocket expenditures and burden of expenditures over the study period was calculated as: (2009 expenditures - 1997 expenditures)/1997 expenditures*100. Linear regression models were used to assess the statistical significance of the change in expenditures (in dollars) across income quintile and over time. Specifically, dummy variables for year were inserted in the models to determine the change over time. A logistic regression model for binary outcomes was used to assess the change in the percentage of households spending more than 5% of their total income on health care. Analyses were conducted for health care expenditures overall and for spending on prescription medications, dental services, and insurance premiums. All estimates were calculated using survey weights to represent the Canadian household population. Analyses were completed using Stata 11.

Results

Rising expenditures

Regardless of their income, most Canadian households report out-of-pocket expenditures on health care services or products. From 1997 to 2009, the percentage of households in higher-income quintiles reporting such expenditures remained stable at around 98%. For households in the lowest income quintile, the percentage increased from 90.7% to 92.4% (data not shown).

What is already known on this subject?

- Out-of-pocket expenditures for health care services have been shown to represent a cost burden for some Canadians, which can lead to reduced use of services.
- Out-of-pocket health care spending rose in the last decade, but it is not known if the pace of increase differed by household income.

What does this study add?

- Since 1997, out-of-pocket health care spending rose for households in all income quintiles, but increases were greater for lower-income households.
- In 2009, out-of-pocket health care spending by households in the lowest income quintile averaged 5.7% of their after-tax income, double the percentage (2.6%) for households in the highest quintile.
- In 2009, almost 40% of households in the two lowest income quintiles spent at least 5% of their total after-tax income on health care; this was the case for 14% of households in the highest income quintile.

During that period, spending on health care rose significantly for all households, but the greatest increase—63.2%—was for households in the lowest quintile (Table 1). Nonetheless, households in higher income quintiles spent much larger absolute amounts. When adjusted for household size, average expenditures varied nearly threefold between households in the lowest and highest quintiles. In 2009, health care spending by households in the lowest quintile averaged \$1,030, compared with \$2,964 for households in the highest income quintile (Table 1).

Percentage of after-tax income

Although the dollar amounts spent on health care were highest for households in the top income quintile, as a percentage of after-tax income, the amounts were greatest for households in the lowest quintile. For example, in 2009, out-of-pocket health care expenditures represented 5.7% of the total after-tax income of households in the lowest income quintile, compared with 2.6% for households in the highest quintile (Figure 1).

As a percentage of after-tax income, out-of-pocket health care expenditures rose significantly for households in all income quintiles. However, the increase was greatest for households in the lowest income quintile (Figure 1).

The percentage of households spending more than 5% of their after-tax income on health care was higher among households in lower than in higher income quintiles. In 2009, almost 40% of households in the two lowest income quintiles had this level of spending, compared with 14% of households in the highest income quintile (Table 2).

For all income quintiles, the percentage of households reaching this spending threshold rose between 1997 and 2009. However, for households in the lowest quintile, the increase was from 26% to 37%; for households in the highest quintile, the increase was from 10% to 14% (Table 2).

Table 1
Average household out-of-pocket expenditures on health care (2009 dollars), by household income quintile, Canada excluding territories, 1997 to 2009

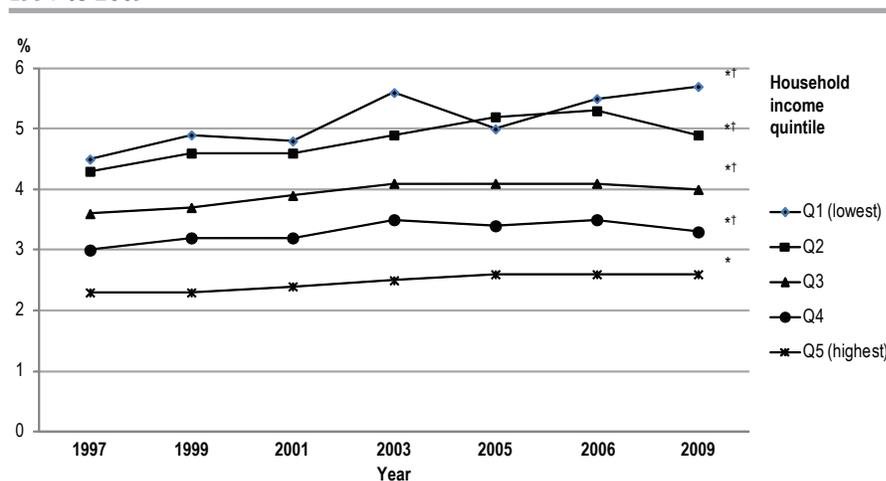
Household income quintile	Year							1997 to 2009 % change
	1997	1999	2001	2003	2005	2007	2009	
	\$							
Q1 (lowest)	631	676	700	753	794	892	1,030	63*†
Q2	1,172	1,284	1,317	1,375	1,564	1,725	1,644	40*†
Q3	1,448	1,570	1,676	1,746	1,867	1,937	1,973	36*†
Q4	1,664	1,834	1,901	2,040	2,139	2,269	2,258	36*†
Q5 (highest)	2,007	2,049	2,260	2,380	2,737	2,792	2,964	48*

*significant change over time

†significantly different from Q5 (highest income quintile)

Source: 1997 to 2009 Survey of Household Spending.

Figure 1
Average household out-of-pocket expenditures on health care as percentage of after-tax income, by household income quintile, Canada excluding territories, 1997 to 2009



* significant change over time

† significantly different from Q5 (highest income quintile)

Source: 1997 to 2009 Survey of Household Spending.

Table 2
Percentage of households with out-of-pocket expenditures on health care more than 5% of total household income, by household income quintile, Canada excluding territories, 1997 to 2009

Household income quintile	Year							1997 to 2009 % change
	1997	1999	2001	2003	2005	2007	2009	
	%							
Q1 (lowest)	26	29	30	33	34	37	37	40*†
Q2	30	33	35	37	38	39	36	23*†
Q3	23	25	26	30	30	29	31	33*†
Q4	16	19	19	21	22	22	19	16*†
Q5 (highest)	10	9	10	13	13	13	14	42*

*significant change over time

†significantly different from Q5 (highest income quintile)

Source: 1997 to 2009 Survey of Household Spending.

Expenditure categories

Throughout the 1997-to-2009 period, the three largest components of out-of-pocket health care expenditures were dental services, prescription medications and insurance premiums, collectively making up about 60% of all out-of-pocket health care spending. In 2009, household spending in these categories averaged \$384 (dental), \$320 (drugs) and \$650 (insurance premiums)(data not shown).

The amounts and relative ranking of these expenditures differed depending on income quintile. For example, in 2009, average spending on prescription drugs was highest—\$388—for households in the second-lowest quintile; this compared with \$268 for households in the highest (Table 3). As well, households in the lowest quintile spent more on prescription drugs (\$296) than they did on insurance premiums (\$222) or dental care (\$167). For households in the other income quintiles, insurance was the highest spending category. Dental services ranked second for households in the two top income quintiles, but third for households in the lower income quintiles.

From 1997 to 2009, expenditures on insurance premiums increased most rapidly, rising 80% to 90% for households in the three lowest income quintiles, and 52% for households in the highest income quintile. Prescription drug and dental expenditures increased approximately 60% for households in the lowest income quintile (Table 3). The increases were statistically significant for all three spending categories across all years (except drug expenditures between 1997 and 1999), and across all income quintiles.

Discussion

The results of this study demonstrate that while out-of-pocket health care spending among households in all income quintiles rose between 1997 and 2009, the increase was greater for lower-income households. This trend was observed for health care expenditures overall, and for each of the three major components of out-of-pocket spending: prescription drugs, dental care and insurance premiums.

Faster increases in out-of-pocket spending for lower-income households may have implications for access to health care. Lack of insurance and the burden of out-of-pocket expenditures have been associated with inequitable use of services such as dental care and prescription medications.^{16,17} The recent trend may result in greater inequities in the use of these types of services in the future, particularly for specific low-income groups. For example, the cost burden of prescription medications was greatest among households in the second-lowest income quintile, who may constitute an at-risk group—that is, individuals with higher out-of-pocket expenditures, but who may not qualify for public drug insurance coverage. These findings may have consequences for access to prescription medication. Recent evidence from Canada suggests that almost 10% of individuals who received a prescription in the previous year experienced cost-related non-adherence (did something to make a prescription last

longer, did not fill a new prescription, or did not renew a prescription); those whose income was lower and who lacked insurance were at greater risk.⁷

Much of the household spending on health care was driven by insurance premiums, particularly for households in lower income quintiles. This was likely because premiums in both the public and private sectors are not set based on income, but rather, as a flat charge (for example, British Columbia's Medical Services Plan Premiums) or as experience-based premiums (most private insurance plans). As a result, these fees represent a larger share of the income of lower-income households. Of note, the increasing burden of insurance premiums, particularly for lower income groups, may represent an economic burden resulting in lower wages and/or less available funds for spending on other services and needs.¹⁸ Continued monitoring of out-of-pocket expenditures for insurance premiums, both public and private, will be important.

Table 3
Average household out-of-pocket expenditures on dental services, prescription drugs and insurance premiums (2009 dollars), by household income quintile, Canada excluding territories, 1997 to 2009

Health care spending category and household income quintile	Year						1997 to 2009 % change	
	1997	1999	2001	2003	2005	2007		2009
	\$							
Dental services								
Q1 (lowest)	105	98	120	129	128	140	167	60*†
Q2	226	260	239	205	277	322	296	31*†
Q3	265	331	302	319	358	385	341	29*†
Q4	331	366	396	417	404	424	435	31*†
Q5 (highest)	408	431	452	446	554	572	646	58*
Prescription drugs								
Q1 (lowest)	180	188	189	209	223	239	296	64*†
Q2	298	318	315	356	370	403	388	30*†
Q3	287	278	308	334	348	340	339	18*†
Q4	236	258	254	295	296	316	316	34*†
Q5 (highest)	222	206	238	261	262	250	268	21*
Insurance premiums								
Q1 (lowest)	117	140	163	160	202	231	222	89*†
Q2	261	317	366	417	460	512	497	91*†
Q3	399	457	573	615	617	646	722	81*†
Q4	526	570	670	692	753	805	786	50*†
Q5 (highest)	637	652	825	858	955	964	965	52*

* significant change over time

† significantly different from Q5 (highest income quintile)

Source: 1997 to 2009 Survey of Household Spending.

Limitations

The results of this study should be considered in the context of several limitations. The SHS data are self-reported, and therefore, may be subject to recall bias, which can lead to misclassification. Specifically, a larger percentage of households report having paid income taxes than is indicated in administrative data. It is unlikely, however, that bias related to self-reported income, income-tax paid and spending on health care changed over time.

Another limitation of survey research is non-response. In the SHS, this is mitigated by imputation of missing data.⁹ For health care expenditures, imputation is based on data on income and the number of adults and children in the household in the same province.

Finally, the SHS is not a health survey and did not collect information that could indicate the need for health care services or health care outcomes associated with certain spending patterns.

Conclusion

Out-of-pocket health care expenditures have increased for Canadian households, particularly those in lower-income quintiles. The implication of such changes is that access to services that fall outside of hospital and physician care is likely becoming less equal across different income quintiles. The burden of these expenditures is greater for those living in lower income households—a trend that may have an impact on access to prescription drugs, dental care, vision care and other services for lower-income Canadians. ■

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