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For the Good of the Patients:

Financial Incentives to Improve Stability in the Canadian Health Care System

Grant L. Reuber and
Finn Poschmann

In this issue...

Canadian health costs are rising rapidly partly because patients and health care providers have few financial incentives to manage them and little information about how best to do so. Part of the solution is a provincial tax credit, with a value determined by taxpayers' health system usage.

The Study in Brief

The tendency of Canadian public health-care costs to rise at unacceptable rates is a serious policy problem.

While past and recent reform proposals have focussed on the need for organizational and administrative change — and for more government money — little serious attention has been paid to the irresponsive financing structure that rigidly controls the market for health services. We believe that introducing direct financial incentives, bearing on both consumers and providers, would temper growth in demand for health services and place market pressure on providers to improve their efficiency and reduce costs.

This study focuses mainly on incentives bearing on consumer demand for health services and their potential for slowing growth in demand for health services. But another major benefit of incentives reform is the greatly improved management information that will help providers deliver their services more cost effectively. For example, because of a lack of detailed data, cost comparisons among providers and the health approaches they use are weak and unreliable. Patients with a financial interest in cost-effective management would bring new pressures on health care providers to use improved cost data to manage their services at the least cost consistent with good health practice. The result would be better health care, more cheaply delivered.

We believe that among available options that are consistent with the *Canada Health Act*, the best mechanism for introducing patient incentives is a provincial tax credit — the value of which would depend on a taxpayer's use of the public health-care system. This approach provides benefits to people who manage their health care most cost effectively.

Among the merits of the provincial tax credit method is that it can be implemented by individual provinces without undermining either federal-provincial tax cooperation or running counter to commonly held principles for the delivery of public health care. Furthermore, as we show in this *Commentary*, financial incentives for patients can be introduced with only a modest impact on household budgets and with a progressive impact across income groups. Also, by freeing up resources for redeployment within the health care sector and outside it, incentives can bring financial relief for provincial budgets.

The Authors of This Issue

Grant Reuber is a former federal deputy minister of finance, past president, chief operating officer and deputy chairman of the Bank of Montreal and currently a director of Sussex Circle, a public policy consulting company.

Finn Poschmann is Senior Policy Analyst at the C.D. Howe Institute.

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Efforts to improve and reform Canada's health care system in the past have largely focused on the need for more money and administrative and organizational reforms. While these efforts have generally been helpful, the propensity for health care costs to rise at unacceptable rates remains a serious problem. A major reason is the system's lack of financial incentives to restrain the demand for health services, to improve efficiency and to reduce the costs of providing health services.

In our view, no matter how much money is provided or what structural and administrative reforms are made to the health care system, without the introduction of stronger financial incentives at every level, the public's demand for services will always outrun supply. As things stand, the system is essentially a cost-plus mechanism in which balance between supply and demand is achieved through a *dirigiste* command-and-control process more sensitive to administrative, supplier, and political considerations than to individual patients' preferences and needs.

Given the restraints imposed by the *Canada Health Act*, the introduction of appropriate financial incentives at this stage in the development of the health care system will be difficult both technically and politically. Nor would the introduction of such incentives resolve all the sector's problems. But, properly designed and implemented, they could make a significant contribution to stabilizing the financial viability and improving the performance of Canada's health care system.

The issue is not only whether new financial incentives could restrain the growth in health care costs but whether they could also narrow the gap between spending levels and performance, including such considerations such as the prompt delivery of needed health services. Canada spends a lot on health care for what it gets in return relative to other industrialized countries. In 1998, for example, according to the Organisation for Economic Co-operation and Development (OECD), Canada spent about US$2,312 per capita on all health care costs, ranking fifth after the United States, Switzerland, Germany and Norway. Yet Canada ranked only thirtieth in overall performance as judged by a weighted index measuring health outputs and their financing method (Tandon et al., 2001).

In this *Commentary*, we focus on those financial incentives that bear directly on the public's demand for health care services paid for by government. Table 1 summarizes the range of potential incentive mechanisms that relate to the demand for health and shows some of the design issues pertaining to each. Among those we focus on mechanisms to which we believe health care consumers will most readily respond.

Many commentators argue that patient demand for health services is highly insensitive to direct financial incentives (see, for example, Barer, Evans, and Stoddart 1979). Moreover, it has been said that to the extent they work at all, such incentives mainly postpone the use of health services and that making up for these delays ultimately costs the health care system additional resources. The underlying premise of the Canadian system is that doctors act as gatekeepers and that patients are merely passive participants. The evidence suggests, however, that this basic

Table 1: ***New Consumer-Related Financing Mechanisms for Health***

	A. User Charges			
	Flat Point-of-Service Fee	**Cost-of-Service Fee**	**Copayment**	**Deductible**
Key features and /or examples	$25 per physician or emergency room visit	full cost of service	25% of cost of service	full or partial cost of service up to a threshold
Consumer incentives re utilization (relative to current system)	strong: reduce utilization	very strong: reduce utilization	strong: reduce utilization	strong: reduce utilization up to threshold
Incentives for taxpayers (relative to current system)	none	none	none	none
Administrative feasibility (requires per-service costing?)	easy (no)	hard (yes)	hard (yes)	hard (yes)
Incentives for providers and administrators	small	large	large	large
Net fiscal impact	mild-moderate positive (little revenue gain)	large positive	large positive	large positive
Design issues	—	treatment of low incomes	could be less than exact (hybrid between flat and full-cost income testing makes more like tax-based system)	choice of threshold

picture may be wrong.[1] Although doctors and other professionals do have considerable influence on the use that individuals make of the system, patients are indeed sensitive to financial incentives. Moreover, the evidence suggests that such incentives, rather than delaying treatment, influence patients to act more quickly than when the service is available without direct cost (OECD 2001, 8–9).

Under the *Canada Health Act*, publicly provided health care is paid for out of general government (mainly provincial) revenues. The health care charges levied against individuals and employers flow into general revenues but make up only a small share of the system's total costs — they are unrelated in any direct way to the demands individual patients make on the system.

Employer-sponsored supplementary health plans,[2] administered for the most part by third-party insurance companies to extend and upgrade the public system's basic service, are wholly or largely paid for by employers and, outside

1 The evidence is reviewed by Åke Blomqvist in the *C.D. Howe Institute Benefactors Lecture 2002* (Blomqvist 2002). Additional evidence is provided from consumer-driven, employer-financed health plans being developed in the United States (for a brief review of such plans, see Waldholz, 2002).

2 According to the Canadian Life and Health Insurance Association, such plans cover at least 6.2 million employees and 8.9 million dependants (including some doublecounting).

Table 1: ***New Consumer-Related Financing Mechanisms for Health (cont'd)***

	B. Individual Tax/Transfer-Based Mechanism				
	Enhanced Medical Expense Deduction	**Income-Tested Clawback**	**Taxation of Service Value Through Personal Income Tax**	**Medical Tax Credit**	**Medical Saving Account**
Key features and /or examples	replace current credit with deduction for receipted fees	40% clawback of service value up to 3% of income from families with Y>$10K	add value of services to taxable income	provide credit for annual amount to cover fees or copayments	provide refundable credit to cover fees or copayments
Consumer incentives re utilization (relative to current system)	moderate: reduce utilization below ceiling	mild: reduce utilization in corridor	moderate: reduce utilization	moderate to strong: reduce utilization below credit amount	moderate to strong: reduce utilization in corridor
Incentives for taxpayers (relative to current system)	none?	moderate: reduce work and saving	moderate: reduce work and saving	moderate: reduce work and saving	moderate: reduce work
Administrative feasibility (requires per-service costing?)	depends on whether per-service costing is part of package	hard (yes)	hard (yes)	depends on whether per-service costing is part of package	depends on whether per-service costing is part of package
Incentives for providers and administrators	depends	large	large	depends	depends
Net fiscal impact	mild negative	moderate positive	mild-moderate positive	small positive	small
Design issues	scope of services eligible for receipts	clawback rate: levels of threshold and cap	redefinition of taxable income	could gear payment to age and sex	size of payment and corridor for full payment before hitting "stop-loss"

Quebec, are written off as a business expense for tax purposes. Accordingly, such plans introduce unfairness and perverse incentives into the system since employees who are covered by them receive tax-free benefits. The more than one-third of Canadians who are not covered by these plans enjoy no such benefits, although they are allowed some deductions for other private health care costs.[3]

3 Irrespective of the tax policy changes we discuss elsewhere in this paper, this point militates for including the full value of employer-provided health benefits in employees' taxable income, as discussed in Mintz and Poschmann 1999.

Table 1: ***New Consumer-Related Financing Mechanisms for Health (cont'd)***

	C. Dedicated Taxes			
	Income Tax	**Payroll Tax**	**Consumption Tax**	**Head Tax ("Premium")**
Key features and /or examples	dedicated account (could involve pre-funding)	dedicated account (could involve pre-funding)	dedicated account (could involve pre-funding)	dedicated account (could involve pre-funding)
Consumer incentives re utilization (relative to current system)	none	none	none	none
Incentives for taxpayers (relative to current system)	moderate: reduce work and saving	mild: reduce work	mild: reduce work	none
Administrative feasibility (requires per-service costing?)	easy (no)	easy (no)	easy (no)	easy (no)
Incentives for providers and administrators	none	none	none	none
Net fiscal impact	none	none	none	none
Design issues	separate rate schedule?	intergenerational equity	—	—

Four Proposals

We believe the most promising way of strengthening financial incentives to constrain the demand for health care services is through the tax system, an idea that, as far as we know, was first advocated in the mid-1970s (and is discussed in Ontario 1977).

In this *Commentary*, we review four of the proposals that have been developed since then: a special tax on health care benefits, a deduction from taxable income, a credit against taxes payable, and medical savings accounts (MSAs), an idea that has received considerable attention recently. We then assess these proposals in relation to four criteria that we think are particularly relevant, and close with simulation estimates for Alberta and Ontario on two of the four proposals — namely, a deduction against taxable income and a credit against taxes payable, with particular emphasis on the latter.

Our discussion focuses solely on incentives bearing on *consumers* of health care services. It does not directly address the large and important question of financial incentives bearing on the *suppliers* of health services. However, to the extent that the proposals we outline below result in better and more meaningful management information and a clearer picture of consumer preferences, they would provide a much stronger basis for designing supplier-related incentives and structural changes in the system than now exists. The potential interactions of modest incentives bearing on patients and better information for providers should not readily be slighted. If patients have financial incentives to participate in cost-

effective health management choices, health care providers will quickly find ways to accommodate their wishes.

A Special Tax on Health Care Benefits

In a recent paper prepared at the C.D. Howe Institute, Aba, Goodman, and Mintz (2002) develop a proposal to tax 40 percent of the cost of health care services up to a maximum of three percent of annual family income over $10,000. Those below the threshold would continue to benefit as at present from fully paid health care services and most health care costs would still be paid out of general tax revenues. On average, individuals with incomes between $20,000 and $60,000 would pay a tax of $760, those with incomes between $60,000 and $100,000 would pay $942, and those with incomes over $100,000 would pay $987. For consumers, therefore, the incentives under this scheme would arise from their not having to pay the special tax if they do not use health services. Health service providers would be required to provide receipts and "T4-H" forms for tax return purposes.

Aba, Goodman, and Mintz estimate that their proposal would raise about $6.8 billion, or 16 percent of total public spending on physicians, hospitals, and other health-care-related institutions. A further $6 billion, or 13½ percent of total spending, would arise from reduced use of health services because of the impact of the incentives applying to patients. In total, then, it is estimated that the proposal would yield about $13 billion — a 30 percent benefit to the health care system. A little more than half of this would result from new tax revenues. This potential tax increase, the authors suggest, could be matched by governments' making reductions in marginal income tax rates for individuals.

A Deduction from Taxable Income

Another proposal is to give everyone who uses health care services a deduction from taxable income — say, for illustrative purposes, $1,000 per person on average, with adjustments for age and family status. The value of this deduction would be reduced by the sum of all eligible health care costs the taxpayer incurred during the year, supported by T4-H slips that report public health care system costs the individual's family incurred. This mechanism would not require individuals to pay public health costs directly; expenses in excess of the assigned deduction would be covered, as at present, from general tax revenue.

This proposal would decrease provincial taxable income and therefore, provincial tax payable by individuals whose demands on the health system were low; those with higher needs would be left in the same tax and benefit position as they are now. But individuals whose use of the health system falls below half of the mean, in dollar costs assessed, in fact represent more than half of the population. This means that a substantial share of the provincial population would be able save modest amounts on their tax bills by carefully monitoring their health system usage. Those who pay no income tax — well over a third of the population aged 16 and over — would be unaffected.

Credit Against Taxes Payable

A third proposal is to apply a nonrefundable personal credit against taxes payable. This mechanism would be similar to the previous proposal except that the hypothetical $1,000 per person grant would not be directly income tested. Specifically, the excess of the credit amount over assessed health spending would generate a credit against provincial income tax payable. To strengthen the incentive effect on users, both the deductions from taxable income and the credit adjustment agains taxes payable might be supplemented with a cost corridor, which users would have to pay themselves, before remaining costs were fully covered by government. This supplement would be similar to the corridor costs included in most medical savings account proposals.

For example, once the $1,000 credit was exhausted, the patient could then be required to pay the next, say, $200 of health care costs out of his or her own pocket (so-called *corridor costs*); all remaining health care costs beyond that amount would be covered by government.

Under this scheme, low-income individuals whose taxes payable were less than the $1,000 credit would be unable to take full advantage of it, yet they would still face the financially onerous risk of exposure to the $200 corridor cost. To offset this unfairness, the new cost could be phased in so that it would not bear heavily on lower-income families. Our simulation of this proposal simply scales the maximum assessed bill against provincial taxable income. As with the previous proposal, individuals who pay no tax would be unaffected.

Medical Savings Accounts

The fourth proposal we want to discuss is the introduction of medical savings accounts.

The MSA system is based on four tiers of payment. The first consists of a special account for each person, established by the government in the form of a direct grant, adjusted for age and sex. Where the government obtains the money for such grants is an open question. In Singapore, where MSAs have been in use for some time, the grants are financed by a payroll tax levied on employers and employees — in other words, a tax on employment.[4] In some variants, an individual is also allowed to treat his or her MSA contribution on a tax-deductible basis. MSA proceeds would be spent entirely at the patient's discretion on eligible health care services, and any amount not spent could either be taken out as cash or accumulated (the account would earn interest) to pay health costs in future years or rolled over into a registered retirement savings account.

The second tier of costs would be those incurred for catastrophic illness (including chronic care), which would be covered by voluntary or involuntary insurance.

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4 Payroll taxes should be used with care since, unless they are perceived strictly as a fee for benefits they can have a harmful effect on employment. One difficulty with this financing method is that it leaves out a substantial percentage of the population.

The third tier of costs are the corridor costs that the patient would pay out of pocket once the MSA is exhausted and below the level at which costs would again be covered by the government; this government-provided cushion is the fourth tier. Everyone would pay these corridor costs except the poor and those covered by catastrophic insurance. Under this system, patients would be free to make their own health care choices and, in large part, would be financially responsible for their choices.

In some variants of the MSA proposal, block grants to hospitals would cease. Health care providers would be dependent for their funding on what they could earn from patients and insurers, which would encourage a competitive market for health care services.

In Singapore, the MSA system is based on three funds: Medisave, which provides first-tier financing; Medishield, which is a voluntary government insurance plan to deal with catastrophic costs; and Medifund, which is an endowment fund to provide a safety net for low-income citizens — to help after access to all other forms of support has been exhausted. Access to Medifund is assessed by a committee and is by no means automatic — in effect, this means there is no automatic ceiling on the health costs Singaporeans bear (other than for insured catastrophic costs) unless the committee authorizes special government assistance.

Evaluation

In this section, we evaluate the four proposals we have just outlined according to five criteria that we think are particularly relevant:

- the impact on information transmitted to patients, health care providers, governments, and the public generally, to manage the health care system more efficiently;
- the distributional impact on patients' incomes;
- the ease and cost of introducing changes in the system and running the system;
- the fiscal impact on governments;
- compliance with the *Canada Health Act*.

The Impact on Information

A common feature of the four proposals is their requirement that health care institutions and professionals collect detailed information, at the patient level, on the costs of their services in order to issue the required bills and T4-H forms. This would shed light on the murky accounting systems now in use in many parts of the health care system. For the first time, detailed information would be available not only to permit more efficient management but also to provide a better basis on which to assess the performance of providers.

Lack of satisfactory cost and price information has been a longstanding and widely acknowledged deficiency of the current system, and one remedied only in part by hospitals' recently improved management information systems. Despite general agreement on the need for improvement, the situation remains

unsatisfactory. Requiring receipts for bills and T4-H forms would quickly result in a major improvement. Indeed, the improved efficiency, reduced costs, and increased sensitivity to patients' health needs that would result from better information might well be more important than the direct impact of any of the proposed changes on the public's demand for health care.

Here is an illustration of just one of the management problems that can arise because of the lack of information. Suppose patient Bob has a broken thumb repaired at a hospital's emergency room. How much of the cost of the service relates directly to the cost of fixing Bob's thumb and how much is a cross-subsidy for teaching, research, and other priorities of health care workers only remotely related to Bob's direct requirements as a patient? Other than in a very few institutions with up-to-date management information systems, it would be difficult to answer that question today with any credibility. Moreover, current information systems provide little data on the system-wide costs of alternative approaches to dealing with patients and their needs. And without knowing, how can one rationally manage the system?[5]

The ancillary — perhaps even the major — benefit of better cost information is that it would lead to better management of scarce resources, allowing services to be delivered more cheaply and efficiently, and possibly shortening patients' waiting times for access to needed services.

Informing health care users of the real costs they incur would also be helpful because it would dispel any notion they might have that health care is "free." In addition — and this is, of course, speculative — direct awareness of the cost might make patients more inclined to economize on their use of the system.

On this criterion, we do not see much basis for choosing among the four proposals outlined above. All would require cost and price information to be made available to patients and all would be improvements on the current system.

The Distributional Impact on Patients' Incomes

The impact of a deduction from taxable income on an individual's use of the health care system would, of course, depend on the individual's taxable income. Lower-income people effectively would be taxed for their system usage at a lower rate than higher-income people because of the graduated rate schedule most provinces use.[6] This means that, other things being equal, the financial cost of using the health care system would be marginally higher for high-income people than for low-income people. The dollar value of a credit against taxes payable, would not vary with income. As a share of income, therefore, this method would deliver benefits that would be potentially larger for low-income households, provided they were in a taxable position and could use the credit. Households not paying tax would be unaffected by the credit mechanism.

5 For further elaboration on the lack of credible cost information in the health care system, see MacIntosh (1995).

6 This distinction would have little relevance in Alberta, which does not have a graduated rate schedule for its personal income tax.

At the same time, any corridor costs borne by the taxpayer would be regressive, unless assessed according to a graduated schedule or implemented with a phase-in mechanism. To what extent a special tax on health care use would be income tested would depend on the scale of taxes applied and cannot be judged *a priori*. If the same tax scale were applied to "taxable" health care use as is applied to other forms of income, the system would be income tested. If, however, as Aba, Goodman, and Mintz (2002) propose, a flat rate of 40 percent were levied, the tax would be proportional within the income range to which the tax was applied. However, the authors' proposed cap of three percent of income on the total payment would make the full impact of their proposal mildly progressive.

For MSAs, the impact would depend on the specifics of how these accounts were implemented. Government contributions to individuals' MSAs would have a progressive impact to the extent they were financed by a progressive tax. However, because corridor costs would not be eligible for tax credits, their impact would be regressive unless those costs were shifted to employers or insurers. If, through wage negotiations and other means, employer-financed health plans were revised to cover health costs beyond the limits of MSAs, incentives for individuals to restrain their use of health services would virtually disappear. Health costs would be paid out of tier-one financing up to the limit of the government grant and thereafter by employers whose costs would count as a tax-deductible expense; none of the other proposals poses this problem to the same degree. Moreover, for all the other plans, the tax advantage that employer-paid plans would provide their employees would be offset to some extent by the taxes individuals would pay on their use of health care services.

The tax-based proposals considered here would, of course, affect only taxpayers. The incentives applying to those who do not pay tax — well over a third of the population ages 16 and over — would be unaffected. Under a typical MSA scheme, many more would be affected if corridor costs could not be shifted from individuals, but that would leave open the issue of who would pay such costs if a patient was unable or unwilling to do so.

On this criterion, then, the MSA proposal is likely to have the smallest impact on individuals' use of the health care system. Of the three tax-based proposals, the incentive effect of a special tax on health benefits is likely to be the lowest because of the proposal's 30 percent cap on payments and because patients would receive no direct financial reward. It is difficult to say, from the data, which of the two tax credit proposals would have the greater incentive effect.

Implementation and Operational Issues

Political considerations aside, either of the two tax reduction proposals is likely to be cheaper and easier to introduce and run than either a special tax arrangement or a system of medical savings accounts.

The main cost, common to all four proposals, would be that of providing patients with receipts and T4-H forms. However, considering the benefit that would likely result from an improved management information system, this cost seems well worth it. After all, every other sector of the economy — including the nonprofit sector — has an effective system of cost accounting and prices and

produces receipts for services rendered at the individual level. It is hard to see why the health services industry should be exempt from such a requirement.

It is unclear what the initial cost would be to install the information systems required to issue T4-H forms. As already noted, considerable progress has been made in recent years in developing data on costs, particularly in some parts of the hospital sector. The smaller the information gap remaining today, the smaller would be the cost to close it.

A major benefit of either a tax deduction or a tax credit scheme over a straightforward tax on health care use, as Aba, Goodman, and Mintz (2002) propose, is the clarity of the rewards of these schemes to patients who manage their health care use cost-effectively. And although a special tax could also be used to finance income tax reductions, as the authors suggest, this outcome would depend on governments' choosing to use their revenue for this purpose. Savings would not be available at the sole discretion of taxpayers. Accordingly, the deduction-based or credit-based proposals be more saleable politically and they would encourage individuals to take a preventative approach to their own health care. In effect, a tax deduction or tax credit would be seen as a dividend for staying healthy, not as a tax on illness.

Since health care is run directly by the provinces, changes in the way health care services are paid for would have to be implemented at the provincial level. A single province is likely to be the proving ground, with the other provinces no doubt following the experiment closely and eventually adopting their own measures based on the lessons they learn. To make it easier for a province to proceed on its own with tax modifications, changes would have to be harmonized as readily as possible with the current federal-provincial tax collection agreements, under which Ottawa collects personal income taxes on behalf of the provinces (other than Quebec).

Which of the tax approaches discussed here could be fitted most easily to the current tax collection system would depend on the fine details of each proposal. At first glance, a credit against taxes payable seems the easiest fit, because of the tax collection agreements, which allow the provinces to assess tax liability based on taxpayers' taxable income (rather than as a function of federal tax payable) provided that their definition of taxable income matches Ottawa's. The credit approach thus could be implemented within the current tax form design and administered by Ottawa under the collection agreements.

The deduction model implies a new definition of provincial taxable income, a formidable obstacle to implementation. In the past, the federal government has been entirely unwilling to entertain variations of the provincial income tax base while working within the confines of the federal-provincial tax collection agreements.

Because of these difficulties, we consider the deduction model to be much less feasible than the credit model and so we focus most of our attention on the latter in the rest of this paper. It is worth noting, too, that one can easily imagine a single province implementing the credit model without reference to the tax and finance choices any other province or Ottawa makes.

Another issue relates to privacy and the sharing of personal health information between a province's health and finance departments. In Ontario, for example, the

right to share such information would likely require changes in existing privacy legislation. One way to minimize conflicts with privacy requirements would be for the health authority to distribute to taxpayers a detailed statement of usage and costs but distribute to the tax authority only a certification of the total assessed to each taxpayer.

A system based on MSAs would be more difficult and costly to establish and run than a tax-based system and, if Singapore is any guide, a whole new set of institutions and payment and accounting arrangements would have to be established. Among the questions an MSA system would have to address are the following:

- Would patients be able to retain their accumulated balances if they moved from a jurisdiction that had MSAs to one that did not? If not, would the balances be transferable or cashable tax free? This "carryover" issue would not arise with a tax-based approach.
- When patients died, would their accumulated balances be transferable? If so, would they be tax free?
- What about patients who were either unable or unwilling to pay corridor costs? Assuming government covered the costs of those unable to pay, how would such individuals be identified and who would cover the payments due to providers?
- How would one limit the ability of patients to manage the timing of their health costs so as to minimize their private corridor costs over time? Moreover, given the large difference in health care costs among age groups, the fiscal cost of the system would be high if, as seems likely, everyone except seniors cashed out the leftover balances in their accounts each year, leaving the system to look after them in their old age when health costs would be high.
- How would accounts set up for dependants be handled?

To sum up, we believe, on the basis of the cost of introducing changes and running the system, that tax-based systems — and particularly a tax credit system — would have clear advantages over MSAs. The financial incentives of a tax credit system would encourage consumers to buy in to the fiscal aspects of health care management, without the same operational complexity and potential costs of the MSA approach.

The Impact on the Fiscal Position of Governments

Since a principal reason for changing the health care system is to constrain the growth of net government expenses on health care, the impact of any change on governments' fiscal positions would be crucial.

All the tax-based proposals would likely improve the fiscal positions of governments. As indicated earlier, Aba, Goodman, and Mintz (2002) estimate that their proposed tax increase would result in a $13 billion fiscal benefit (about 30 percent of the relevant pool of provincial health spending), of which almost $7 billion would be due to higher tax revenues and $6 billion to reduced use of health services. As for the other tax proposals we discuss, their impact on governments'

fiscal positions would depend on the incentives created to reduce health care resources and on the revenues, if any, collected through the corridor costs individuals would pay. If the price elasticity of demand for health services were high, the impact on and relative growth of health care costs would be relatively large; the reverse would be true if the elasticity of demand were small. In the latter case, however, the revenue gain from the payment of corridor costs would be substantially larger than if the elasticity of demand were high. Thus, the negative impact on governments' fiscal positions of adopting such a proposal would be small, irrespective of the size of the elasticity of demand.

In addition to reducing demands on the health care system, all of the tax-based proposals would yield further fiscal benefits as a result of their providing more and better information so as to be able to manage the system more efficiently and effectively.

How the MSA system approach would affect governments' fiscal positions is difficult to say without knowing the specific features of such a scheme. However, MSAs could easily be designed to be much more stringent than any of the tax-based systems reviewed here — for example, by removing a ceiling on corridor costs. Singapore's MSA system is quite stringent indeed, with its requirement that individuals buy insurance to cover catastrophic insurance, its lack of a ceiling on corridor costs, and its provision for *discretionary* access to health care funding for low-income groups. With such a system in place, Canadian governments' budgets would benefit considerably.

Before leaving the subject of taxes, we should mention the modest tax allowance in the current system to cover health costs. To simplify the overall tax-reporting system, this provision might be eliminated as a separate item and included as part of any of the proposals considered here. Similarly, the taxes some provinces now levy in the name of health costs might also be eliminated — this is obviously relevant in the case of Alberta's new health fee, which could sensibly be replaced by the usage-based model we illustrate here. Another complementary tax change might be to remove health care benefits from allowable expenses for corporations and other employers, as is now the case in Quebec.[7]

Some Simulation Results

In this section of the *Commentary*, we present and discuss some simulation results for Ontario and Alberta of the impact of the two tax credit proposals — a deduction from taxable income and a credit against taxes payable.[8]

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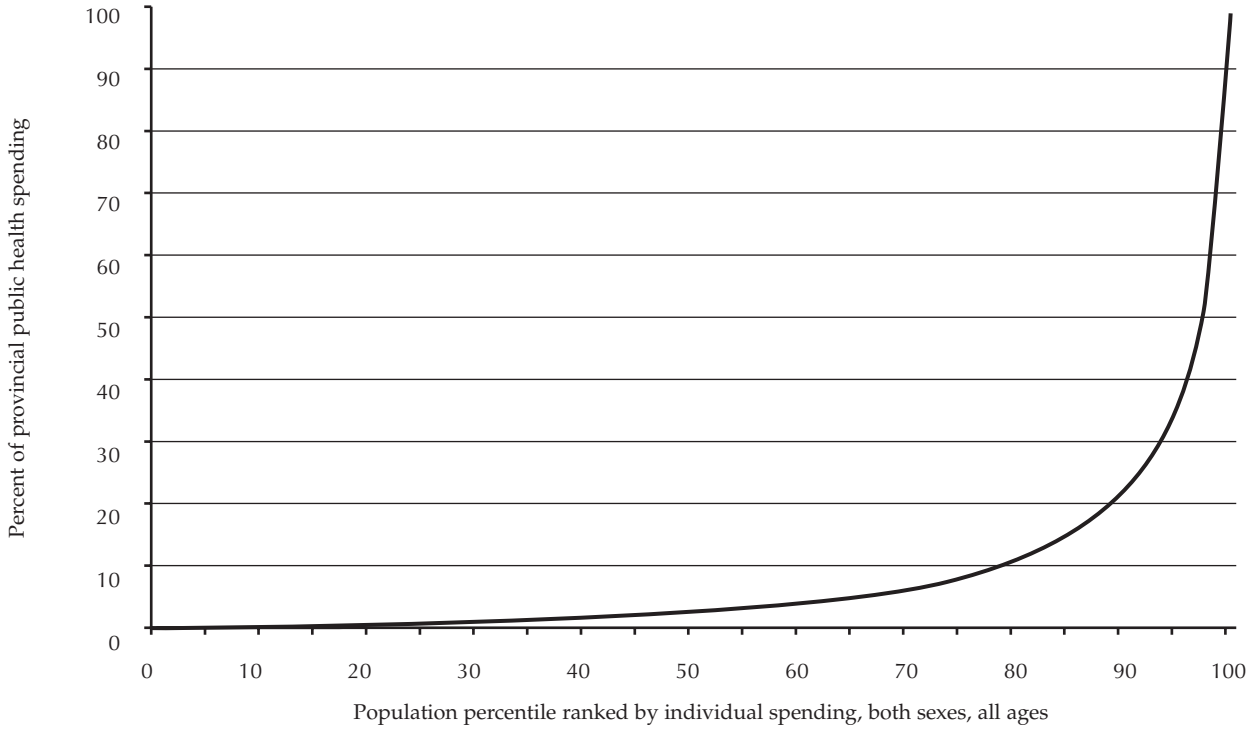
7 Such changes would entail federal-provincial negotiations and, in some cases, concurrence; if pursued, they could pose an obstacle to proposed changes. While they would be useful, we see these changes as second-order issues.

8 These simulations, detailed results of which appear in the appendix, were prepared with data assistance from Paul Boothe of the University of Alberta. Supplementary input data were drawn from custom data generously provided by the Alberta Ministry of Health and Wellness and from the Canadian Institute for Health Information's *National Health Expenditure Trends, 1975–2001*. All simulations were estimated using Statistics Canada's Social Policy Simulation Database and Model, Release 9.0. Responsibility for the use and interpretation of these data rests solely with the authors. ...

Figure 1: Cumulative Public Health Spending, Alberta, fiscal year 1999/2000
Approximate Population Distribution



These simulations should be regarded as estimates indicating the direction and scale of the proposals' impacts, and are based on an accounting model: behavioural assumptions are, therefore, explicitly imposed. Changing the assumptions and assigned parameter values makes it feasible to test the sensitivity of the proposals to differing behaviour and to gain some impression of their financial feasibility.

Data on public spending on health are available in a number of accounting formats, but for our purposes we required detailed knowledge of the distribution and cost and cost of public health care system usage by age and sex. We used the administrative dataset of the Alberta Ministry of Health and Wellness to impute costs using the distribution of fiscal year 1999/2000 system usage within each age and sex group. Micro-records were created that included this information, with each record assigned to one of 74 age categories and 100 spending categories, based on actual usage, times two sexes — that is, each individual was assigned according to their age and sex and assigned health usage characteristics to one of 14,800 "bins." This recreated distribution was then used to scale imputed public spending so that aggregate totals matched those reported by the Canadian Institute for Health Information for 2001 for provincial public spending on doctors and hospitals.

The Alberta administrative data are obviously better suited to describing that province's health spending than they are to Ontario's, but we nonetheless assumed

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Note 8 - continued

...Simulations for the proposed special tax on health care use were presented in Aba, Goodman, and Mintz (2002). As for MSAs, the intertemporal dynamic aspects expected under such a mechanism make it ill-suited to modelling in a static microsimulation context.

that, within each age and sex category, the distribution of spending in Ontario was similar to that in Alberta. This approach may be flawed, but the assumption is needed to say anything realistic about the distribution in Ontario, and no obvious alternative was available. Information on the distribution of health care use is also helpful in understanding the nature of that use — in Alberta, median health system usage ranges from one-tenth to one-half the mean, and the ratio varies widely across age and sex categories.[9] As Figure 1 shows, this distribution is quite striking, with most individuals using the health system very little in any given year; it seems reasonable to assume that this usage holds for Ontario as well.

For both Alberta and Ontario, we ran simulations for four basic models. Model 1a is based on a deduction against taxable income equal to one-half of average health care expenditures per family. Standard deductions based on age and family status were scaled so that the sum of these deductions across the provincial population amounted to one-half the relevant public spending. We tuned the amounts for each province's simulations so that different family types (such as those with and without young children or with and without elderly members) received standard deductions roughly commensurate with their imputed health care system usage. An individual's provincial taxable income would be reduced (and his or her tax liability shrunk) to the extent that the assigned credit exceeded imputed health system usage.[10] If spending exceeded the credit amount, there would be no impact on tax liability.[11]

In Model 1b, we added a corridor cost provision of $200 per person per family (contingent on system usage) up to a maximum of $500 per family in Ontario. For Alberta, we assumed for illustrative purposes that the corridor cost was capped at the dollar amount of the health care levy that province imposes: $528 per single person and $1,056 per family in 2002.[12] In the approach we cost out below, we capped the corridor cost at 30 percent of provincial tax payable, amounting to about three percent of net income. The amount actually billed would be the lesser of i) the excess of health spending over the assigned credit; ii) the absolute dollar cap just described; and iii) 30 percent of provincial tax. There are, of course, many possible arithmetical variations that would gently phase in the cost while protecting low-income households; we chose the percent-of-tax cap for illustration owing to its relative simplicity.

We ran simulations for 2001 without allowing for Alberta's health premium structure or for the potential impact of removing it after any of the proposed mechanisms was implemented. This means, for example, that the negative taxpayer net fiscal impacts we show would in fact be positive on average if the new premium schedule were supplanted by this usage-based assessment

9 Thus, for example, it would clearly be a mistake to assume that spending is normally distributed around the mean within an age-sex category, the most obvious alternative distributional assumption that one is likely to employ in the absence of relevant data.

10 In our model, the deduction was available only to the spouse with the higher net income.

11 Unless, as we discuss below, reducing system usage by a representative amount would bring the taxpayer into the range where imputed usage was less than the credit amount.

12 Because 2001 is the sample year, for modeling purposes in this paper, we set the cap at the level of the health care levy for that year: $408 per single person or $816 per family.

mechanism. As a consequence, for Alberta, models 1b and 2b (which we describe below) underestimate the beneficial effect on taxpayers (of not assessing the new premium structure) and perhaps overstate the gains to the Alberta government's net fiscal position. Because there is no usage-based component of the current Alberta plan, we find it difficult to imagine that the premium system has any impact on system usage; it should, therefore, be thought of as a general tax measure rather than as a health-related charge to provincial residents. The proposals we describe would cost taxpayers less and be more likely to reduce system-wide health spending.

Model 2a is based on a tax credit against taxes payable equal to one-half the average health care expenditure per family. The assigned values are the same as the deductions in model 1a, but the sum was multiplied by the provincial nonrefundable tax credit rate and used to reduce provincially defined taxable income.[13] We emphasize that, in the Alberta case, there is little difference between models 1 and 2, owing to the single-rate provincial income tax bracket structure that has been in place there since 2000.

In model 2b, we added a corridor cost provision for each province on the same basis as in model 1b.

We made three assumptions about the response of demand to these tax changes: no response; a 10 percent reduction in demand; and a 15 percent reduction in demand. We selected these degrees of price responsiveness because they are modest and because they are plausible;[14] one obvious extension would be to let the assumed reductions in usage vary more under different pricing options. For these simulations, we assumed the degree of responsiveness to be normally and fairly tightly distributed around the central value.

This immediately raises the question of who responds. For simulation purposes, the answer was determined (by assumption) arithmetically. If a family is in a position such that reducing demand for health care by the assigned amount (by 10 or 15 percent, as the case may be, plus or minus a random deviation thereon) will save money over the course of a year, it is assumed to reduce demand by that assigned amount. But what of families whose annual health care use is well in excess of the credited amount? Some families, owing to chronic health conditions, will know at the beginning of the year that their consumption will be outside the range where a 10 or 15 percent reduction in demand would save them money. Others will not know until late in the year where on the continuum they fall. For simulation purposes, these groups were divided randomly, so that half were assumed to respond (again at the average response rate, plus or minus a

13 The credit was modeled as being available in the first place to the spouse with higher net income, but credits in excess of a taxpayer's provincial tax payable would be transferable to a spouse to the extent of that excess.

14 For comment on the elasticity of demand for health services, see Aba, Goodman, and Mintz (2002, 5) and the references cited there. There is also useful evidence from recent consumer-choice models of employer-sponsored health benefit plans in the United States, wherein non-hospital costs drop sharply when patients derive financial benefits if their choices save money (See, for example, Waldholz 2002).

Table 2: ***10 percent Impact Scenario (Model 2a), Summary Results***

Family type	Family Net Income: $50–$60,000		All Incomes	
	Reduction in Health Usage	Net Provincial Tax Saving	Reduction in Health Usage	Net Provincial Tax Saving
	(%)	*($ per family)*	*(%)*	*($ per family)*
		Ontario		
Married couple with young children	–6.6	39	–6.8	32
Single parent with young children	–3.6	46	–5.7	23
Unattached elderly individual	–5.7	56	–9.4	33
All types	–5.9	56	–6.5	31
		Alberta		
Married couple with young children	–5.4	54	–6.4	52
Single parent with young children	NA	103	–7.1	31
Unattached elderly individual	NA	150	–6.2	38
All types	–5.7	59	–6.8	40

random deviation thereon) and half were assumed to make no change in their health care consumption habits.

Discussion of the Simulation Results

In this section, we discuss some of the main conclusions that derive from our simulations. (For details of the simulation results, see the appendix tables.)

The Distributional Impact on Patients' Incomes

The estimates indicate that, under all models considered, families in both Ontario and Alberta would receive, on average a small tax reduction. This is because the tax deduction or credit would be larger than imputed health system usage for a large proportion of taxpayers. Regardless of the model, the dollar impacts are small and roughly proportional to income (we show summary results for model 2a in Table 2, see the appendix for full details).

Turning to the "b" series models, where a corridor cost is billed, the numbers remain small because the parameters of the charge are low in the first place, but also because they are effectively income tested. For families, the new cost roughly offsets the tax savings in Ontario, but in Alberta the cost is higher (but still small) because the individual and family maximums are set at the much higher levels scheduled under the new health premium scheme in that province. This means that the results here show net losses for representative families in Alberta; as discussed above, however, these would become net fiscal gains for most families if any of the proposals supplanted the current premium regime.

Table 3: ***Assumed Impact of Reductions in Health Care Resources Use, Ontario and Alberta***

	Ontario				Alberta			
	10% Reduction		15% Reduction		10% Reduction		15% Reduction	
				Health System Savings				
	($M)	*(%)*	*($M)*	*(%)*	*($M)*	*(%)*	*($M)*	*(%)*
All models	1,077	6.5	1,541	9.4	270	6.8	338	8.6
				Net Provincial Fiscal Savings				
	($M)	*($ per family)*	*($M)*	*($ per family)*	*($M)*	*($ per family)*	*($M)*	*($ per family)*
Model 1a	855	43	1,311	45	176	40	290	42
Model 1b	1,210	–27	1,653	–22	294	–51	404	–46
Model 2a	917	31	1,375	32	218	40	331	42
Model 2b	1,272	–39	1,717	–35	336	–51	445	–46

The Impact on Use of Health Care Resources

The scenarios illustrated here rely on an assumed reduction in health system usage where taxpayers are in a position to benefit financially from doing so. This means that the provinces would see less than the postulated 10 or 15 percent reduction in costs. In the Ontario case, for example, a 15 percent reduction would allow the health system to enjoy savings of $1.5 billion, or about nine percent of the relevant cost pool in 2001. The matching figure in Alberta would be a little more than $300 million (summary results for all models shown in Table 3).

These system-wide savings, we should emphasize, represent opportunities to reduce queue lengths and improve the quality of service delivery to patients. This would follow from the reduced claims on health systems' capacity to respond to simultaneous and competing demands: marginal reductions in demand can improve response time or improve quality of service even while cost reductions are achieved.

The Fiscal Impact on Provincial Government

The impact on provincial government finances would encompass health system savings. In Ontario's case, under model 2a and assuming a 15 percent impact, fiscal savings would be $1,375 million, or almost $200 million less than the savings for the health care system. If corridor costs were also billed (as in model 2b), over $300 million would be recovered and fiscal savings would be almost $1.7 billion.

For Alberta, under model 2a and assuming a 15 percent impact, fiscal savings would be $331 million, or about $20 million less than the savings to the health system. If corridor costs were included (as in model 2b), more than this difference would be recovered and fiscal savings would total $445 million.

In this scenario, the average Ontario family would gain a modest benefit of $32 if corridor costs were not included or lose about the same if they were. In Alberta, the average family would gain $42 if corridor costs were not included or lose $46 if they were, but the loss would be much more than offset if the proposal supplanted that province's current system of health premiums.

Against these savings must be counted the costs of system setup and continuing operation, and the investment in improving costing systems, upgrading database design, and dealing with legacy software and hardware could be significant. That said, given a realistic prospect of saving a billion dollars or more annually (in the Ontario case), even a very large one-time investment in systems could be well worth it.

The Canada Health Act

To what extent would the proposals we have discussed be consistent with the five basic principles of the *Canada Health Act* (comprehensiveness, universality, accessibility, portability, and public administration)? It is widely acknowledged that these principles are subject to interpretation and that in the past they have been breached to some degree across the country. However, since all the options concern public financing mechanisms, all seem reconcilable with the act. The most obviously consistent, in our view, is the tax credit proposal since it would involve no direct charge to the consumer and the system would be administered through the current tax system. Moreover, such a change would be universally applicable across a province and would have no impact on the accessibility or comprehensiveness of the health care system.

Concluding Comments

What do we conclude from all this? First, it is feasible to design a practical patient payment system that bears directly on the patient and provides direct incentives to conserve health care resources and manage the system better. As part of a series of changes to the system, such incentives could, we believe, contribute significantly to reducing the propensity of health care costs paid for by governments to grow at unsustainable rates.

Second, in assessing the relative merits of these changes, we think it would be desirable to rely as much as possible on existing institutional arrangements, such as the tax system, rather than to invent new ones with all the risks and costs that would entail.

Third, in judging the efficiency of various systems, it is important to remember that revenue generation is not the foremost criterion — if that were the issue, the simplest way to proceed would be to raise taxes. Similarly, considerations of one-time cost reductions or financial injections are also of lesser importance. Rather, the focus should be on designing a system in which the growth of costs is sufficiently constrained by the introduction of incentives to conform reasonably closely with the public's priorities and the financial willingness of governments and, ultimately, taxpayers, to fund.

Finally, any change in the current system ultimately must be acceptable to the public. Apart from those who object on ideological grounds to any form of market incentives, the main political resistance to changes is likely to come from officials, health care unions and associations, and the health service establishment, which are concerned not only about administrative problems and implementation costs

but also about surrendering greater influence and control to the consumers of health care services.

With these considerations in mind, our preference is to introduce a credit against which health costs are charged for tax purposes, along with a modest corridor for private payment. This mechanism would be easier to administer than many alternative approaches, yet it could be designed to provide patients with meaningful and helpful incentives to participate in the fiscal aspects of their health care management. Such a system would, in our view, make a significant contribution to improving the financial stability and performance of Canada's public health system.

Appendix

Table A-1: ***Parameter Amounts for a Tax Deduction or Tax Credit Against Health Spending, Ontario and Alberta***

	Amount of Deduction or Credit	
Category	**Ontario**	**Alberta**
	($)	
Tax filer / head of family	707	711
Spouse	454	457
Child	177	178
Single-parent family	505	508
Newborn (under 1 year of age)	656	660
Senior	2,020	2,030
Married senior couple	268	269

Table A-2: ***Health Costs by Census Family Category and Net Income Group, Ontario, 2001***

Census family category	Income Level: Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
				A. Number of Census Families *(thousands)*				
Married couple with no children	101.3	96.8	132.6	84.9	124.2	116.7	112.9	769.5
Married couple with young children	112.1	137.5	197.0	158.8	200.7	221.8	224.1	1,251.9
Married couple with older children	11.3	17.5	35.6	26.0	50.9	75.4	121.6	338.3
Married couple, at least one is elderly	62.1	145.2	116.9	44.8	44.2	45.7	37.0	496.0
Single parent with young children	123.8	47.8	29.4	10.3	8.8	3.3	1.3	224.7
Single parent with older children	33.5	30.9	35.7	19.4	16.1	15.1	10.0	160.7
Unattached non-elderly individual	582.9	282.2	186.8	88.9	59.7	28.0	19.7	1,248.5
Unattached elderly individual	419.5	126.2	32.7	11.6	7.9	6.6	3.6	607.9
All	1,446.6	884.1	766.7	444.6	512.4	513.0	530.2	5,097.6
				B. Total Assessed Health Costs *(millions of dollars)*				
Married couple with no children	287	324	241	207	300	331	221	1,911
Married couple with young children	277	432	492	457	529	555	583	3,325
Married couple with older children	32	97	115	84	188	283	364	1,164
Married couple, at least one is elderly	424	1,123	889	426	450	530	305	4,148
Single parent with young children	247	59	41	28	26	3	0	404
Single parent with older children	80	88	102	64	116	37	21	509
Unattached non-elderly individual	695	242	193	68	41	24	14	1,277
Unattached elderly individual	2,796	583	144	53	81	52	28	3,737
All	4,838	2,950	2,218	1,388	1,731	1,814	1,536	16,475
				C. Average Assessed Health Costs *($ per family)*				
Married couple with no children	2,834	3,349	1,819	2,435	2,413	2,834	1,960	2,484
Married couple with young children	2,470	3,144	2,498	2,881	2,637	2,500	2,601	2,656
Married couple with older children	2,817	5,579	3,243	3,228	3,700	3,755	2,992	3,441
Married couple, at least one is elderly	6,829	7,735	7,608	9,508	10,190	11,605	8,226	8,364
Single parent with young children	1,997	1,226	1,397	2,702	2,919	878	371	1,797
Single parent with older children	2,375	2,847	2,853	3,320	7,229	2,457	2,127	3,164
Unattached non-elderly individual	1,192	859	1,033	767	693	832	709	1,023
Unattached elderly individual	6,666	4,625	4,400	4,585	10,243	7,943	7,784	6,147
All	3,344	3,337	2,893	3,121	3,379	3,537	2,897	3,232

Table A-3: ***Selected Quantities for Census Families by Net Income Group, Ontario, Model 1a***

Quantity	Income Level							
	Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
A. No Impact								
Total assessed health costs *($ millions)*	4,838	2,950	2,218	1,388	1,731	1,814	1,536	16,475
Average assessed costs *($ per family)*	3,344	3,337	2,893	3,121	3,379	3,537	2,897	3,232
Change in provincial income tax payable *($ millions)*	–13	–33	–37	–21	–27	–31	–41	–203
Average change in provincial income tax *($ per family)*	–9	–37	–48	–47	–52	–61	–78	–40
Fiscal savings, province *($ millions)* (including health)	–13	–33	–37	–21	–27	–31	–41	–203
Fiscal savings, families *($ per family)*	9	37	48	47	52	61	78	40
B. Ten Percent Impact								
Total assessed health costs *($ millions)*	4,518	2,791	2,066	1,306	1,618	1,663	1,436	15,398
Average assessed costs *($ per family)*	3,123	3,157	2,695	2,937	3,158	3,241	2,709	3,021
Change in provincial income tax payable *($ millions)*	–14	–36	–40	–23	–29	–34	–46	–22
Average change in provincial income tax *($ per family)*	–10	–40	–52	–51	–57	–67	–86	–43
Savings in health sector *($ millions)*	320	159	152	82	113	151	100	1,077
Fiscal savings, province *($ millions)* (including health)	306	123	112	59	84	117	54	855
Fiscal savings, families *($ per family)*	10	40	52	51	57	67	86	43
C. Fifteen Percent Impact								
Total assessed health costs *($ millions)*	4,385	2,718	2,003	1,267	1,566	1,600	1,394	14,934
Average assessed costs *($ per family)*	3,032	3,075	2,612	2,849	3,057	3,120	2,629	2,930
Change in provincial income tax payable *($ millions)*	–14	–37	–41	–24	–30	–36	–48	–230
Average change in provincial income tax *($ per family)*	–10	–42	–54	–53	–59	–69	–90	–45
Savings in health sector *($ millions)*	453	232	215	121	165	214	142	1,541
Fiscal savings, province *($ millions)* (including health)	439	195	174	97	135	178	94	1,311
Fscal savings, families *($ per family)*	10	42	54	53	59	69	90	45

Table A-4: ***Quantities for Census Families by Net Income Group, Ontario, Model 1b***

Quantity	Income Level: Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
				A. No Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	7	33	60	50	72	79	80	382
Average possible bill to family *($ per family)*	5	37	78	112	141	155	152	75
Fiscal savings, province *($ millions)* (including health)	–6	0	23	29	45	48	39	179
Fiscal savings, families *($ per family)*	4	0	–30	–65	–89	–94	–74	–35
				B. Ten Percent Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	7	30	55	46	68	74	74	355
Average possible bill to family *($ per family)*	5	34	72	104	132	145	140	70
Fiscal savings, province *($ millions)* (including health)	313	153	167	105	152	191	128	1,210
Fiscal savings, families *($ per family)*	5	6	–20	–53	–75	–78	–54	–27
				C. Fifteen Percent Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	7	29	54	45	64	71	72	342
Average possible bill to family *($ per family)*	5	32	70	101	126	139	137	67
Fiscal savings, province *($ millions)* (including health)	446	224	228	142	199	249	166	1,653
Fiscal savings, families *($ per family)*	5	10	–16	–48	–67	–70	–47	–22

Table A-5: *Selected Quantities for Census Families by Net Income Group, Ontario, Model 2a*

Quantity	Income Level							
	Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
A. No Impact								
Total assessed health costs *($ millions)*	4,838	2,950	2,218	1,388	1,731	1,814	1,536	16,475
Average assessed costs *($ per family)*	3,344	3,337	2,893	3,121	3,379	3,537	2,897	3,232
Change in provincial income tax payable *($ millions)*	–13	–31	–28	–15	–17	–19	–24	–146
Average change in provincial income tax *($ per family)*	–9	–35	–36	–33	–33	–37	–44	–29
Fiscal savings, province *($ millions)* (including health)	–13	–31	–28	–15	–17	–19	–24	–146
Fiscal savings, families *($ per family)*	9	35	36	33	33	37	44	29
B. Ten Percent Impact								
Total assessed health costs *($ millions)*	4,518	2,791	2,066	1,306	1,618	1,663	1,436	15,398
average assessed costs *($ per family)*	3,123	3,157	2,695	2,937	3,158	3,241	2,709	3,021
Change in provincial income tax payable *($ millions)*	–14	–33	–30	–16	–19	–21	–26	–160
Average change in provincial income tax *($ per family)*	–10	–38	–39	–36	–37	–41	–50	–31
Savings in health sector *($ millions)*	320	159	152	82	113	151	100	1,077
Fiscal savings, province *($ millions)* (including health)	306	126	122	66	94	130	74	917
Fiscal savings, families *($ per family)*	10	38	39	36	37	41	50	31
C. Fifteen Percent Impact								
Total assessed health costs *($ millions)*	4,385	2,718	2,003	1,267	1,566	1,600	1,394	14,934
Average assessed costs *($ per family)*	3,032	3,075	2,612	2,849	3,057	3,120	2,629	2,930
Change in provincial income tax payable *($ millions)*	–14	–34	–31	–17	–20	–22	–27	–166
Average change in provincial income tax *($ per family)*	–10	–39	–41	–38	–38	–43	–52	–32
Savings in health sector *($ millions)*	453	232	215	121	165	214	142	1,541
Fiscal savings, province *($ millions)* (including health)	439	198	184	104	145	192	115	1,375
Fiscal savings, families *($ per family)*	10	39	41	38	38	43	52	32

Table A-6: ***Quantities for Census Families by Net Income Group, Ontario, Model 2b***

Quantity	Income Level							
	Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
				A. No Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	7	33	60	50	72	79	80	382
Average possible bill to family *($ per family)*	5	37	78	112	141	155	152	75
Fiscal savings, province *($ millions)* (including health)	–6	2	32	35	55	60	56	236
Fiscal savings, families *($ per family)*	4	–2	–42	–79	–108	–118	–108	–46
				B. Ten Percent Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	7	30	55	46	68	74	74	355
Average possible bill to family *($ per family)*	5	34	72	104	132	145	140	70
Fiscal savings, province *($ millions)* (including health)	313	156	177	112	162	204	148	1,272
Fiscal savings, families *($ per family)*	5	4	–33	–68	–95	–104	–90	–39
				C. Fifteen Percent Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	7	29	54	45	64	71	72	342
Average possible bill to family *($ per family)*	5	32	70	101	126	139	137	67
Fiscal savings, province *($ millions)* (including health)	446	227	238	149	209	263	187	1,717
Fiscal savings, families *($ per family)*	5	7	–29	–63	–88	–96	–85	–35

Table A-7: ***Health Costs by Census Family Category and Net Income Group, Alberta, 2001***

Census family category	Income Level: Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
			A. Number of Census Families *(thousands)*					
Married couple with no children	26.8	27.0	41.5	25.7	27.2	39.5	33.4	221.1
Married couple with young children	17.8	28.7	48.1	45.4	57.9	63.7	55.4	316.9
Married couple with older children	1.6	4.6	7.8	7.9	8.1	18.1	27.7	75.8
Married couple, at least one is elderly	19.8	28.4	20.6	9.6	10.8	8.7	6.4	104.2
Single parent with young children	23.5	8.1	5.7	4.8	2.3	0.9	3.1	48.3
Single parent with older children	6.4	4.6	7.4	0.8	3.5	4.6	2.8	30.1
Unattached non-elderly individual	169.3	80.2	55.8	33.3	16.3	5.8	6.4	367.1
Unattached elderly individual	81.3	29.3	7.6	3.1	0.9	0.4	NA	122.5
All	346.5	210.7	194.4	130.6	127.1	141.7	135.1	1,286.1
			B. Total Assessed Health Costs *(%)*					
Married couple with no children	61	47	97	41	79	60	78	463
Married couple with young children	55	61	116	130	137	146	131	777
Married couple with older children	4	12	34	23	38	66	122	299
Married couple, at least one is elderly	177	403	284	100	163	63	51	1,242
Single parent with young children	54	21	7	3	7	1	7	99
Single parent with older children	59	10	18	2	3	28	10	129
Unattached non-elderly individual	127	63	31	31	11	1	6	270
Unattached elderly individual	560	104	27	4	10	1	NA	706
All	1,097	720	615	335	448	365	404	3,984
			C. Average Assessed Health Costs *($ per family)*					
Married couple with no children	2,270	1,734	2,341	1,616	2,911	1,507	2,323	2,093
Married couple with young children	3,110	2,119	2,422	2,866	2,376	2,291	2,357	2,451
Married couple with older children	2,161	2,660	4,382	2,902	4,671	3,630	4,416	3,939
Married couple, at least one is elderly	8,965	14,189	13,811	10,436	15,053	7,287	8,014	11,913
Single parent with young children	2,309	2,573	1,189	653	2,969	891	2,199	2,055
Single parent with older children	9,196	2,227	2,458	1,910	760	6,091	3,440	4,300
Unattached non-elderly individual	749	792	551	944	653	130	972	736
Unattached elderly individual	6,887	3,548	3,575	1,422	11,100	1,889	NA	5,761
All	3,166	3,420	3,164	2,567	3,523	2,575	2,991	3,098

Table A-8: ***Selected Quantities for Census Families by Net Income Group, Alberta, Model 1a***

Quantity	Income Level							
	Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
A. No Impact								
Total assessed health costs *($ millions)*	1,273	657	624	328	327	402	327	3,938
Average assessed costs *($ per family)*	3,673	3,121	3,211	2,511	2,575	2,833	2,422	3,062
Change in provincial income tax payable *($ millions)*	–2	–8	–10	–7	–6	–7	–8	–48
Average change in provincial income tax *($ per family)*	–5	–37	–51	–55	–50	–52	–56	–37
Fiscal savings, province *($ millions)* (including health)	–2	–8	–10	–7	–6	–7	–8	–48
Fiscal savings, families *($ per family)*	5	37	51	55	50	52	56	37
B. Ten Percent Impact								
Total assessed health costs *($ millions)*	1,032	659	564	316	425	335	384	2,714
Average assessed costs *($ per family)*	2,978	3,127	2,901	2,421	3,341	2,361	2,845	2,888
Change in provincial income tax payable *($ millions)*	–2	–8	–11	–8	–7	–8	–8	–52
Average change in provincial income tax *($ per family)*	–5	–40	–55	–59	–55	–56	–60	–40
Savings in health sector *($ millions)*	241	–2	60	12	–98	67	–57	224
Fiscal savings, province *($ millions)* (including health)	239	–10	50	5	–104	60	–65	176
Fiscal savings, families *($ per family)*	5	40	55	59	55	56	60	40
C. Fifteen Percent Impact								
Total assessed health costs *($ millions)*	1,003	635	542	308	414	323	376	3,600
Average assessed costs *($ per family)*	2,895	3,013	2,790	2,360	3,254	2,278	2,780	2,800
Change in provincial income tax payable *($ millions)*	–2	–9	–11	–8	–7	–8	–8	–53
Average change in provincial income tax *($ per family)*	–5	–41	–57	–61	–57	–59	–62	–42
Savings in health sector *($ millions)*	270	22	82	20	–87	79	–49	338
Fiscal savings, province *($ millions)* (including health)	268	14	72	13	–93	72	–57	290
Fiscal savings, families *($ per family)*	5	41	57	61	57	59	62	42

Table A-9: ***Quantities for Census Families by Net Income Group, Alberta, Model 1b***

Quantity	Income Level							
	Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
				A. No Impact, Corridor				
Excess speinding possibly billed to family *($ millions)*	1	6	16	18	26	29	30	126
Average possible bill to family *($ per family)*	2	30	83	137	203	205	225	98
Fiscal savings, province *($ millions)* (including health)	–1	–2	6	11	20	22	22	78
Fiscal savings, families *($ per family)*	3	7	–32	–82	–153	–153	–169	–61
				B. Ten Percent Impact, Corridor				
Excess speinding possibly billed to family *($ millions)*	1	6	14	17	24	27	29	118
Average possible bill to family *($ per family)*	2	29	74	129	191	189	211	91
Fiscal savings, province *($ millions)* (including health)	240	–4	64	22	–80	87	–36	294
Fiscal savings, families *($ per family)*	3	11	–19	–70	–136	–133	–151	–51
				C. Fifteen Percent Impact, Corridor				
Excess speinding possibly billed to family *($ millions)*	0	6	14	17	24	25	28	114
Average possible bill to family *($ per family)*	1	28	71	127	185	180	206	88
Fiscal savings, province *($ millions)* (including health)	268	20	86	30	–69	97	–29	404
Fiscal savings, families *($ per family)*	4	13	–14	–66	–128	–121	–144	–46

Table A-10: ***Selected Quantities for Census Families by Net Income Group, Alberta, Model 2a***

Quantity	Income Level							
	Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
A. No Impact								
Total assessed health costs *($ millions)*	1,097	720	615	335	448	365	404	3,984
Average assessed costs *($ per family)*	3,166	3,420	3,164	2,567	3,523	2,575	2,991	3,098
Change in provincial income tax payable *($ millions)*	–2	–8	–10	–7	–6	–7	–8	–48
Average change in provincial income tax *($ per family)*	–5	–37	–51	–55	–50	–52	–56	–37
Fiscal savings, province *($ millions)* (including health)	–2	–8	–10	–7	–6	–6	–8	–48
Fiscal savings, families *($ per family)*	5	37	51	55	50	52	56	37
B. Ten Percent Impact								
Total assessed health costs *($ millions)*	1,032	659	564	316	425	335	384	3714
Average assessed costs *($ per family)*	2,978	3,127	2,901	2,421	3,341	2,361	2,845	2,888
Change in provincial income tax payable *($ millions)*	–2	–8	–11	–8	–7	–8	–8	–52
Average change in provincial income tax *($ per family)*	–5	–40	–55	–59	–55	–56	–60	–40
Savings in health sector *($ millions)*	65	61	51	19	23	30	20	270
Fiscal savings, province *($ millions)* (including health)	63	53	40	11	16	22	12	218
Fiscal savings, families *($ per family)*	5	40	55	59	55	56	60	40
C. Fifteen Percent Impact								
Total assessed health costs *($ millions)*	1,003	635	542	308	414	323	376	3,600
Average assessed costs *($ per family)*	2,895	3,013	2,790	2,360	3,254	2,278	2,780	2,800
Change in provincial income tax payable *($ millions)*	–2	–9	–11	–8	–7	–8	–8	–53
Average change in provincial income tax *($ per family)*	–5	–41	–57	–61	–57	–59	–62	–42
Savings in health sector *($ millions)*	94	85	73	27	34	42	28	384
Fiscal savings, province *($ millions)* (including health)	92	76	62	19	27	34	20	331
Fiscal savings, families *($ per family)*	5	41	57	61	57	59	62	42

Table A-11: *Quantities for Census Families by Net Income Group, Alberta, Model 2b*

Quantity	Income Level							
	Min – $20,000	$20,001 – $35,000	$35,001 – $50,000	$50,001 – $60,000	$60,001 – $75,000	$75,001 – $100,000	$100,001 – Max	All
				A. No Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	1	6	16	18	26	29	30	126
Average possible bill to family *($ per family)*	2	30	83	137	203	205	225	98
Fiscal savings, province *($ millions)* (including health)	–1	–2	6	11	20	22	22	78
Fiscal savings, families *($ per family)*	3	7	–32	–82	–153	–153	–169	–61
				B. Ten Percent Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	1	6	14	17	24	27	29	118
Average possible bill to family *($ per family)*	2	29	74	129	191	189	211	91
Fiscal savings, province *($ millions)* (including health)	64	59	54	28	40	49	41	336
Fiscal savings, families *($ per family)*	3	11	–19	–70	–136	–133	–151	–51
				C. Fifteen Percent Impact, Corridor				
Excess spending possibly billed to family *($ millions)*	0	6	14	17	24	25	28	114
Average possible bill to family *($ per family)*	1	28	71	127	185	180	206	88
Fiscal savings, province *($ millions)* (including health)	92	82	76	36	51	59	48	445
Fiscal savings, families *($ per family)*	4	13	–14	–66	–128	–121	–144	–46

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