MEDICAL SAVINGS ACCOUNTS IN FINANCING HEALTHCARE

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This synthesis is the third of a series of papers being produced by the Canadian Health Services Research Foundation on the topic of healthcare financing models. The fourth paper in the series, “Experience with Medical Savings Accounts in Selected Jurisdictions,” also written by Raisa B. Deber, PhD, is a companion paper to this synthesis. All reports in the series can be found at www.chsrf.ca.

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KEY MESSAGES

- The underlying premise of Medical Savings Accounts (MSAs) derives from economic theory that argues that people will be more efficient purchasers if they must pay from their own resources.

- Opponents of MSAs suggest that such gains in efficiency are unlikely for a number of reasons and suggest that there are strong potential risks, such as increased total costs and worse health outcomes.

- MSA models represent an explicit rejection of risk-pooling across populations for those services they are intended to cover. They are often designed to encourage individuals to save early to defray anticipated expenditures later in life.

- Total health expenditures—including the most expensive sub-categories of services—tend to be heavily skewed, with a small number of people accounting for most of the cost.

- Accordingly, MSA models should be reserved for services that meet three criteria:
  - Utilization is not highly skewed.
  - The costs are relatively large but not ongoing.
  - The service is not seen as necessary (for example, to avoid the adverse health and fiscal consequences of not using preventive services or managing chronic diseases).

- Very few services meet the three criteria.

- MSAs represent high costs for minimal benefit, particularly as they exclude both the most expensive services and those most important to improving health.

- MSAs do not appear to be a valuable addition to financing Canadian healthcare.
EXECUTIVE SUMMARY

This report examines the potential of Medical Savings Accounts as a financing model for healthcare in Canada. It is part of a series of research reports on healthcare financing options commissioned for the Financing, Innovation and Transformation initiative of the Canadian Health Services Research Foundation (CHSRF).

Introduction

Medical Savings Accounts, or MSAs, refer to a family of financing approaches used to pay for specified healthcare services. MSAs are currently in use world-wide, including in the U.S., Singapore, South Africa, and China. Although called by different names, all plans or models have two fundamental features: a personal or household savings account; and a high-deductible catastrophic insurance plan.

There are considerable differences across plans, including such features as: who can join; whether membership is voluntary; who contributes (employer, employee or both); who owns the funds (employer, employee); levels of deductibles and co-payments; availability and generosity of insurance for costs above the threshold; which services can be purchased with these funds; and whether unused contributions can be carried over to subsequent years. Regardless of these differences, these plans do not usually involve government contributions, except indirectly through the tax system.

The underlying premise of MSAs is that people will buy more efficiently if they have to pay with their own resources, rather than having the costs covered by third parties. Advocates of MSAs cite a number of benefits, including enhanced patient choice, reduced government spending, and more effective systems, including a reduction of wait lists. Opponents suggest that MSAs can potentially undermine insurance arrangements, transfer resources from the sick to the healthy, and produce worse health outcomes.

Funding approaches are most effectively assessed when placed within the context of how healthcare is financed and delivered within a jurisdiction. With this in mind, the paper highlights the characteristics and underlying assumptions of MSAs as a financing model for healthcare and reports on what research tells us about the extent to which these assumptions hold. Particular attention is paid to the distribution of health expenditures in the population.

Findings

The design of MSAs suggests that they are most suited for services that would appropriately be financed through savings over a person’s own lifetime, rather than through risk-pooling with others. The research suggests that MSA models should be reserved only for services that match all of the following criteria:

tlement of the service is not highly skewed.

For skewed categories of expenditures, almost all of those people receiving allowances will not need to use them. This is both expensive and inefficient. Even advocates of MSAs note that they are not well suited for the very sick.

The costs are not ongoing and/or not relatively small.
If costs are small, even if predictable, they should be manageable through regular household spending. MSAs are designed for high, episodic costs that could be saved for. However, if such high costs recur, individuals would soon deplete their accounts and would have to depend on other sources to meet their bills.

The service is not “necessary.”

Most of the plans reviewed found it expedient to exempt certain services from MSAs or co-payments, such as preventive services and chronic disease management. The adverse health and fiscal consequences of not using these services were often higher than the cost of providing them.

**Conclusion**

If the three criteria outlined above are accepted as valid, MSAs would play, at best, a very small role. Medical Savings Accounts may represent high costs—both for the allowances and in increased administration—for minimal benefit, particularly if they exclude services that are costly and those most important to improving health.

MSAs do not appear to be a valuable addition to financing Canadian healthcare.
1 INTRODUCTION

To assist CHSRF in clarifying the implications of various funding models for healthcare services, this paper was asked to examine the potential contributions of Medical Savings Accounts (MSAs) in Canada. The Canada Health Act (CHA) comprehensiveness requirement is a moving target; it defines insured services in terms of where they are provided (in hospitals) and by whom (physicians). This definition is a floor, not a ceiling; provinces can and do insure beyond these requirements. As care moves from hospitals to home and community, however, certain costs (e.g., pharmaceuticals, community-based care, certain medical and diagnostic imaging services) move outside the CHA rules. The impact of such changes varies, depending on what services individuals need and might seek to use, and their ability to pay for them, including what sorts of supplemental insurance they might have. (Appendix A provides additional information about how healthcare is financed in Canada.)

It is crucial to recognize that funding approaches cannot be viewed in isolation, but must be assessed within the context of how healthcare is financed and delivered. Accordingly, this paper highlights the characteristics and underlying assumptions of MSAs as a financing model for healthcare, and reviews what published data tell us about the extent to which these assumptions hold, with particular attention paid to the implications of the distribution of health expenditures in the population. A more complete treatment would also need to note how this distribution varies by category of expenditures, age-sex groups, and other factors, such as rural or urban residence, socio-economic status; or chronic disease. (Although further research is required, Appendix B reviews some findings from publications based on data from Manitoba, which addresses some of these issues.) The report concludes with observations about the potential contribution of MSAs in Canada.\(^i\)

2 WHAT ARE MSAs? WHAT ARE THEIR UNDERLYING ASSUMPTIONS?

A number of terms are used to refer to the family of financing approaches we will call Medical Savings Accounts (MSAs). As Hurley et al. note, all such plans have two essential features: a personal (or household) account, combined with a high-deductible catastrophic insurance plan.\(^i\) Different countries use different nomenclature for these plans; plans also differ in such details as: who can join and whether enrollment is voluntary or compulsory; who makes the contributions (individuals, employers, government); size of contributions (including maximums and minimums); and the size of the ‘corridor’ between the account and the level where catastrophic insurance coverage would begin; who owns the account (the individual or the employer); provisions for rolling over unused contributions to subsequent years (the ‘use it or lose it’ model); tax treatment of the plans; and what contributions can be used for. In addition to MSAs, terms used include: flexible savings accounts (FSAs), health savings accounts (HSAs), consumer-driven health insurance, consumer-directed health plans, defined contribution health plans, consumer allowances and consumer-centric health plans.\(^2-6\) MSAs already exist in multiple countries, including the U.S., Singapore, South Africa, and China. These plans, however, do not usually involve government contributions, except indirectly through the tax system.\(^8\) The underlying premise of MSAs derives from economic theory that argues that people will be more efficient purchasers if they must pay for items from their own resources, as opposed to having the costs met by third parties through insurance. Advocates accordingly suggest a number of potential benefits from giving people economic incentives to be efficient consumers of healthcare. These include: enhanced patient choice and empowerment; reduced government expenditures; improved system efficiency and effectiveness (including reduction of wait lists and enhancing innovation); reduced costs for processing small claims; more cost consciousness;
reduced utilization; and broadening the array of people and services covered. Opponents suggest that many of these benefits are unlikely to emerge, in large part because of how skewed health expenditures are in the population. They suggest potential risks of adopting MSAs, including undermining insurance arrangements; transferring resources from the sick to the healthy; increasing total costs; subsidizing services of questionable value; and producing worse health outcomes. The nature of these various claims, and the extent to which data support them, is noted in this report.

Discussions of MSAs in the Canadian context are subject to one particular point of confusion. Since 1986, the Canada Revenue Agency has allowed incorporated employers (although not individuals) to set up Health Spending Accounts. Although such accounts do not fit the definition of MSAs, they are briefly discussed in Appendix A.

3 FINANCING HEALTHCARE: SOME ISSUES

Healthcare services may differ in fundamental ways from many other goods and services. Health economists note a number of issues, including uncertainty in terms of when one is likely to become ill and what treatment one will need; asymmetry of information between provider and user; and the potential for extremely high costs. Accordingly, most societies pool costs for at least some services to assist those faced with potentially catastrophic expenses. There are a number of ways to fund healthcare services, including various combinations of: public payment through taxation/general revenues; public or quasi-public payment through social insurance; private insurance; and direct out-of-pocket payments. Even within jurisdictions, the funding approach can and does vary across type of service and category of client. (Appendix A briefly notes the public-private mix for Canada.) Key elements of financing approaches include the extent to which costs are pre-paid and the extent to which risks are pooled. Another issue, beyond the scope of this study, is the extent to which funding (public or private) directly pays providers, or relies on subsidization of private payments through tax deductions. International studies clarify that the choice of approach is influenced by a number of factors, including:

- What can be afforded, both by society and by the individuals or families potentially needing care? Ideally, everyone will be able to receive such basic necessities of life as food and shelter, as well as necessary medical care, but definitions of what is deemed necessary clearly vary internationally, particularly when comparing richer to poorer societies.

- The extent to which costs are prepaid to cover anticipated ‘peaks’ in expenditures, vs. being on a ‘pay as you go’ basis. (Similar considerations also apply to retirement income).

- The extent to which costs are pooled vs. being seen as the responsibility of individuals and their families.

Different funding models may thus reflect different views about which costs should be borne collectively. There is no correct answer. People’s preferences can and do vary, both in general, but also depending on the populations being served and the items being covered. For some people (and some items), the preferred approach might be to distribute costs equally (‘community rating’) or on the basis of ability to pay (income-based payments). Those advocating ‘actuarial fairness’ would reject cross-subsidization and require payment to be based on the likelihood of incurring costs. Libertarianism would argue that fairness not only precludes requiring individuals to subsidize others, but precludes mandating coverage at all. It is important to recognize that MSA models represent an explicit rejection of risk-pooling for those services they are intended to cover, although they may be designed to encourage individuals to save over their life cycle to defray their anticipated expenditures later in life. MSA models instead assume...
that most individuals have sufficient incomes to be able to save enough to cover the costs of the services included in the MSA model. Because different models of MSAs include different services, efforts to evaluate the impact of MSAs must carefully consider how the various plans are designed and how MSAs relate to the other financing models being used.

3.1 Buying healthcare: Moral hazard

These varying financing models also reflect different views about how people make purchasing decisions and the extent to which purchasing healthcare is like purchasing other goods and services. In economics, price is the signal that ensures a balance between supply and demand. If demand exceeds supply, prices should rise until enough people are priced out of the market to balance supply and demand. Reducing prices, conversely, should increase demand. Market forces thus ensure that scarce goods go to those who value them most, as demonstrated by their willingness to pay the higher price.

Economists use the term ‘moral hazard’ to refer to situations in which being insulated from the full consequences of one’s actions causes changes in behaviour. Moral hazard predicts that insulating people from risk (a major purpose of insurance) will make them less concerned about the potential negative consequences of that risk than they otherwise might be, and more likely to overuse ‘free’ services. In general, insurance plans do incorporate features (including co-payments, deductibles and refusal to write policies under some circumstances) to attempt to minimize moral hazard. To the extent moral hazard applies to healthcare, it posits that those with good health insurance, because they do not have to pay the full cost of whatever care they receive, will over-consume healthcare services. If this is true, cost control should, therefore, begin by ensuring that people have to bear a higher proportion of the consequences of their actions and discourage models that insulate people from the true costs of their purchasing decisions.

Economists also recognize that the strength of this response to price varies from service to service; services are called ‘price-inelastic’ when one would not predict a strong response to price signals. Economists also recognize that, under some circumstances, higher costs may arise in the long term if services deemed ‘necessary’ are not purchased and used (e.g. if price signals cause people to not buy drugs to control their blood pressure or diabetes, they may subsequently require a costly hospitalization). Details about the type of insurance plan, the type of services sought (and/or needed) and the alternatives thus have major implications in evaluating the implications of different financing models.

Moral hazard can also exist on the part of the payer/provider; in that case, it is often referred to as ‘adverse selection’ or ‘risk selection’ and refers to situations in which the party bearing financial responsibility for care (often, an insurer) is unwilling to offer coverage to those with a higher probability of incurring costs. This has been a particular problem in countries relying on competing insurance plans (especially the U.S.), where those with pre-existing conditions may be uninsurable. There is, accordingly, a debate in many countries as to how insurance coverage affects behaviour and what the policy response should be.

3.2 Roles of patients and providers in treatment decision-making

Some strongly believe that healthcare is a consumer good, and that patients are in the best position to decide what they want. If it is assumed that patients make the key decisions about what healthcare they will use, and that moral hazard of consumers is a major problem, one may prefer financing models which use such mechanisms as price signals to shift financial risk to patients/consumers (e.g. by having a sliding co-payment system to channel patients to less-expensive options). In turn, this requires patients to have
enough information to make wise purchasing decisions. In contrast, if it is assumed that providers make the treatment decisions, ideally on the basis of their professional judgments about what the patient needs, the policy emphasis would focus not on price signals to ‘consumers,’ but on how best to pay providers for their services and the incentives inherent in different approaches to payment. As one prominent U.K. health economist has noted, “if the policy objectives are expenditure containment and greater efficiency in resource utilization, the price mechanism should be used to affect the behavior of the primary demander and the supplier: the physician.”

The literature on MSAs reflects these philosophical differences in views about who does, and should, make treatment decisions. One argument repeatedly raised by MSA advocates is the beneficial implications of encouraging providers to compete for customers. One U.S. think tank, the U.S. National Centre for Policy Analysis, which has produced many reports endorsing MSAs, produced a report suggesting that patients can and should be able to manage their own care and urging states to abolish legal and regulatory barriers that inhibit such innovations as “the emergence of Internet-based medical service brokers similar to Web sites that sell airlines tickets online” and “medical auction Web sites (similar to eBay or Yahoo) where physicians compete on price and services.” They also urge the U.S. Food and Drug Administration (FDA) to move most drug therapies to the over-the-counter market to allow consumers to purchase them without a prescription. Similarly, advocates of Canadian Health Spending Accounts often justify their support in terms of consumer choice (see Appendix A).

A related concept arises from what is known as the ‘principal agent’ problem, referring to situations where one party makes decisions on behalf of another. Clearly, problems can arise if the interests of the agent and the client are not well aligned. To the extent that what is often termed ‘supplier-induced demand’ exists, providers may respond to incentives to supply more (or different) services to maximize their own revenues. Certainly, for healthcare, this tendency should ideally be minimized by professional norms stressing the importance of meeting needs rather than demands, but badly designed financing programs can introduce perverse incentives. Indeed, the quality improvement movement is attempting to minimize all three of the problems identified by the U.S. Institute of Medicine—overuse, underuse, and misuse.

Unsurprisingly, clinicians tend not to believe that “consumers can make sound, cost-effective medical decisions.” They argue that it may not be reasonable to think of patients as savvy consumers, particularly given the complexity of disease, and the emotional issues involved in dealing with serious illness. Others share this concern. Reinhardt, a leading U.S. health economist, has argued “To move from the present, chaotic pricing system toward a more streamlined system that could support genuinely consumer-directed health care will be an awesome challenge. Yet without major changes in the present chaos, forcing sick and anxious people to shop around blindfolded for cost-effective care mocks the very idea of consumer-directed care.” Concerns have also been expressed about the implications of a consumer-directed model for the physician-patient relationship, its potential to undermine professionalism and trust, and issues of legal liability if patients choose badly. Clearly, questions relating to what the roles of patients and providers should be (as opposed to the extent to which providers actually make treatment decisions) are not based on evidence, but on values. Although this is beyond the scope of this review, data does suggest both that in practice providers do make most decisions—particularly those relating to high-cost therapies—and that most patients state that they prefer shared decision-making models to models where patients control decision-making. Regardless of who is paying for care, it is important to recognize that, for services where those consuming healthcare do not control their own utilization, it is less likely that having MSAs can induce wiser purchasing decisions.
4 POTENTIAL IMPACT OF MSA MODELS: WHAT THE LITERATURE SAYS

4.1 How do co-payments affect utilization?

MSAs as implemented in the jurisdictions using them (see the companion paper, Deber, RB. Experience with Medical Savings Accounts in Selected Jurisdictions) strongly resemble the high-deductible option employed in the RAND Health Insurance Experiments (HIE) in the 1970s, and often show similar effects. Both advocates and opponents accordingly often quote it. The RAND study randomized families (excluding those where people were older than age 65) to different insurance plans with different co-payments. They found that utilization for some services did indeed decrease among those with the higher co-payments. For most participants, health outcomes were unaffected, although the small number in that study who were poor and sick had worse outcomes. Co-payments led to similar reductions in utilization of both necessary and unnecessary care. Subsequent studies have confirmed these findings; co-payments for needed services yield worse outcomes, and often generate costs which offset or exceed the savings from reduced utilization.

These findings are also relevant to Canada for those services not required by the CHA. For example, cost-sharing is associated with lower rates of adherence to medications and higher rates of adverse health outcomes, particularly among the poor, but also among children and the elderly and those with chronic diseases. An increase in cost-sharing among elderly and indigent patients in Quebec was associated with increased rates of hospitalization, long-term care admission or death. Having to pay for drugs may also discourage individuals from seeking out other publicly funded care. Allin and Hurley found an income gradient in the use of physician services in Ontario that was related to not having prescription drug insurance. Consistent with the evidence those effects are stronger for types of utilization that patients control, this gradient was stronger for the likelihood of a visit than for the number of visits, and also stronger for those not yet diagnosed with chronic conditions than for those who had already been under treatment.

Analysts differ in their estimation of when it is acceptable to have people ‘priced out’ of the market for care, or whether it is assumed that those ‘needing’ particular services should receive them. In turn, this will differ across types of goods and services, as well as across jurisdictions, and depend on the available alternatives. For example, in a study of Kaiser Permanente in California, Hsu et al. noted that “relatively modest levels of patient cost-sharing for emergency department care decreased emergency department visit rates without increasing the rate of unfavorable clinical events.” In that study, patients did have alternative places to seek care and the steering effects appear to have been positive. Indeed, to the extent that care not purchased was not necessary, there is the potential for a ‘win-win’ of lower costs and better outcomes. In contrast, where charges to patients result in barriers to seeking needed care, there is the potential for a ‘lose-lose’ of worse health outcomes and higher total costs (over the short term, long term or both). The balance clearly depends upon the population, the treatment alternatives and the time frame. There are also equity concerns, particularly if these models widen socioeconomic disparities in care.

4.2 Risk selection

Economic theory would also predict that, particularly when MSAs are voluntary, they are likely to be most attractive to those at lowest risk of incurring health expenditures. This will erode risk-pooling. (The implications of the distribution of health expenditures are discussed below.) The design of MSAs combines personal allowances with catastrophic coverage (financed by third-party payers). In competitive insurance markets, however, any insurer charging the same to cover all individuals, regardless of their risk (often
termed ‘community rating’) may be undercut by competitors who can offer lower rates to lower-risk individuals. As these lower-risk clients leave, the more generous insurers, left with higher-cost enrollees, would have to increase their rates to cover this higher average cost and would thus lose even more of their lower-risk clients. In what is often termed the adverse-selection ‘premium death spiral,’ these insurers would be driven out of business. Without a level playing field, there is a substantial competitive advantage for insurers who are able to select their clients.\textsuperscript{24,60–62} Concern has thus been expressed that MSA models, by attracting those at lowest risk, can accentuate this problem and erode insurance coverage for the sick. There is some evidence that this indeed occurs. For example, as a result of adverse selection, one analysis of Harvard University’s benefit plans found that “the University’s decision to contribute an equal amount to all insurance plans led to the disappearance of the most generous policy within 3 years.”\textsuperscript{63} Robinson argued that plans that discouraged enrollment of individuals with greatest need were eroding “the already fragile social pooling of insurance risk in the health economy, based as it is on implicit subsidies from the perennially healthy to the chronically ill.”\textsuperscript{64} A series of analyses of U.S. MSAs has concluded that, when people had a choice, MSAs were selected by the healthier and wealthier. One author described those who selected MSA models as “gaming the health care system by selecting into the high-deductible plan if they believe that they will come out ahead financially,” and noted that they appeared to appeal only to a “tiny portion of employees.”\textsuperscript{1}

As will be noted below, the implications of this trend vary, and depend highly on where particular individuals fall within the distribution of health expenditures and the types of services being covered by each payment approach.

5 WHAT ARE THE IMPLICATIONS FOR VARIOUS STAKEHOLDERS, INCLUDING PAYERS (GOVERNMENT, PRIVATE), PROVIDERS, AND CONSUMERS/PATIENTS?

The literature strongly suggests that the implications of MSAs depend to a large extent on the details of how the MSA plans are designed, as well as the characteristics of their alternatives.\textsuperscript{5,65,66} Analysis of the impact thus depends heavily on the exact design of plans, the type of care, and the characteristics of the clients. It is striking that there is remarkably little definitive data; as Hurley and Guindon note, much of the literature expresses policy preferences rather than evidence.\textsuperscript{5} Nonetheless, there are some clear findings.

MSA plans divide expenditures into three zones: a) the \textit{allowance}, paid (by someone) to each individual, and able to be used (for some things); b) the \textit{threshold}, above which costs are considered ‘catastrophic’ and (in most versions) insured (to varying extents); and c) the \textit{corridor} between the allowance and the threshold, where all costs must be paid out of pocket. (This is sometimes referred to as the ‘doughnut hole.’) From the viewpoint of payers, MSAs represent a transfer of risk from the payer/employer/insurer to the patient/employee. The impact of various financing models will depend on several factors, including: what services are needed or wanted and their prices; what is or is not covered; the levels set for the size of the allowance and threshold; and the likelihood and consequences of overuse, underuse, and misuse,\textsuperscript{14} which is also related to the susceptibility to moral hazard. For populations, it is also important to understand the distribution of expenditures in the population and the persistence of expenditures over time (which affects the ability for individuals to pre-pay for expected costs). These factors may vary by type of service, as well as by population group.
5.1 Characteristics of the plan design

Any MSA plan incurs added costs to payers for the allowances; these may come from employers, governments, or individuals forced to place some of their income into savings (e.g. Singapore model). In many models, these costs are tax deductible, which also represents considerable costs to government. However, some of these costs may be offset if MSAs replace insurance coverage. Models relying on tax deductions also pose equity issues, with those with higher incomes likely to benefit more.\(^{17,67,68}\)

If people are more cautious spending their own money than using ‘free’ care, utilization may decrease. As noted, eliminating unnecessary or inappropriate care is clearly desirable; eliminating necessary care may be more costly in the long term, particularly if the lack of preventive care or primary care results in expensive hospital admissions. If people have more resources to spend for care, utilization (and costs) may increase. MSAs also incur administrative costs, which the literature suggests can be considerable.

Again, the context is important—U.S. studies have suggested MSAs (much like other plans with high deductibles) can decrease administrative costs because small claims would no longer be processed, but these findings are less likely to pertain to Canada (where the single payer for hospital and physician services also restrains administrative costs).\(^{1,69}\)

The impact of MSAs thus depends heavily upon how the plan is designed.

The literature suggests that certain designs of MSAs are likely to increase total costs. One analysis of a U.S. Health Reimbursement Account (HRA) argued that “As a result of the HRA, the lower 50% of users, who account for just 5% of medical claims expenses in a typical group plan, will each be due their spending account allowances (ranging from $500 to $1000). The HRA plan can only offset such increased spending by reducing claims expenses for families who exceed the HRA but do not reach their deductible, or families who exceed their deductible.”\(^{27}\) That paper goes on to suggest that costs will be redistributed from sick to healthy individuals/families, since those who previously received no payments will now be getting an annual payment. To offset these payments while remaining cost-neutral, it would be necessary to reduce payments to sicker people who have used up their allotment. An alternative approach might be to change the size of the allowance. For example, Zaric and Hoch simulated multiple models, and concluded that “in order for MSAs to lead to cost reductions, the initial allowance would have to be much smaller than the average health expenditures unless one made very optimistic assumptions about the size of the reduction in spending induced by a small rebate of unused funds.”\(^{70}\) They also found that the impact was highly sensitive to model parameters, but under most circumstances it would not be cost-saving for public payers. ‘Use it or lose it’ models may also encourage additional utilization of ‘marginal’ care, depending on what services are included in the basket (e.g. cosmetic dentistry, holistic medicine, massage therapy). Note that the Health Spending Accounts already available in Canada (see Appendix A), although not meeting the definition of MSAs, do include such services in the list of eligible expenses.

The extent to which MSAs change total costs, rather than just shift who pays for what, will be related to their impact on such factors as utilization, the mix and price for the services used and the longer-term effects of receiving or not receiving services. In turn, this will relate to what financing method the MSA has replaced and the design of the various plans. Identifying who pays for what is important; some ‘savings’ may only represent cost transfers (e.g. from third-party payers to individuals who must now pay out of pocket). Actual savings may result, however, if those with MSAs are more selective about what care will be used (decreased utilization) and who will provide it (lower prices for same utilization by wise purchasing or shopping around for bargains). The impact will also differ for plans where MSAs are an add-on to cover services not previously insured, vs. plans where they replace more comprehensive coverage. Theory would also predict that behaviour in the allowance and corridor zones would differ from
behaviour once the catastrophic threshold is passed. For example, comparisons between plans that already involve high co-payments and deductibles and plans that couple MSAs with full catastrophic coverage have found little difference between MSA models and the status quo; indeed, those with MSAs often had lower out-of-pocket costs once their expenditures exceeded the threshold. In these comparisons, individuals with MSAs would have ‘free’ care once costs exceed the threshold, whereas those in the other plans might still have copayments. Similarly, for situations where MSAs represent an add-on (covering services previously uncovered), economic theory would predict that having funds in an MSA may lead to some additional spending for items previously considered unaffordable. For example, one study found that a cohort enrolled in an MSA model offered by a large U.S. employer spent “considerably more money” on hospital care than did employees with other benefit arrangements, and suggested that the reason was “too little out-of-pocket cost-sharing.” Other studies noted that there was higher utilization of preventive services in the MSA group, largely because in the particular plans they studied, such services were fully covered (first dollar coverage, with no deductible), unlike the situation for their comparison group. In other plans, however, episodic and acute-care services were reimbursed more generously than were preventive and chronic-care services, leading to concerns that efficiency of the healthcare system would be reduced. In another study, the cost burden varied across plans, with those plans covering pharmaceutical costs under a pharmaceutical benefit requiring higher co-payments than those plans covering them under a medical benefit. Note that many of the plans studied exempt key services, including preventive care, from co-payments precisely because cost-sharing was found to be potentially harmful. These findings stress the importance of examining plan details, since a cursory analysis might conclude that MSAs do not adversely affect use of certain services, based on a plan which had exempted them from cost-sharing.

MSAs may also decrease bargaining power over the prices charged by providers. Observers of both U.S. and Chinese plans suggest that costs for care had increased through loss of bargaining power over providers. (In theory, government could regulate these prices, but that has been seen as incompatible with the logic of competition by those designing the MSA models.)

Other impacts, which may not be easily quantifiable, might include impacts on equity, efficiency, patient satisfaction and provider satisfaction.

5.2 Characteristics of the services that could be purchased with MSAs

Different categories of services vary in their price, necessity, predictability and utilization. An aggregated study trying to compute risk adjustments for Netherlands data found that the premium range would have to be very large for such benefits as drugs and medical devices; in contrast, it could be relatively small for dental care. People may also need different services at different times. For example, one U.S. study of Medicare beneficiaries over age 65 for the 1992-1996 period found that annual medical expenditures (1996$) were $37,581 during the last year of life, vs. $7,365 for other years. However, for those dying at older ages, fewer of these expenditures were for the medical services covered by Medicare, and more for chronic and custodial care.

It is worth noting that one source of requests to introduce MSAs is providers who wish to evade cost controls and bring ‘new money’ into the system. Two slightly different (and not always compatible) claims can be found: that consumers would be more efficient purchasers of care, and that MSAs would enable additional services to be purchased without having to increase government funding for healthcare (although total costs might well increase, including public costs, through tax policy). One variant, suggested by Medicines Australia but not implemented, envisioned MSAs as a way for people to pre-pay
costs of medications for future retirees, with or without tax advantages. Note that this was seen as a way of putting more (not less) money into the system; the proposal also recognized that some provision for catastrophic costs would need to be incorporated beyond MSA models. Indeed, recent Canadian suggestions for pre-paying pharmaceutical costs have explicitly rejected using MSAs for such a purpose, with a major argument being that such costs are sufficiently skewed that risk-pooling would seem necessary.

As will be noted below, a major policy question for any funding model is what should be subsidized and whether MSAs are a cost-effective and fair way of accomplishing this. A U.S. scholar has proposed using cost-effectiveness analysis to guide payment policy, with full coverage for those services yielding high benefits, and cost-sharing or private purchase reserved for those services with very low cost-effectiveness. In contrast, MSA models leave purchasing decisions to individuals; this, in turn, makes it harder to defend public subsidy of those services that evidence suggests do not yield significant benefits.

### 5.3 Characteristics of the clients: What is the distribution of expenditures in the population?

Clearly, the scope for saving money through efficient purchasing is low if spending is already low. Many analyses of the implication of different financing models have tended to assume that health expenditures are normally distributed about the mean of whatever group is being examined. But data clearly establish that this is rarely the case. Berk and Monheit analyzed the distribution of health expenditures in the U.S. in a series of path-breaking papers. Using survey data from a number of sources they found remarkable consistency over time. A relatively small proportion of the population accounted for a large share of health expenditures. In fact, the lowest spending 50% accounted for perhaps 3% of expenditures. At first glance, this would seem to suggest that moral hazard was not playing a major role, since most of the population used very little healthcare, whether insured or not. Riley updated the study and found that these costs were becoming slightly less concentrated over time, but that the same pattern persisted. In 1999, the director of the Congressional Budget Office testified that “the most expensive 5% of Medicare beneficiaries cost almost as much as the remaining 95% of all Medicare beneficiaries. On average, those in the top 5% cost more than $70,000 annually—greater than 10 times the average annual cost for all Medicare beneficiaries.” Even aggregated over a five-year period, the top 5% accounted for 27.3% of Medicare costs. An analysis of a 1% sample of the Medicare population between 1975 and 2004 found some differences over time; the top 5% accounted for between 54.2% (in 1975) and 43.0% (in 2004) of all Medicare costs, while the top 1% accounted for between 20.4% (1975) and 15.5% (2004). It is important to recognize that, since the U.S. is not a single-payer system, some of this purported decline in concentration was an artifact of changes in who would be eligible for Medicare Part B coverage (52% of the sample had incurred Part B costs in 1975, compared with 92% in 2004). Another study for the U.S. Agency for Healthcare Research and Quality found similar skewing in the 1987, 1996, and 2002 Medical Expenditure Panel Survey data, with the lowest-spending 50% of the population accounting for about 3% of total health expenditures.

In subsequent work, Deber, Roos, Forget and colleagues examined patterns of expenditure in the province of Manitoba, beginning with analyzing hospital and physician services, and (with Kenneth Lam) extending this to examine pharmaceuticals, as well as stability over time. Further details are given in Appendix B. The key finding from their work was that the design for MSAs being proposed at that time presented little scope for savings, since almost none of the costs for these services being incurred by Manitobans actually fell within the corridor of the proposed model. Instead, most of the amount ‘saved’ would come from shifting costs from payers to the sickest people. In addition, the costs of providing allowances to
the healthy would exceed the potential savings. Their ‘back of the envelope’ computation found that, if
the population all received MSAs based on the mean expenditures for physicians and hospital care, costs
for Manitoba would increase by about $445 million per year, or 54%.$^{94, 95}$ Subsequent analysis confirmed
that the same pattern of skewed costs existed for all age-sex groups and for those with the two chronic
diseases (asthma, diabetes) examined.$^{24}$

Other studies have found similar types of skewing for a variety of populations. For example, a relatively
small proportion of children account for a high proportion of pediatric health expenditures. The children
needing costly medical care were found in both low-income and high-income groups.$^{101}$ Skewing is also
found within analyses of clients of U.S. insurance companies. For example, Robinson estimated the
following profile for the insured populations he examined: “approximately 67% of a private insurer’s
enrollment being quite healthy, another 20% with acute conditions in any one year, 15% with significant
chronic illnesses, and the sickest 1% of enrollees with complex and catastrophic conditions incurring a
very large share of total expenditures.”$^{64}$ He further noted that “56% of the health care costs for nonelderly
persons with employment-based health insurance are incurred by the 5% with the greatest utilization; 69%
of costs are incurred by the 10% with the greatest utilization.”$^{64}$ There was similar skewing among users of
hospital services in Western Australia.$^{103}$ This skewing does appear to affect risk selection; a study of MSAs
found that, although there was little difference in the average age of people selecting different plans, there
was considerable difference in their prior utilization, with MSAs being more attractive to the healthy.$^{27}$

Health costs in all countries are heavily skewed. For example, the World Health Organization analyzed
survey data from 89 countries, covering 89% of the world’s population, with the goal of determining
the extent to which people suffered ‘financial catastrophe’ (defined in terms of spending >40% of family
income) resulting from health expenditures. They noted that many people were at risk (their estimate was
150 million people annually). Not surprisingly, rates were highest in countries relying on out-of-pocket
payments, and lowest where costs were prepaid and risks pooled. However, although this was not the
focus of their paper, it was striking that the rates of those facing financial catastrophe were, in general,
very low (average of 2.3%, median 1.47%). More than half of the surveys they analyzed showed that the
proportion of people who actually faced catastrophic expenditures was lower than 2% of the population.
Only 18 countries were above 4%, and even the highest rates were only about 10%.$^{104}$ Most people, in
most countries, use relatively little healthcare, but anyone is at risk of falling into the category of those
with high needs. One key question is which group the financing models are intended to cover—the healthy
population potentially at risk, or the smaller number who actually need care.

High health costs may be episodic; in that case, encouraging accrued savings may be helpful. However,
high costs often persist from year to year (e.g. if there is a chronic condition), and accrued savings are
less helpful for those who incur persistently high expenditures.$^{105}$ For example, one study cited above
examined data for 2000-01 from the U.S. Medical Expenditure Panel Survey (N=2938 children) and
found that the sickest 10% (top decile) of children accounted for 54% of all costs. These costs were highly
persistent; almost half (49%) of the children in the top decile in 2000 were also in the top decile in 2001;
only 12% dropped into the bottom half.$^{101}$

The implications of these skewed distributions clearly depend on plan design. If there is excellent
catastrophic coverage, then costs to the MSA owner with a serious illness may be lower than the costs
under alternative funding models, particularly if these alternatives involve sizeable co-payments and
deductibles. However, if thresholds are relatively high, and allowances relatively low, the MSAs will soon
be exhausted. Clearly, the situation is different for the bulk of the population, which does not incur high
expenses, than for those who become sick. Indeed, Eichner et al. analyzed spending among employees of
a U.S. company, and found that most spending was concentrated among a small proportion of employees. They concluded that “persistence does not present an overriding impediment to MSAs,” but did go on to note that additional research would be required to analyze the implications for the “small fraction” that did face recurring high costs.\textsuperscript{106}

Patterns also vary for types of services. Use of the most costly care, which would be most difficult for people to manage without some form of subsidy or risk-pooling (particularly hospitalization, but also physician services and pharmaceuticals) tends to be heavily skewed.\textsuperscript{107} Indeed, Pauly, a major advocate of consumer-driven care, nonetheless concluded that the skewing of drug expenditures meant that drug insurance would not be financially feasible without subsidy. The Pauly and Zeng analysis of data for U.S. Medicare beneficiaries, 1994–1998, divided spending for inpatient, outpatient, and drugs into quintiles. Their paper included a table analyzing the percentage of those initially in the highest quintile who remained in the highest quintile after 1994. Note that this understates the extent of skewing (since quintile is still a relatively large group). Nonetheless, for inpatient, outpatient and drug expenditures together, 54\% remained in this highest quintile for 1995, dropping gradually to 46\% by 1998. For outpatient drug expenditures alone, the percentage remaining in the highest quintile fell from 76\% (1995) to 60\% (1998). He concluded that “This high relative persistence makes it unlikely that unsubsidized drug insurance can be offered for sale, even with premiums partially risk adjusted, without a probable adverse selection death spiral.”\textsuperscript{108}

5.4 Why do studies reach different conclusions?

In analyzing the studies, it is important to note where their data come from. Some use hypothetical responses to surveys or vignettes.\textsuperscript{109} Some analyze claims data. One issue is who is represented in the sample; as noted, particularly in competitive markets such as the U.S., the relatively low take-up rate has meant that existing MSA models are highly vulnerable to self-selection. Another critical element is whether studies looked at aggregate distributions or analyzed the experience of sub-groups. Studies looking at ‘average’ expenditures, in total or by age-sex groupings,\textsuperscript{110} can be profoundly misleading, because health expenditures are so skewed. Although costs clearly vary by age-sex category, there is still enormous variability within each such grouping. Studies in a variety of jurisdictions, including European nations, find that age and sex alone explain perhaps 2-4\% of the variance in expenditures.\textsuperscript{111–117} In theory, additional factors can be incorporated, including diagnosis, region, and prior utilization. Even these models, however, do not explain more than 15\% of the variance.\textsuperscript{116}

Studies looking only at aggregates may thus conclude that no differences exist, whereas those looking at distributions come to different conclusions. Although studies looking at claims data for the U.S. found no difference in basic demographic factors by plan type, they did find considerable self-selection, with those picking MSAs being healthier. “The study suggests that concerns about selection bias may be well founded.”\textsuperscript{74}

Several studies have attempted to modify MSA models to make them less costly. They tend to find that MSAs could be made to look cost-neutral only by greatly cutting the allowance, exempting major categories of expenditures and making major assumptions about how spending is distributed, and how people would react to having to pay. Hurley et al ran a series of simulations to test variations on the model. They note that these were designed to be “generally favourable towards MSAs: we assume that government captures all of the financial savings associated with reduced utilization under MSAs; that government distributes to MSAs only funds available after withholding monies necessary to finance catastrophic insurance spending; that people respond to MSA incentives by reducing utilization in
line with estimates from the Rand HIE and that in doing so they treat MSA dollars and personal funds as equivalent; we adjust MSA contributions for age, sex, and health status; and because enrolment is mandatory there is no favourable risk selection into MSAs. Furthermore, under our design risk adjustment (or the lack thereof) does not affect overall public expenditures; it affects only the distribution of public monies among individuals. Consequently, the highly skewed distribution of healthcare expenditures and still rudimentary methods of risk adjustment do not automatically condemn all MSA plans to be expenditure increasing.”

Their model included only physician and hospital costs, and was constructed to be maximally favourable to MSAs. They nonetheless concluded that “even under favourable assumptions, MSAs achieve at best modest cost-savings to the public sector while generating negative distributional effects,” and that “publicly funded MSAs are unlikely to advance overall system performance.”

6 THE CASE OF CANADA: WHO PAYS FOR WHAT SERVICES?

The National Health Expenditure database maintained by CIHI breaks spending into five ‘sources of finance’, which in turn can be categorized into public and private. It also divides expenditures into a series of ‘uses of funds.’ (See Appendix A for definitions.) This data can be used to analyze who currently pays for these various types of care and where gaps are likely to exist.

In Canada, about 70% of health expenditures are paid publicly; this has remained relatively stable since at least 1997. This varies considerably, however, by type of care. One reason is that the CHA defines insured services in terms of who provides them (physicians) and where they are delivered (hospitals). This translates into considerable differences in who bears what costs. CIHI estimates that about 99% of the cost of physician services, and 90% of the cost of hospital services, are paid for publicly. In contrast, a sizeable share of the costs is born privately for such categories as: ‘other professionals’ (dental care, vision care, rehabilitation), outpatient prescribed drugs, outpatient over-the-counter drugs, personal health supplies and devices, long-term care and home care. Diagnostic imaging presents a mixed picture; most services are provided in hospitals, and must be publicly financed if deemed medically necessary, but some provinces are showing heavier reliance on private clinics, where the requirements for public payment can be more ambiguous.

As one study for the Kirby Commission argued, there is considerable tax support for healthcare—not captured in the CIHI data—resulting from “the non-taxation of health care premiums paid by the employer on behalf of individual employees, while the costs remain deductible by the employer. The exemption from tax of such employment benefits reduces federal and provincial tax revenues by something in the order of $2 billion a year. The existing exemption may be regarded as unfair in a number of ways. Those employees covered by employer health plans gain an advantage not available to those who are not, and the amount of the benefit is the largest for those with the most elaborate and generous plans and the highest incomes. The exemption of these benefits effectively provides a subsidy to those obtaining benefits (dental care, eye glasses, drugs, etc.) not covered under the basic public health system, while others obtain no similar advantage.” MSAs may thus be seen as a potential way of leveling this playing field.

Appendix A gives additional details and helps clarify where gaps in coverage exist. It is important to note that this picture can be a moving target, because technology has allowed services to move from hospitals to home and community. In particular, hospitals’ share of total health expenditures has fallen from 45% in the mid-1970s to an estimated 27.8% in 2009. As the site of care shifts, so does who bears the costs. Drugs, for example, are accounting for an ever-growing share of health expenditures, in part because they are shifting from hospital budgets. (Inpatient pharmaceuticals are captured by the hospital expenditures category, whereas outpatient pharmaceuticals are included in the drugs category.)
A recent survey of 29 countries by the OECD examines what it calls ‘ten functions of care’ and assesses the extent to which costs are covered. Although the precise numbers given in the report can be disputed (and also do not take account of potential variation within and across jurisdictions), they do give a general picture of where gaps in coverage exist. Canada is placed at 100% coverage for: acute inpatient care, outpatient primary-care physician contacts; outpatient specialist contacts; clinical laboratory tests; and diagnostic imaging. Pharmaceuticals are estimated at 51-75% coverage. Services listed as ‘not covered’ are: physiotherapist services; eyeglasses and contact lenses; dental care; and dental prostheses. The likely impact of MSAs clearly depends upon the sorts of services they are expected to cover and the extent to which individuals already have coverage (as well as how extensive, and expensive, that coverage is).

7 CONCLUSION: WHERE MIGHT MSAs FIT IN CANADA?

MSAs already exist in multiple countries, including the U.S., Singapore, South Africa, and China. There have been a series of authors urging their use in other countries, including the U.K., Australia, and Canada.

The general conclusion of most who have reviewed experiences with MSAs is that the precise impact depends on plan design, but that cost-sharing is a blunt tool. There are a number of strong enthusiasts, often coming from U.S. think tanks. Their enthusiasm is often conditional on rather heroic assumptions about the extent to which people can be educated to understand medical information and be able to decide on their own treatment, including distinguishing between appropriate and inappropriate care. Others are divided, but tend to doubt their value. One reason is a tension between ensuring that MSAs have enough resources to meet potential costs, and ensuring that the costs are reasonable. If the plans are generous, they won’t generate savings. If government or employers pay the allowances, MSAs will subsidize the healthy at the expense of the ill. By eroding risk pools, MSAs reduce the cross-subsidy from the healthy to the ill. MSAs may generate some short-term savings by reducing utilization, but this usually does not offset the cost of the allowances (unless these allowances are very small) and may even generate higher costs through adverse health effects for those who forego needed care. This effect appears particularly pronounced for low-income people.

A 2002 review by Dixon found only 20 articles meeting her search criteria; with the exception of analyses of Singapore, almost all were theoretical rather than based on data. Her conclusion was that MSAs were characterized by an absence of risk-pooling, weak controls over how resources would be allocated, and financial barriers to access, and were likely to lock in fee-for-service payment; as such, she found them “inequitable and inefficient.” Saltman was similarly unenthusiastic. One international review suggested that MSAs could play, at best, a supplementary role. These authors also note that MSAs also represent considerably higher administrative costs than exists for single-payer models.

Canada’s healthcare system, although often excellent, has room for improvement. Sustainability requires careful attention to ensuring that people receive high-quality, timely care at an affordable price. One clear policy thrust is to concentrate on appropriateness and ensure that people do not receive care that is not likely to benefit them, and that the care they do receive is delivered in a cost-effective manner; such issues, although important, are beyond the scope of this paper. A related policy issue is the gaps in access to care in Canada related to current public/private financing approaches, with particular issues around services outside the CHA requirements (e.g. outpatient pharmaceuticals, vision care, dental care, rehabilitation, long-term care and some diagnostic tests). Some of these services, particularly pharmaceuticals, show a skewed distribution, with the potential for catastrophic costs for a small proportion of the population. Although many Canadians do have private insurance coverage for some of these
services, many do not, and a case can be made for extending coverage for necessary care not captured by current funding policies. The Canadian Medical Association is among many who have suggested this. However, the design of MSAs suggests that they are most suited for those services which would appropriately be financed through savings over a person’s own lifetime, as opposed to services whose costs should be risk-pooled, and hence may not be the best way to cover such costs.

In conclusion, our review suggests that MSA models should be reserved for services only if they match all of the following criteria:

- Not highly skewed. For skewed categories of expenditures, almost all of those receiving allowances will not need to use them. This is both expensive and inefficient. Even the advocates of MSAs note that they are not well suited for the very sick.

- Not highly persistent, and/or not relatively small. If costs are small, and especially if they are predictable, they should be manageable through regular household spending (e.g. food, rent). MSAs are designed for high, episodic costs that could be saved for. However, if such high costs recur in subsequent years, individuals incurring those costs will soon deplete their accounts, and would have to depend on other sources (government?) to meet their bills.

- Not ‘necessary.’ Most of the plans reviewed have found it expedient to exempt certain services (e.g. preventive services, chronic disease management) from MSAs or co-payments, because the adverse health (and fiscal) consequences of not using them were often higher than the costs of providing those services.

If these criteria are accepted, MSAs would play, at best, a very small role, for several reasons. In terms of cost-saving, the vast majority of health expenditures are incurred by the very ill; these costs are highly skewed, thus violating the first criterion. For those items that violate the second criterion because their costs are both manageable and relatively predictable (e.g. routine dental preventive care, vision care), policy-makers may determine that people should be able to pay for them themselves, with a potential role for means-tested services (analogous to how housing or food may be provided or subsidized for those with low incomes). If there are gaps in coverage for necessary care, (in violation of the third criterion), it would seem advisable to provide this care in the most cost-effective way possible. Particularly where such costs are relatively skewed (e.g. outpatient pharmaceuticals, home care), one policy option might be to modernize the CHA and ensure that medically necessary services are provided, regardless of who provides them or where.

This report concludes that Medical Savings Accounts may represent high costs—for the allowances, and in increased administration—for minimal benefit, particularly if they exclude both costly services and those most important to improving health. They do not appear to have much potential to be a valuable addition to financing Canadian healthcare.
APPENDIX A: PUBLIC AND PRIVATE HEALTH EXPENDITURES IN CANADA

In Canada, medically necessary services delivered in hospitals or by physicians are, for the most part, publicly financed. Other services, however, may involve private financing, although there are also publicly funded plans (varying by province) for specific populations, such as seniors, those on public assistance, those with particular diseases and/or those with potentially catastrophic expenditures. The private expenditures in turn represent a mix of private insurance and out-of-pocket spending. Private insurance does not cover everyone; in general, it is linked to employment. Different insurance plans have different rules in terms of what is covered, and the extent of deductibles, co-payments and caps on amounts payable.

The following table is extracted from published data using the National Health Expenditure database maintained by CIHI.\textsuperscript{118} The columns give total spending for 2007 (in billion $Canadian), and divide these into public and private share (totaling 100%). Note that this categorization is based on responsibility for payment, rather than source of funds. Public share includes the following ‘sources of finance’: 1. provincial/territorial governments (which includes federal health transfers to the provinces/territories); 2. federal direct spending (e.g., for veterans, Aboriginal Peoples, as well as for health research, and health promotion and protection); 3. Municipal governments; and 4. Social security funds (including workers’ compensation boards). Private share includes private out-of-pocket expenditures, private insurance, plus non-patient revenues from donations and investment income. CIHI also breaks down expenditures into several ‘uses of funds.’ This gives some insight into who currently pays for these various types of care, and where private spending is concentrated.

**Health expenditures in Canada, 2007: Key categories by public and private shares**

<table>
<thead>
<tr>
<th>MAIN CATEGORY</th>
<th>SUB CATEGORY</th>
<th>$ (BILLION)</th>
<th>PUBLIC SHARE</th>
<th>PRIVATE SHARE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td></td>
<td>45.4</td>
<td>90.7%</td>
<td>9.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Other Institutions$^1$</td>
<td></td>
<td>16.4</td>
<td>73.2%</td>
<td>26.8%</td>
<td>100%</td>
</tr>
<tr>
<td>Physicians</td>
<td></td>
<td>21.5</td>
<td>99.1%</td>
<td>0.9%</td>
<td>100%</td>
</tr>
<tr>
<td>Other Professionals$^2$</td>
<td>Dentists</td>
<td>11.1</td>
<td>4.5%</td>
<td>95.5%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Vision Care</td>
<td>3.7</td>
<td>5.4%</td>
<td>94.6%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>2.5</td>
<td>20.0%</td>
<td>80.0%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Total Other Professionals</td>
<td>17.3</td>
<td>6.9%</td>
<td>93.1%</td>
<td>100%</td>
</tr>
<tr>
<td>Drugs</td>
<td>Prescribed</td>
<td>22.0</td>
<td>46.4%</td>
<td>53.6%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Over The Counter (OTC)</td>
<td>2.5</td>
<td>0.0%</td>
<td>100%</td>
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</tr>
<tr>
<td></td>
<td>Personal Health Supplies (PX)</td>
<td>2.0</td>
<td>0.0%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Total Drugs</td>
<td>26.5</td>
<td>38.5%</td>
<td>61.5%</td>
<td>100%</td>
</tr>
<tr>
<td>Other</td>
<td>Capital</td>
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<td>78.1%</td>
<td>21.9%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Public Health$^3$</td>
<td>$10.6</td>
<td>100.0%</td>
<td>0.0%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Administration$^4$</td>
<td>$5.6</td>
<td>46.4%</td>
<td>53.6%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Other Health Spending$^3$</td>
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<td>80.6%</td>
<td>19.4%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Total Other</td>
<td>$33.8</td>
<td>80.5%</td>
<td>19.5%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$160.97</strong></td>
<td><strong>70.3%</strong></td>
<td><strong>29.7%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**TABLE NOTES:**

1 Other Institutions includes nursing homes and residential care facilities.

2 Other Professionals includes care primarily provided by dentists and denturists, optometrists and opticians, chiropractors, physiotherapists and private-duty nurses.

3 Public Health includes expenditures for food and drug safety, health inspections, health-promotion activities, community mental
health programs, public-health nursing, measures to prevent the spread of communicable disease and occupational health to promote and enhance health and safety at the workplace. Note that, as defined, this is entirely public sector spending.

4 Other Administration includes infrastructure costs to operate health departments and prepayment administration (the administrative expenses of providing health insurance by governments and private health insurance companies) but not the administrative expense of non-insured services.

5 Other Health Spending includes health research (but not research funded by pharmaceutical companies, which is included in the drugs category), medical transportation, hearing aids and appliances, voluntary health associations and explicitly identified home care. Note that certain services that are identified by data sources as home care are included under the broad category of Other Health Spending. Private nursing care in the home would be included in the Other Professionals category. Home care programs provided by hospitals are included in the Hospitals category. Support services such as domestic maintenance and delivery of meals are considered to be social services within the current definition of home care and are removed when identified.

The CIHI data can also be used to compute rough estimates of where private spending is concentrated. Note that if one uses all health expenditures as the denominator, 34% of the $47.8 Billion in private spending is for drugs (24.7% for prescribed drugs, 5.2% for over-the-counter medications, and 4.18% for personal health supplies); 22.2% is for dental care; and 7.3% is for vision care. However, 14.8% of the private spending goes to the ‘other’ category of expenditures, and should probably not be included since it primarily represents system-related costs (e.g. private funding for research or capital) rather than the sort of personal health expenditures that might be addressed by MSAs. CIHI also notes that the proportion of private expenditures for prescription drugs being paid out of pocket has dropped from 44.5% in 1988 to a still substantial 33.3% in 2007. For dental care, private health insurance accounted for 54.3% of spending in 2007, and out-of-pocket spending for 45.7%. In 1975, administration accounted for 2.9% of total public-sector expenditure and 2.5% of private-sector expenditure; by 2007, it accounted for 2.3% of public-sector expenditures, and 6.2% of private-sector expenditures.

The private insurance category includes multiple models, with variations in what is covered and under what conditions. A possible source of confusion is a Canadian model called Health Spending Accounts (or Health Care Spending Accounts), which has existed in Canada since 1986. This model does not meet the definition of MSAs, and is marketed as a tax savings device because it allows for payment of eligible health-related expenses with pre-tax dollars. These plans explicitly do not provide insurance coverage; they are intended only to reimburse certain costs. Any medical or dental expenses that would be eligible for deductions under the Income Tax Act can be paid for from these accounts. This includes any registered medical practitioners (including chiropractors, Christian Science practitioners, massage therapists, naturopaths, etc.) drugs, devices, acupuncture, cosmetic procedures, etc. Any unspent balance can be carried over for one year, but then reverts to the employer. However, some items are not covered—the University of Lethbridge Human Resources Frequently Asked Questions document gives as examples of such items “drugs purchased without a prescription from a doctor or dentist, fitness club memberships, golf memberships and daycare.”

These plans are also advocated as a vehicle for increased consumer choice. As one online post, titled “Why Are Health Spending Accounts A Necessity For Canadians?” notes, “One of the reasons why health spending accounts are a necessity for Canadians is because, unlike health insurance, HSAs allow you to choose any treatment you decide. Whether it is acupuncture or herbal medicine, HSAs leaves the health care choice to you. Even the little expenses such as pain killers and cough medicine can be funded by this service.” Because these accounts are ‘use it or lose it’ models, the design is focused on subsidizing predictable and relatively small expenditures.
In collaboration with colleagues from the Manitoba Centre for Health Policy (MCHP), we have previously analyzed data from the administrative health database in the Population Health Research Data Repository.24,94–100 This database, provided through the provincial government department that directs the province’s universal health insurance program (Manitoba Health), includes healthcare utilization for selected services (including all hospital and physician care) for the entire population of Manitoba.163 Privacy is maintained through an encrypted personal health identification number (PHIN), which is assigned to every Manitoban who is registered with the provincial healthcare system. Years covered vary by sub-sector. For example, hospital data are available from 1970–71 to the present. Note that although the growth in alternative payment plans is presenting some challenges in capturing physician data in some provinces, that did not affect this study, because the overwhelming majority of physicians were still compensated based on a fee-for-service model. For the period being analyzed, only 7% of Manitoba family physicians were paid through salaried models, and those submitted ‘shadow billing’ codes to capture their activities, meaning that physician billing data still captured most physician services. Manitoba is somewhat unusual, in that pharmaceutical expenditures from all payers have also been captured since 1994. Note that the attributable costs do not capture all health expenditures, and hence the means, although not the distribution, are not directly comparable to Manitoba expenditures as reported by the OECD or the Canadian Institute for Health Information. However, they are quite close, particularly given the potential for differences in definitions. For example, the CIHI estimate of total Manitoba health expenditures per capita for all sub-sectors, including both public and private expenditures, was $4,931.93 for 2006.164 Per capita expenditures for hospitals for Manitoba for 2005–06 were reported by CIHI as $1,259.65, which was similar to the Manitoba database result (population mean for 2006 of $1,277.99). However, per capita expenditures for physicians for the same year were reported by CIHI as $578.03, compared to $391.22 in the Manitoba database.

The variables in the Manitoba database include demographic information (age, sex, etc.) plus other variables. Using the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada (ICD-10-CA) data for hospitalizations (available since 2004), researchers at the MCHP have used developed more than 150 algorithms to identify six particular chronic diseases: arthritis; asthma; coronary heart disease; diabetes; hypertension; and stroke.165

Some of our analyses were based on a linked database constructed for the years 1997 to 2006. For each year, we computed the attributable expenditures for each individual in the database, and then determined expenditures by 5-percentile (vingtile) groupings. We also broke out the top 1%. Because data is reported by vingtile, we estimated the proportion falling below the population mean by taking the lower bound of the first vingtile whose average is above that value. We then did sub-analyses by twenty age-sex groupings: male/female, by age (using the 10 categories: <1, 1-4, 5-14, 15-19, 20-24, 25-34, 35-44, 45-64, 65-74, and 75+).

To ascertain how robust the findings were, we defined expenditure percentiles in four separate ways: (1) based on total attributable expenditures for the full population; (2) based on each sub-category of expenditures being analyzed (hospitals, physicians, pharmaceuticals) for the full population; (3) based on total attributable expenditures for each age-sex grouping; and (4) based on the sub-category of expenditures (hospitals, physicians, pharmaceuticals) for each age-sex grouping. We did similar analyses for those diagnosed with asthma or diabetes, with percentiles defined both for the full population, and for the sub-population with the particular diagnoses.
Ethics approval was received from the University of Toronto and the University of Manitoba (which incorporates review and approval from Manitoba Health, Government of Manitoba). The project, ‘Exploring Alternative Funding Models for Canadian Health Care,’ was funded by the Canadian Institutes of Health Research (Fund Number: 4597). Analysis was conducted by the MCHP; particular thanks go to Randy Walld and Greg Finlayson.

All Manitoba residents have full insurance, without deductibles or co-payments, for hospital and physician services. If moral hazard was significant, one would expect that much of the population would be overusing these insured services. However, our analyses have found remarkably similar results to Berk and Monheit’s findings for the U.S.; healthcare expenditure patterns for Manitobans are highly skewed. A small proportion of the population accounted for the majority of health expenditures. This finding held for the full population, all age-sex groups and those who were diagnosed with selected chronic diseases (diabetes and asthma). This finding held for all years studied (1997-2006), and regardless of whether these patterns were based on total or particular sub-category of expenditures, i.e., physicians and hospitals. Similar skewing was also found for pharmaceuticals. A small proportion of the population accounts for the majority of costs; most of the population spends very little.

The most recent data, arising from the PhD thesis analysis of Kenneth Lam, part of which has been published in one paper by Deber and Lam,4 analyzed the distribution for the full population for the fiscal year 2005-06, by quintiles, with an additional bar showing the top 1%. Mean attributable healthcare expenditures for hospital, physician and pharmaceutical costs together were $2,203.95. If spending were evenly distributed, the highest 1% should account for 1% of expenditures, the bottom 50% for 50%, and half would fall below the mean. Instead, the highest 1% accounted for 35.06% of this spending, the lowest 50% for 2.27%, and approximately 85% of the population had health expenditures that fell below the mean.

Skewing was observed when we examined the expenditure patterns based on each sub-category of expenditures for the full population. For physician expenditures, the mean for the full population was $391.22. The highest 1% accounted for 11.21% of this spending, and the lowest 50% for 9.51%, with approximately 70% utilizing less than the population mean. Hospital expenditures were the most skewed; people are less likely to be hospitalized than to visit a doctor or fill a prescription. Mean hospital expenditures for the full population were $1,277.99, with the highest 1% accounting for 53.81% of this spending, and the lowest 50% for 0.00%. Nearly 90% utilized less than the population mean. For outpatient pharmaceuticals (both public and private), mean expenditures were $534.74, with the highest 1% accounting for 7.71%, the lowest 50% for 2.38%, and 70% spending less than the population mean. The extent of skewing for pharmaceuticals, however, is somewhat understated, because all drugs utilized by patients during their hospitalization are considered part of the hospital global budget and are, therefore, captured as ‘hospital expenditures.’

Although there are differences in mean health expenditures by age-sex group, with the highest costs associated with newborns (reflecting that they were, in general, born in hospitals), and the elderly, spending also remains highly skewed within every age-sex group. In every group, 80-90% spent less than the mean for their sub-population. Indeed, even if one considers mean spending for the full population, most still fell below the population mean. (Even among those over 75, 45-50% still fell below the mean expenditures for the full population.) Analysis of those with diabetics found that they were likely to use medication, reducing the extent of skewness of pharmaceutical costs within that sub-group, but that their overall costs were still heavily skewed (largely because so few were hospitalized). Similarly, mean total healthcare expenditures for the asthmatic population in 2005-06 were a relatively high $3,731.17, but the highest 1% accounted for 30.73% of this cost, whereas the lowest 50% accounted for 3.20%. Similar
findings held in all age-sex groups, although note that analysis was limited because some sub-populations with the diagnoses being analyzed were small enough that the ethics requirements meant that results were suppressed for those age-sex categories.

Note that some analysis has been published for other provinces, with similar findings. McGrail has found similar skewing in B.C.\textsuperscript{166–169} There is also skewing in users of emergency departments in Alberta (associated with more complex chronic illness).\textsuperscript{170} Additional analysis might be helpful, but was agreed to be beyond the scope of this review.
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