IMPROVING CANADIAN HEALTH CARE:
BETTER WAYS TO FINANCE MEDICARE

BRETT J. SKINNER

AIMS Health Care Reform
Background Paper #12

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Atlantic Institute for Market Studies

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TABLE OF CONTENTS

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EXECUTIVE SUMMARY

Canadians want a health care system that provides timely access to high-quality medical services. But the system must be financially sustainable at an acceptable economic price, without excluding less affluent people from medically necessary services.

The current approach to health care is not sustainable because the design of the system is flawed. In order to keep medicare financially stable, governments are forced to raise taxes, ration services, increase waiting times and suppress the wages of medical professionals - even conscript them into service.

Yet there is a better way. Public demands seem to favour policies that use a mix of government and private sector approaches to the funding and delivery of medical services. At issue is the degree to which the private sector will be allowed to expand its role in the delivery and financing of medical services in order to satisfy the demands of Canadians.

Before governments can achieve the kind of health care system Canadians want, it is crucial that they understand the way health insurance and the market for medical services work. It is also important that reformers have a practical and realistic set of policy goals that avoid strict ideological requirements. Finally, policy makers must know the patterns of health care use among the population in order to predict the economic impact of reforms.

The analysis presented here first discusses the principles of a sustainable health care system, then outlines the relative advantages and disadvantages associated with competing policy approaches that attempt to achieve it. Ultimately, this study proposes two models that are better alternatives than the current system for health care in Canada.

Both proposed systems would introduce a private competitive market for medical services that is expected to reduce waiting times, raise the quality of services, expand consumer choice, and improve the working conditions of medical professionals. Both proposals also incorporate targeted public subsidies for low-income consumers to ensure universal access to medically necessary services.

The first model essentially makes minor reforms to medicare by introducing consumer co-payments along with a limited program of Medical Savings Accounts (MSAs). Using data on the individual usage of medical care in Nova Scotia as an example, this study estimates the savings to the provincial health budget and the reduction in demand for physician services that would be expected from reforming medicare into a tax-financed catastrophic insurance program that includes a flat deductible (consumer co-payment) and public subsidies for low-income health consumers through MSAs.

The second model proposed would allow a regulated private market in health insurance to compete with a reorganized public health insurance system. Based on the state of research into health economics and policy, this model would be expected to optimize the same set of social and economic benefits more successfully than the first model by extending a competitive market into health insurance as well as medical services.

SECTION 1
INTRODUCTION

This study discusses the economics of a sustainable health care system with the goal of identifying what works and what doesn't work.

It involves a review of the literature on health insurance and the market for medical services and a summary of the findings. The literature is also surveyed to identify the nature of social values that are important to the Canadian health policy environment.

Based on the principles identified from the health economics literature and the social values that influence health policy in Canada, a set of sustainable social and economic goals for the health care system is identified.

Then the structures of various approaches to health care reform are compared and the relative advantages and disadvantages of each approach briefly discussed against this set of policy goals.

Finally, this paper analyzes the actual individual utilization patterns for physician services in Nova Scotia. Against this data, the feasibility of two alternative health system models that attempt to fulfill the social and economic goals identified in the earlier stages of this paper is discussed.[1]

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[1] Note that the criteria presented here are a mix of moral requirements that theoretically can be considered contradictory or mutually exclusive. This paper is not a moral defense of any of these requirements; it seeks only to discover the most rational way to accomplish all of them if they are considered indispensable for an acceptable policy option.

SECTION 2
WHAT HEALTH POLICY MAKERS
NEED TO KNOW

In order to evaluate properly the relative merits of alternative approaches to health policy in Canada, it is important to understand the way in which health insurance and the market for providing medical services operate. Insurers and providers are two components of the health care system that deal respectively with the demand side and the supply side of the market for health services. Successful public policies must therefore recognize and adapt to the economic realities of these components, even while trying to achieve social and political goals like universal access to health services.

Health policy-makers should also have a realistic and achievable set of goals designed to solve real problems and not merely support ideological biases. Because of the competing social and economic goals for health policy, a mixed public-private approach to health care over the full range of medically necessary services should be examined only on the basis of its practical advantages or disadvantages.

Finally, health care reformers should also know the actual patterns of health care usage among the population because the distribution of current utilization will determine the economic impact of policy changes.

The Nature of Health Insurance

In principle, health insurance is no different from other forms of insurance, like auto, home, life or long-term disability insurance. The advantage of insurance is that people are able to protect themselves against unforeseen risks that could have catastrophic financial consequences by sharing in the risk and spreading the potential costs over a large pool of people. The idea behind insurance is that many people agree to make relatively small payments into a pooled fund, from which money will be paid to those who suffer from financial losses due to some catastrophic event. This allows each of the insured persons to be able to afford such losses collectively, where they could not do so on their own. It is affordable because the nature of the insured risk means that only a few people will suffer such catastrophic losses while everyone else in the pool does not. Therefore, only small payments from each member of the pool are necessary to cover the costs of the few who will randomly suffer unaffordable financial losses. The payments are referred to as premiums and are set at rates that recover the expected costs to the insur-

ance pool. Therefore, insurance is an affordable investment that protects against random, potentially unaffordable financial losses in the future (Deber et al. 1998; Ferguson 2002c).

However, if an insurance plan is designed improperly, the system can become unsustainable (Arrow 1985). Furthermore, health insurance is in some ways uniquely different from other types of insurance and this causes the market for health insurance to behave in ways that undermine certain social goals for health policy. (Deber et al. 1998; Evans 2002) Before suggesting any reforms to Canadian health insurance, it is important to know what problems can arise from improper health insurance design and how these affect both the social goals demanded of medicare in Canada and the economic stability of the system.

Moral Hazard

One problem that arises with any insurance scheme is called *moral hazard* (Arrow 1985; Musgrove 1996). This problem occurs whenever someone pays the expenses of another person. Through the risk pooling of insurance, many members pay the expenses of the few. Therefore, there is an incentive for all of the insured to take advantage of the fact that others are paying their expenses. Under a system of insurance covering only catastrophic losses, this problem is largely avoided because only major financial losses are covered and most people do not want to suffer such losses to begin with. Plus, catastrophic coverage means that there is a range of relatively minor expenses that people must pay personally out of pocket before insurance coverage occurs. This is called a deductible. The deductible costs create a disincentive to over-consume the insured goods or services. But under a system of full insurance that covers even routine or ordinary expenses, consumers have an incentive to get others to pay their ordinary costs for them. A consequence is that consumers who do not pay the full cost of their expenses will consume more of it than they need to in the lower ranges (Newhouse 1993).

For example, if auto insurance covered ordinary maintenance expenses like oil changes, tires, brakes, paint chips and so forth, people would have an incentive to make insurance claims for these expenses because they could avoid paying for it themselves. This would clearly make the insurance plan unsustainable because everyone in the pool would realize that they too had the same incentive. In order to fund such ordinary expenses, premiums would have to rise to cover the overall costs to the insurance plan and eventually, insurance would become so expensive that it would no longer be of any value in terms of protecting against catastrophic financial losses.

This problem also occurs under health insurance systems that offer first-dollar coverage of health expenses. This is referred to as zero-deductible or full insurance and the Canadian medicare system is an example of this type of insurance system. In Canada, health care is paid for mostly through progressively adjusted income taxes that substitute for premiums. Access even to routine doctor visits involves no direct consumer charges or co-payments. There is no deductible. The problem of moral haz-

ard is therefore an inherent part of the design of medicare and can be expected to result in the over-utilization of medical services.

However, this over-utilization has natural limits. For example, Canadian health insurance pays for brain surgery, yet the demand for this service is hardly out of control. Clearly, the value to the consumer is to avoid such a procedure unless it is necessary to restore good health.[2] But aside from such serious procedures, there are many health services which people demand more of than are necessary. Using emergency rooms instead of walk-in or family clinics is one example. Another is people who make unnecessary doctor visits for routine illnesses, for illnesses which will resolve themselves naturally or for which home remedies would be just as effective.

The problem of moral hazard is not just theoretical. The RAND Health Insurance Experiment (HIE) (Newhouse 1993) confirmed that consumers will over-utilize health care when insurance covers the entire cost of services. The RAND HIE remains the largest and longest running test of health insurance designs. The experiment essentially set up a health insurance company and attracted customers who signed onto plans that ranged from a zero deductible to a 95 per cent co-payment with varying levels of service coverage. The experiment spanned over five years and included more than 2,000 non-elderly participating families, over 5,600 participants in all.

The results of this research concluded that demand for medical services was indeed affected by deductibles and other forms of consumer co-payments. The study showed that the more families paid out of pocket, the fewer medical services they used. In fact, for all types of service, including physician visits, hospital admissions, prescriptions, dental visits, and mental health, use fell with cost sharing (Newhouse 1993). Some of these services are dependent on physician referral, so the corresponding reductions are not surprising. Nonetheless, for that very reason, there is a multiplier effect that results from the reduction of demand for physician services.

Most importantly, the reduced utilization under the cost-sharing plans had little or no net adverse effect on health for the average person. According to the results of the study, the only exception was health among the sick poor. Approximately the most disadvantaged six per cent of the population was adversely affected by cost-sharing plans and the associated reductions in usage. But the effect was limited to specific conditions. For example, the study found that those with pre-existing high blood pressure saw their blood pressure lowered more under the zero co-payment plan versus the cost sharing plans. Similarly, those with no co-payments fared better than those who had a co-payment for vision correction, gum disease, tooth decay and anemia in poor children (Newhouse 1993: 339-40).

[2] I would like to thank Dr. David Zitner for emphasizing the importance of acknowledging the natural economic limits on demand for health services.

Overall, the study concluded that there were some specific health consequences from cost sharing concentrated among the sick poor (six per cent of the population) but that the vast majority of the population was neither sick nor poor and there were no substantial adverse health effects from cost sharing for this group. Therefore, according to the findings, health benefits among the sick and poor could be achieved at substantially lower cost than a system of free care (like medicare) for all services. In other words, a targeted insurance benefit covering specific services for the poor can obtain better health gains overall without incurring the costs of covering medical services for everyone (Newhouse 1993: 344).

In summary, the RAND experiment showed that there is a significant difference in the amount of health care demanded under medicare-style health insurance and the demand for health care under systems with some type of consumer co-payment. The results indicated that up to 30 per cent of the demand for health services is unnecessary because there are no adverse health effects for those who reduce demand under co-payment plans (Keeler et al. 1977; Manning et al. 1987; Keeler 1988; Keeler 1992). This confirms the assumption that under full insurance or zero deductible plans, there is a significant problem of moral hazard that occurs.

Adverse Selection and Risk Selection

There are several characteristics of the health insurance market that make it unique compared to other types of insurance. This singularity can result in so-called market failures in health insurance. Specifically, in a private competitive market place for health insurance, the problems of *adverse selection* and *risk selection* can arise.

Adverse selection refers to consumers who have knowledge of their own health conditions and risks but hide them from insurers. Consumers may also forgo buying insurance until they are ill. Insurers attempt to adjust premiums based on the individual's probabilities of making a claim in order to ensure that the premiums paid into the risk pool by insured members is adequate to cover expected future claims. If consumers hide the degree of risk they pose to the insurance pool, then the amounts collected in premiums will not cover the future expenses of the fund and it can go bankrupt. If insurers attempt to raise everyone's premiums in order to cover this potential problem, they will lose customers to competing insurers (Musgrove 1996; Deber et al. 1998).

This situation leads to the problem of risk selection. Insurers who wish to remain competitive in the market cannot raise everyone's premiums to cover the unknown costs associated with consumers practising adverse selection, nor can they force customers to tell the truth about their health conditions. The normal response then is to engage in risk selection. In order to keep premiums low enough to be competitive and attract the bulk of the market made up of low health risks (80 to 90 per cent of the population), companies simply refuse to cover risky consumer segments of the market. These might include

the aged or those with pre-existing conditions. This is called risk selection or "cream-skimming" (Musgrove 1996; Deber et al. 1998).

Another market response to adverse selection is to adjust premiums to reflect the degree of health risk for individual consumers based on their age or gender because age and gender tend to be statistically related to health condition. This is called price differentiation or price discrimination and creates problems when consumers unwilling to pay any more than a base amount simply switch to lower priced insurers or drop out of the market altogether.

In every age-gender category there are large numbers of people who are very healthy and relatively few who are very sick. If the healthy in any age-gender group leave a particular insurance pool, this leaves those left in the pool with a higher overall degree of average risk. This higher average risk makes insurance more expensive than it would have been otherwise and can drive the price to unaffordable levels. The fact that health insurance is different from auto insurance in the sense that (a) serious illness is mostly unrelated to personal behaviour, and (b) the value of the insured asset is not related to income (as automobiles and housing are, for instance), can create a problem from a social perspective, as some people may not be able to afford health insurance even though they need it. (Musgrove 1996; Deber et al. 1998).

SECTION 3
THE NATURE OF THE MARKET FOR MEDICAL SERVICES

Benefits of Competition

The market for medical services theoretically operates no differently from the market for other goods and services (Ferguson 2002a). The main characteristics of markets are competition between firms or entrepreneurs that are motivated by profit. In the case of health care, hospitals, clinics and doctors in private practice are the firms and entrepreneurs competing in the market place. The classic benefits associated with a free market in any sector are lower costs and better quality than can be produced under a monopoly or centrally planned system for producing and distributing goods and services.

Markets produce better quality and lower costs than centrally planned systems because the firms operating in the market are competing with each other to attract customers. The owners, shareholders, managers and employees all have a direct financial interest in producing high quality goods and services at an efficient cost because they will not attract customers otherwise and the level of profits depends on being able to attract as many customers as possible.

There is a wide scope for competition and private sector involvement in the arrangement and provision of health care. Health policy research identifies a number of benefits that result from private, for-profit provision of medically necessary services. Reducing waiting times and queuing for services, increasing consumer choice, rationalizing the demand for medical services, reducing cost pressures on government budgets, raising the overall quality of medical care, facilities and technology; and eliminating the conflict of interest which occurs when governments are forced regulate the services they provide are just a few potential advantages (Skinner 2002c).

Criticisms of permitting a market in health care services have often centred on claims that there is no evidence that private sector health care providers are more efficient than public sector providers. However, overall the sum of the research on the subject indicates that there is little difference between *private for-profit* providers and *private not-for-profit* providers of health care, yet there is a major difference between *public* providers and *private* providers (whether for-profit or not-for-profit). The evidence is that privately operated medical facilities of either the not-for-profit or for-profit variety are far more efficient than government-run medical facilities. (Ferguson 2002a) Nonetheless, there is a significant

amount of research that does point to private for-profit providers as producing the most efficient medical care compared to either public or private not-for-profit hospitals (Sear 1991; Cleverly and Harvey 1992; Fournier and Mitchell 1992; Hsia and Ahern 1992; Marstellar et al. 1998). And when properly regulated private competitive markets for health insurance are compared to state monopoly health insurance systems like medicare, the conclusion is that the regulated market model generates similar or, in some cases, lower rates of growth in health spending (Thorpe 1993).

These findings are backed up by experience in other countries where governments routinely rely on private sector involvement in health care to bring about benefits for consumers and reduce costs to public budgets. For example, Sweden has introduced a number of market-style elements into its national health care system. These include competition between hospitals and the introduction of purchaser-provider splits (Irvine, Hjertqvist and Gratzer 2002); consumer co-payments for physician services and co-insurance for pharmaceuticals and dental care (Robinson 2002); and parallel private for-profit medical services and hospitals (Ovretveit 2001).

In addition to Sweden, other advanced industrial-democratic countries like Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Luxembourg, Netherlands, New Zealand, Portugal, Spain, Switzerland, UK and USA all allow parallel private for-profit delivery of health services to operate alongside publicly-funded systems; and consumer co-payments through deductibles, user charges and/or coinsurance for publicly funded health insurance (Scott 2001; Gratzer and Irvine 2002; Irvine, Hjertqvist and Gratzer 2002; Robinson 2002).

Physician-Induced Demand

Another common criticism of private health care delivery is that physicians will take advantage of their superior knowledge of medicine to encourage or induce demand from their patients for unnecessary services (Barer and Stoddart 1991). Therefore, private competition among providers will not lower costs (Rode and Rushton 2002). According to this argument, a single-payer, publicly administered system must be in place to prevent this from happening by regulating the billings of physicians (Ferguson 1994).

Research has shown that fears of physician-induced demand are not based on sound economics or on empirical evidence. In fact, studies have consistently found that not only do knowledgeable patients not use less care; they frequently use more. Whenever the unequal information version of the physician-induced demand hypothesis has actually been tested (as opposed to simply being invoked as truth) it has been rejected (Ferguson 2002c).

The empirical results suggest that the logic behind physician-induced demand is unsound. Some studies have compared the number of visits being made by the patients with the numbers recommended by physician panels, and found that both well-informed and poorly informed patients made fewer than

the recommended number of visits. Apparently physicians were not even succeeding in persuading their patients to consume the recommended quantity of visits, let alone unnecessary visits (Ferguson 2002c).

While some policy analysis still adheres to the belief in physician-induced demand, the consensus among economists is probably best expressed by Folland, Goodman and Stano (2001), who argue that it would be reckless to argue market failure, at least on the basis of physician-induced demand (Ferguson 2002).

Equitable Distribution of Resources

Many objections to allowing a private competitive market in health care involve issues of equity, or egalitarian access to medical services. Opponents fear that a private system operating parallel to a public system will draw away medical professionals from the public system, leaving it to suffer from human resource shortages. Others are concerned that the less affluent will have to rely on public sector health services and will receive lower quality care than that being offered in the private sector.

The fear that professionals will abandon the public sector for better private sector compensation and working conditions is confirmed by the persistent net migration loss of doctors and nurses to the US (Skinner 2002b). However, some consumers would also abandon the public system for a private system so that the demand for doctors in the public system would not likely be as out of sync with the supply of MDs as this criticism indicates. Nonetheless, the introduction of a parallel private system must be accompanied by a gradual removal of government-imposed barriers to entering medical practice for comparably qualified foreign-trained doctors and the removal of limits on admissions to medical schools in Canadian universities. This would allow the market to respond by raising the supply of professionals to match the demand for medical services. Until the supply of professionals reached adequate levels, regulation could ensure that doctors continued to perform services within the public health system. Once the supply of professionals reached adequate levels, the market could determine the number of professionals working in each system.

Concerns about equality are also misplaced. It is clear that it is not possible to build a sustainable health care system around strict adherence to egalitarian outcomes. If the goal is to ensure universal access to medically necessary services so that the poor are not excluded from needed medical care, there is no need for a government-run monopoly or centrally planned health system like medicare. A well-regulated market can achieve this goal much more efficiently (Forget 2002). And while private sector care would achieve higher quality than the public sector, a regulated market in competition with the public sector would probably lead to better quality care in the public sector than is currently received under medicare. Thus, there could be *absolute* gains for all income groups under a new health care model (Skinner 2002c).

SECTION 4
THE GOALS OF HEALTH CARE REFORM

A major consideration for health policy makers should be the goals for health care reform. The main reform proposals for Canada's health system focus on how to overcome market failures associated with health insurance and still capture the benefits that can come from a private competitive market in medical services. The health system models considered in this paper also focus on financing as the crucial element in evaluating the advantages and disadvantages associated with each approach.

There are some things that these proposals are not designed to do. First, the health care system is not seen as the primary influence on broad population health indicators like rates of life expectancy, infant mortality, or the incidence of major disease. These factors are more logically associated with individual socio-economic and other society-wide determinants of population health, like public sanitation, mass inoculations, hygiene and general levels of economic development (Evans and Stoddart 1994; Graham 2000). The health care system is designed to deal with acute illness, or simply put, to make sick people better. The degree to which it accomplishes this narrow task is the best measure of its effectiveness.

Second, these proposals do not explicitly seek to broaden the umbrella of publicly funded services to include things like pharmaceuticals and long-term or nursing home care. That is the subject of other papers in this series (Newhouse 2002; Witt 2002) and would require a more lengthy analysis than the one afforded here.

The proposals studied in this paper attempt to achieve the following 13 goals for the health system:

1. Ensure universal access to medically necessary health care services.
2. Optimize cost/benefit ratios in the delivery of health care.
    a. Reduce waiting times and queues for service.
    b. Encourage the modernization of facilities and equipment.
    c. Optimize the supply of facilities and equipment.
    d. Improve acute care outcomes.
3. Improve the geographic distribution of health facilities and professionals.
4. Reduce moral hazard.
5. Prevent adverse selection
6. Prevent risk selection.
7. Prevent unaffordable differential pricing.

8. Reduce perceived opportunities for physician-induced demand.
9. Expand consumer choice.
10. Improve working conditions and compensation for health professionals.
11. Accumulate individual savings to cover future health care liabilities and demands.
12. Reduce demands on public budgets.
13. Improve information flows and accountability in health care.

Criteria for Assessment

In brief, this analysis assumes that the most rational option for health financing policy is the one which:

- Ensures universal access to a defined package of medically necessary care.
- Maximizes benefits and minimizes costs to individuals (individuals are seen both as health consumers and as taxpayers in this context).
- Allows the maximum degree of economic choice for consumers and freedom for providers.
- Is economically self-sustaining without resorting to perpetual real increases in public financing or debt.
- Minimizes perverse economic incentives for producers and consumers of health care.

The requirements of the Canada Health Act (CHA) also determine the range and scope of the policies that can be considered in this study. They include: universal access to health services; portability of insurance coverage; accessibility without financial barriers; comprehensive insurance coverage of health services; and public administration of the system (Madore 2000). However, it should be noted that the language of the CHA might be vague enough to allow policy approaches that differ quite significantly from the medicare model of health care (Deber et al. 1998: 463).

SECTION 5
CHARACTERISTICS OF HEALTH FINANCING MECHANISMS

This section describes the primary characteristics of various mechanisms for funding and subsidizing health care and discusses the purported advantages and disadvantages of each approach. An exhaustive explanation of all the mechanisms employed in these approaches (user fees, MSAs, tax debits and credits) will not be attempted. For more detailed analysis of the pros and cons of the financing and subsidization schemes discussed here, the reader should refer to the sources cited, including the other papers in this series.

Tax-Financing and Monopoly Provision

The Canadian health care system is characterized by private physician practice and nominally private, not-for-profit ownership of hospitals administered by publicly appointed bodies (Scott 2001). The Canada Health Act (CHA) prohibits for-profit provision of health services. This law contains provisions for reducing federal transfer funding to provinces that allow private insurance or for-profit provision of medical services already insured by the province. Direct charges to consumers at the point of service and extra charges beyond the coverage of provincial insurance plans are also penalized (Madore 2001). There is no competition between providers. Hospital budgets and physician fees are funded by the provincial government, which acts as a monopoly health insurer and regulator (Crowley, Zitner and Faraday-Smith 1999; Crowley and Zitner 2002; Zitner 2002). Government determines the number of medical facilities and the scope of their activities and also influences the number of graduates from medical training and entry into the practice of medicine. Fixed prices for services are negotiated between provider associations and the provincial governments. Hospital deficits are discouraged but ultimately covered by provincial revenues. Capital construction is also funded from government budgets (Scott 2001).

By design, consumers are divorced from direct payment for most medical services. Care is nominally free at the point of service. The costs of health services incurred by the provincial population are financed by a progressive system of general taxation and retroactive reimbursement to providers according to fixed fee-for-service schedules. Some provinces supplement health system financing with a system of income adjusted premiums. This publicly financed health insurance system attempts to

direct a comprehensive range of medically necessary services to those who need them without regard to the ability to pay.

Medicare proponents argue that there are several market failures associated with private health insurance that make the Canadian system superior to other approaches. The Canadian medicare system is perceived to have the following advantages (Deber et al. 1998; Maynard and Dixon 2001):

- Ensures universal access to medically necessary care:
    o Avoids adverse selection problems that occur under an unregulated market for health insurance.
    o Adjusts premiums or taxes according to income ensuring equitable distribution of health care resources.
- Provides economic efficiency:
    o Regulates fees paid to providers, controls capital budgets and the number of professionals working in the system, avoids physician-induced demand for medical services.
    o Exercises monopsony buying power in health services sector.
    o Lowers administrative costs.
    o Gives no financial disincentive for consumers to seek preventive care thereby lowering long-term costs.

Yet the health policy literature also identifies a number of serious disadvantages with the medicare model for health care systems (Crowley and Zitner 2002). Among these are:

- The fact that there is no price mechanism means that the system contains no financial incentives for consumers to economize on their use of the health care system (Feldstein 1973; Keeler 1992; Buchanan et al. 1993; Newhouse 1993).
- In the absence of a price mechanism to control demand for medical services, limitations on public budgets lead to rationing. Governments classify many services as not "medically necessary" and thereby avoid having to extend coverage to those services (Deber et al. 1998). Some of the services not covered include dental services, long-term care, prescription drugs obtained outside hospitals and alternative therapies. But there is also a growing number of new technologies and diagnostic procedures for core medical services that are not eligible for public reimbursement (Gratzer 1999). These services become part of a competitive market financed by private insurance or direct consumer payments.
- Provincially insured services are also rationed by queuing which substitutes time prices (waiting periods) for the monetary prices that would exist in a free market for health services (Acton 1975; Esmail and Walker 2002; Ferguson 2002; McMahon and Zelder, 2002).
- The result has been that Canadians have seen their access to health services progressively reduced and tax levels steadily increased to pay for a health system that appears to be unsustainable over the long-term (Clair 2000; Fyke 2001; Robson 2001; Kirby 2002; Mazankowski 2002; Skinner 2002c).

User Fee Approach

User fees are a common feature of almost all health care systems in the world; including publicly financed, universal access systems similar to Canada (Gennser 1996; Ovretveit 2001; Ramsay 2001; Scott 2001; Gratzer 2002; Mossialos and Dixon 2002; Robinson 2002). Yet, in Canada, the CHA forbids direct forms of user charges and extra-billing for publicly insured health services (Canada Health Act R.S. 1985 c. C-6: S.18, 19; Madore 2001). There are several different variations on user fees that are identified in the literature (Gratzer 2002; Robinson 2002).

Direct user fees include:

- A flat fee or charge per service called a co-payment;
- A percentage charge against the total cost of service called co-insurance;
- A range of charges up to a certain maximum before insurance covers the rest of the costs of service called a deductible;
- Additional charges to consumers above the coverage provided by their insurance called balance-billing or extra-billing.

Indirect user fees result in out-of-pocket expenses for consumers without directly charging a fee. They include:

- Specifying certain services that will not be covered by insurance called coverage exclusions;
- Specifying lower quality or lower cost substitutes for services called generic substitutions.

The literature identifies a number of advantages and disadvantages associated with user charges for health services (Gratzer 2002; Robinson 2002). Among the advantages identified in the literature:

- User fees create a financial incentive for consumers to economize on their use of medical services reducing waits for service.
- User charges reduce total public expenditures on health care and growth in health sector price inflation.
- User charges provide additional sources of revenue in the health sector.
- User fees can be implemented within either medicare or a privatized system.

Some of the disadvantages with user fees cited in the literature (Evans 2002a; Evans 2002b) are:

- User fees increase the financial burden on the poor.
- User charges can create a disincentive to use preventive care leading to adverse health outcomes and increased long-term costs.

Medical Savings Accounts (MSAs)

There are many proposals in the literature that are labelled medical savings accounts (MSAs) but vary significantly in their design. The common features of MSA proposals include:

- The creation of individual accounts managed personally by consumers, from which funds are withdrawn to pay for designated health services;
- The unused balance in the account at the end of the year belongs (in whole or in part) to the consumer; and
- Health care providers are paid directly by consumers for some portion of medical services.

Beyond these common features, MSA models can differ greatly. Some of the differences include:

- MSAs plus catastrophic, high deductible private insurance versus MSAs plus reorganized medicare;
- Government subsidized MSA deposits versus tax-deferred personal savings versus employer-subsidized deposits;
- Mandatory versus voluntary deposits;
- Low-income targeted MSAs versus universal MSAs;
- Equal subsidization of universal MSAs versus age and gender or income adjusted deposits;
- Risk adjusted, community/group rated or income adjusted premiums versus tax-financed catastrophic insurance;
- Age, gender or income adjusted deductibles versus flat deductibles;
- Limited use of MSA funds versus open-ended use of MSA funds; and
- Partial claw back of unused balances versus consumers keeping 100 per cent of annual balances.

Various MSA style proposals in the literature include: health care allowances (HCAs) (Litow and Muller 1998); universal medical savings accounts (UMSAs) (Owens and Holle 2000); universal private choice: medicare plus (Coffey and Chaoulli 2001); individual health savings accounts (IHSAs) (Migue 2002); and various proposals under the general label of MSAs (Moon, Nichols and Wall 1996; Goodman and Musgrave 1992).

There have also been some MSA models put forward for criticism in the literature (Forget et al. 2002; Hurley 2001, 2002; Schaafsma and Land 2002; Shortt 2002).

Finally, variations of MSAs operate as public policy to varying degrees in Singapore, South Africa, China and the US (Massaro and Wong 2000; Matisonn 2000; Gratzer 2001; Maynard and Dixon 2002).

Some of the potential advantages claimed by proponents of MSAs (Goodman and Musgrave 1992; Moon, Nichols and Wall 1996; Litow and Muller 1998; Ramsay 1998; Matisonn 2000; Owens and Holle 2000; Coffey and Chaoulli 2001; Gratzer 2001; Migue 2002) include:

- Ensuring universal access to a minimum level of necessary medical services;
- Increasing consumer empowerment and choice;
- Economizing and rationalizing consumer demand for health services;
- Accumulating savings against future un-funded health liability;
- Increasing quality and decreasing costs for health spending through competition;
- Simplifying administration;
- Allowing for extra funding to occur beyond minimum level of care and expanding the umbrella of insured health services; and
- Lowering overall costs to public health care budgets and reducing health services price inflation.

Some of the potential disadvantages of MSAs identified in the literature include (Forget et al. 2002; Hurley 2001, 2002; Schaafsma and Land 2002; Shortt 2002):

- If designed incorrectly could lead to greater public expense than under medicare:
    - o Loss of tax revenues from tax-deferred savings;
    - o Greater direct expenditures from subsidizing those who make little use of the health care system; and
    - o No accounting for changing consumer expectation of health care usage and the reduction in price sensitivity of demand.
- Less equitable financing of health insurance and distribution of resources.

Tax Credits and Debits

Tax-based approaches to health financing attempt to use the tax system to either charge or reimburse consumers for their use of the health care system. There are two basic variations: debit models and credit models.

- Under debit models, medicare remains intact but consumers are made financially accountable for their use of medical services and are charged through the income tax system for a portion of the cost of services used up to a certain maximum (Aba, Goodman and Mintz 2002; Migue 2002).
- Under credit models, medicare can remain intact or health care provision can be privatized and consumers are reimbursed through income tax returns for all or a portion of the public health care expenses they incur in a year. These reimbursable expenses apply to co-payments, deductibles, co-insurance and/or premium charges (Blevins 1997; Migue 2002).

The advantages and disadvantages of tax debit or credit schemes are similar to those for user charges but with the following additional considerations (Blevins 1997; Aba, Goodman and Mintz 2002; Migue 2002):

Advantages:

- Using the tax system
    o Simplifies measures to maintain equity in the distribution of resources and progressiveness for the costs of maintaining the health insurance system; and
    o Simplifies the administration of the system of funding.

Disadvantages:

- There is a lag in time between when costs are incurred and payment is reimbursed or charged; and
- A person who falls very sick will find his or her taxable income takes a big spike that year.

Regulated Public/Private Insurance System with Low-Income Subsidies

This model essentially suggests that universal government monopoly medicare be abandoned altogether and replaced with compulsory but unsubsidized health insurance that could be obtained from either public or private health insurance providers (Blomqvist 1979). This system is characterized by:

- Allowing a completely private, regulated, for-profit market in medical services and insurance to exist in competition with a reorganized public insurance plan;
- Instituting premium financing of public health insurance on the basis of a high deductible catastrophic insurance design;
- Targeting income subsidies to low-income families through either the tax system or social assistance to make private or public health insurance premiums affordable for all;
- Regulating fees for service paid by public health insurance plans to providers; and
- Allowing managed-care style arrangements to develop in the new health insurance market.

This model comes closest to a true free market model of health financing but is limited by regulation and targeted redistribution of resources toward the less affluent. Several benefits are identified with this model.

Advantages:

- Competition and consumer co-payments reduce waiting times and improve quality of services and increase consumer choice;
- Targeted subsidies for low-income people maintain the social goal of ensuring universal access to services;
- Pressure on public finances is reduced; and
- Working conditions for health professionals improve.

Disadvantages:

- Less egalitarian access to medical services; and
- Complex to regulate.

What Works And What Doesn't Work In Health Insurance

In summary, a review of the research on health policy points to a number of things that governments should and should not do to design a properly functioning health care system. They are briefly listed below.

What Doesn't Work

Universal tax-financed, zero co-payment health care (the Canadian model) leads to moral hazard, over-utilization and prescription, rationing, queuing, service shortages or oversupply, tax pressures, budget limitations and debt financing.

Unregulated insurance market competition suffers from adverse selection, risk selection and discriminatory pricing.

Differential tax treatment of the purchase of private health insurance by employers and the value of insurance benefits to consumers (the US model) leads to lack of portability of benefits and reliance on employment-based benefits.

Monopoly service provision is unregulated and offers no incentive for consumer satisfaction or cost/benefit efficiencies.

Small pool risk-sharing or self-insuring makes premiums unaffordable and undermines the value of insurance against catastrophic financial risks.

What Works

Regulated market competition offers more consumer choice, better quality, better access and improved cost/benefit ratios.

Consumer co-payments reduce moral hazard, rationalize demand, lower unnecessary utilization, reduce waiting times and queues, and improve timeliness of access.

Targeted income subsidies are more efficient than universal subsidies at meeting social goals, lowering costs to public budgets, and making more funds available for low-income assistance, other programs or tax reductions.

Large pool risk sharing captures the advantages of catastrophic insurance protection at lower costs per person.

SECTION 6
PROPOSED ALTERNATIVE HEALTH CARE MODELS

Based on the observations of what works and does not work, this study recommends two feasible alternatives to the medicare model.

Proposal 1: Modified Medicare Model: An Incremental Approach

Elements of the Policy:

1. **Regulated medical services market** consisting of private for-profit and not-for-profit provision of health services in competition with non-subsidized, publicly administered non-profit providers.
2. **Tax-financed public monopoly, catastrophic insurance plan** consisting of medicare with a new deductible range for physician services and a well-defined, but limited catastrophic insurance plan. User fees or private insurance for extra service or charges above the catastrophic threshold.
3. **MSAs for everyone** financed by income adjusted tax-financed public subsidies for low-income consumers and tax-deferred personal savings for all.

Proposal 2: Regulated Market Approach to Universal Health Insuranc

Elements of the Policy:

1. **Regulated medical services market** consisting of private for-profit and not-for-profit provision of health services in competition with non-subsidized, publicly administered non-profit providers. (Same as Proposal 1)
2. **Regulated health insurance market** consisting of private for-profit and non-profit health insurance in competition with non-subsidized, premium-financed, publicly administered, non-profit, high-deductible, catastrophic insurance under medicare.
3. **MSAs for everyone** financed by income adjusted tax-financed public subsidies for low-income consumers and tax-deferred personal savings for all. (Same as Proposal 1)

Proposed MSA Mechanism for Subsidizing Health Care

In order to help consumers pay for the deductible range under the proposals described above, the provincial government will assign everyone an MSA. Under the model proposed here, governments would subsidize deposits into this account based on the income level and the long-term health status of the consumer. This means that the subsidization would be targeted toward those who are sicker (those who already use health care services and for whom demand is unlikely to be price elastic) and poorer (those who cannot afford to pay for care if they need it) rather than being equal for everyone. For practical purposes this income determination would be accomplished via the tax system. This means that income levels will be calculated on the basis of the family unit or household income. MSAs will be assigned to children, but deposits will be made on the basis of family income. Those who have chronic illnesses will also be targeted for assistance.

Amounts deposited in the MSA could vary with income or be a flat deposit below a defined income cut-off. Under the variable deposit, the portion of the deductible not subsidized by government would be paid for directly out of pocket or from tax-deferred deposits made by consumers into the MSA itself.

MSAs would work the same way as Registered Retirement Savings Plans (RRSPs). Money deposited into the accounts, either by governments as subsidies or by individuals from savings is owned by the individual. Any funds that are not used on insured health care expenses in a calendar year can be used in subsequent years for insured or uninsured health care expenses, or ultimately become part of an individual's retirement account if savings accumulate beyond what would be needed to fund deductible and premium costs (depending on insurance funding design) in retirement. Interest on MSAs is assumed to accrue tax-free as in an RRSP except that money withdrawn to pay for health expenses is not taxable. Surplus funds withdrawn for non-medical purposes such as retirement income would be taxable and represent additional revenue for government. Long-term tax implications will not be considered in this analysis.

Organizational changes to the health system are assumed (but are not entirely necessary) to accompany the introduction of this model of MSAs. For instance, private, for-profit health care provision would be allowed under market pricing for insured services.

As mentioned earlier, some research has been critical of the MSA approach to health financing (Forget et al. 2002; Hurley 2002; Schaafsma and Land 2002). These studies have predicted that the implementation of MSAs will actually increase health care costs to governments. However, there are two fundamental flaws in these critical simulations. One is that the models assume that the MSA deposits subsidized by governments will be the same in every consumer's account. As these studies clearly show, designing MSAs with equal deposits for everyone would increase the overall expenditures for governments because governments would now be subsidizing people who use less than the average amount deposited, while still being responsible for the expenses of the sick.

But as explained above, MSAs should only be seen as a means of implementing a high-deductible catastrophic insurance plan and making it universally affordable. Therefore, it is more appropriate to construct a model of MSAs that targets subsidies only toward low-income groups.

Some criticisms fail to fully incorporate the aggregate reduction in utilization that would be expected to occur, once consumer co-payments are introduced, among the 80 per cent of the population who are relatively healthy. As the RAND Health Insurance Experiment showed, this reduction in utilization could be as high as 30 per cent from the level of health care usage under medicare (Newhouse 1993).

SECTION 7
TESTING THE PROPOSALS AGAINST PATTERNS OF HEALTH CARE USAGE[3]

As mentioned earlier, sound health policy reform must be based on a proper understanding of the nature of both health insurance and the market for medical services. Additionally, policy makers must understand the actual distribution of individual utilization of medical services in order to predict the financial impacts of policy changes on people.

Many medicare policy exercises work with average spending levels, either overall population averages or age-gender specific group averages. But, given the highly skewed nature of the distribution of medicare expenditures both across and within age-gender groups, averages are not informative of the final distributional effects of potential policy changes. Some people use far more health care than others (even within specific age-gender groups) and the expected distribution of health care utilization among the population will determine the financial distribution effects of policy changes as well.

The intent of this section is to estimate roughly the distributions of health care utilization in Nova Scotia and to use this information to predict the economic feasibility of consumer co-payments and targeted health care subsidies for low-income people. Several years worth of data allow an estimation of the probability that an individual will remain in the same utilization category from year to year. This approach permits an examination of the intergenerational and inter-temporal implications of health policy proposals, especially the affordability of proposals that introduce co-insurance payments and subsidies.

This research is similar to the analysis done by Forget et al. (2002) in Manitoba. As in the Manitoba study, we will attempt to determine whether various proposals for health finance reform will decrease or increase health costs in Nova Scotia and what the overall distributional effects will be.

Explaining the Data

The Population Health Research Unit (PHRU) at Dalhousie University in Halifax, Nova Scotia maintains a database that contains individual records on the utilization of medical services for everyone in Nova Scotia. For the purposes of this study, each person is assigned an anonymous, but unique identifier that can be cross-referenced to personal usage of medical services covered by the provincial health insurance plan. The PHRU database records each time a person uses the services of a physician over the course of a year. Each encounter is identified with a particular type of service provided which can be cross-referenced to a schedule of fees for service to produce a dollar figure for costs to medicare for each individual. Dollar figures are rounded up to the nearest $25 increment. For example, $1-$25 in expenditures is coded as $25. Therefore, the data could overstate the magnitude of many figures. Given that midpoints are used in aggregations, this helps to even out the estimate. This study only makes use of annual total expenditures for physician services under medicare. To simplify the analysis, the data is aggregated for general practitioners (GPs) and specialists and does not distinguish between in-patient or outpatient locations of service.

The unique identification number for each person is also linked to personal demographic information. The variables collected for this study included age, gender and income. The income variable is a proxy based on the average household income in each particular person's postal code area and does not represent the actual income of each person.

This data was collected for the seven years from 1995 through 2001 inclusive. The records from each year were merged so that data from different years would link to the same unique personal medicare identity in one computer file. Obviously, not all medicare numbers will appear in every year of data due to births, deaths, and migration over the period covered by the data.

For the illustrative purposes of this study, costs per person in dollars spent under medicare for physician services are used as a proxy for the demand and utilization of health care services encompassing ordinary or non-catastrophic medical expenditures. This does not imply that all utilization of physician services can be classified as ordinary, but that ordinary medical expenses are not associated with hospital or other institutional costs. Pharmaceutical data is not considered as most of these costs are currently paid directly by consumers or through private insurance plans. Figures are presented in terms of constant 1996 dollars unless otherwise stated. Adjustments to current dollars have been made where appropriate in the presentation of the data.

There are significant levels of missing data for part of the ranges for certain variables in the data set. Therefore, where appropriate, adjustments are made to the estimate assuming similar distributions of data as for the variables with complete data. These adjustments are noted when made.

General Findings

According to the data made available for this study, the total spending on physician services reached almost $315 million (in 1996 dollars unless otherwise noted) in 2001. Converting this to current dollars at two per cent inflation per year puts the total at almost $348 million (in 2001 dollars). Based on the data used, the mean, or average individual expenditure on physician services for the entire population in the study was $322. The population of Nova Scotia in 2001 is estimated to be 978,577 based on the number of active medicare identifiers in the data used for this study. This will somewhat overstate the actual population due to the effect of deaths and emigration throughout the year and understate to the degree that new births and immigration were not yet entered into the system. Also according to the PHRU data, average household income in Nova Scotia, counted in constant 1996 dollars, was $42,875 in 2001. Converting to 2001 dollars at per cent inflation per year makes the average annual household income in Nova Scotia equal to $47,337.

Table 1 shows that the average annual expenditures on physician services per person was $322 in 2001. The mean figure is repeated in the table for each of the years dating back to 1995. As the data indicates, the median cost per person is significantly different than the mean cost. This fits with the skewing of the expenditure distribution explained later. The table also presents the minimum and maximum costs per person in absolute numbers. It is clear that the range is quite large stretching from zero expenditure on doctors' services to $73,750 in 2001. Interestingly, the most common cost in every year is zero. This indicates that there is a large portion of the public that does not utilize the services of doctors at all in any given year.

It should be noted that the degree of change in the expenditures on physician services between years could be related to changes in the schedule of fees paid to doctors over this period. There were, in fact, negotiated changes to physician fees-for-service between 1995 and 2001. Therefore, the increasing mean physician expenditure does not necessarily imply declining public health or increasing severity of illnesses.

Table 1: Personal Costs of Physician Services in Nova Scotia, 1995-2001

Year of Data	2001	2000	1999	1998	1997	1996	1995
Population	978,565	974,136	969,177	962,384	958,585	951,570	942,654
Avg. Annual Cost Per Person	$322	$274	$272	$253	$242	$248	$247
Median Annual Cost Per Person	$125	$100	$100	$100	$100	$100	$100
Most Frequent Cost Per Person	$0	$0	$0	$0	$0	$0	$0
Standard Deviation from Avg. Cost Per Person	$725	$580	$574	$536	$507	$512	$488
Min. Cost Per Person	$0	$0	$0	$0	$0	$0	$0
Max. Cost Per Person	$73,750	$44,950	$32,225	$37,450	$33,400	$48,100	$37,900
Total Medicare Costs of Physician Services	$314,700,725	$267,219,175	$263,847,200	$243,898,700	$231,961,925	$236,260,725	$232,828,075

All figures in 1996 dollars.

Age and Gender Differences

Graph 1 below shows the average annual individual medicare costs for physician services by every age group in Nova Scotia in 2001 as an aggregate of females and males. The figures are stated in constant 1996 dollars. As the data indicate, the highest average annual expenditure occurs among 77 year olds ($917) and the lowest among 12 year olds ($117). It is notable that expenses are high in the first year of life, probably due to the heavy reliance on the in-patient services of doctors during childbirth. Similarly, the distribution of physician costs is heavily skewed toward the later years of life. illustrating the link between age and health status.

Graph 1: Distribution of Individual Medicare Costs for Physicians Services by Age Group in Nova Scotia, 2001
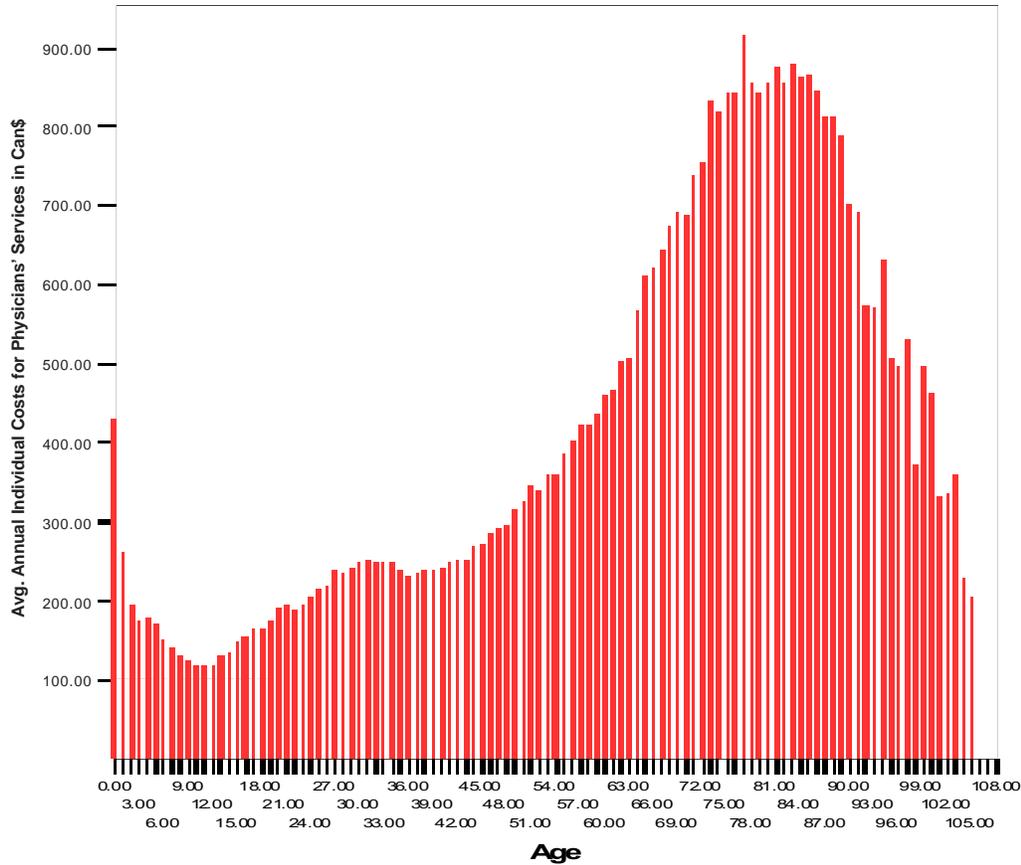
Graph 2 below shows the same data on physician costs per person broken down by gender for comparison. The parallel graphs show the high and low expenditure age categories for separate genders:

- Females: 83 year olds ($853) and 10 year olds ($111).
- Males: 77 year olds ($1,029) and 22 year olds ($96).

The mean annual expenditure on physician services is $365 for females and $276 for males. The standard deviation, or average variation from these means, is $714 for females and $733 for males. This wide variation indicates that there are large numbers of people who are generally healthy, and a few people who can be quite seriously ill. What is notable from these displays is that high expenditures are more skewed toward the later years of life for males than for females. It is also interesting to note that the male distribution is more sharply peaked, reaching higher average expenditure levels than females in later years. This may indicate relatively better health for females in old age. Similarly, the data shows an

early peaking for the female distribution in the child bearing years indicating the greater use of physician services during this period of a woman's life.

Graph 2: Distribution of Physician Expenditures by Age for Females and Males in Nova Scotia, 2001
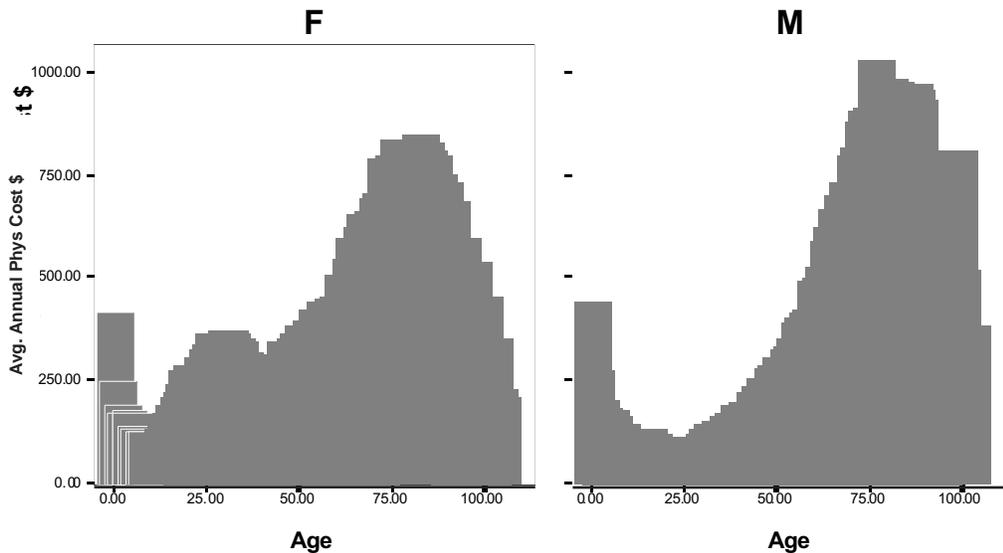
Analyzing Distributions of the Utilization of Physician Services

In Graph 3 below, the data are presented as the percentage of the population that fall within various categories of expenditure for physician services. This distribution confirms that the vast majority of the population is relatively healthy over the course of the year. According to these figures, 81 per cent of the public spends less than $425 per person per year on the services of doctors including nearly 20 per cent of the population who spend nothing at all. And a relatively small number of people spend huge amounts per person on physician expenditures due to serious illness.

Graph 4 indicates that people who fall into the high usage categories account for the largest proportion of total expenditures on physician services. According to this distribution, those spending more than $425 per person per year account for 71 per cent of all physician expenditures. Yet the actual number of people in these categories is relatively small.

Graph 5 illustrates this by dividing the population into quintiles from the lowest to the highest usage of physician services. Interestingly, the sickest 20 per cent of the population (those using the most services) account for 72 per cent of all spending on physician services with the sickest five per cent of the population accounting for nearly 42 per cent of total spending on physician services.

Graph 3: Percentage of the Population in Various Ranges of Expenditure on Physician Services in Nova Scotia, 2001
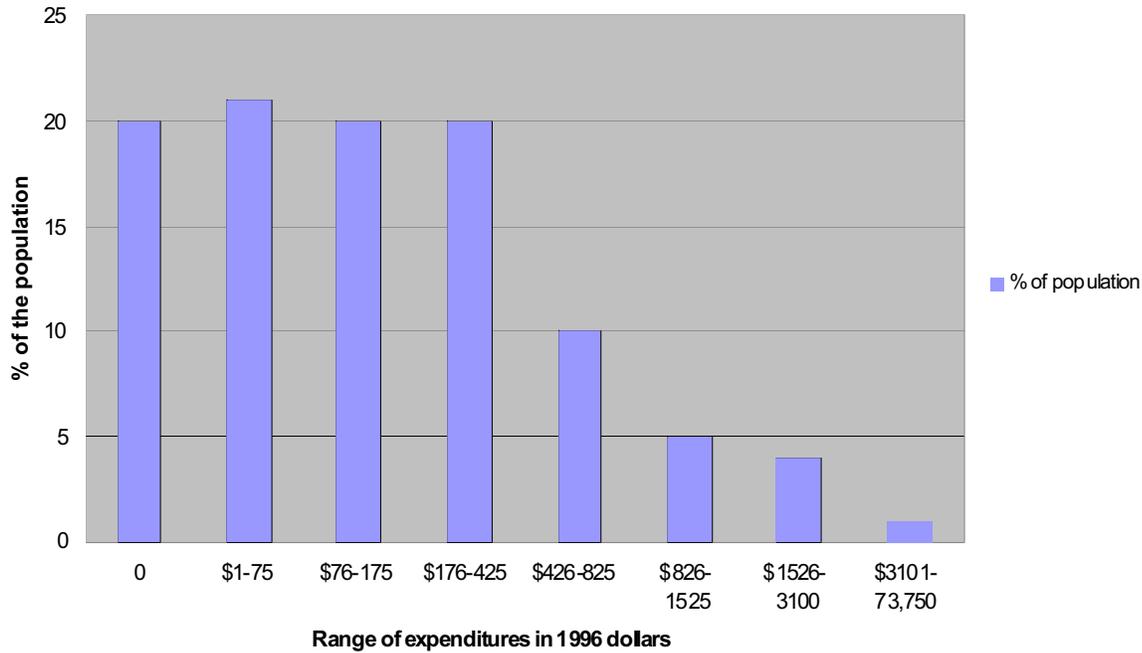
Graph 4: Percentage of Total Costs for Physician Services by Range of Personal Expenditure in Nova Scotia, 2001
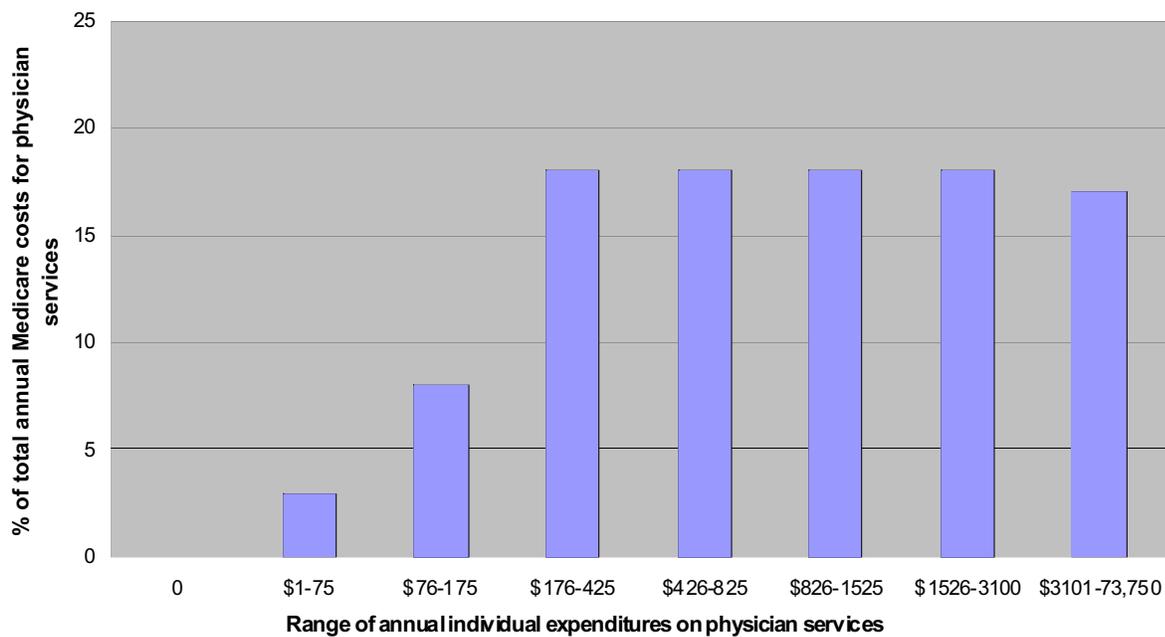
Graph 5: Distribution of Physician Expenditures by Population Quintile in Nova Scotia, 2001

Population Quintiles: lowest (healthiest) to highest (sickest) expenditures
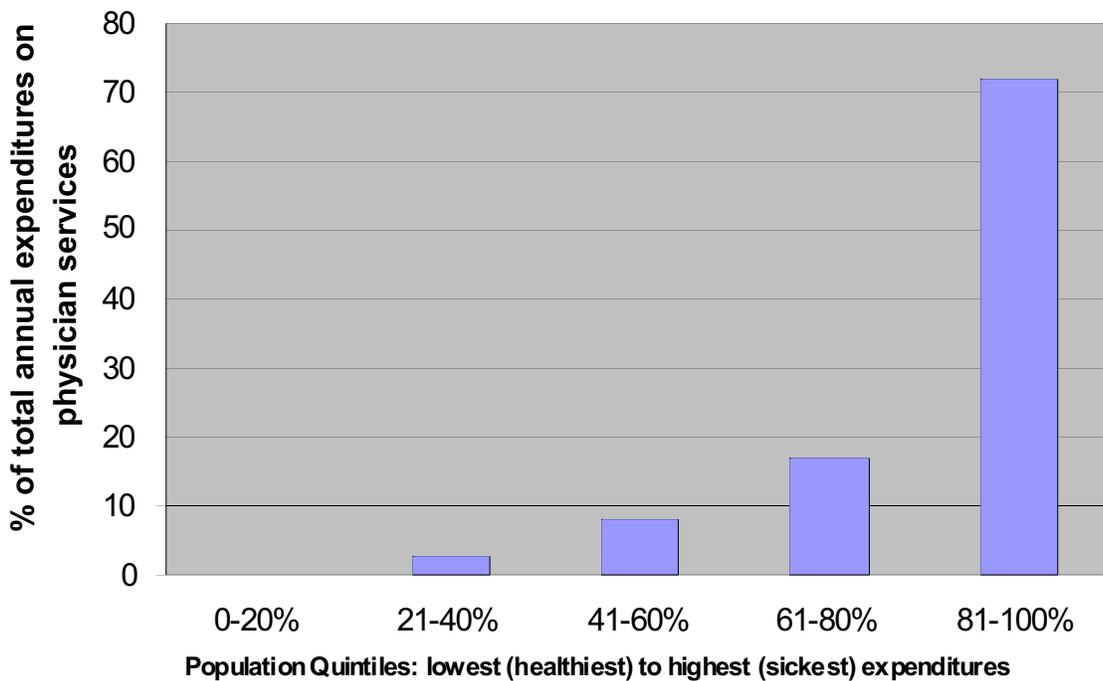
As expected, the data show that there were similar distributions across age-gender specific categories as those seen in Graphs 3 to 5. In most cases the age-gender specific distributions followed the same pattern as that for the entire population with, for example, about 15 to 30 per cent of the distribution showing zero expenditures on physician services.

However, in the lower age groups, newborn and age one year, the means were significantly higher than the rest of the population (especially for those less than one year old). Furthermore, the percentage of the distribution for the newborn group that had zero expenditure on physician services shrank dramatically to single digit figures. The same thing occurs for females during childbearing years and for males and females during their senior years (single digit percentages at zero expenditure).

Implications for Deductible-Based Catastrophic Insurance Design

This data could justify a targeted subsidy or reduced deductible for these groups. However, it should be noted that greater targeted assistance to these groups (based on their patterns of utilization, not income level) undermines any costs savings and reductions in waiting times for services expected from reform proposals. Subsidies by nature are designed to assist those who cannot afford to pay the ordinary costs of health care. Accordingly, to optimize efficiency, subsidies should only be applied on the basis of

income. Similarly, adjusting the deductible downward based on age-gender norms for utilization would have the same negative effect on efficiency as a direct subsidy to these groups.

On the other hand, the commonality of expenditures within these groups makes insurance coverage over this range of expenditures actuarially inefficient. Therefore, this could justify raising the deductible to encompass the higher mean levels of expenditures, which define ordinary health care utilization for these groups. Under this system, deductibles would vary according to age-gender groups.

Therefore, flat deductibles based on the mean across the entire population, or within age-gender groups, are preferred policy mechanisms for introducing incentives to rationalize the use of medical services and to shift some of the responsibility for costs onto those users of the system who can afford it.

Defining Deductible Ranges: What is Ordinary and What is Catastrophic?

As mentioned earlier, the proposals analyzed here look at the impact of introducing a system of catastrophic health insurance with a new deductible range for ordinary (and potentially discretionary) medical expenses. The catastrophic threshold is the point at which the out-of-pocket deductible expenses have been paid and full insurance coverage for all future medical expenses begins. This system is preferred to reduce the element of moral hazard that occurs under first dollar coverage or full insurance. The proper purpose of insurance is to protect against random, catastrophic financial expenses, not ordinary expenses. But the problem is how to define what are ordinary and what are catastrophic costs.

This study distinguishes between catastrophic medical expenses and ordinary health costs. Different ways to define these terms are presented below.

Evaluating an Income-Adjusted Deductible

One of the ways to distinguish between ordinary health expenses and catastrophic costs is to define catastrophic medical costs as those that are unaffordable without insurance. The issue of affordability can be difficult to define but is arguably related to income. Therefore, by basing the definition of the catastrophic threshold for physician expenses on affordability one could justify a deductible that was proportional to income. A deductible based on a flat percentage of income would meet this description.

If an income-adjusted rather than a flat deductible were introduced without any low-income subsidies, the overall costs saved would depend largely on the distribution of physician expenditures among people in each income category. Under an income-adjusted deductible, the number of people with medical spending that falls within the deductible range increases as the deductible limit rises across higher income categories. In other words, much larger portions of total physician costs are transferred from

medicare to consumers as income categories increase because larger proportions of personal expenditures fall under the deductible ranges. Therefore, the overall savings to medicare are expected to be much larger than under a flat deductible plan.

Such an income-adjusted deductible adds to the severity of the progressiveness of the Canadian tax regimes, making it even more expensive for wealthier individuals. Because of the larger percentages of people within each of the higher income categories that actually fall within the deductible range of charges, this system might actually be more re-distributive than the tax-financing system of medicare. The flat deductible with a targeted subsidy therefore appears fairer to these consumers. But, given the higher overall savings to medicare expected from an income-adjusted deductible, it could be argued that such an approach would allow for greater general tax reductions.

An income-adjusted deductible accompanied by proportionate tax reductions would change the nature of redistribution slightly, skewing it toward a transfer from healthy to sick, and away from a transfer from wealthy to poor. After accounting for possible tax reductions, such an approach could benefit wealthier income groups more so than under either medicare or the flat deductible plan. In order to test such a possibility, each individual's applicable deductible limit would have to be determined, based on income. Individual patterns of utilization of physician services would then need to be compared to the income-adjusted deductible to see which portion of it people would pay. The detail required for such an analysis is beyond the scope of this study. However, rough estimates indicate that the savings from an income-adjusted deductible would exceed those of a flat-deductible plan.

Another advantage to implementing an income-adjusted deductible is that an MSA would not be necessary to ensure universal access to medically necessary services, because the deductible limit is already proportional to income. However, if any deductible at all is considered burdensome to those in the extreme lower-income ranges, then a targeted MSA can be set up. It would lower the savings to medicare but allow low-income consumers to accumulate savings toward future health needs.

However, the difficulties in administering an income-adjusted deductible are formidable because of the countless variations in the size of deductibles. In additional, using tax-filing data to assess the deductible means the previous year's income determines the current year's co-payment range. Thus a person could be charged more or less than one per cent of household income because of fluctuations in income. For these reasons, the flat deductible approach is preferred.

The definition of catastrophic expenses offered here relies on the observation that routine medical expenses are associated mostly with outpatient services offered by physicians, and that in-patient services usually represent more serious conditions, treatments and procedures offered at hospitals with higher capital and operating costs. Therefore, data on physician services provides a reasonable basis on which to determine a proper deductible range and catastrophic threshold.

Evaluating an Age and Gender-Adjusted Deductible

Adjusting the deductible to match mean physician expenditures within age and gender groups is similar in principle to creating group-rated premiums for health insurance. The effect is to shift a greater proportion of health costs onto those age and gender classes that use the system more. While justified from an actuarial perspective, the general impact would be to make the elderly and women in their child bearing years pay more than others. Given the advantages identified earlier of large-pool risk sharing, and its capacity to reduce individual costs for insurance, a flat deductible based on the mean physician expenditure for the entire population seems like a reasonable compromise as a policy that would capture the benefits of a large insurance pool while still reducing incentives for moral hazard and physician-induced demand.

What Kind of Deductible?

The deductible preferred here is based on the assumption that ordinary medical expenses are best defined as the mean or average per person expenditures of the population at large. Because the vast majority of people are relatively healthy, the mean expenditure on medical care makes a good proxy for ordinary health costs. The flat deductible is also simple to understand and administer and captures the benefits of large insurance pools.

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SECTION 8
MODELING HEALTH INSURANCE
DEDUCTIBLES AND TARGETED MSAS

Assumptions and Parameters of the Analysis

In order to project accurately the distribution and total costs of physician services in Nova Scotia under each of the models in this study, as well as the expected reduction in demand for medical services that is hoped will reduce waiting times, certain assumptions must be explicitly incorporated into the analysis. The social impact of policy changes on consumers is also subject to certain assumptions. The following assumptions apply to this analysis:

1. Assume a conservative 20 per cent reduction in demand for health services when consumers must share in the costs of health care. The RAND HIE effect on consumer demand under various forms of co-payments estimated the reduction could reach as high as 30 per cent (Newhouse 1993; Manning et al. 1987).
2. Assume zero adverse health effects for the average consumer under co-payments (RAND HIE).
3. Assume that the health of specific population groups such as the chronically ill and very poor will be adversely affected by cost sharing for specific and limited conditions (RAND HIE).
4. Assume that the RAND effect might be reduced under systems with pre-funded health savings accounts like MSAs as consumers expect to exceed the deductible (the Schaafsma and Land 2002 effect).
5. Ordinary medical expenses are potentially discretionary (RAND HIE) and can be defined as those expenditures that are below the mean expenditure for physician services for the entire population.
6. Catastrophic expenses are those that exceed the thresholds described above.

The Effect of a Flat, Population-Wide Deductible Plan before Low-Income Subsidies

The deductible proposed here is based on the approximate mean annual personal expenditure on physician services for the entire population, roughly $325, according to PHRU data. This deductible would apply to every person individually. An estimate of the savings to medicare from implementing a flat deductible of $325 depends on the distribution of expenditures for physician services over the range of the deductible.

Since about 20 per cent of the population does not use any physician services at all in a given year, the remaining 80 per cent of the public will end up paying for physician services over some portion of the deductible range. According to the PHRU database, 80 per cent of the population equals 777,071 people. Therefore, any saving is equal to the number of people (80 per cent of the population) multiplied by the portion of the flat deductible amount ($325) they would be expected to pay based on their distribution of expenditures.

In summary, about 20 per cent of the public will pay nothing at all because they do not use any physician services over the course of the year. About 24 per cent of the public will pay the full deductible because this proportion of people annually exceeds the mean of $325. The rest of the public is distributed as presented in Table 2.

Table 2: Distribution of Expenses on Physician Services Over the Deductible Range in Nova Scotia 2001

Population spending between $1 and $325	Expenditure on Physician Services $	Total Utilization Within Distribution (1996$)
64,102	25	$1,602,550
78,502	50	$3,925,100
62,269	75	$4,670,175
59,618	100	$5,961,800
51,383	125	$6,422,875
46,975	150	$7,046,250
37,055	175	$6,484,625
31,280	200	$6,256,000
27,895	225	$6,276,375
23,979	250	$5,994,750
22,353	275	$6,147,075
18,991	300	$5,697,300
17,072	325	$5,548,400
541,474 total		**$72,033,275 total**

The formula for calculating the net savings to government from implementing a flat deductible (all figures in this section stated in 1996 dollars) is:

Formula: $S = nd * \%D$

Where:
S = savings to public health insurance plan
nd = the number of people who will pay the deductible
$\%D$ = the proportion of the deductible paid

A calculation of the savings to medicare from the introduction of the deductible is presented below:

Population paying zero: n = 201,494 (20%)

$$S1 = 0$$

Population paying portion of deductible: nd = 541,474 (56%)

$$S2 = nd(distribution) *\%D$$
$$S2 = \$72,033,275$$

Population paying full deductible: nd = 235,597 (24%)

$$S3 = 235,597*325$$
$$S3 = \$76,569,025$$

Total savings to medicare:

$$S = \$148,602,300$$

Calculating the reduction in demand for physician services is somewhat more complicated. If we assume that expenditures on physician services below the average annual amount of $325 are ordinary and, therefore, potential discretionary expenditures, then it is also safe to assume that demand for such services can be affected by a deductible. This analysis assumes that expenditures that are above the ordinary range will be less affected by the introduction of a deductible because serious illness (indicated by higher personal expenditures on physician services) will make demand for doctors' services less discretionary. Seriously ill people will be willing to pay more to receive medical care and, therefore, their demand for services will not be as elastic as those who are less ill.

However, this does not mean that there is no elasticity of demand for medical services for those above the level of expenses defined as ordinary; this analysis merely assumes it for the sake of simplicity. In fact, serious illness may be represented by much higher levels of spending on physician services.

If a deductible is introduced at a maximum out-of-pocket expenditure of $325 and a conservative 20 per cent reduction (RAND HIE data) in spending on physician services occurs because of this policy, annual expenditures on physician services can be expected to fall to $57,626,620 for the 56 per cent of the population that spend between $1 and $325 dollars on average. The total savings to medicare for this group alone would equal the $72 million spent annually that is no longer covered by medicare. But the reduction in actual usage is represented by the $14,406,655 no longer spent at all by this group.

Therefore, the monetary saving is significant over the entire population ($148.6 million), and the effect on waiting times is also likely to be significant, approximately 20 per cent less for the affected group. However, estimating the actual reduction in waiting times expected from a decrease in spending on physician services is complicated by the fact that a 20 per cent reduction in expenditures does not necessarily translate into a 20 per cent reduction in time spent waiting for services. Some of the reduced spending will be on items with a small cost in physician time, while some will be on services that take longer to perform.

The effect of implementing a $325 annual medicare deductible is that spending on physician services could be $14.4 million less than under to current system in Nova Scotia. This represents a 4.6 per cent reduction in overall spending on physician services. This figure works only as a rough proxy for estimating the overall reduction in waiting times from reduced demand.

The reduction in usage may be greater than this estimate as well. A conservative estimate of the RAND effect has been applied here only to those who fall under the deductible range for total personal annual expenditures. However, the HIE demonstrated that demand for medical services could be reduced by about 30 per cent without adverse health consequences for the vast majority of the population (Newhouse 1993). Therefore, the 20 per cent estimate provided here could significantly underestimate the actual reduction in demand for physician services expected under medicare with a deductible.

Another issue is whether a higher deductible would be justified. The definition of ordinary expenses offered here is somewhat arbitrary. Demand for physician services may be as sensitive at higher deductible ranges as it is at the $325 limit. Experimentation with deductible levels to determine the point at which the elasticity of demand for medical services begins to decrease significantly is beyond the scope of the analysis presented here. Thus, only a conservative, minimal estimate is attempted by applying the RAND effect to those under the deductible range.

On the other hand, the Schaafsma and Land (2002) effect predicts that if people believe that they will exceed the deductible threshold (in this case, $325), they may ignore incentives to reduce utilization as they approach the limit, because they expect to move into the full insurance range anyway. Therefore, this estimate could be overstating the reduction in demand to the degree to which people expect to exceed the deductible limit. Yet, it also seems plausible that many people who expect to exceed the limit would still reduce demand for expenses under the deductible range. So this study assumes that opposing expectations would cancel each other out.

The Effect of Introducing MSAs to Subsidize a Flat Population-Wide Deductible

As other studies have demonstrated, introducing a universal MSA with equal tax-financed government deposits for everyone is an unworkable proposal (Forget et al. 2002; Hurley 2002). Such a design would

significantly increase government health expenditures because MSAs would be subsidizing large portions of the population that used less than the deposit (such as $325) under medicare; therefore, the government would pay for services that wouldn't be consumed. A retrospective payment system is better, even under the inefficient full insurance, zero co-payment model of medicare.

However, a targeted MSA subsidy for low-income people could be less costly than the universal approach and still capture some of the advantages of the RAND effect of reducing demand while allowing the less affluent to accumulate savings toward future health care expenses. However, success depends on the distribution of expenditures for physician services among the low-income groups in the province.

For this analysis, low-income consumers are defined as those whose household income is below $32,000. This figure is based on gross household income, and is sufficiently higher than the net family income values used for the GST tax credit cut-off to be considered roughly equal in gross terms. The low-income cut-off for the GST tax credit is approximately $28,000 net family income in 2002 dollars according to Canada Customs and Revenue Agency information. Adjusting this to 1996 dollars (all amounts in this section will be in 1996 dollars except as indicated) for comparability puts the net family income at approximately $25,000. Converting this GST tax-credit cut-off into gross income terms puts the figure just below the $32,000 mark. In addition, the mean annual expenditure on physician services is $322 in 2001. This is equal to about one per cent of $32,000 in household income, a reasonable proportion of income per person for a co-payment at this level. As household income sinks below $32,000, the proportion of income taken up by the deductible would begin to exceed one per cent; therefore, the $32,000 cut-off is appropriate.

To estimate the effect of introducing an MSA, the population data has to be adjusted upward in each income category because there is about 15 per cent missing data for the income variable in the database that leads to exclusion from final counts. Without this adjustment, the data will understate the population counts used for the analysis.

As Table 3 shows, 161,376 people had average household incomes below $32,000. If a targeted MSA deposit were provided for this segment of the population at the full range of the deductible ($325) for everyone in the group, then the cost of providing this would be $52,447,400 (161,736 times $325).

Under Medicare, total spending on physician services by those in the defined low-income group comes to $57,433,600 per year.

Looking at the distribution, because 31,551 people do not use any physician services at all, the cost of providing an MSA subsidy to them is $10,254,075 more than spent under medicare (31,551 times $325).

Total spending by the 86,963 people with annual usage within the deductible range equals $11,734,600. Providing a $325 MSA subsidy to these people will cost $28,262,975, an amount that is $16,528,375 more than spent under Medicare.

The 42,862 who spend more than $325 per year on physician services have total expenditures of $45,699,000. The cost of providing an MSA deposit of $325 for this group is $13,930,150. The difference is $31,768,850 less than spent under medicare but the amount, which is not covered by the MSA subsidy, will still be covered by medicare under catastrophic insurance.

Thus, the total cost for this segment of the low-income group is the same as under medicare, $45,699,000, except that the first $13.9 million is managed by consumers themselves. Therefore, new costs from the MSA program for the low-income group come to: $10.3 million plus $16.5 million for an approximate total of $26.8 million.

In other words, the costs of implementing an MSA for the defined low income group equals the population of the group (161,376) times the value of the MSA subsidy of $325 ($52,447,400) plus the $31.8 million not covered by the MSA subsidy but still covered by catastrophic medicare for a total of approximately $84.3 million. The previous cost for covering physician services for the low-income group under Medicare was $57.4 million. Therefore, the extra cost to medicare from implementing a targeted MSA subsidy of $325 for those in the defined low-income group is approximately $26.8 million more than before the subsidy. Adjusting the $26.8 million total added cost figure for missing data puts the total new costs from the MSA at $30.8 million.

Reduction in Demand for Physician Services in the Low-Income Group

The actual usage of health services for people in this low-income group is indicated by the distribution of expenditures in Table 3. If the reduction in demand is expected to affect only those who do not personally expect to exceed the deductible (and use up the entire $325 subsidy), then we assume that the reduction will only apply to those who spend between $1 and $325 (the Schaafsma and Land effect). In other words, we assume that the RAND effect would only apply to those within the deductible range. If a conservative 20 per cent reduction in usage is expected from the RAND effect, then the maximum expected reduction in usage based on the distribution of expenditures on physician services among those with incomes below $32,000 is $2,346,920. Adjusting for missing data boosts this figure to $2,698,958.

Table 3: Distribution of Physician Expenditures for Average Household Income Range Below $32,000 (1996$) in Nova Scotia 2001.

Personal Annual Phys Cost	Population Frequency	Aggregate Phys Cost	Valid Percent	Cumulative Percent	Predicted Reduction in Usage
		Population Spending Zero Annually			
$0	**31,551**	**$0**	-	**20%**	**$0**
		Population Spending Between $0 and $325			
25	10,002	250,050	6	26	50,010
50	12,370	618,500	8	33	123,700
75	9,891	741,825	6	40	148,365
100	9,519	951,900	6	45	190,380
125	8,172	1,021,500	5	51	204,300
150	7,511	1,126,650	5	55	225,330
175	5,947	1,040,725	4	59	208,145
200	5,189	1,037,800	3	62	207,560
225	4,572	1,028,700	3	65	205,740
250	3,994	998,500	2	67	199,700
275	3,704	1,018,600	2	70	203,720
300	3,202	960,600	2	72	192,120
325	2,890	939,250	2	73	187,850
Totals	**86,963**	**$11,734,600**	-	-	**$2,346,920**
		Population Spending Above the Deductible of $325			
$325 +	**42,862**	**45,699,000**	-	**26**	**$0**

Summary of Effects from the MSA

The expected reduction in spending on physician services for people with household incomes below $32,000 is less than one per cent of the total amount spent on physician services by the entire population. There are no savings to government because any funds left in the MSA from not using the entire deductible in services remains in the ownership of the individual account holders. The accumulated personal health savings from the transfer of tax-financed subsidies for low-income consumers for the year 2001 would equal $10.3 million for the 20 per cent of the group who didn't use any doctor's services, $16.5 million for the 54 per cent of the group who used between $1 and $325, and $0 for the 26 per cent who used up all of the $325 MSA deposit. These savings could be used to fund future health needs.

The program would cost nearly 32 per cent more than the medicare approach to cover this group. Obviously, it would be cheaper simply to eliminate the deductible for those in the defined low-income group but doing so would mean that no reduction in demand for this group could be assumed and no

accumulation of savings against future health care needs would result. If these goals are important to policy makers, the MSA approach can accomplish them.

The MSA subsidy would guarantee universal access to medically necessary services for the defined low-income group and could be expected to reduce overall demand for physician services by less than one per cent and demand within the group of low-income people by 4.7 per cent. The reduction in demand is a rough proxy for the expected reduction in waiting times for services. Significant accumulation of personal health savings would also result.

Effects of Deductibles and MSAs Across All Income Groups

The total savings to the public health insurance program from a combined flat deductible of $325 for the entire population and an MSA for consumers in households with incomes below $32,000 can be calculated by splitting the population into two groups: those equal to or above $32,000 in average household income and those below that mark. The distribution of those above that mark who fall into the deductible range is seen in Table 4.

The total number of people in the database with average household incomes equal to or greater than $32,000 is 668,747. Due to missing data, this number is estimated to be 15 per cent less than the actual population in this group. Of this group, 125,952 spent nothing at all on physician services, 380,050 spent between $1 and $325, and 162,745 spent more than $325.

Table 4: Distribution of Physician Expenditures for Average Household Income Range At or Above $32,000 (1996$) in Nova Scotia 2001.

Personal Phys Exp $	Pop. Frequency	Distribution of Exp $	Valid Percent	Cumulative Percent
		Population Spending $0 on Physician Services		
$0	125,952	$0	19	19
		Population Spending Between $1 and $325 on Physician Services		
$25	44,673	$1,116,825	7	26
50	54,111	2,705,550	8	34
75	43,577	3,268,275	7	40
100	41,873	4,187,300	6	46
125	36,572	4,571,500	5	52
150	33,216	4,982,400	5	57
175	26,269	4,597,075	4	61
200	21,947	4,389,400	3	64
225	19,789	4,452,525	3	67
250	16,942	4,235,500	3	70
275	15,731	4,326,025	2	72
300	13,398	4,019,400	2	74
325	11,952	3,884,400	2	76
Totals	**380,050**	**50,736,175**	**57**	**-**
		Population Spending $325 or More on Physician Services		
$325+	**162,745**	**$166,014,250**	**24**	**-**

Total Savings to Medicare

The total savings to medicare from the introduction of a deductible for this group is calculated as follows:

Formula: $S = nd * \%D$

Where: S = savings to medicare

nd = the number of people who will pay the deductible

$\%D$ = the proportion of the deductible paid

Population paying zero: n = 125,952 (19%)

$S1 = 0$

Population paying portion of deductible: nd = 380,050 (57%)

$$S2 = nd(distribution)*\%D$$
$$S2 = \$50,736,175$$

Population paying full deductible: nd = 162,745 (24%)

$$S3 = 162,745*325$$
$$S3 = \$52,892,125$$

Total savings to medicare:

$$S = \$103,628,300$$

Under this scenario, the total initial savings to Medicare from the deductible for this group is approximately $103.6 million, representing the amount no longer spent by medicare on physician services that are now paid out-of-pocket by consumers. Adjusting for 15 per cent missing data pushes this estimate to approximately $119.1 million.

The total net savings from implementing the deductible and the MSA program together equal the savings from the new deductible of $119.1 million, minus the new or added costs of the MSA program of $30.8 million. This sums to $88.3 million in net savings for medicare.

Total Reduction in Demand

If a conservative reduction of 20 per cent in demand for medical services (the RAND effect) is assumed to apply to people who pay the deductible, the total reduction in spending on physician services is $10.1 million ($11.6 million adjusted for missing data) for the population at or above $32,000 in household income, plus $2.7 million (adjusted for missing data) for the group below $32,000 in household income, totalling $14.3 million. This amount represents approximately a 4.5 per cent decrease in overall demand for physician services from medicare levels. This percentage figure is a rough proxy for the expected reduction in waiting times.

The reduction of total spending on physician services within income groups is roughly the same percentage for those at or above $32,000 in household income and for those below $32,000 in household income.

Again, the degree to which people expect to exceed the deductible will adjust these figures upward or downward depending on the expectation for those above and below the deductible. (Schaafsma and Land effect). This analysis assumes that opposing expectations would cancel each other out.

Subsidizing the Chronically Ill

As mentioned earlier, governments would want to identify chronically high users of the Medicare system for targeted MSA deposits. For this study, the PHRU data was analyzed for changes in usage for each individual medicare identifier across the seven years spanning 1995 to 2001. A regression model was used to test the relationship between a group of variables in each year and 2001 expenditure levels. The data indicates that usage in the previous year is significantly (statistically) correlated to usage in the current year at the 99 per cent confidence level. As a predictor of usage, the relationship of previous year's usage is about equal in statistical strength to the current age of the person. However, this co-relational strength diminishes as the data is regressed farther into past years, so that there is a declining relationship the farther from the current year that the data on health care usage is compared.

Notably, both current age and previous year's usage were of greater predictive strength than current income level.

The regression analysis does not estimate the probability that a person will remain in either low-usage or high-usage categories but confirms that movement between groups is somewhat static over the short term but becomes more dynamic over longer terms.

Targeting an MSA toward the chronically ill would obviously increase the costs of the program. However, given the extremely small number of people involved, extending the $325 deposit would probably not increase costs significantly.

SECTION 9
CONCLUSIONS AND RECOMMENDATIONS FOR SUSTAINABLE HEALTH CARE

The research presented here demonstrates the importance of the age-gender and income specific distribution of health care utilization to proper health policy making. This understanding is vital to predicting the distributional impacts of health finance reforms.

This study also shows the savings that can be achieved from implementing an affordable flat deductible for medicare. It demonstrates how such a consumer co-payment would reduce unnecessary demands for health services thereby reducing waiting times for access to services overall. Finally, the analysis shows how a targeted MSA deposit for low-income earners could guarantee universal access to medical services more efficiently than first dollar insurance coverage for everyone. The next section gives the details of broader health system reform.

Based on a review of health policy research, an analysis of individual patterns of medical usage, and the testing of the feasibility of deductibles and targeted MSAs, the following proposals are better alternatives to achieve the health system goals laid out in this paper than the medicare model.

Modified Medicare Proposal

The first proposal offered here is a modified medicare approach to funding and organizing the health care system. This idea represents an incremental change from the current system. Government maintains a publicly funded health insurance monopoly for medically necessary services; however, this new system includes either user fees or deductibles for ordinary medical expenses and restructures medicare as a tax-financed catastrophic health insurance plan.

Unlike the current model, modified medicare also allows a private, for-profit health care sector to deliver a full range of medical services and to receive either reimbursement from public health insurance up to a defined limit or fee for service. This plan allows consumers to transfer the benefits of public insurance coverage to any health care provider of their choice, public or private.

Public hospitals continue to operate exactly as they do now: as quasi-independent, not-for-profits required to accept the medicare insurance reimbursement as payment in full without going over bud-

get. However, minor user fees are allowed to control demand for specific services like emergency room (ER) visits.

Private hospitals are allowed to charge prices that exceed medicare limits but any charges for extra or premium quality services are paid directly either by the consumer or by the consumer's supplemental private insurance. Private insurance companies remain limited to covering the costs of services not covered by medicare but cannot cover services under the deductible or user fee range.

Under this plan, charges under the deductible range, and user fees for ER services are billed directly to health consumers at the point of service and debited electronically from an MSA set up for each individual. Much like a Registered Retirement Savings Plan (RRSP), MSAs are funded from consumers' tax-deferred personal savings. The difference is that the funds are designated for health care expenses. Governments subsidize low-income consumers through a system of annual direct deposits into their MSAs. The analysis above illustrates how such a system could work.

The comprehensiveness of coverage under the new medicare plan is defined by a public system of consultation similar to the Oregon plan (Witt 2002; C. Forget 2002) when consumers were asked to rank the value of specific services. Under a global budget fixed as a maximum percentage of GDP, this system sets the limits of coverage for medicare insurance.

Government limits on the number of medical graduates and artificial barriers to entry into medical practice are eliminated to ensure adequate supplies of health professionals. In the meantime, the private sector for the delivery of health services remains regulated to require health professionals to perform services in public hospitals until there are enough doctors and nurses in the system to allow market pricing to determine supply in both public and private systems.

Regulated Private Health Insurance Market Proposal

The second model proposed involves implementing a regulated private health insurance market. In the new market, a public health insurer and an unlimited number of private insurers compete for customers on a level playing field under the same set of rules. The market is heavily regulated to overcome problems associated with market failure in health insurance.

Like the modified medicare proposal above, the public insurance program is set up as a deductible-based, catastrophic insurance plan but the government's health insurance monopoly over the medically necessary range of services is eliminated and tax-financing replaced with a system of community-rated premiums that pool risk.

Both public and private insurers must offer the same basic package of benefits covering a defined range of medically necessary services. Public and private insurers will be allowed to offer coverage for services above the basic package. The public or private/ profit or not-for-profit basis for their administration determines the extent of this coverage. Accounting practices are regulated so that public and private providers operate under the same set of rules for financial reporting. The public system is required by law to produce balanced budgets. Private sector insurers are allowed to fail.

Both public and private insurers are required to use only community-rated premiums and uniform deductibles, and to accept every person who applies for coverage to reduce the problems of moral hazard, risk selection and cream skimming. If, like auto insurance, every person must choose health insurance from either a publicly administered, not-for-profit system, or competing private insurers, the problems of adverse selection will be prevented.

The community-rated premiums charged by public and private insurers are adjusted to cover the costs expected for payment under the catastrophic coverage of the plan. Public and private insurers then compete for customers based on administrative efficiencies, extent of coverage, quality of service and so forth.

Governments subsidize less affluent consumers through targeted MSAs to ensure universal access to medically necessary services.

As with the modified medicare system, this new regulated private market in health insurance operates in tandem with a private competitive market for the delivery of medical services under rules similar to those previously described. Consumers are free to purchase health insurance from either public or private sector providers. Coupled with proper regulations for the market in health services delivery, a regulated market in health insurance allows the consumer greater choice, higher quality and shorter waiting times for medical care.

In addition, health professionals enjoy better working conditions and want to remain in Canada, thus alleviating the recruitment and retention problems that have lead to human resource shortages in health care.

Finally, the system is financially sustainable, costs are tied more directly to consumer demand and perverse incentives for over-consumption and over-prescription of services are minimized.

APPENDIX A
NOTES ON THE GENERAL APPLICABILITY
OF THE RAND HIE RESULTS

Some may argue that the US-based RAND results cannot necessarily be generalized to apply to Canadian health insurance. However, the RAND HIE remains the largest, longest running experiment of its kind and provides the best data available on consumers facing variable prices for medical services. There is simply no comparable empirical evidence on Canadian demand over the range of insured services because the price is effectively zero at the point of service under medicare.

The literature on the nature of Canadian health markets before medicare indicates that demand under market prices in Canada was similar to US demand for health services because both systems operated in similar fashion before the introduction here of publicly funded health insurance in 1970. Canadian studies that have examined responses to user fees in Saskatchewan and British Columbia have concluded that consumers do, in fact, reduce demand in response to cost sharing under medicare (Beck 1974; Beck and Horne 1976; Beck and Horne 1980; Epp et al. 2000).

In order to make the case that demand for medical services is different in Canada than in the US, one would have to provide some evidence for such a claim. Given that the demand for other market goods does not demonstrate significantly different elasticities between the US and Canada, the onus of proof should be on those who claim that the RAND assumptions cannot be applied here. Demand for medical services is theoretically dependent on economic rationality and, therefore, can be applied to Canadians in as much as they are rational economic actors.

Similarly, the argument that the results of the RAND HIE are not generally applicable across all age groups because the study did not include the elderly is not entirely valid. Age has nothing to do with demand per se. Genuine sickness or need for medical services (or the perception of it) makes demand inelastic (Wedig 1988), and serious illness occurs for all age groups. While, of course, sickness is related to age because higher percentages of the elderly are sick compared to the young, the fact still remains that most elderly people are well, as indicated by the data on health utilization distributions in this study. Therefore the RAND assumptions still apply to most elderly people.

To suggest that we cannot know for certain that the RAND results will apply in Canada and, therefore, that its conclusions should not inform or justify policy reform begs the following question: Why did

such empirical standards not apply to the introduction of medicare in the first place? Why are market-oriented reforms held to a higher standard of evidence than social reforms? The data from the RAND HIE provides far more empirical justification for the reforms envisioned here than was ever offered for the introduction of universal, egalitarian, zero-price health insurance.

APPENDIX B
EFFECT OF REDUCED DEMAND ON PHYSICIAN INCOMES AND UNDER-SERVICING

As noted in the sections detailing the expected reduction in demand for physician services, the introduction of deductibles for medicare could result in a 4.5 per cent reduction in overall spending on MDs. A reduction in revenue available to support the incomes of doctors would exacerbate the problems of recruitment and retention of medical professionals and the ongoing medical brain drain to the US (Skinner 2002b).

However, after the introduction of a private market for health services, consumer demand for services over and above the insurance coverage provided by the public health insurance payment will inject new sources of revenue that are currently prevented by medicare. The total market wealth in health care will expand under both models proposed in this study. Doctors' incomes will rise with market prices, paid for by those willing and able to afford it. Of course, until government barriers to enter medical training and practice are lifted, and the supply of professionals reaches an adequate level, price regulation will still be necessary to prevent doctors from exercising monopoly-pricing power. Once there is an adequate supply of professionals, price regulations can be lifted both for deductibles and for those services purchased in the private market.

Such market pricing will also eventually permit the prices paid for physician services to float with consumer demand, creating incentives to attract doctors to under-serviced areas. As standard economics predicts, if the supply is low, the prices rise. When doctors see the price as attractive, they will locate in under-serviced markets, eventually raising the supply of physicians in those areas. Ultimately, equilibrium will be reached where the supply of doctors matches the demand. Under medicare, doctors must be conscripted to work in under-serviced areas (Skinner 2002b). The market models suggested here replace coercive measures with positive price incentives for doctors and are a morally superior approach to the problem of MD supply.

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