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Pharmacare in Canada: Issues and Options

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Résumé

Le régime canadien d'assurance-santé financé par l'État ne couvre pas les produits pharmaceutiques des malades non hospitalisés, les coûts associés aux médicaments d'ordonnance peuvent être très élevés pour les personnes atteintes de certaines maladies graves et il est de plus en plus fréquent de souscrire une assurance collective privée pour couvrir de tels coûts. Le document, commandé par Santé Canada en décembre 2000, examine les faiblesses de l'assurance privée comme réponse à ce problème et présente les avantages d'étendre le principe de l'assurance universelle financée par l'État (telle que définie par la *Loi canadienne sur la santé*) pour couvrir les médicaments d'ordonnance. Le document traite de diverses options visant à contrôler les coûts pour le secteur public, y compris le partage des coûts avec les patients, des listes de médicaments et les règles de substitution par les médicaments génériques, et souligne que le partage des coûts lié à la demande pour des médicaments est plus probable que pour les services médicaux ou les soins hospitaliers. Il contient la description des régimes provinciaux d'assurance-médicaments et leur comparaison au système d'assurance-médicaments proposé par le Forum national sur la santé (FNS). Comparativement au FNS, le document laisse entendre qu'un certain niveau de partage des coûts serait désirable en ce qui concerne les médicaments et qu'il serait important de prendre en considération la possibilité que le système comprenne des dispositions de retrait (permettant aux citoyens de substituer le régime public par un régime privé).

Abstract

Canada's publicly funded universal health insurance system does not cover the cost of outpatient pharmaceuticals. As the cost of prescription drugs may be quite large for patients with certain kinds of serious illness, private group insurance to cover such costs is becoming increasingly common. This paper, commissioned by Health Canada in December 2000, reviews the weaknesses of private insurance as a response to escalating drug costs, and outlines the case for extending the universal publicly funded health insurance (as defined by the *Canada Health Act*) to cover prescription drugs. It discusses various options for containing the cost to the public sector of doing so, including patient cost sharing, formularies and generic substitution rules, and argues that there is a stronger case in favour of demand-side cost sharing for drugs than for physician services and hospital care. It describes existing provincial/territorial pharmacare plans and compares them with the pharmacare system proposed by the National Forum on Health (NFH). In contrast to the NFH proposal, this paper suggests that some degree of patient cost sharing would be desirable in the case of drugs, and also that a system with provisions for opting out (allowing citizens to substitute private insurance for the public plan) should be given serious consideration.

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Introduction

In Canada today, public health insurance covers essentially 100 percent of the cost of physician and acute-care hospital services. In contrast, more than 60 percent of the cost of pharmaceuticals is privately paid for, either directly by patients or through non-government insurance. This fact, together with the increasing proportion of drug costs out of total health care spending, has contributed to reducing the public sector share of total Canadian health care expenditure to less than 70 percent, which is low by international standards. Partly in response to this trend, many voices have called for a more extensive public sector role in paying for drugs. In particular, in its 1997 final report, the National Forum on Health proposed a dramatic restructuring of the existing system, advocating a major federal initiative to integrate pharmaceuticals into the system that currently applies to physician and hospital services.

This paper, commissioned by Health Canada in December 2000, covers various options for a possible federal initiative in the pharmacare area.[1] The objective at this stage is not to recommend any particular new policy or plan, but rather to outline a variety of options and to identify areas where additional research would be useful as a basis for future policy development.

The rest of the paper is organized as follows. Following the brief review of the statistical background, the section discusses the principal arguments in favour of extending Canada's system of publicly funded health insurance to pharmaceutical coverage. The third section considers certain factors relating to cost containment and the efficient utilization of drugs that policy makers should take into account when designing public sector pharmacare plans. There is also a discussion of the distribution of drugs, and of the role of pharmacists in this context.

The fourth section contains a short description of the public sector pharmacare plans that already exist in Canada's provinces and territories, and the tools they contain to promote a cost-effective pattern of drug utilization. The final two sections consider various options for alternative ways of extending public sector coverage, starting with the comprehensive proposal introduced by the National Forum on Health.

Statistical Background

In recent decades, pharmaceuticals have become an increasingly important influence on both the cost and the effectiveness of Canada's health care system. There has been a tremendous growth in the number of available pharmaceutical products; in 1997, there were more than 5,000 prescription products available in the Canadian market. Furthermore, new drugs are increasingly being used for preventative treatment, and as cost-effective and less invasive alternatives to hospitalization and surgery.[2] However, the increased availability of pharmaceuticals has also meant an increase in overall drug expenditures. Since the early 1980s, drug expenditures have been the fastest growing component of total health care spending, increasing an average of about 10 percent annually. Drug expenditures as a proportion of total health expenditures have steadily

increased, from 9.9 percent in 1982 to 15.6 percent in 1998. In the aggregate, Canadians now spend more on drugs than they do on physician services. Drug expenditures are second only to the cost of acute-care hospitals.

The most important component of these rising drug expenditures is spending on prescription medicines, which currently account for some three quarters of total drug spending. In 1997, expenditure on prescription drugs amounted to approximately $8.9 billion, or $296 per person. Provincial/territorial pharmacare, hospital and institutional drug expenditures account for 50 percent of the $8.9 billion. The private sector pays for the other 50 percent (i.e. $4.45 billion). Of the private sector spending, out-of-pocket expenses amount to $1.87 billion (42 percent of $4.45 billion) while the remainder (i.e. $2.58 billion or 58 percent) is attributed to those who have some form of insurance coverage.

Total drug expenditures include not only prescription drugs, but also over-the-counter (OTC) non-prescription drugs and personal health supplies. Almost all OTC spending is from private sources. Consequently, the private sector's share in *total* drug expenditure is higher than it is for prescription medicines: the public and private share of total drug expenditures in 1997 were estimated to be 37 percent and 63 percent respectively.

Paying for Drugs: Role of the Public Sector

Gains from Insurance

In all industrialized countries, a large share of total health expenditures is paid for through some form of insurance. In general, there is a good reason for this. Because major costly illness is relatively rare, the distribution of health care spending by individuals and families is highly skewed, with a small number of cases accounting for a large portion of the total in any given year. Moreover, although it is possible to predict with reasonable precision the number of costly episodes that will occur in a large population, illness strikes randomly, so one cannot tell in advance which families will be affected.

In such a situation, there are substantial economic gains from a system of risk pooling under which everyone in the pool contributes a regular premium, while the minority who suffer a loss receives a payment to help cover the loss. For the group as a whole, the protection against large losses for those who suffer costly illness is more valuable than the cost of the premiums that everyone pays.

Insurance can be set up either through the public sector or through a system of competing private insurance plans. However, in all industrialized countries other than the United States, insurance covering most of hospital and physician services is provided, explicitly or implicitly, through public plans.[3] In Canada, of course, public insurance pays for 100 percent of the cost of covered physician and acute-care hospital services.

The main reason for having public rather than private insurance is the belief that a system of competitive private insurance is likely to produce an outcome that is neither equitable nor particularly efficient. One major drawback of a private insurance system is that it is likely to entail high costs for marketing and administration. For example, it has been estimated that such costs amount to as much as 30 percent of the cost of health care in the United States; the corresponding figure for Canada is only a small fraction of this (Danzon, 1992). However, there are other more fundamental problems as well.

Problems with Private Insurance: Cream Skimming and Adverse Selection

One important problem with private insurance arises when different individuals do not face the same probability of suffering major illness. In this case, it is privately profitable for insurers to spend resources on identifying individuals with low probability of illness, since the cost of paying for the health care of individuals at low risk will be on average lower than for those with a higher probability of falling ill. If low-risk individuals pay the same premiums as those with high risk, the insurers will make larger profits on their contracts with those at low risk. Attempts to attract low-risk clients (or equivalently, to discourage those with high risk of illness from signing up) is often referred to in the literature as cream skimming. Alternatively, when there is

competition in the provision of insurance, those who have been identified as having low risk of illness will be offered insurance at lower premiums; premiums for those at high risk will then rise.

The idea that some individuals should be forced to pay higher insurance premiums because they are at higher risk of illness than others is one that is inconsistent with common notions of equity and fairness, at least in cases when the risk differentials are due to factors (such as genetics) that are beyond the individuals' control. Moreover, cream skimming can be thought of as a form of market failure, because, from society's point of view, the resources spent by insurers to identify those at low risk are wasted.

Another potential problem related to differences in the risk of illness is *adverse selection*. The problem arises when the differences are difficult to ascertain by insurers but are known to the individuals themselves. When, in this situation, individuals face the same premium for a given insurance plan, but have a choice between being insured or not, or between plans with more or less complete coverage, those with low risk will be more likely to remain uninsured or to opt for plans with a low degree of coverage. But then premiums will have to rise for those who choose to remain insured, or who opt for plans with relatively high degrees of coverage, since they are in high-risk groups that are more costly for the insurer to cover. It can be shown that this case, too, implies a potential welfare loss. Again, the idea that those in high-risk groups should have to pay larger premiums even though their high-risk status may be no fault of their own is something that most people would regard as inequitable.

To some extent, the problems of cream skimming and adverse selection can be overcome through group insurance, in which a firm or other organization negotiates collective coverage for *all* its employees or members. Indeed, most Canadians who have private insurance covering the costs of dental care and pharmaceuticals, for example, have this coverage through a group plan. However, for the self-employed or those who are not in the workforce, coverage can be very expensive, or simply unavailable. This presumably is the reason why all provinces have public drug plans that cover certain population groups, such as the elderly and those on social assistance, as discussed in the fourth section on provincial/territorial pharmacare plans. However, a substantial number of Canadians remain without coverage, and the most important argument in favour of some form of universal pharmacare initiative is to ensure that everyone is covered.

Paying for Drugs: Cost Containment

Insurance, Moral Hazard and User Fees

With a few exceptions, such as Canada and the United Kingdom, most countries require patient co-payment for health services used under public insurance. In Canada, in contrast, there are no user fees for physician services, hospital services and drugs used in hospitals. However, most patients pay at least part of the cost of the pharmaceuticals they use outside of hospitals, although their out-of-pocket shares differ depending on whether or not they have insurance, and when they do have insurance, whether they are covered by a public provincial/territorial plan or by a private plan. In part, the support for a universal publicly financed pharmacare plan comes from those who believe that there should be no personal direct cost for health care services.

In health economics, the issue of patient cost sharing is often related to another type of market failure in private insurance. The argument is as follows. When health insurance takes the form of paying the cost of health care when individuals fall ill, this becomes equivalent to a subsidy for the utilization of health care. But standard micro-economic analysis suggests that such a subsidy will cause consumers to use inefficiently large amounts of care, causing a welfare loss to the economy. In the context of health insurance, this is referred to as the moral hazard effect.[4]

In private insurance plans, the most common way to counteract the moral hazard problem is to introduce some degree of patient cost sharing, through deductibles or co-insurance provisions. Because the moral hazard argument applies as much to a government health insurance plan as it does to private insurance, some economists defend patient cost sharing through user fees in public plans as well. Moreover, user fees in a publicly financed plan also have the advantage of reducing the need for government revenue. This is an important consideration when high levels of taxation make government revenue costly; at the margin, the real cost to the economy of financing a dollar's worth of government spending may be as high as $1.40 to a $1.60.[5]

Those who argue in favour of zero user fees adduce several counterarguments. First, they point out that any system of user fees would involve significant administrative costs, which would have to be set against any gains in terms of reduced overutilization or reduced need for government revenue. Second, they argue that for health services such as physician visits or hospital episodes, the tendency toward overutilization with zero user fees may not be very large since both kinds of services involve opportunity costs in terms of patient time and travel as well. Third, they observe that, because utilization of health services is typically undertaken on the advice of physicians, subjecting *patients* to incentives to reduce utilization is unlikely to be effective if doctors continue to recommend the same pattern of utilization.[6] Fourth, there is empirical evidence to show that limited user fees in health care will generally constitute a more significant burden on individuals with low income than on others, so that user fees indirectly represent a redistribution of real income from the poor to the rich.

This paper takes for granted that no user fees will, in the foreseeable future, be introduced for physician and hospital services. Given this, an argument can be made that user fees should be eliminated for out-of-hospital drugs as well, on the grounds that there otherwise exists an incentive for patients to substitute fully subsidized services (physician services and days in hospital) for drugs that are not fully subsidized. As is argued below, however, substitution between pharmaceuticals, on the one hand, and other inputs in the production of health, on the other, is likely to be a less important consideration than the question of *substitutability among different kinds of closely related drugs*. While a pharmacare system with zero user fees on drugs would eliminate the incentive for uninsured or partially insured persons to substitute physician and hospital services for drugs, it would also remove their incentive to make a cost-effective choice among substitutable drugs. For this reason, consideration of a national pharmacare initiative should not be restricted to plans with zero user fees; variants that provide for such fees are discussed later in the paper.

Asymmetric Information, Supplier-induced Demand and Utilization of Drugs

The fundamental activity of the health care sector can be interpreted as that of producing better health for consumers. It does this by combining several kinds of inputs — in particular, physician services, hospital services and pharmaceuticals. A well functioning health care system must ensure that the different inputs into the production of health are combined as efficiently as possible — that is, whatever our target level of population health, it should be produced at the lowest possible resource cost.

The solution to this problem is complicated by the prevalence of asymmetric information between buyers and sellers in health care. Although consumers with health problems are the ultimate beneficiaries, most of them lack the specialized medical information that is necessary to make an informed purchase decision. As a result, they have to rely on information provided either by the sellers, or by the doctors they go to.[7]

The problem caused by asymmetric information has been extensively studied with reference to the market for physician services, with the doctor being both the information provider and the seller. Specifically, many papers have considered the possibility of supplier-induced demand (SID), a concept that refers to the possibility that doctors might exploit their information advantage over patients in order to induce patients to utilize more physician services than they would if they were accurately informed.

It is easy to see that SID may lead to an inefficiently large utilization of physician services if it is in the doctors' interest to engage in it. Moreover, the potential efficiency losses from SID are in addition to the losses from overutilization of medical services that may exist as a result of the moral hazard problem. As has been extensively discussed in the literature, a system in which doctors are paid a fee for their services (giving them an incentive to engage in SID) and in which consumers are covered by conventional insurance, is likely to end up being very costly.[8]

Most of the literature on asymmetric information in health care has focussed on the market for physician services. However, information problems exist in the markets for other inputs in the health production process as well, such as hospital services and pharmaceuticals. As in the case of physician services, the typical user clearly lacks the specialized information to decide whether he or she should be treated in hospital, or what drugs to use to treat a given health problem.

An important difference between physician services and other inputs is that with respect to the latter, consumers do not rely directly on the sellers (hospitals or drug manufacturers) to provide the information they need; typically, they rely on their doctors. Thus the problem of supplier-induced demand does not exist in the same form for these inputs. In particular, doctors paid on the basis of fee for service do not have a direct economic interest in inducing patients to use more hospital services or drugs, since the payments for these inputs go to someone else.[9] To the extent this difference is important, efficiency losses associated with asymmetric information should be less significant for these inputs than for physician services.

For consumers who are insured, the moral hazard effect (that is, the incentive to overuse health care resources) is qualitatively the same for inputs such as hospital services and drugs as it is for physician services. An argument can be made, however, that the opportunities for reducing the tendency toward overutilization through user fees should be better for the former than for the latter. This follows for the same reason as just noted: for inputs other than physician services, reduced utilization as a result of increased user fees does not directly reduce doctors' incomes. Thus, doctors who are concerned both with their patients' welfare and their own income are more likely to recommend a reduction in the utilization of non-physician services than in physician visits when user fees are imposed on patients.

Input Substitution

Changing the incentives for patients and doctors may influence utilization of pharmaceuticals for two reasons. First, it may lead to substitution of pharmaceuticals for other health services, such as surgery, hospital services or both. Second, a reduction in the effective price may lead to substitution among different *kinds* of pharmaceuticals, in cases in which doctors and their patients have a choice between similar but not equally costly drugs that can be used to treat given illness conditions.

The first kind of substitution is important in principle and, historically, technological breakthroughs have sometimes led to very substantial changes in resource utilization as new drugs have made it possible to avoid surgery (for example, in treating stomach ulcers) or institutionalization (for example, in the treatment of many kinds of mental illness). Encouraging this kind of substitution, especially when it leads to lower health care costs, is obviously desirable, and subsidizing patient use of such drugs through insurance coverage is an argument in favour of a pharmacare plan with low user fees.

In the current Canadian system, patients face zero out-of-pocket cost for drugs when they are hospitalized, but most have to pay all or part of the cost of the drugs used outside of hospital. Indirectly, this may lead to a form of input substitution: patients have an incentive to stay in hospital longer than they otherwise would if they require extensive drug therapy. Again, this constitutes an argument in favour of a pharmacare plan with low or zero patient co-payments.

With respect to substitution among different *kinds* of drugs, it is first important to recognize the nature of competition in the market for pharmaceuticals, and how it depends on a country's patent legislation. In general, patents are granted not only on breakthrough drugs that can be used to alleviate previously untreatable conditions, or that produce dramatically improved results in comparison with earlier drugs or therapies. They are also granted on so-called "me-too" versions that may differ from earlier ones in chemical composition or method of administration, but may have similar therapeutic effects for most patients. When a profitable breakthrough drug is successfully introduced by one firm, others quickly try to develop their own slightly improved but closely related version in order to share in the profits. Typically, competition between drugs in therapeutically similar groups is not on the basis of price, but on the basis of aggressive marketing (to both patients and health professionals) that emphasizes the supposed advantages of the new version in terms of such things as slightly different side effects, convenience of administration, or small differences in effectiveness for specific groups of patients. Often the new and improved versions actually sell at higher prices than the original breakthrough drug.[10] When a certain type of drug has been around so long that the patents for one or more versions of it have expired, it is also legal for companies other than the original patent holder to produce generic copies of the drug, which may be sold under a different name in competition with the patented brand name versions.

As a result of this market structure, doctors who treat patients with a given problem are often faced with a choice among several drugs with slightly different properties but similar therapeutic effects for most patients, but that are sold at widely different prices. In such a situation, if patients are fully covered by insurance, neither the patient nor his doctor has any reason to pay attention to the price. From the patient's point of view, the preferred drug is always the best (most recently developed) one, even when it only offers a slight advantage over earlier ones, and no matter what it costs.

Because the market for pharmaceuticals is organized this way, a system of insurance in which patients are fully insured against the cost of any drug and doctors are free to prescribe any drug without restriction is likely to be very expensive indeed. One obvious response is to introduce some kind of cost sharing (user fee) that gives the patient an incentive to pay attention to price. Even if patients rely on their doctors' prescriptions, the fact that the patient has a financial interest in the choice may, indirectly, make doctors give at least *some* consideration to price when prescribing.

Some empirical evidence exists on the effect of patient cost sharing on drug utilization. The Rand Health Insurance Study found that the elasticity of drug expenditure with respect to patient cost sharing was similar to the corresponding elasticity for all kinds of health services utilization, or in the range of –.1 to –.3 (Newhouse et al., 1993). A study by Motheral and Henderson (1999) also considered the effects of differential co-payments for generic and branded drugs as a method of cost containment, and found that considerable savings resulted from substitution of generic for brand name drugs when co-payments for the latter were raised.

Containing Pharmaceutical Costs in Managed Care: Role of Formularies

The lack of financial incentives for doctors and patients when patients are covered by comprehensive conventional insurance indirectly raises the premiums on such insurance. In a competitive insurance market, insurers may try to counteract this tendency by offering alternative policies that reintroduce some degree of cost consciousness. As noted above, this may be done through demand-side cost sharing — that is, requiring patients to pay at least part of the cost of their pharmaceuticals (and other health care costs) via provisions for co-payments, co-insurance and deductibles. (Under a deductible, the patient pays 100 percent of the cost up to a specified limit. The term *co-insurance* typically denotes provisions under which the patient has to pay a fixed share of the cost. *Co-payment* is sometimes used synonymously with *co-insurance*, but is more often used to denote a fixed amount that the patient has to pay. This paper follows this convention.) Alternatively, insurers can attempt to reduce costs by creating managed care plans under which consumers are only covered for the cost of services rendered by providers who have agreed to abide by certain conditions imposed by the insurer. These conditions may include so-called supply-side incentives, under which the incentive to adopt cost-conscious strategies of treatment is given to the doctor or hospital rather than the patient. In the United States, various types of managed-care plans have recently begun replacing conventional insurance at such a rapid rate that some have referred to the process as a revolution in the health care system.

The introduction of managed care and supply-side incentives has profoundly affected the market for pharmaceuticals in the United States, as insurers have required doctors to employ lists of covered drugs (so-called formularies) when prescribing, or shifted to some form of prospective payment to cover the cost of pharmaceuticals. (Under prospective payment, a hospital or group practice receives a fixed amount to cover the cost of treating particular patients or groups of patients; this amount may include the cost of the drugs the patient receives.) There is little doubt that these contractual devices have significantly strengthened the degree to which generic substitutes provide competition for brand name drugs, and it is generally believed that they have increased the importance of price as a determinant of demand when manufacturers introduce patented drugs that are close substitutes for existing brand name drugs.[11]

Although managed care and supply-side incentives are tools that originated in the United States, they have become important in Canada as well. As noted earlier, under our system of hospital funding, drugs used by hospitalized patients are paid for by the hospital out of its global budget. This is a form of supply-side cost sharing, and has given hospitals an incentive to be cost-conscious.

Drug utilization in most Canadian hospitals is now governed by formularies that provide rules for the choice of drugs and thus influence what drugs hospitalized patients are given. These formularies are typically put together by the hospital medical staff, with input from the hospital pharmacist, and are designed with the knowledge that the hospital's drug budget is limited. Similarly (as discussed further below), the provincial/territorial drug plans that cover particular population groups also use lists and formularies to control costs. Some private insurers offering drug plans as part of the fringe benefits of employee groups have been moving toward a form of managed care by directing their beneficiaries to pharmacies that have agreed to a negotiated dispensing fee. Beneficiaries may be free to go to a non-participating pharmacy, but will then have to pay the difference between the maximum fee and the fee actually charged out of their own pocket. Following U.S. terminology, the participating pharmacies are sometimes referred to as a network of preferred providers.

Distribution Costs and the Role of Pharmacists

The total cost of drugs to patients and insurers includes payments to the wholesalers and retailers that distribute them. The most important component of the distribution cost is the retail margin and dispensing fees charged by pharmacists.

Historically, pharmacists were responsible for actually producing many kinds of drugs by combining their basic ingredients. This task obviously requires great skill and care in many cases, and governments gradually became involved in regulating the profession to ensure that anyone performing this task was adequately trained. Even though production of the finished drug has been almost entirely taken over by manufacturers, retailing of pharmaceutical products can still only be legally done by pharmacists — trained professionals with a high level of expertise about the properties and effects of the drugs they dispense. In today's system, this expertise can be seen as complementing that of the prescribing doctor: the pharmacist's role is to provide additional counselling to patients concerning the use of prescription drugs, and to serve as a kind of second opinion to confirm that the drug is appropriate for the patient. Pharmacists are reimbursed through a combination of the retail margin on the drugs they distribute and the dispensing fee; together these items make up a substantial portion of the total cost of drugs.

There is a long-standing controversy about whether this system is efficient or unnecessarily costly. Although a second opinion may be valuable in principle, there is evidence that, in reality, instances of inappropriate prescriptions caught by pharmacists are rare, casting doubt on the cost-effectiveness of requiring one.[12]

Another reason why the current distribution system may be unnecessarily costly is that most patients are unlikely to shop aggressively for low-cost suppliers when filling a prescription. If that is so, retailers do not have a strong incentive to compete with low margins on prescription drugs or low dispensing fees. As before, this tendency is reinforced to the extent that many buyers are covered by conventional insurance that pays for the full cost of prescriptions. When drug retailing is interpreted as a monopolistically competitive industry, relatively weak price competition tends to lead to a system with excessively high service quality and overcapacity.

The nature of competition among retail pharmacies is also influenced by government regulation and professional practices. Perhaps in recognition of the weak incentives for price competition, many provinces regulate the markups that pharmacies are allowed to add to the ingredient cost (that is, what they paid for the drugs they distribute). As in other professions, pharmacists' associations encourage members to follow various codes of professional conduct. Among pharmacists, these include suggestions that pharmacies should refrain from aggressively advertising their dispensing fees (even though provincial/territorial legislation may legally require them to post their fees in the store).

As before, insurers with plans that cover the cost of drug distribution may attempt to reduce the distribution margin with demand-side or supply-side measures. On the demand side, policies exist under which the consumer is responsible for the entire dispensing fee, and thus has an incentive, in principle, to look for pharmacists who charge low fees. As elsewhere in the health sector, however, insurers have recently become more active in trying to control costs by negotiating directly with service providers, not only in the United States but in Canada as well. As noted above, for example, some private drug plans have a list of pharmacists with whom they have negotiated special dispensing fees for their clients' prescriptions, and provincial/territorial drug plans typically limit the allowable dispensing fee. Evidence that drugs can be safely supplied at lower cost than in the current system is also provided by the trend toward more prescriptions being filled by mail order.

One of the most controversial approaches to pharmaceutical cost containment in Canada involves giving pharmacists the authority to supply lower cost substitutes for the drugs actually prescribed by doctors, in certain situations. Under most provincial/territorial drug plans, pharmacists are not only allowed but also encouraged to do so when a generic equivalent exists for a brand name drug and the plan only covers the cost of the generic version (if patients choose the more expensive version, they have to cover the difference out of their own pocket). In British Columbia, the provincial plan gives an incentive to pharmacists to choose the lowest cost alternative from groups of drugs that have been deemed to have equivalent therapeutic properties even though they are not chemically identical to the brand name drug that has been prescribed. Needless to say, the government regulations that define the rules according to which such substitution is allowed are controversial.

Provincial/Territorial Pharmacare Plans

As noted in the introduction, more than 60 percent of the total cost of pharmaceuticals in Canada in the late 1990s was paid for by private sources. Of the 40 percent or so that were paid for out of public funds, part is accounted for by drugs given to patients in hospitals. However, the bulk of public spending is in the form of provincial/territorial government programs that pay for outpatient prescriptions drugs for certain categories of people. This section contains a brief review of the principal features of these programs.[13]

Even though the *Canada Health Act* does not require the provinces to offer coverage of pharmaceuticals (except for patients in hospital), all provinces have plans that pay for the drugs of individuals receiving social assistance, and all but two have plans that cover every individual older than age 65. (The exceptions are New Brunswick and Newfoundland, whose plans only cover senior citizens with income low enough to qualify for the guaranteed income supplement.)

In addition to the plans that cover all senior citizens and social assistance recipients, the western provinces, Ontario and Quebec have at least some type of coverage that is available to all citizens, although in some cases with very high deductible provisions. Among this group, Quebec is unique in that it has a plan under which pharmaceutical insurance is mandatory. However, those who are eligible for private group insurance through their employer do not have to enroll in the public plan (indeed, are not allowed to do so).

Most of the provincial/territorial plans are tax-financed, although there are some exceptions. In Quebec, those insured under the public plan have to pay an annual premium, determined on the basis of net income, that varies from $0 to $350 per adult per year. The premium is collected annually through the provincial/territorial income tax system.

Alberta offers an extended health benefits plan, which includes drugs for those not covered by plans for seniors and social assistance recipients, at a three-month premium of $123 per family. In both cases, premium subsidies apply to those with low income. In Nova Scotia, seniors must pay a premium of $215, while seniors in New Brunswick who do not qualify for low-income coverage have to pay a monthly premium of $58 per person.

Most plans have either deductibles or some type of co-insurance or co-payment provision; several provinces have both. In many cases, deductibles and stop-loss provisions[14] differ by categories of beneficiaries, or are computed according to the beneficiaries' income (e.g. Manitoba, Ontario's Trillium plan). In some cases, the deductibles and co-insurance provisions of the residual plans for people who do not have low incomes are so high that the plan may be best characterized as catastrophe insurance. Thus, the standard deductible in Saskatchewan's residual plan is $850 per six months, and there is a co-insurance provision of 35 percent of the cost of each prescription thereafter. In B.C., the corresponding plan has an annual deductible of $600, followed by co-insurance of 30 percent, with an annual patient payment ceiling of $2,000. The public plan in Quebec has a smaller cost-sharing element: a three-monthly deductible of $25

per adult, and then co-insurance of 25 percent of the prescription cost, up to a total ceiling of $187.50 per three months (lower for those with low income). In the Maritime provinces, there are no deductibles, though some co-payments apply.

In addition to using patient cost sharing as a way of limiting the cost to the government, all provinces also use two other types of restrictions in their insurance plans: lists of products that the plan will pay for, and maximum amounts that will be paid for different items.

Formularies and Reimbursement Restrictions

All the provinces have formularies that, published by the paying agency, list the drugs supplied under various plans. The lists are useful when all drugs subject to subsidization are listed. The lists could include both prescription and non-prescription drugs, as well as medical supplies such as syringes. The criteria for covering new drugs often include a pharmaco-economic element, namely, that the drug must be cost-effective. Some private plans also reimburse only the cost of drugs listed on provincial/territorial formularies. Others simply follow a broad rule, such as reimbursing the costs of all prescribed drugs.

Provincial/territorial drug plans all establish the price that will be reimbursed for each prescription. Various pricing mechanisms exist, including actual acquisition cost, lowest cost alternative, maximum allowable cost, best available price and reference-based pricing. These pricing/reimbursement policies tend to favour generic substitution when generics are available. Generic substitution, also known as phase 1 reference-based pricing, means the maximum price that the provincial/territorial agency will pay for any particular drug is that of the lowest cost and chemically identical product. This applies to drugs for which patent protection has expired, and when the lowest cost product is a generic one. There is mandatory generic substitution in all provinces. As already noted, the province that appears to have gone furthest with respect to reimbursement control is B.C. It has a system of reference pricing based on groups of drugs that have been classified as equivalent from a therapeutic point of view, even though they may not be chemically identical or even related. (This system is sometimes referred to as phase 3 reference-based pricing; see McArthur, 1997). For any drug that is part of such a group, the amount that will be reimbursed is limited to the cost of the least expensive drug in the group.

In addition, provinces stipulate the percentage of pharmacists' dispensing fees that will be reimbursed. Generally, provinces reimburse the pharmacy directly. (Private plans tend to reimburse the beneficiary, but some are moving toward direct payment to the pharmacy. Because of the high cost of administering the various types of pricing/reimbursement policies, private plans tend not to make use of them.)

A Federal Pharmacare Initiative: the National Forum on Health Proposal

This and the following sections discuss possible forms that a national pharmacare initiative could take. Although *pharmacare* is a national initiative, the term is apt to be used by Canadians in the same sense that they use *medicare* to refer to a system of provincial/territorial plans that are subject to certain restrictions defined in the *Canada Health Act*. This section considers the proposal that represents the most radical departure from the existing system of provincial/territorial plans, namely the one advanced by the National Forum on Health (NFH).[15]

With regard to financing, the NFH option is modelled on medicare in that it would require each participating province to have a universal, comprehensive, publicly financed plan. The wording in the *Canada Health Act* with respect to universality is that medicare has to be "universally available to all residents on equal terms and conditions." Universality in this sense clearly rules out financing through premiums that would be risk-related. However, it is not clear whether it should rule out the financing of pharmacare through a system of income-related premiums. At present, Alberta finances its medicare plan through a system of premiums, with subsidies available for individuals with low incomes. It is also not clear whether universality should be defined so as to rule out systems that provide coverage at no premium cost to some individuals (such as seniors and social assistance recipients) while others are charged a premium.

According to the *Canada Health Act*, provincial/territorial medicare plans must also be comprehensive, which is interpreted to mean that they must cover all medically necessary services. As is well known, however, the meaning of this definition is not obvious. In particular, many provinces have recently been involved in disputes with individuals who want access to various types of advanced treatments that are not covered under provincial/territorial plans, either because they are classified as experimental (certain kinds of cancer treatment, for example) or are considered optional rather than medically necessary.[16] Accordingly, one can argue that a pharmacare program can be considered consistent with the comprehensiveness restriction even when it incorporates various restrictions on which drugs are covered, on the basis of some type of formulary or reference-based pricing.

The NFH argues strongly against any form of user fees: under its plan, covered drugs would be available at no charge to patients. This is modelled on the 1984 amendments to the *Canada Health Act* in which the earlier provisions regarding accessibility to insured services were strengthened to rule out any form of user fees for physician or hospital services. For the reasons discussed above, the arguments in favour of some degree of patient cost sharing for pharmaceuticals are stronger than for physician and hospital services (see the next section for information on plans with cost sharing).

Special Issues: Drugs in Hospitals, Formularies and Generic Substitution

As discussed above, drugs used in hospitals are paid for out of the hospitals' global budgets under the current system. As noted above, part of the case for a national initiative was that in-hospital and out-of-hospital drugs should be treated the same way, so this could be taken as a reason to finance in-hospital drugs under the same plan as out-of-hospital drugs.

An advantage of the current system, however, is that hospitals have an incentive to utilize formularies to encourage cost-effective use of drugs for in-patients, along the same lines as a managed care plan would do. To the extent one believes that such plans are efficient, there would be a case for leaving the current system intact. One advantage of doing so would be administrative simplicity.

The question how in-hospital drugs should be financed is related to the broader question of integration between out-patient and in-patient care generally. Regardless of the way in-patient and out-patient drugs are financed, it seems to be an advantage when the principles governing a patient's utilization of drugs while in hospital are similar to those that apply in an out-patient setting. Consequently, an important consideration when a pharmacare plan would be the role that formularies and substitution rule would play in it, and how they would relate to the formularies typically used in hospitals.

Since all existing provincial/territorial plans already use lists and formularies, one would assume that they would want to continue doing so under a national pharmacare plan as well. In the context of a national plan, however, it could be argued that the restrictions imposed on patients through lists and formularies are very much a part of the standard of coverage provided by the plan. If this argument is accepted, there is a *prima facie* case for encouraging some degree of uniformity across provincial/territorial plans in this regard. It is likely that if and when concrete discussions about a pharmacare plan begin, negotiations about this aspect of it may be controversial, with a high degree of stakeholder involvement.

Even if there were to be no formal pharmacare initiative, a more active role for the federal government in coordinating the design and updating of model formularies can be justified on other grounds. At present, there appears to be a considerable degree of duplication in that several provinces have set up groups of experts to decide which drugs are to appear on the lists and formularies that govern their pricing and substitution rules. Although it is reasonable to suppose that each regulatory body tries to stay informed about the decisions of others, there might at least be a role for the federal government in facilitating this information exchange, even when the provinces formally retained their separate bodies. Such an initiative may also be welcomed by the pharmaceutical companies, to the extent that it would effectively reduce the number of regulatory bodies with whom they have to negotiate about the status of a given drug.

Another important policy choice in this context refers to what should happen if patients and doctors select a drug that is more expensive than the cheaper version the plan will pay for. Under many existing plans, this can be done, but when a more expensive drug is chosen, patients pay the difference out of their own pocket.

In principle, acceptance of this approach may be considered inconsistent with the idea that the most equitable and efficient health care system is one funded is through a single payer, and also with the objective of maintaining a single-tier system in which the nature of health care that an individual receives does not depend on his or her ability to pay. One may thus argue that to preserve a single-payer, single-tier system within a universal pharmacare program, the program would only pay for the recommended drug, and persons opting for a more expensive one would be allowed to do so only if they paid the *full* cost themselves. Moreover, one might also argue that strict adherence to the single-payer principle would rule out any role for supplementary private insurance against the cost of pharmaceuticals, whether to pay for the extra cost of more expensive drugs, or to pay the full cost of these drugs when the public program does not pay any part of the cost of a more expensive drug.

The opposing view is that, from the standpoint of public policy, the most significant issue with respect to the cost of health care is the burden on the public sector, not total costs. From this perspective, an increase in total cost that results from voluntary private spending should not be a matter of public concern, as long as private spending does not impinge on the cost and quality of the care offered in the publicly financed system.[17] In addition, allowing a role for supplementary private insurance would have the advantage of allowing individuals who currently have comprehensive private insurance to arrange for equivalent coverage even when the public plan is less comprehensive.

Finding systematic evidence of the implications (for cost and quality of care) of various approaches to the design of formularies, substitution rules and reimbursement limits should be a high priority. Although this paper follows much of the existing literature and discusses alternative plans that differ with respect to financing and extent of population coverage, one should not lose sight of the fact that the rules regarding choice and pricing of drugs may be as important in terms of their influence on the cost to the government as the method of financing and extent of coverage. Another way of saying this is that there is likely to be a trade-off between the public plan's degree of coverage and the rules regarding choice of drugs. With more restrictive rules about choice of drugs, one can obtain more extensive coverage (both with respect to the categories of individuals covered and to user fees in the public plan) at a similar cost to the public sector.

Alternative Pharmacare Designs

Universal Plans with Patient Cost Sharing

At present, most provincial/territorial pharmacare plans, and some private plans, require a significant amount of patient cost sharing (user fees). Creation of a universal pharmacare plan with no cost-sharing implies a tendency toward increased costs to the public sector for two reasons: first, because a universal plan will cover more people than current plans, and second, because existing beneficiaries will no longer pay part of the cost. (In addition, of course, existing beneficiaries' utilization is likely to increase if cost sharing is abolished.) Given this, it seems unlikely that federal-provincial/territorial negotiations about a pharmacare plan will start from a unanimously accepted premise that cost sharing should be zero, even as this principle is now widely accepted with regard to other aspects.[18]

Patient cost sharing can take several forms. With deductibles, patients pay the full cost of the drugs they use, up to a given maximum. Other forms of cost sharing include co-insurance and co-payments. While terminology in the literature varies, the term *co-insurance* is used here to describe plans in which patients pay a percentage of the cost of each prescription (usually subject to a maximum amount per period of time), while the term *co-payment* denotes the practice of the patient paying a fixed fee per prescription.

Although co-payments do reduce the cost of a pharmacare plan to the government and are relatively easy to administer, they do not have some of the potentially beneficial incentive effects of either patient payment of dispensing fees or of co-insurance and deductibles. Since co-payments do not depend on the patient's choice of pharmacy, they do not enhance competition in distribution. Similarly, since they do not vary with the cost of the drugs used, they give no incentives to patients and their doctors to take cost into account when choosing among substitutable drugs. At the same time, fixed co-payments imply an incentive to reduce the number of prescriptions by putting a larger supply of drugs on each one, as well as an incentive for patients to reduce their number of refills. Either type of incentive may have undesirable side effects, either in terms of wasted medication or of reduced effectiveness if it contributes to non-compliance with doctors' recommendations. For this reason, cost-sharing through co-insurance and deductibles should be the preferred option.

Several other issues are also relevant to the design of a system of deductibles and co-insurance payments in pharmacare plans. Three are considered below: the costs of administration, the role of supplementary private insurance, and the possibility of income-related deductibles and co-insurance provisions.

Administration Costs

An important objection against patient cost sharing in health care is that it is costly to administer. However, although the margins that cover administrative and marketing costs in private insurance plans with cost sharing tend to be high, it is the marketing share (irrelevant in a public plan) that accounts for most of it. Furthermore, administration costs in a single universal public plan should be lower than for a system with multiple private insurers because of economies of scale and other factors.[19] It seems likely that a significant part of these costs relate to the design of formularies, pricing restrictions and substitution rules. To the extent that a national pharmacare initiative would involve similar provisions of this kind across provinces, costs could be reduced by avoiding duplication. Routine administration of benefits (for example, checking whether individuals or families had exceeded their deductibles) can be kept down using modern information technology: for example, by linking pharmacies electronically to the provincial/territorial authorities, and by the use of smart cards by beneficiaries. There is considerable experience to learn from in existing provincial/territorial plans. Additional empirical work on administration costs would be very valuable.

Supplementary Insurance

In systems of public insurance with deductibles and co-insurance, an important policy decision concerns the admissibility of private supplementary insurance, which pays the charges that otherwise would be the beneficiary's responsibility.[20] For other types of insurance, it is sometimes argued that supplementary insurance is inefficient. Because supplementary insurance reduces the effective cost to the beneficiaries, it has a tendency to increase the quantity of insured services that they utilize. But this will indirectly increase the costs to the basic insurance plan as well, either because it increases the likelihood that beneficiaries will exceed the deductible of the basic plan, or because part of the cost of the increased utilization is born by the main plan in the first place (when the main plan provides for a co-insurance rate of less than 100 percent).

For a pharmacare plan governed by a system of formularies and maximum price provisions, these considerations may not be particularly significant. In principle, some spillover effects may arise, for example, when supplementary insurance leads to increased wastage (that is, drugs purchased but not used). The main effect of deductibles and co-insurance provisions in a pharmacare plan, however, is not to reduce the *quantity* of drugs that beneficiaries use, but to give patients an incentive to choose less expensive drugs when substitution possibilities exist. When supplementary insurance induces patients to choose more expensive drugs, this does not affect the main plan, since all it pays for is the less expensive version in any case.

Income-related deductibles and co-insurance provisions

From a Canadian perspective, a major disadvantage of a system of uniform deductibles and co-insurance provisions is that these represent a relatively larger burden for low income families. Partly for this reason, several provincial/territorial plans have deductibles and co-insurance provisions that are differentiated by income. The Manitoba plan, for example, has a deductible of three percent of "adjusted family income" for those with income of more than $15,000 per year; similar rules apply in Ontario's Trillium plan. Some degree of income differentiation can also be accomplished by indirect means. For example, deductibles may be set at a lower rate for seniors than for others; since seniors on average have lower incomes than the rest of the population, the effect is indirectly to make those with lower income bear a smaller share of the burden.

A potential disadvantage of a system of income-differentiated cost sharing is that it introduces administrative complications, as information must be collected on beneficiaries' income. Again, however, modern information technology may be used to keep administrative costs down. For example, beneficiaries may be given the option of either paying user fees out of pocket, or temporarily charging the full cost to the plan. Deductible and co-insurance liabilities could then be calculated when the beneficiaries file their income tax returns, and the calculated liabilities could be compared with the amounts that they had already paid in cash during the year. Unpaid balances could then be added to the individual's tax bill, while overpayments would be refunded.[21]

Plans with Opting-out Provisions

The alternative plan designs discussed in the preceding sections are all based on the principle of universality, in the sense that they would cover all citizens of a province. In this section, a potentially less costly (to the government) system of mixed public-private funding based on the principle of allowing opting out is briefly considered. In such a system, the public plan is the default option, but those who so desire are allowed to choose coverage through a government-approved private plan *as an alternative* to the public plan, the emphasis being on the fact that those who opt out are no longer covered by the public plan. Such a system is different from one in which citizens may elect to be covered through a private plan while retaining their coverage through the public plan. In the latter case, the private plan *supplements* the public plan. Under a system that allows opting out, individuals can *substitute* private for public coverage; those who opt out give up their membership in the public plan.[22]

An individual's incentive to opt out in such a system depends on two factors. First, there is typically a financial incentive: those who give up coverage in the public plan are eligible for some kind of premium or tax refund. Second, there may be quality differences between the public and private plans.

Mixed systems with opting out are similar to systems in which the government offers an optional plan in return for a premium. (In Canada, Alberta does this with its pharmacare plan.) However, here this expression refers to a system in which membership in *some* type of government-approved insurance plan is mandatory. Thus, following the reforms of 1996, Quebec can be said to have a pharmacare plan that is based on the principle of opting out. Under current rules, everyone in Quebec must belong to either the public plan or an approved private plan. The question in this section, therefore, is essentially whether there is a case for looking seriously at a national pharmacare initiative that is based on the Quebec approach.

The most critical determinant of the cost to the government of a plan that allows opting out is the financial incentive offered to those who do. To consider this issue, suppose first that the basic public plan is financed through a uniform premium that is high enough to cover the total cost of the benefits paid out by the plan. Suppose further that those who choose to opt out of the public plan and get coverage through an approved private plan are exempt from the premium. In this case, the individuals who opt out are those who are able to get equivalent private coverage at a lower premium, or, more generally, can find a plan with a more attractive combination of premium and quality of coverage than that of the public plan.

The problem with this approach is that it does not resolve the cream skimming and adverse selection problems discussed above. When individuals are subject to different degrees of risk of illness, there will be a tendency for those with a low risk of illness to leave the public plan (since they are more likely to find private coverage at a low premium cost). When this happens, premiums in the public plan will have to rise if the plan is to continue covering the cost of the benefits it pays. The end result may be a system in which only those with a high risk of illness (for example, the elderly and those with a history of major illness) remain in the public plan. But then premiums in the public plan may have to be very high if the plan is to continue to be self-financing. Such an outcome would be considered unacceptable by many, on grounds of equity.

However, pharmacare plans can obviously also be financed out of general government revenue, and the principle of opting out may be used in tax-financed systems as well. When this is done, the incentive to opt out comes in the form of some type of income tax refund for those who elect private coverage. In this case, the adverse consequences for equity of having a large number of people opt out are not as severe, since the burden of financing the public plan for those at high risk is shared among all taxpayers.

By varying the size of the refund, the government can control the incentive to opt out. Note, however, that the smaller the number of individuals that opt out, the larger the share of the total cost that will continue to be born by the government. Thus, if one objective is to improve efficiency by reducing the share of pharmacare costs borne by the government, finding the appropriate incentive for individuals to opt out involves a trade-off between the efficiency and equity objectives. A large incentive is efficient in the sense that it promotes opting out and reduces the need for government revenue,[23] but it is inequitable in that it raises the real income of those with a low risk of illness relative to others.

Note, finally, that the severity of this trade-off can be moderated considerably if it is possible to separate the population into groups with different risks and to differentiate the incentive to opt out according to risk (or, more generally, according to each group's expected premium for private insurance). Thus, for example, incentives to opt out may be made larger for people older than 65, and smaller for those eligible to be covered by employer-sponsored private group insurance.

As the Quebec example suggests, an attractive feature of a system with partial opting is that it can be introduced without a radical restructuring of the system of mixed public-private insurance that exists in most provinces already. All the government needs to do is introduce a mandatory plan that covers those not eligible for other government programs (i.e. in most provinces, those younger than 65 and not in receipt of social assistance). The tax bill for those covered by the new plan would be increased by a premium set at a level sufficiently high so that those covered by existing private group insurance plans would find it attractive to opt out — that is, to stay with their private insurance plans in return for being exempt from the premium. As a result, there would only be a limited impact on the private insurance industry. Furthermore, the impact on those with low income of making insurance mandatory can be reduced by creating a system of income-related premiums for those at the low end of the scale, as Quebec has done.

With partial premium relief for some, and with the tendency of those with the highest risk of illness to gravitate to the public plan, it may not be possible to make the plan self-financing. However, the net impact on the government budget is likely to be limited, and may be considered a small price to pay for ensuring some form of equitable pharmaceutical insurance coverage for the entire population. For all these reasons, the Quebec example should be carefully monitored as the process of formulating a national pharmacare strategy continues.

Conclusion

In a comparison between the approaches to health care funding in the United States and Canada, the Canadian system, with publicly provided insurance covering the cost of physician and hospital services, looks like a clear winner. With the cost of pharmaceuticals becoming an increasingly important component of the aggregate cost of health care, the case for extending the publicly funded insurance system to cover the cost of drugs as well seems more and more compelling.

In response, provincial/territorial governments have already experimented with alternative approaches for doing so. The purpose of this paper has been to identify ways in which the federal government could play a useful role in this process. Although a great deal of additional research and consultation is necessary in order to arrive at concrete policy proposals, this paper may be useful input into the debate.

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Endnotes

1 The term *pharmacare* is currently used to describe various provincial/territorial programs, but it has also been used to refer to a hypothetical new nation-wide system, by, among others, the National Forum on Health.

2 For example, *cimetidine* and other H2 antagonists have virtually eliminated the need for ulcer surgery, and the introduction of new anti-psychotic drugs has reduced the need for institutionalization of persons with a mental illness.

3 With government financing, the premiums that would be payable under private insurance may be replaced either by specific "earmarked" taxes (for example, payroll taxes as in Germany) or (when financing is out of general revenue) by higher taxes generally.

4 Some economists prefer to reserve the term *moral hazard* for cases in which insurance changes individuals' behaviour in such a way that it influences their risk of illness, rather than their consumption of health services once they are ill. However, most texts now use the term to refer to the latter effect as well.

5 The excess burden arises because of the distortions of economic behaviour created by taxation. Recent estimates of the marginal excess burden are provided by Dahlby (1994). For the case of revenue raised through federal or provincial/territorial income tax increases, he finds values in the range of 40 to 60 percent of the additional revenue.

6 This argument has been made most forcefully by Robert Evans and his co-workers. For an early discussion that has been very influential in Canada, see Barer, Evans and Stoddart (1979).

7 Indeed, most consumers probably do not think of themselves as the actual decision makers when it comes to deciding what health services or drugs to use in the context of a given illness episode. Rather, they regard the doctor as the effective decision maker.

8 For a discussion of the concept of SID, see any textbook in health economics; for example, chapter 8 of Folland, Goodman and Stano (1997). Robert Evans made a number of important early contributions to the literature on SID; see, for example, Evans (1974).

9 It is interesting in this context to consider the case of Japan, where doctors in ambulatory care are not allowed to "follow their patients into the hospital" (that is, once their patients are admitted to hospital, they are treated by other doctors). Perhaps not coincidentally, Japan has one of the lowest rates of hospitalization in the world. On this point, see Phelps (1997), chapter 17. For an interesting discussion of Japan's health care system, see Campbell and Ikegami (1998).

10 For a discussion of the distinction between truly innovative breakthrough drugs, and "me-too" drugs, see Morgan (1997).

11 A number of studies have shown that the retail prices of many brand name drugs are considerably higher in the United States than in Canada (see, for example, Graham (2000)). However, these studies are generally based on retail prices charged in pharmacies, and do not reflect any discounts that managed-care organizations are able to get when they buy drugs directly from manufacturers.

12 On this issue, see the discussion in Morgan (1997) and the studies cited there.

13 A succinct description of the structure of the provincial/territorial plans is available in Palmer D'Angelo (1997). Most provinces also have special provisions for people with particular types of illness; those are not discussed here (for details, see McArthur (1997)).

14 Under a stop-loss provision, a maximum amount is set on the amount that a family or individual may be required to pay under co-insurance provisions during each given time period.

15 National Forum on Health (1997). The Forum's report only sketched the general nature of a plan; the discussion here is based on what the Forum said, but goes beyond the report in some of the details.

16 In the summer of 2000, an article in *The Globe and Mail* described a case in which a legal action was started by a New Brunswick couple seeking reimbursement from the province for expenses associated with their attempts to conceive through in vitro fertilization.

17 Those opposing a mixed system contend that, in practice, the latter premise doesn't hold. Allowing private financing for those who prefer it will, in their view, either raise the cost or reduce the quality of the care offered in the public system. Convincing evidence to support this contention is not readily available. Moreover, although it may be plausible for health services inputs such as hospital facilities and physician services, the specific deliverer of which (hospital or physician) may vary in quality, it is unlikely to be significant for pharmaceuticals.

18 The effect of user fees on pharmaceuticals is qualitatively different than it is on the markets for physician or hospital services, for two reasons. First, as already discussed, the tendency for the cost-reducing effect of user fees to be blunted by supplier-induced demand should be less for pharmaceuticals than in the market for physician services, since doctors' incomes are not enhanced when patients spend more on drugs. Second, in comparison with total hospital expenditures, a relatively larger proportion of the total cost of drugs is accounted for by a large number of individuals who each spend a relatively small amount per year. Thus, charges on all users of drugs can potentially generate a relatively large amount of revenue without significantly reducing the ability of the system to protect the few individuals that face large expenditures from financial hardship.

19 Palmer D'Angelo Consulting (1997), pp. 20–1, provides some estimates of administrative costs for public pharmaceutical insurance, based on surveys of provincial/territorial plans.

20 In the United States, most of those covered by Medicare have so-called Medigap policies that cover the cost of the co-payments required by Medicare. For a theoretical analysis of this issue, see Blomqvist and Johansson (1996).

21 Proposals for a system of income-related user fees integrated into the income tax system date back to at least the mid-1970s. See Reuber (1980).

22 Some European countries (for example, Germany and Holland) allow at least some population groups to opt out of their publicly funded health insurance systems. See, for example, Kirkman-Liff (1994).

23 As noted earlier, each dollar of government revenue is likely to have a true economic cost in excess of one dollar because of the excess burden of taxation.