The Economic Case for **Universal Pharmacare**

Costs and Benefits of Publicly Funded Drug Coverage for all Canadians

By **Marc-André Gagnon**
with the assistance of **Guillaume Hébert**

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The views expressed in this report are those of the authors alone and do not necessarily reflect those of the people and groups mentioned above.

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Abbreviations

CCPA Canadian Centre for Policy Alternatives

CGPA Canadian Generic Pharmaceutical Association

CDR Common Drug Review

CEPS Comité Économique des Produits de Santé [Economic Committee for Health Care Products] (France)

CIA Canadian Institute of Actuaries

CIHI Canadian Institute for Health Information

CMAJ Canadian Medical Association Journal

CNAM Caisse nationale d'assurance-médicaments [National Workers' Health Insurance Fund] (France)

CSN Confédération des syndicats nationaux [Confederation of Quebec Unions]

EFPIA European Federation of Pharmaceutical Industries and Associations

INESSS Institut national d'excellence en santé et services sociaux [National Institute of Excellence in Health and Social Services]

LFN Läkemedelsförmånsnämnden (Sweden)

MDEIE Ministère du Développement économique, de l'Innovation et de l'Exportation [Department of Economic Development, Innovation and Export Trade] (Quebec)

NHS National Health Service (United Kingdom)

NICE National Institute for Health and Clinical Excellence (United Kingdom)

NPS National Pharmaceuticals Strategy

ODB Ontario Drug Benefit

OECD Organisation for Economic Co-operation and Development

PBAC Pharmaceutical Benefit Advisor Committee (Australia)

PBS Pharmaceutical Benefit Scheme (Australia)

PHARMAC Pharmaceutical Management Agency (New Zealand)

PMPRB Patented Medicine Prices Review Board

PPRI Pharmaceutical Pricing and Reimbursement Information

PTAC Pharmacology and Therapeutics Advisory Committee (New Zealand)

RAMQ Régie de l'assurance maladie du Québec [Quebec Health Insurance Plan]

RGAM Régime général d'assurance médicaments [Quebec Pharmacare Program]

R&D research and development

Rx prescription

Rx&D Canada's Research-Based Pharmaceutical Companies

TDSPA Transparent Drug System for Patients Act

TFR tarifs forfaitaires de responsabilité [drug reference prices]

TI Therapeutics Initiative

UNCAM Union nationale des Organismes d'assurance maladie complémentaires [National Union of Complementary Health Insurance Agencies]

VAT value added tax

Executive summary

A public drug insurance plan should form an integral part of a country's pharmaceutical policies. The plan must tie together social programs designed to provide a minimum of well-being for all citizens, health policies designed to optimize public health, industrial policies aimed at attracting foreign investment, intellectual property policies, and tax policies designed to ensure greater fairness in redistributing wealth.

A drug insurance plan that includes a drug assessment process can also help distinguish between drug products in order to ensure the quality, safety, and cost-effectiveness of prescription drugs. A drug insurance plan is not only a way to compensate for or reimburse drug expenses, but also a way to control costs through efficient pharmaco-economic assessment of new drugs and by developing bargaining power when dealing with powerful transnational drug companies.

The complexity of these various aspects of Pharmacare must be considered in order to determine the best drug insurance plan to meet the common goals of a community.

As far back as 1964, the Royal Commission on Health Services recommended that a universal drug insurance plan be established for all Canadians. The National Health Forum, under Jean Chrétien in 1997, recommended universal drug coverage. The Romanow Commission in 2002 recommended catastrophic drug coverage as a first step towards universal Pharmacare. But the National Pharmaceuticals Strategy, implemented since 2004, has failed to achieve even catastrophic drug coverage for all Canadians.

The lack of political enthusiasm for Pharmacare can mainly be explained by fears of the escalating costs such a plan is expected to entail. But this argument, which also predominates in the media, is completely lacking in substance.

The sound economic analysis included in this report shows that the rational implementation of universal Pharmacare, with first-dollar coverage for all prescription drugs, would not only make access to medicines more equitable in Canada and improve health outcomes, but also generate savings for all Canadians of up to $10.7 billion in prescription drugs. Canadians cannot afford not to have universal Pharmacare.

Understanding the failures of current Canadian pharmaceutical policies

Inequitable access to drug treatments

Canada spent $25.1 billion on prescription drugs in 2008. The cost of drugs has risen at more than 10% per year since 1985, and represents a major element in the increase of total health expenditures. To reduce the burden on public finances, access to private insurance (though more costly to individuals) has also risen. So have deductibles and co-payments in government plans, coupled with a constant increase in the share of out-of-pocket expenditures for prescription drugs.

Only 45% of total drug expenditures come from public spending, which is very low compared to other OECD countries. Canada is second among OECD countries, behind the United States, in the participation of private insurers in drug expenditures.

According to a survey by Statistics Canada, 24% of Canadians have no drug coverage, and 8% of Canadians admit they did not fill a prescription in the last 12 months due to the costs of drugs. Citizens with inadequate drug coverage are mostly unemployed or self-employed workers. This lack of coverage for drugs prevents many Canadians from receiving the quality of health care they need. For example, after myocardial infarction, free medications would increase a patient's life by one year, on average.

The current system has become a jumbled assortment of public and private plans in which individual coverage is no longer based on patients' needs, but subject to where people live and work, as well as on each person's and family's financial means.

Private Insurance inefficient

Private insurance is an expensive solution, given the inefficiency of private drug insurance plans compared to public plans. The vast majority of private drug plans are provided by employers, covering about 16 million Canadians, about half the population. The premiums for such plans soared by 15% annually between 2003 and 2005, while drug costs rose 8% a year.

The reason for the steep rise in premiums is simple: most of the private drug plans are managed by insurance companies which are usually compensated in the form of a percentage of expenditures. As a result, their financial incentive is not to try to stem the growing costs, but to increase them. Also, private drug plans' formularies welcome all new expensive drugs even if they are no more beneficial to patients than cheaper existing drugs.

Private insurance is clearly less efficient in terms of administrative costs. The administrative fees for public plans in Ontario and Quebec were estimated at 2%, whereas they were 8% for private plans. In total health spending, Canada's public program had administrative costs of 1.3% compared to costs of 13.2% for private plans. We can conservatively infer that at least 6% of costs for drug insurance coverage could be saved if this coverage were provided by a universal Pharmacare program, which would have resulted in savings of $560 million per year.

Private insurance plans receive tax subsidies on the order of 10% of their expenditures. Every year, about $933 million in tax subsidies could be recovered through a universal Pharmacare program.

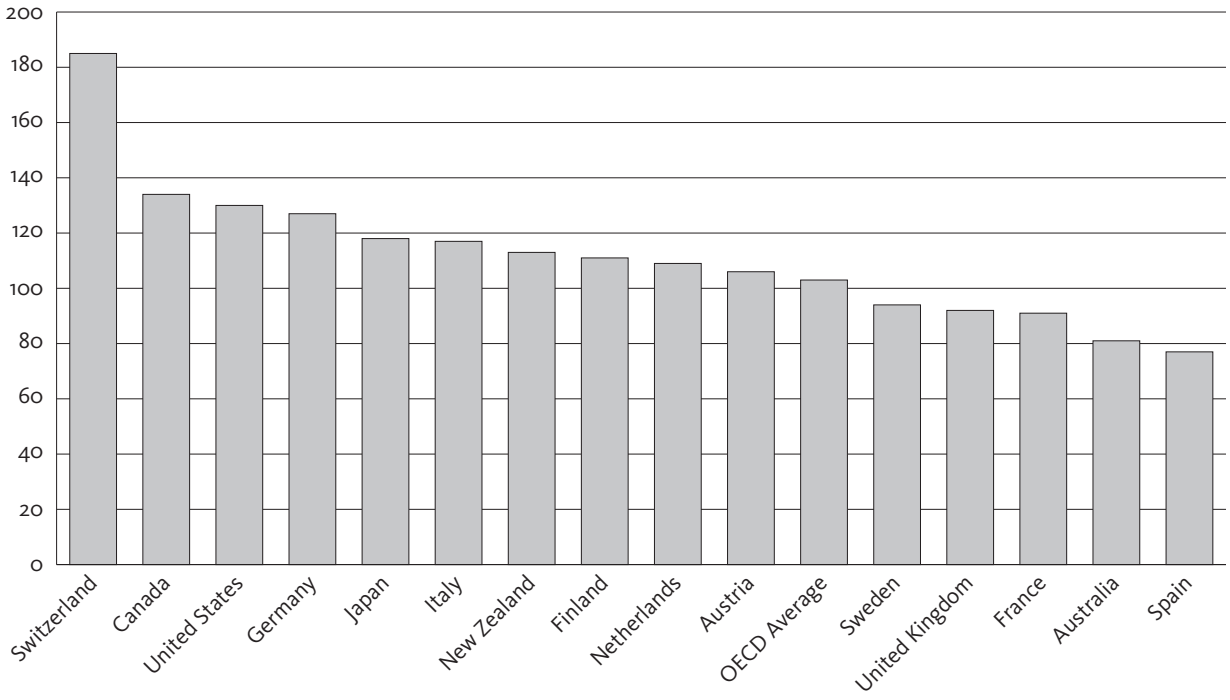
Private drug insurance plans also pay more for drugs than public plans, especially in the case of generics, because of the public plans' superior bargaining power. The private plans usually pay 7% more for generic drugs and 10% more for non-patented brand-name drugs. Private drug plans normally reimburse for any type of drug without making any pharmaco-economic assessment of cost-efficiency.

Expensive drugs and rising costs

The result is that Canada has among the highest detail prices for prescription drugs among

FIGURE A **Detail prices for the same volume of medicines in OECD countries, 2005 (US$, Market exchange rate, including branded and generics)**

Detail Prices = Ex-manufacturer price + wholesaler markup + pharmacy markup + Prescription fees + tax



SOURCE OECD 2008 - Eurostat OECD PPP Program, 2007

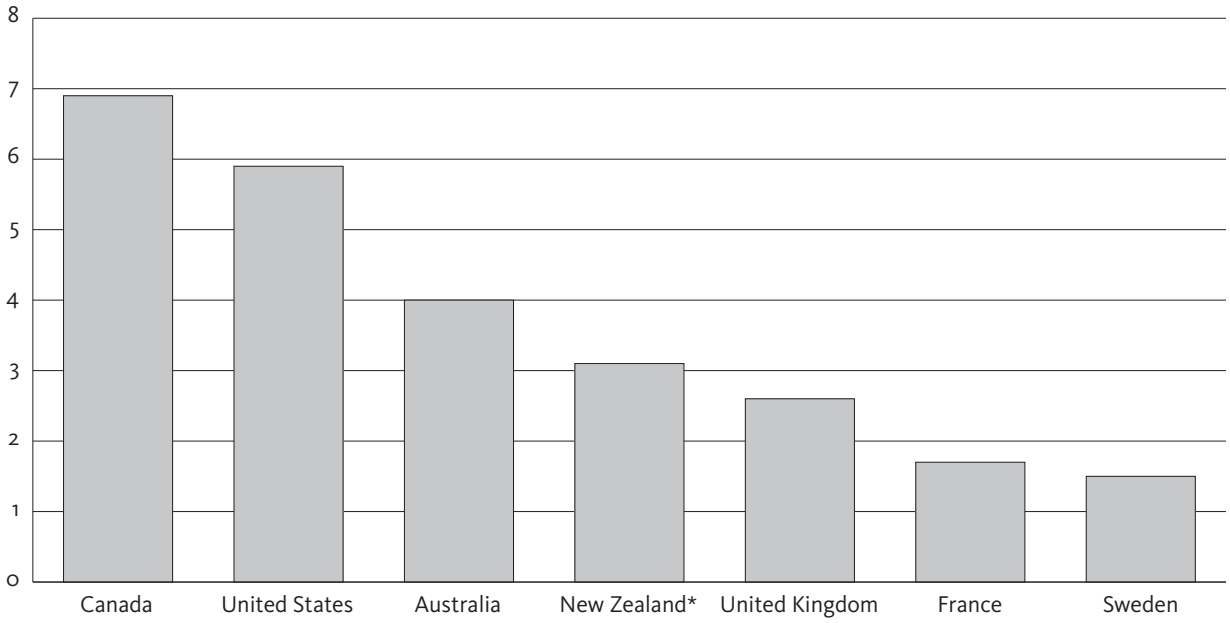
OECD countries, and Canadians pay 30% more than the OECD average.

Switzerland, like Canada, pays high prices to support its national pharmaceutical industry. The burden is not problematic for Swiss citizens since 94% of drug costs are paid by public spending as compared to 45% in Canada. Switzerland benefits from huge spin-offs from the industry: the ratio of pharmaceutical R&D on sales is 113%, but only 7.5% in Canada, according to the 2009 annual report of the Patented Medicine Prices Review Board (PMPRB).

Not only detail prices are excessively high in Canada. The rate of growth in prescription drug costs is also far higher in Canada than elsewhere. Note that Australia, New Zealand, United Kingdom, France, and Sweden have lower costs and lower growth of these costs, and all have some form of universal public drug coverage. These countries show not only the feasibility, but also the sustainability and much greater effectiveness of a universal Pharmacare program. Economic comparisons show how the universal Pharmacare programs in other countries are by far more advantageous in terms of costs than is the current hodgepodge of private/public drug insurance plans in Canada.

Canada's pharmaceutical policies are a total failure. Many Canadians do not have equitable access to medicines, and the lack of coverage makes some treatments inefficient due to lack of compliance. The whole system is unsustainable because we cannot control the growth of drug costs.

FIGURE B **Real annual growth in prescription drug costs, from 2001 to 2007 (%)**



* Average based on available data, 2004 to 2007.
SOURCE OECD Health Data 2009; OECD Main Economic Indicators; NHS Information Centre 2009

Rigorous drug assessment needed

In order to improve the quality of medical practice and curb undue costs from the promotion of costly drugs with limited or no therapeutic benefits, a universal Pharmacare plan will have to adopt a strong and pro-active pharmacoeconomic drug assessment program. This will be needed not only to determine which drug will be put on the formularies, but also to adapt clinical guidelines in order to further instill a culture of evidence-based medicine among physicians.

This will not be readily achievable. In the United States, drug companies spend an estimated $61,000 per physician on promotion, and we can assume that the Canadian firms spend a proportional amount.

A rigorous drug assessment process would provide a strong financial incentive for the pharmaceutical industry to produce more truly innovative drugs. Currently, the incentive is to develop imitations of existing medicines that generate more sales because of the effectiveness of promotional campaigns rather than the effectiveness of the drugs themselves.

Such a drug assessment process, in conjunction with a universal Pharmacare plan, would be at least as efficient as the system that already exists in British Columbia, and would thus save Canadians at least 8% of total prescription drug costs — a saving of $2 billion a year.

Rethinking pricing policies for prescription drugs

In Canada, the prices of brand-name drugs are normally capped at the median price of seven comparator countries. The problem is that these seven comparator countries include the four countries with the most expensive brand-name prices (United States, Switzerland, Sweden, and Germany). Every year, Canada is thus automatically the fourth or third most expensive country in terms of brand-name drugs. By taking a more rational approach to choosing the comparator countries used by the Patented Medicine Prices

Review Board (PMPRB) for determining the price of patented drugs, by sliding from the fourth to the seventh most expensive country in the world, Canadians could save another $1.43 billion.

A universal Pharmacare program would also help coordinate public programs to address the unethical rebate system for pharmacists. By setting up a supply system such as the hospitals have, a universal Pharmacare program could save at least $1.31 billion per year on the cost of generic drugs — and without reducing the profits of generic manufacturers. Ontario has moved to eliminate the system of kickbacks, but, without national coordination, it is not clear if the savings in Ontario will translate into overall savings throughout Canada.

If Canada chooses to get rid of industrial policies that artificially inflates drug costs in order to implement competitive purchasing (in the same way that New Zealand does, for example), Canadians could save more than $10 billion on the cost of their prescription drugs.

A universal public plan would make it possible to realize these substantial savings in an efficient, fair, and transparent manner.

Summary of the economic analysis

Methods of the Economic Analysis

To analyze possible costs and benefits, our report used IMS data provided by the Rx Atlas to identify the main cost drivers for per capita expenditures in prescription drugs. The report then analyzed the differentials between provinces after controlling for age disparity, in order to use the best data available to analyze discrepancies and identify best practices.

We analyzed the volume effects determined by the number of prescription and their size; the therapeutic choice effects; and the price effects by comparing the prices of the same product and comparing the proportion of prescriptions dispensed as generics.

While most costs and savings were calculated this way, other savings were calculated by comparing private and public drug plans, and finally by comparing prices between Canada and other countries.

Future scenarios for Canada

We take it for granted that the objectives of access to medicines and their safety are non-negotiable. But for cost control, we look at four scenarios for implementing a universal Pharmacare program in Canada. They vary in their compromise between the objectives of cost reduction and industrial policy. All scenarios estimated that universal Pharmacare with first-dollar coverage would increase consumption by 10%, which is a generous estimate based on existing available data.

Scenario 1

Universal Pharmacare with the same industrial policies linked to drug costs

If a universal Pharmacare plan had to be established with the current industrial policies which are favourable to the pharmaceutical industry, the new plan would still lead to substantial savings. Such a plan would result in savings of $1,454 million in prescription drug costs alone, a reduction of 6%. Additional savings of $1,493 million would come from eliminating the extra administrative costs of private drug insurance plans and by eliminating the tax subsidies these plans receive.

Net cost reductions: $2.95 billion (11.7% of total costs).

Scenario 2

Universal Pharmacare with industrial policies linked to drug costs which have been revised to be in line with those of other OECD countries

This scenario would lead to more significant savings, since Canada would slide from the third or fourth most expensive country in the world for brand-name drugs to sixth. Around 12%, or $3

billion, could be saved on the cost of prescription drugs, and the savings of $1,493 million in Scenario 1 would be maintained.

Net cost reductions: $4.47 billion (17.8% of total costs).

Scenario 3

Universal Pharmacare with stronger industrial policies artificially inflating drug costs

This scenario would be to strengthen industrial policies linked to the costs of patented drugs in order to more effectively promote the pharmaceutical industry based in Canada. In this regard, we consider the possibility of the PMPRB setting patented drug prices, not by way of the median in the several comparator countries now used, but by the median in the three countries with the highest patented drug prices in the world: the United States, Germany, and Switzerland. The median of the ratio of foreign prices to Canadian prices for these three countries is 102%.

By strengthening its industrial policy in this way, Canada could ensure that it consistently aims for second place internationally in terms of ex-manufacturer prices of patented drugs, rather than fourth place, which is now the case. The PMPRB would then raise the prices of brand-name drugs by 2%. Since sales of brand-name drugs at ex-manufacturer prices were $13 billion in 2008, this would mean an additional cost of $260 million.

Net cost reductions: $2.67 billion (10.6% of total costs).

Scenario 4

Universal Pharmacare with cancellation of the industrial policies artificially inflating drug costs

The fourth scenario is based on drug purchasing policies that maximize cost reductions for prescription drugs, the way it is done, for example, in New Zealand. Using systematic tendering and reference-pricing, Canada could save $10.2 billion on drug prices for brand-name medicines and generics. Maintaining other savings and considering the increase of consumption, additional savings of $540 million could be obtained.

Net cost reductions: $10.7 billion (42.8% of total costs).

Should we maintain industrial policies that artificially increase drug costs?

Our report shows that increasing the revenues of bio-pharmaceutical companies through policies geared toward facilitating higher prices are completely ineffective, for two main reasons.

First, such policies are inequitable on a provincial scale, since 94% of venture capital in this sector is concentrated in Ontario, Quebec, and British Columbia. The other provinces receive virtually no spin-off benefits from the pharmaceutical sector, even though their citizens pay the same high drug prices.

Secondly, although Canada deliberately sets its drug prices high to encourage research and development on Canadian soil, total R&D spending by the industry is $1.31 billion, 59% of which consists of tax subsidies. The PMPRB's policy has therefore been a complete failure, since it leads Canadians to spend $1,530 million more than the average prices of brand-name drugs in OECD countries in order to generate $537 million in R&D spending. Canada would benefit greatly from using this money instead to encourage pharmaceutical R&D by funding new types of incentives — for example through public spending in pharmaceutical research or the implementation of a prize-system for innovation. It may be reasonable to maintain alternative industrial policies for this sector, but artificially increasing drug costs is extremely costly and fails to foster pharmaceutical innovation in Canada.

Conclusion

A universal drug plan providing first-dollar coverage, established alongside a rigorous drug as-

sessment process, would not only ensure greater fairness in accessing medication and improve drug safety, but would also help contain the inflationary costs of drugs, regardless of the industrial policy Canada may choose.

Even though our report clearly shows that industrial policies aiming to artificially increase drug costs are totally ineffective in generating proportionate pharmaceutical spinoffs, our purpose is simply to demonstrate the economic inefficiency of the current drug insurance program.

A comparison of Canada with other OECD countries reveals that Canada can be considered an inefficient model in terms of drug policy: 1) we spend more per capita on drugs, the costs of which are growing faster than elsewhere; 2) our public plans are inequitable because they do not provide adequate or suitable coverage to a large number of Canadians; and 3) the meager industrial benefits in the pharmaceutical sector are totally out of proportion with the money given by Canadians in various privileges and subsidies to the industry.

By comparing the various provincial drug plans, we identified the problems with the status quo and were able to calculate the savings that could be achieved through a publicly-funded universal drug plan providing first-dollar coverage. Canadians could save between 10% and 42% of total drug expenditures, depending on the choice of industrial policies related to drug costs.

The main argument that is typically made against the establishment of universal Pharmacare is economic in nature. This report shows that the economic argument in favour of such a program is loud and clear, *regardless of which industrial policy is subsequently considered.*

Admittedly, establishing a national, universal drug plan providing first-dollar coverage is not a simple matter. Government funding, even when lower than comparable private spending, is often very difficult to justify publicly. A national Pharmacare program will have to find a balanced approach to ensure coherence across the country while respecting provincial health jurisdictions. But these are not insurmountable obstacles. Quite the contrary. A clear policy backed by real political will would give all Canadians equal access to the best drug treatments available, while generating substantial savings over the existing plans.

The analysis in this report shows that the only hindrance to establishing a fair, effective drug insurance program is political apathy, not economic cost restraints.

Introduction

As far back as 1964, the Royal Commission on Health Services (Hall Commission) recommended that a universal drug insurance plan be established for all Canadians. In spite of repeated election promises by the federal parties during subsequent decades, and contrary to the conclusions of the National Forum on Health (1997) in favour of a universal drug insurance plan, it has never come to fruition in Canada. In its final report, entitled *Building on Values: The Future of Health Care in Canada* (2002), the Commission on the Future of Health Care in Canada (Romanow Commission) injected new life into the proposal for Canada-wide Pharmacare; however, it gave up on the idea of a universal plan providing first-dollar coverage. Instead, the Commission suggested establishing a Canadian plan solely for catastrophic coverage by offering assistance to those spending over $1,500 a year on medications.

To follow through on the Romanow Commission recommendations, the provincial premiers and the federal government agreed in 2004 on *A 10-Year Plan to Strengthen Health Care*, including the implementation of a *National Pharmaceuticals Strategy*[1] (NPS). Since then, the strategy has been aimed at providing catastrophic coverage to address the recommendations of the Romanow Commission. While the NPS (2006) also recommended that a national drug pricing and purchasing system be established, which would have benefited a national drug insurance plan, this option was abandoned in September 2008 because it was deemed to be unrealistic (Health Council of Canada 2009a: p.15). In fact, most elements of the NPS were dropped, one by one, thereby shelving a national drug insurance plan, even for catastrophic coverage.

The lack of political enthusiasm for a national drug plan, universal or not, can first and foremost be explained by the fears of the escalating costs such coverage would entail. For example, the Canadian Institute of Actuaries (CIA 2002) claimed that providing 100% coverage for all Canadians would simply be fiscally irresponsible. In the opinion of many, proper drug plan management should instead rely on user fees or cost-sharing mechanisms to allow for sufficient access to care, while keeping the financial burden on individuals and the public to a minimum. It is almost commonplace these days for the media to say that drug insurance would be economi-

cally impossible because of the exorbitant cost to public finances (Simpson 2009).

However, this argument of a universal drug plan for Canada being economically impossible still lacks substance. It is simply taken for granted that such universal drug insurance would cost too much, given the annual rise in drug costs. However, few studies have thoroughly explored the costs and benefits of such a plan, and the arguments used for or against universal Pharmacare stem largely from the ideological position of the authors, rather than the facts. The rare serious studies on this matter show, on the contrary, that a full public drug plan would ultimately have a very limited impact on total drug expenditure (Gagnon 1995; Palmer d'Angelo Consulting 1997; 2002), or that it would even allow for savings on the order of 10% (Lexchin 2001). However, these studies did not consider the entire institutional environment within which such a plan would be structured, nor the potential economic consequences stemming from it, whether beneficial or not.

A public drug insurance plan forms an integral part of a country's pharmaceutical policies. The plan must tie together social policies designed to provide a minimum of well-being for all citizens, health policies designed to optimize public health, industrial policies aimed at attracting foreign investment, intellectual property policies, as well as tax policies designed to ensure greater fairness in redistributing wealth. A drug insurance plan is not only a way to compensate for or reimburse drug expenses, but also a way to control costs for buyers by giving them monopsony bargaining power when dealing with powerful transnational pharmaceutical companies. In fact, a drug insurance plan that includes a drug assessment process can also help distinguish between drug products in order to ensure the quality, safety, and cost-effectiveness of prescription drugs. The complexity of these various aspects of Pharmacare must be considered in order to determine the best drug insurance plan to meet the common goals of a community.

In order to address community needs, a drug insurance plan must be based on different "constituent" goals. Three constituent goals provide direction for all analyses in this report:

1. Equity and access: Ensure universal and equitable access for all.
2. Drug safety: Improve the safety and appropriate use of drugs.
3. Cost control: Ensure the cost of drugs is sustainable for public finances.

However, a country or a province may also resort to a drug insurance plan to pursue other objectives such as pharmaceutical innovation, attracting investment, or creating jobs in the pharmaceutical sector by establishing favourable industrial policies. These objectives may complement or contradict each other, but they must also be considered in the current debate.

Report outline

In this report, we will demonstrate that a public and universal drug insurance plan covering all prescription drug costs, based on first-dollar coverage, is economically possible and socially desirable in terms of equity and drug safety. We will also demonstrate that, in an appropriate institutional environment, it would be the most economically efficient drug insurance plan for the country's citizens.

To do so, we will present our arguments in four stages. First, we will discuss the challenges of current drug insurance plans in Canada and identify their main weaknesses in terms of inequity and inefficiency (Chapter 1). Second, we will compare the various types of provincial public drug plans in Canada and the applicable institutional and political environment within which they function. Through this comparison, we will identify policies and best practices in connection with the three constituent objectives stated above: equity and access, drug safety, and cost control (Chapter 2).

Third, we will compare universal Pharmacare programs in other countries to evaluate what features would work best in Canada. We will present the pros and cons of drug insurance plans in the United Kingdom, France, Australia, New Zealand, and Sweden. A cost-benefit analysis of the various types of plans will provide a clearer picture of what the best drug insurance plan for Canada would be, in terms of cost, safety, and access (Chapter 3).

Finally, we will conduct a more in-depth analysis of the economic impacts of establishing a universal drug insurance plan covering all prescription drug costs in Canada. These impacts will be analyzed through four scenarios that include the various possible interconnections between cost-saving objectives and increased biopharmaceutical investments (Chapter 4). By analyzing the scenarios, we can assess whether it would be effective to use a public drug insurance plan to fulfill industrial policies targeting innovation, or attracting investment and creating jobs in the pharmaceutical sector. If these objectives *per se* are valid, we must then determine whether drug insurance plans are an effective instrument to reach them.

CHAPTER 1

The challenges of publicly funded drug plans in Canada

Canada spent $25.1 billion on prescription drugs in 2008 (CIHI 2009). Ontario, Quebec, British Columbia, and Alberta alone accounted for 86% of prescription drug spending.

The main obstacle to implementing a universal Pharmacare program in Canada is economic in nature. The cost of drugs has risen at a furious pace, and publicly funded universal plans are usually considered unsustainable for taxpayers. In order to reduce the burden on public finances, access to private insurance, although more costly to the individual, is on the rise. Deductibles and co-payments in government plans are also increasing, coupled with the constant rise in the share of out-of-pocket expenditures for prescription drugs. This creates unfair conditions for a growing number of Canadians. The current system has become a jumbled assortment of public and private plans where individual coverage is no longer based on patients' needs, but subject to where people live and work, as well as the financial means of the individual.

This chapter will address the rise in drug costs in Canada, the inefficiency of private plans, and the inequity and wide diversity of drug insurance plans across the country.

1.1 Growth in drug costs

The steep increase in drug costs leads to the perception that a Pharmacare program would eventually place an untenable burden on public finances. According to the Canadian Institute for Health Information (CIHI), drug costs in Canada increased on average by 10.5% a year between 1985 and 2008.

For most provinces, drugs represented a much higher share of total health expenditure in 2008 than in 1985. On average in Canada, spending on drugs represented 9.5% of total health expenditure in 1985 and 17.4% in 2008.

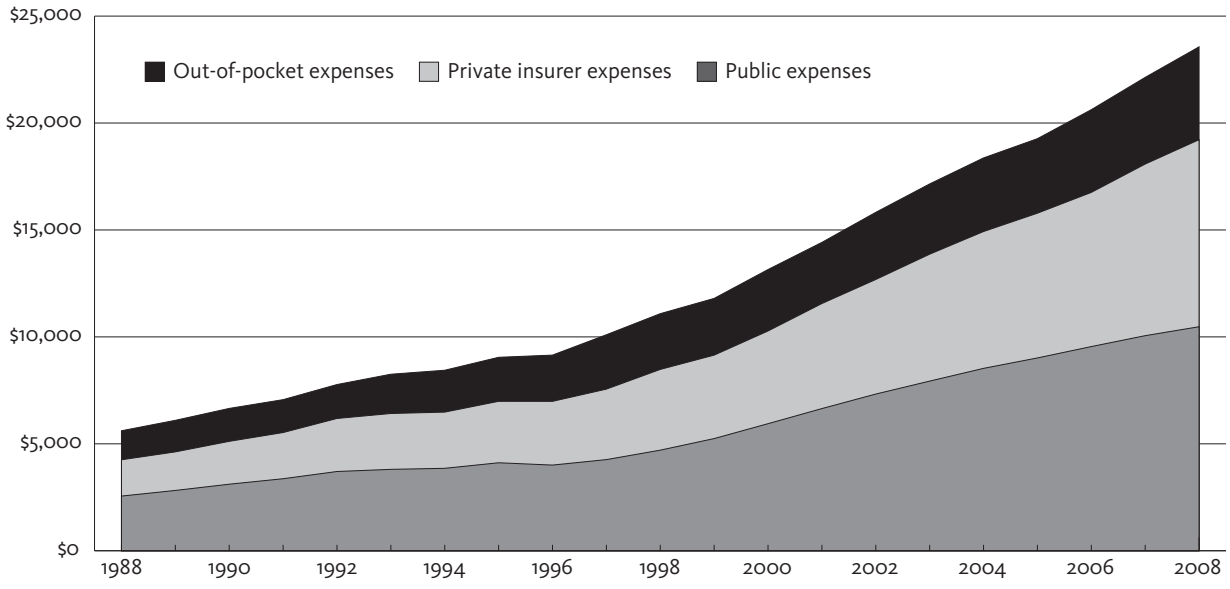
The sharpest rise in costs occurred in Quebec, where drugs represented 8.3% of health expenditures in 1985 and 20.7% in 2008. In this province, the increase in drug costs accounts for more than one-quarter of the growth in health costs. Since it is the only province that provides public drug insurance to all those who are not covered by private insurance, the Quebec example often acts as a foil to discredit universal Pharmacare altogether (Simpson 2009). However, Quebec refuses to use its large public program to reduce drug costs, and is seeking instead to become a

TABLE 1.1 **Drug expenditure on prescription drugs, by province and by source of finance, 2008 (forecast, in millions of dollars)**

	Public expenditure	Private expenditure	Total
N.L.	150.3	247.9	398.2
P.E.I.	35.2	67.4	102.6
N.S.	336.3	472.8	809.1
N.B.	192.2	416.7	608.9
Que.	3,248.8	3,262.2	6,511.0
Ont.	4,378.2	5,549.0	9,927.2
Man.	371.6	474.0	845.6
Sask.	374.9	322.7	697.6
Alta.	1,004.3	1,284.0	2,288.3
B.C.	1,045.8	1,842.9	2,888.7
Y.T.	12.5	7.5	20.0
N.W.T.	12.2	10.6	22.8
Nun.	15.2	6.0	21.2
Canada	11,177.4	13,963.7	25,141.1

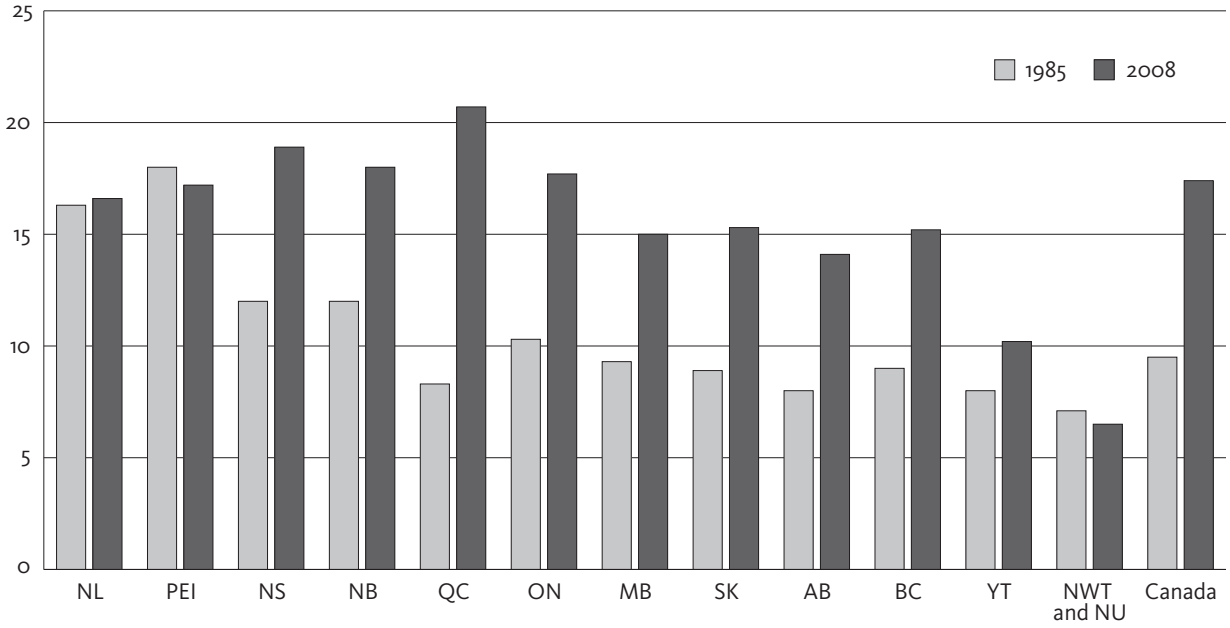
SOURCE CIHI 2009

FIGURE 1.1 **Changes in actual spending on prescription drugs in Canada, by source of finance, 1988–2008 (in millions of constant [2005] dollars)**



SOURCE CIHI 2009, OECD Main Economic Indicators

FIGURE 1.2 **Drug expenditure as a percentage of total health expenditure, by province/territory and Canada, 1985 and 2008 (forecast)**



SOURCE CIHI 2009

leading site for research and manufacturing of patented pharmaceuticals by creating a dynamic business environment that favours investment by the pharmaceutical industry (Ministère du Développement économique, de l'Innovation et de l'Exportation 2009: 7).

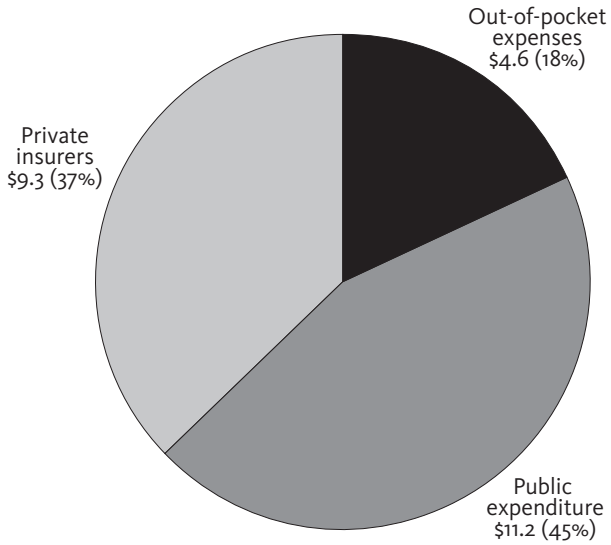
The rise in drug costs for Canada as a whole has necessitated more spending by Canadians, either through their taxes, their premiums, or from their own pockets. Governments are trying to reduce the burden of drug costs on public finances by forcing their citizens to have more private coverage and to spend more out-of-pocket. However, the willingness to reduce public coverage leads to higher expenses for the entire population, whether through the promotion of private insurance plans or the transfer of costs to out-of-pocket expenditures. Total private spending in Canada represents 55% of prescription drug expenses.

Public sources of prescription drug funding consist first of the provinces and territories, which contributed up to $9,506 million in 2008, followed by the federal government,[2] which contributed $689 million, and social security funds, including the Workers' Compensation Boards ($184 million), and the Fonds de l'assurance-médicaments du Québec [Quebec Drug Insurance Fund] ($799 million).

1.2 Inefficiency of private drug insurance plans

Private insurance is an expensive solution, given the inefficiency of private drug insurance plans compared to public plans. The vast majority of private drug plans are provided by employers, covering approximately half of the Canadian population. In 2000, 16 million Canadians were covered by a private plan through their employer; that is, 7.6 million employees (58% of all employees) and their family members, which included 4 million adults and 4.4 million children (Applied Management, 2000, p. 28). Although individu-

FIGURE 1.3 **Total expenditure on prescription drugs by source of finance, Canada, 2008 (forecast, in billions of dollars)**



SOURCE CIHI 2009

als can purchase private insurance on their own, and some organizations sometimes provide drug coverage to their members, such as universities that provide this service to students, private plans offered by employers represent the bulk of sales for private insurers in terms of drug coverage.

The premiums of private drug insurance plans for Canadian companies increased 15% a year between 2003 and 2005 (Canadian Health Coalition 2008: 27), while drug costs rose 8% a year (CIHI 2009). The reason for the over-increase in premiums is simple: most of the existing private drug plans in companies are managed by outside firms (insurance companies), which are normally compensated by way of a percentage of expenditures. As a result, the financial incentives for private plans do not encourage stemming the growing costs, but rather increasing them (Silversides 2009a). Also, private drug plans' formularies are unrestrictive. All new expensive drugs are introduced in private plans' formularies, even if these new drugs do not bring more therapeutic benefits than cheaper existing products.

Private insurance is clearly less efficient in terms of administrative costs. In the 1990s, the administrative fees for public plans in Quebec and Ontario were estimated to be in the order of 2%, whereas they were 8% for private plans (Palmer D'Angelo Consulting Inc. 1997).[3] In total health spending, Canada's public program had administrative costs of 1.3%, while the private plans had administrative costs of 13.2%; thus, private plans were 10 times more expensive in this respect (Woolhandler et al. 2003). We can conservatively estimate that at least 6% of costs for private drug insurance coverage could be saved if this coverage were offered through a universal Pharmacare program, which would have resulted in savings of $560 million in 2008.[4]

Private drug insurance plans normally pay more for drugs than public plans, especially in the case of generics. Public plans determine the price of generic drugs based on a percentage of the price of the original drug: for example, the first generic on the market costs 50% of the original product in Ontario[5], 45% in Alberta, and the percentage price is sometimes reduced if more

than one generic comes on the market. Given their reduced bargaining power, private plans normally pay 7% more for generic drugs, and 10% more for non-patented brand name drugs (Competition Bureau 2007: 58). The prices of patented drugs are more uniform because they are governed by a national regulatory agency, the Patented Medicine Prices Review Board (PMPRB). However, the discrepancy in prices for generic drugs is still underestimated, given the introduction of the Ontario *Transparent Drug System for Patients Act, 2006*, which greatly increased the discrepancies between the prices paid by private and public plans. The Act, which aimed to reduce the rebates generic drug manufacturers were giving to pharmacists, allowed for Ontario's public plan to decrease generic drug costs from 63% to 50% of the price of the original drugs. However, generic drug manufacturers compensated by increasing prices for Ontario's private plans. From 2006 to 2008, the price differences for generics between Ontario's public and private plans rose from 5% to 43% (Silversides 2009a). This demonstrates a serious weakness in the bargaining power of private plans as compared to public plans.

A substantial amount of public money for drugs is channelled through private work-based drug plans, because various levels of government pay for the drug plans of their own employees. Public sector workers constitute one-quarter of all employed Canadians. Not only are these expenditures of public funds recorded as private in official statistics, but this public drug funding is spent through the less cost-efficient private insurance plans.

Moreover, if work-based drug plans sometimes seem cost-effective, it is because employers receive tax subsidies of around 10% for the costs incurred (Smythe 2001, cited in Evans 2009).[6] In Quebec, the employer contribution to private drug insurance plans is calculated as a taxable benefit for employees (CSN 2009). Private drug insurance in Quebec is therefore systematically used to further tax employee incomes and increase tax subsidies for employers. In the rest of Canada, employees are normally not taxed for the benefits they receive. That does not solve, however, the problem of tax equity. Given the progressive nature of the Canadian tax system, not taxing drug benefits amounts to providing greater tax subsidies to higher-income individuals (Stabile 2002). In Figure 1.1, it must be understood that about 10% of private insurer expenditures is in fact a public expenditure in disguise, established through a regressive and inequitable tax redistribution system to finance employers rather than the costs of drugs for the people who need them. A universal Pharmacare program would have allowed the recovery of about $933 million in tax subsidies in 2008.

1.3 An inequitable system

In Canada, public drug plans are a provincial/territorial responsibility. Although all provinces have their own drug insurance plan for prescription drugs, a large number of Canadians under the age of 65 do not have sufficient public coverage and must resort to private insurance. According to a survey by Statistics Canada (2004), up to 8 million Canadians (23.5%) are not covered for their drugs. 8% of adults admit not filling a prescription in the last 12 months because of financial costs (Kennedy and Morgan 2009). More specifically, the ratio is 4.4% in Quebec, 8.8% in Ontario and 11.5% on average in the rest of Canada. Up to 20% of Canadians spend too large a proportion of their income on out-of-pocket expenditures for prescription drugs[7] (Morgan et al. 2003).In the Maritimes and Alberta, only 70% to 80% of the population has private or public drug insurance (Kapur and Basu 2005). The majority of those without drug coverage are unemployed or in precarious circumstances (Applied Management 2000). It follows that for many Canadians, it is the lack of sufficient prescription drug coverage that prevents

them from receiving the health care they need (Hanley 2009). For example, Toronto's Hospital for Sick Children has shown that a significant number of sick children were unable to get the drugs they needed for their condition because of financial constraints (Ungar et al. 2003). The out-of-pocket expenditures related to the lack of universal coverage results in patients adhering less closely to their treatment. For people who had suffered a heart attack, it was demonstrated that universal Pharmacare would have improved prescription compliance and extended patients' lives by an average of one year, when compared to the current system (Dhalla et al. 2009).

In order to counter the increasing burden on public finances, provincial governments have constantly increased premiums, deductibles, and co-payments so as to shift government costs to out-of-pocket expenditures for patients. Prior to 1996 in Quebec, seniors only had to pay $2 per prescription, to a maximum of $100 per year. Co-payments of 25% were introduced in 1996, to a maximum of $750 per year, based on income. In 1997, a monthly deductible of $8.33 was also introduced (Tamblyn et al. 2001). Since July 1, 2009, the monthly deductible has risen to $14.95 and co-payments to 32%, amounting to annual expenditures of up to $954.36 per year (CIHI 2009).

However, the logic of increasing out-of-pocket expenditures produces perverse results. For example, the introduction of a deductible and co-payments in the Quebec public drug plan in 1996–1997 forced seniors and individuals on social assistance to significantly reduce their use of otherwise essential medications. Seniors decreased their use of essential drugs by 9% while individuals on social assistance decreased their use by over 14% (Tamblyn et al. 2001). Emergency visits and hospital stays rose significantly for these individuals, given the detrimental effects associated with their inability to comply with drug prescriptions required for their condition. The indirect costs associated with the lower use of essential medicines are difficult to estimate, but this additional burden on hospitals would disappear if a universal Pharmacare program were in place. In the case of welfare recipients, the costs to the health system caused by the decreased use of essential drugs forced the government to revise its strategy and restore full coverage on July 1, 2007.

A second perverse effect of increases in out-of-pocket expenditures under a public drug plan is the "poverty trap." Public plans are typically more generous toward welfare recipients than they are to workers. The increase in deductibles and co-payments may serve as an incentive to those who are able to work to remain on social assistance. Although no studies have thoroughly addressed this issue, the national hearings of the Canadian Health Coalition discovered through numerous testimonies that this situation is far from being isolated (Canadian Centre for Policy Alternatives and the Canadian Health Coalition 2008).

The current coverage is just as unfair with respect to private plans. The workers most likely to receive no coverage are the most vulnerable, including the 16% of workers who are self-employed (Akyeampong and Sussman 2003; Statistics Canada 2010). The same goes for employees of small businesses and non-unionized workers (Akyeampong 2002). Only 58% of all employees had private coverage, the level of coverage varied considerably from one plan to another, and employees rarely had full coverage. It is quite common for employees and employers to contribute jointly to the premiums of a private drug insurance plan. In addition to premiums, employees must sometimes pay a deductible or a percentage of the drug costs and dispensing fees. In some cases, employee reimbursements are limited to a certain amount each year, or there is a cap on absolute spending over their lifetime, so that the private plan expires after a certain amount is spent.

Since these private plans are provided by employers, employees who change jobs or are laid off lose their coverage. In most cases, this also happens when an employee retires. In the case of mergers and acquisitions, employees of a company that has been bought out may see their coverage reduced in a completely arbitrary manner. All of these differences in the extent of private coverage in no way take patient needs into account, and are governed solely by where an individual works. The chaotic blend of existing public and private plans is therefore a major source of inequity. It is often the most vulnerable and financially fragile who are the least protected.

1.4 The wide diversity of public plans

Plans vary from province to province, creating wide disparities based on the following:

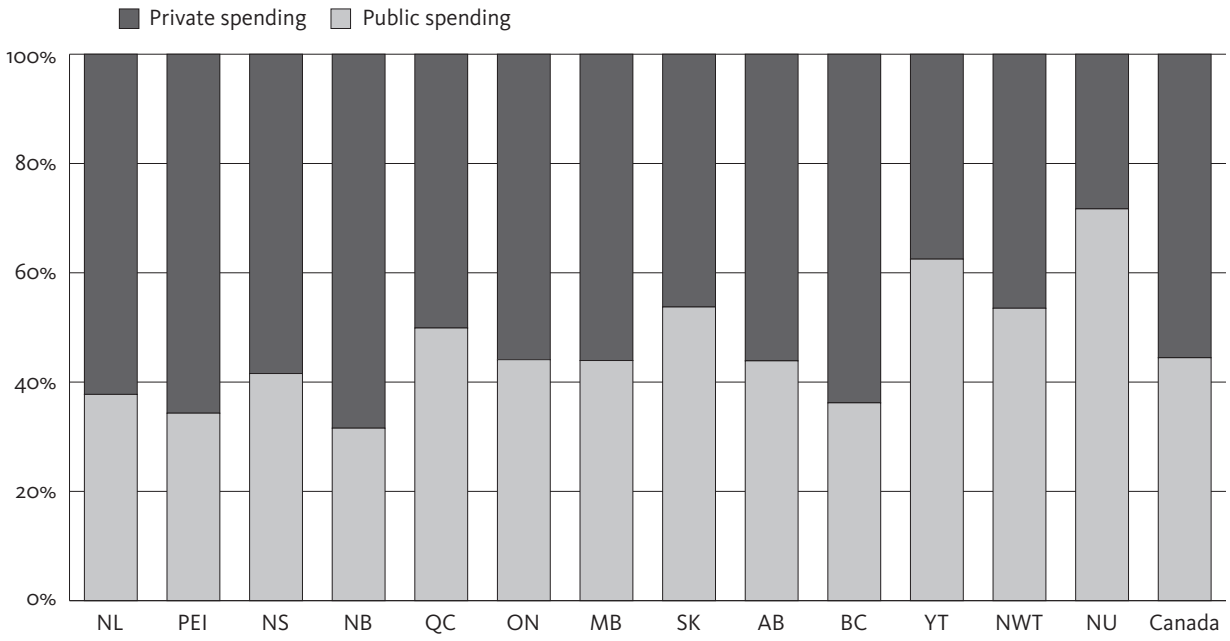
- Who can receive coverage?
- What proportion of drug costs is covered?
- Which drugs are covered?
- At what prices can the plan purchase drugs?

The proportion of public and private spending on prescription drugs varies considerably between provinces. Although the share of public spending for Canada as a whole is 44%, it ranges from 32% in New Brunswick to 72% in Nunavut.

In Quebec, anyone who does not have private drug coverage must join the public drug program, regardless of age or income. Quebec's Public Prescription Drug Insurance Plan thus covers 43% of the population. However, the type of coverage can vary, depending on special programs, and the deductibles and co-payments can be high. Public drug insurance plans in other provinces, such as the Ontario Drug Benefit, normally cover between one-quarter to one-fifth of the population.

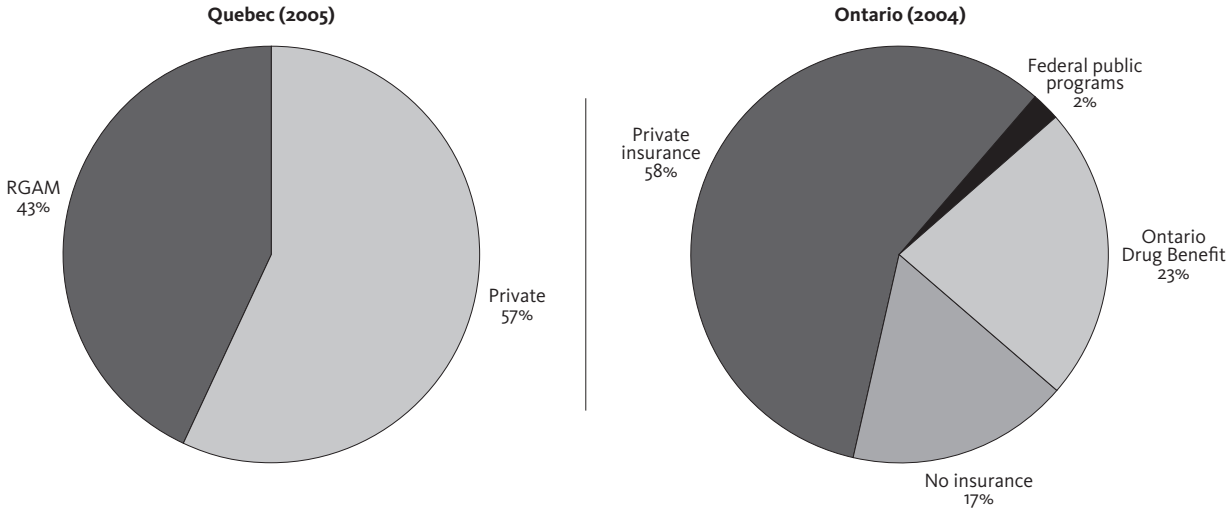
In all provinces, public drug coverage varies according to age, type of illness, income, and so-

FIGURE 1.4 **Relative share of public and private spending on prescription drugs, by province, 2008**



SOURCE CIHI 2009

FIGURE 1.5 **Comparison of the proportion of citizens receiving coverage under the public drug plan in Quebec and Ontario**



SOURCE Paris and Docteur (2006: 20)

cial situation. A breakdown of the various provincial drug plans can be found in Appendix 1. We noted distinct differences in the nature of these programs. Quebec's plan is primarily designed for welfare recipients and seniors; but it also automatically covers anyone who does not have private coverage, with premiums being based on income. British Columbia, Saskatchewan, and Manitoba offer non-compulsory universal coverage, and the deductible is determined according to income (2% to 6.08%, according to province and income level). Alberta offers non-compulsory, universal coverage that is unrelated to income, covering 70% of drug costs, with relatively high quarterly premiums. The Atlantic Provinces and Ontario offer coverage adapted to population groups: welfare recipients, seniors, and individuals with certain diseases.

Without universal coverage, many patients do not fit into one of these protected groups, and therefore fall through the cracks of the system. Nonetheless, Ontario, Nova Scotia, and Newfoundland and Labrador offer non-compulsory, universal catastrophic drug coverage. Once Ontario patients have paid a deductible of 4% of their gross income in medication costs, they can benefit from the Trillium program, which normally reduces the cost of additional drugs to $2 per prescription. However, clients must pay the pharmacist for all of their drugs, to a maximum of 4% of their gross income, which involves a certain amount of red tape. For example, a person with an annual gross income of $30,000 must spend up to $300 out of pocket on drugs in the first month of every quarter, which is not that easy on such a tight family budget.

Almost all of the provinces have special programs for those aged 65 and over, as well as for welfare recipients. Individuals on social assistance do not typically pay a deductible, and copayments are limited to $2 per prescription in most provinces. However, they must pay $4 per prescription in New Brunswick, $5 per prescription in Nova Scotia, and up to 5% of their family income in Newfoundland and Labrador. For seniors covered by the public plan, out-of-pocket costs vary substantially from one province to another. Those aged 65 and over living in the Yu-

kon, the Northwest Territories or Nunavut pay nothing. Elsewhere, they may have to pay only the markup and dispensing fee, as is the case in Newfoundland and Labrador, or up to 3% of their family income as in British Columbia.

Let's look at three examples based on typical clinical scenarios (Demers et al. 2008). The first example is a 73-year-old with congestive heart failure who is receiving the average Canadian income. His medication costs $1,283 per year. If he lives in Prince Edward Island or New Brunswick, he will pay less than $100 per year for his medication with the public drug plan, whereas he will have to spend over $1,300 per year if he lives in Manitoba, Saskatchewan, or Newfoundland and Labrador.

Next, let's consider a 65-year-old woman with an annual income below the Canadian average who has diabetes, high blood pressure, and insomnia. Her medications cost $454 per year. She must spend between $300 and $503 a year if she lives in Quebec, Manitoba, or Saskatchewan, but will spend less than $30 if she lives in Ontario, New Brunswick, or Newfoundland and Labrador.

Lastly, consider a 40-year-old welfare recipient with high blood pressure and congestive heart failure. His medication costs $1,389 per year. He pays under $20 a year for his medication, regardless of where he lives in Canada, except Quebec, where he will have to pay $200 a year.

Since drug coverage varies by province or territory, it may be difficult for individuals to move from one part of the country to the other (Canadian Centre for Policy Alternatives and Canadian Health Coalition 2008). There is also a considerable amount of red tape in most provinces, with the increase in the number of programs adding to the bureaucratic complexities. It is often difficult for people to understand what they are entitled to, raising their fear of losing the little coverage they have in the event that their financial situation changes. For example, in Appendix 1, we have identified 13 different public drug programs for Prince Edward Island, but the specific program for the various types of diseases include in fact 17 different sub-programs. This makes a total of 29 public drug plans for one province, whose population is smaller than that of Sudbury, Ontario.

The lack of uniformity not only causes inequities and red tape. The large number of different public entities that are buying drugs undermines the ability of public drug programs to negotiate lower prices with the 14 transnational firms that control two-thirds of the global pharmaceutical market (Gagnon 2009). A single public system would have much more bargaining power.

CHAPTER 2

Comparison of provincial drug insurance plans

A more detailed comparison of the various drug insurance plans in Canada is needed to identify which features would work best in a universal Pharmacare program. In this chapter, we will make a detailed comparison of each province in terms of the amounts of drugs dispensed, prices paid for prescription drugs, the proportion of generics used, and the drug assessment process. In doing so, we can identify the most advantageous practices that should be considered for a Canadian Pharmacare program.

We will first present the methodology we used to compare the practices of the various provinces and to assess their economic benefits. Next, we will present the results of each of the comparisons.

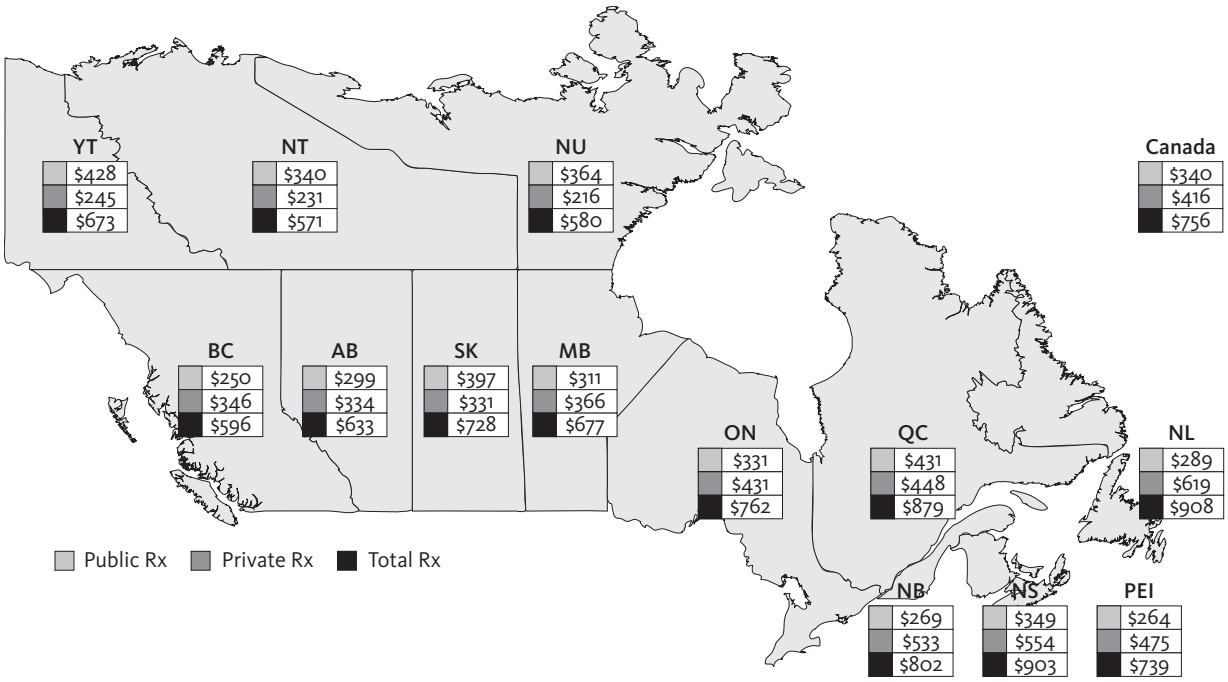
2.1 Comparison methodology

Given the major differences in population demographics, the total prescription drug expenditure by province is of limited use to compare practices between the various provinces. The total prescription drug expenditure per capita proves to be more useful.

Spending for each province can be compared to the Canadian average. Variations between per capita expenditures on prescription drugs may be due to a number of factors, including the four following cost factors: 1) age-related demographic disparities, 2) differences in the average volume of prescribed drugs used per capital in each province, 3) disparities due to the most common therapeutic mix in each province, and 4) differences in the drug costs in each province.

Using IMS Health Canada data, Morgan et al. (2008) calculated the impact of each of these factors on prescription drug expenditures for each province. Data for the Yukon, Northwest Territories, and Nunavut was not available. The age disparity in the population of a province is the single factor that can be considered natural. The impact of this disparity on prescription drug expenditures was taken into account so as to focus only on the other factors. These other factors are institutional, non-natural, and related to the types of drug insurance plans and the institutional environment in the various provinces. These factors were measured according to their impact on prescription drug spending compared to the Canadian average.

FIGURE 2.1 **Total drug expenditure per capita by type and by source of finance, by province/territory and Canada, 2009 (forecast)**



SOURCE National Health Expenditure Database, 2009, CIHI; Census of Population, Statistics Canada. Graph from CIHI (2010: 21)

The total variation in prescription drug spending can therefore be measured in a standardized manner, controlling for age, in order to exclude it since it cannot be modified. The total variation due to institutional causes was then broken down according to the effects of three cost factors: 1. volume effect, 2. therapeutic mix effect, and 3. price effect.

Each of these effects can in turn be broken down into sub-factors. The volume effect can be broken down into the number of prescriptions and prescription size. The therapeutic mix effect can be broken down according to preferred therapeutic options (choice between therapeutic classes of drugs to treat a condition; for example, and the choice between using diuretics or angiotensin-converting enzyme inhibitors to treat high blood pressure) and according to the preferred drug options (choice of a specific drug in a therapeutic class; for example, using enalapril or ramipril from the angiotensin-converting enzyme inhibitors). Lastly, the price effect can be broken down according to variations between provinces in the price of identical products (including dispensing fees) and the variations in the proportion of prescriptions filled by generics.

By breaking down all of the factors in this way, we can get a clearer picture of the features of the provincial programs. We can also estimate the percentage impact each of these factors and sub-factors has on the per capita cost of prescription drugs by province in comparison to the Canadian average. These calculations will be used as a basis to compare provincial drug insurance plans, including their institutional environments, in the remainder of this chapter.

TABLE 2.1 **Sources of variation in average per capita spending on prescription drugs, by province in comparison to the average per capita spending in Canada, 2007**

	B.C.	Alta.	Sask.	Man.	Ont.	Que.	N.B.	N.S.	P.E.I.	N.L.
Per capita spending by province	**$432**	**$496**	**$491**	**$525**	**$580**	**$681**	**$674**	**$655**	**$606**	**$622**
Total variation as compared to national average	**-25.3%**	**-14.1%**	**-15.0%**	**-9.2%**	**0.3%**	**17.8%**	**16.6%**	**13.4%**	**4.9%**	**7.7%**
Variation induced by age of population	2.4%	-9.6%	0.9%	-1.6%	-1.6%	4.5%	5.3%	5.8%	3.7%	5.0%
Total standardized variation by age	**-27.7%**	**-4.4%**	**-15.9%**	**-7.6%**	**1.9%**	**13.4%**	**11.3%**	**7.6%**	**1.2%**	**2.7%**
Prescription volume	-30.3%	-22.5%	-5.8%	-14.4%	-15.5%	44.7%	-11.4%	-14.0%	-9.9%	-3.1%
Prescription size	12.4%	22.8%	-6.0%	7.3%	19.2%	-37.8%	25.9%	30.1%	15.5%	14.8%
Volume effect	**-18.0%**	**0.3%**	**-11.9%**	**-7.1%**	**3.7%**	**6.9%**	**14.5%**	**16.1%**	**5.6%**	**11.7%**
Therapeutic options	-4.8%	-2.8%	0.1%	-1.7%	-0.9%	-0.5%	-3.3%	-5.7%	-4.0%	-6.1%
Drug options	-3.4%	-0.7%	-5.2%	-0.4%	1.0%	1.4%	-0.9%	-0.7%	-1.3%	-4.3%
Therapeutic mix effect	**-8.2%**	**-3.5%**	**-5.1%**	**-2.0%**	**0.1%**	**0.9%**	**-4.3%**	**-6.4%**	**-5.3%**	**-10.3%**
Prices paid	-0.8%	-0.4%	3.5%	4.8%	-1.3%	3.2%	2.3%	-1.3%	0.9%	1.3%
Generics used	-0.7%	-0.8%	-2.5%	-3.2%	-0.6%	2.3%	-1.3%	-0.8%	0.1%	0.0%
Price effect	**-1.5%**	**-1.2%**	**1.0%**	**1.5%**	**-1.9%**	**5.5%**	**1.1%**	**-2.1%**	**0.9%**	**1.3%**

SOURCE Morgan et al. 2008, IMS Health Canada

2.2 Overall findings

Here we review the findings from previous projects on the sources of variation in average per capita spending on prescription drugs (Morgan et al. 2008). We will then analyze various aspects of the overall findings in closer detail. The entire chapter focuses on the results in Table 2.1.

Significant variations between provinces can already be seen through the factors studied, once the variations are standardized by age. With a total variation of -27.7%, British Columbia has the lowest per capita cost for prescription drugs (residents of British Columbia save 27.7% on the cost of their prescription drugs as compared to the Canadian average). Quebec has the highest per capita costs, spending 13.4% more per resident. In fact, Quebec spends 57% more on prescription drugs per capita than British Columbia. By converting these variations to actual figures, we can determine the total impact the variations had on the total prescription drug expenditures for each province in 2007.

Considering the variations in its cost factors, British Columbia saved $701 million, as compared to the Canadian average, while Quebec spent an extra $595 million. British Columbia is often held up as a model for the rest of Canada in terms of pharmaceutical policy and health outcomes (Morgan et al. 2004; Therapeutics Initiative 2008). British Columbia residents not only had the lowest per capita cost for prescription drugs, but they also used less medication than other Canadians, went with the least expensive therapeutic options, and paid lower unit prices for their drugs (Morgan et al. 2008: 24). By taking a closer look at the sources of variation, we will be able to determine which features of the

TABLE 2.2 **Impact of standardized variations, by age, of cost factors on total prescription drug expenditures, by province, 2007 (in millions of dollars)**

Province	Total impact	Volume effect	Therapeutic mix effect	Price effect
B.C.	-701	-455	-208	-38
Alta.	-89	6	-70	-24
Sask.	-92	-68	-29	6
Man.	-52	-49	-14	11
Ont.	140	274	9	-142
Que.	595	308	40	247
N.B.	49	63	-18	5
N.S.	41	87	-35	-11
P.E.I.	1	4	-4	1
N.L.	8	34	-30	4

SOURCE Morgan et al. 2008, IMS Health Canada

British Columbia program or those of other provincial programs could be used as a model for the rest of Canada.

2.3 Results on volume effect

Most of the cost variations between provinces were due to the volume effect, namely, the difference in the amount of drugs used per person (number of prescriptions X size of prescriptions). The volume of per capita prescription drug use is lower than the Canadian average in British Columbia (-18%), while it is slightly higher in Quebec (+6.9%). Newfoundland and Labrador (+11.7%), New Brunswick (+14.5%), and Nova Scotia (+16.1%) remain the provinces with the highest volume effect by far.

Close attention must be paid to the interpretation of these findings. For example, Quebec Health Minister Yves Bolduc was pleased with the extra spending on drugs in Quebec and stated that it meant Quebec has better access to drugs than the other provinces and that the positive volume effect meant that Quebeckers were healthier (Dutrisac 2009). Nevertheless, it is perilous to associate Quebec's extra spending solely with the volume effect without broadening the analysis to include the effects of price and therapeutic mix.

Indeed, it is also perilous to consider the volume effect as an indicator of drug access, and therefore of the population's health. Life expectancy in British Columbia (81.2 years) and Ontario (80.7 years) in 2007 was higher than the Canadian average, whereas Quebec (80.4 years) was in line with the Canadian average (CIHI 2008: 40). Life expectancy was lowest in the Maritimes, although more units of medication were used there. Only one conclusion can be drawn in this regard: "Higher prescription drug costs… are *not* associated with better health outcomes" (Therapeutics Initiative 2008).

Minister Bolduc also took the position that increased consumption of medication is more economical because it reduces the costs in other health care areas. While certain new drugs can indeed mean a reduction in other medical costs (Lichtenberg 2001; Karaca and Wiggins 2006), it is impossible to assume that a greater use of drugs will result in health savings overall. Several factors must be taken into account, such as over-medication, adverse effects from taking multiple medications, or, for that matter, problems with prescription compliance without adequate resources from the other health sectors (Gag-

TABLE 2.3 **Average net family income, unemployment rate, by province and by volume effect on the use of medication as compared to the Canadian average, 2007**

	Average after-tax income of families of two or more persons ($)	Unemployment rate (%)	Volume effect for the use of medication (%)
Canada	**61,800**	**6**	**–**
Newfoundland and Labrador	50,900	13.6	11.7
Prince Edward Island	52,600	10.3	5.6
Nova Scotia	54,200	8	16.1
New Brunswick	50,600	7.5	14.5
Quebec	54,500	7.2	6.9
Ontario	65,900	6.4	3.7
Manitoba	58,300	4.4	-7.1
Saskatchewan	59,900	4.2	-11.9
Alberta	75,300	3.5	0.3
British Columbia	63,300	4.2	-18

SOURCE Statistics Canada, CIHI 2008

non and Poirier 2009). As CIHI explicitly notes (2009: 39), it is impossible to determine whether increased medication use reduces spending in other health care areas.

The reasons for the variations in the volume effect by province cannot be clearly identified. In fact, the calculations presented do not account for the population's previous level of health, which is often determined by income level. A decrease in income level often leads to a deterioration in overall health (Canadian Public Health Association 1997). An increase in income inequality, even without an absolute reduction in income, can also lead to a significant decline in a population's health (Wilkinson and Pickett 2009). Some might speculate, for example, that one of the reasons for a province's negative volume effect could be better overall health of the population, which in itself is the result of higher income or less inequality.

Beyond the speculations related to income inequalities, other explanations can be identified. In British Columbia, although the volume effect is negative (-18%), the proportion of out-of-pocket expenditures to finance the cost of drugs does not seem to be a major obstacle in terms of drug access. On the contrary, in comparing clinical scenarios between provinces to determine patients' out-of-pocket expenditures, British Columbia usually stood up well in terms of ease of access (Demers et al. 2008). The amount of drug use is therefore not determined solely through the level of co-payment, even though the co-payment can have a significant impact (Tamblyn et al. 2001). British Columbia has shown that greater drug access can be achieved while reducing the volume of use.

Cultural reasons may partly explain lower medication use. For example, British Columbia's major centres have a high percentage of Asian immigrants. The mapping of prescribed drugs shows a lower per capita use of prescribed drugs in areas of the province that have a high immigrant population, especially for certain types of drugs such as antidepressants, benzodiazepines, and hormonal contraceptives (Morgan et al. 2009).

Negative volume effects were also noted in Saskatchewan (-11.9%) and Manitoba (-7.1%). In these two provinces, the greater out-of-pocket expenses may hinder access to medication, particularly for seniors (Demers et al. 2008). Ontario (+3.7%) and Alberta (+0.3%) were both close to the

Canadian average. In Quebec (+6.9%), although there is greater access since everyone must be covered by either private or public insurance, it must also be taken into account that the co-payments may represent a high proportion of a worker's income revenues. Moreover, it is not uncommon for Quebeckers, who consume an average of approximately $260 in prescription drugs per year, to have to spend more out-of-pocket than their prescription costs (Demers et al. 2008). It is hard to explain why the greatest use was in the Maritimes, but it is likely that the lower income and high rate of unemployment have caused poorer overall health in the population. This seems to confirm the official statistics because we note a significant correlation between the volume effect for each province and their unemployment rate or average income, although direct causality cannot be formally attributed to socioeconomic factors.

Volume effect: Analysis of prescription size

The breakdown of the volume effect is particularly surprising in the case of Quebec and British Columbia. The per capita volume of prescriptions in Quebec, as indicated in Table 2.1, is 44.7% higher than the Canadian average. In fact, double the number of prescriptions were given out in Quebec as compared to British Columbia. However, prescription volume must be considered in relation to the number of units per prescription. Prescriptions were slightly larger in British Columbia (+12.4%) than the Canadian average. They were even larger in the Maritimes (between +14.8% and 30.1%), Ontario (+19.2%) and Alberta (+22.8%). The reason for this is that these provinces allow for two, three, or six months' worth of a long-term medication to be dispensed at a time.

In Quebec, prescription size was 37.4% smaller than the Canadian average. This is because the province's public drug insurance program requires that prescriptions be renewed each month, unless the patient has special permission (for example, for a trip abroad). The Régie de l'assurance maladie du Québec [Quebec Health Insurance Plan] (RAMQ) requires that pharmacists fill orders of no more than a month, albeit repeats on prescriptions are allowed. Patients who have a chronic condition and take medication such as antihypertensives (for high blood pressure) or statins (for high cholesterol) on an ongoing basis must therefore have their prescriptions filled monthly, simply for administrative purposes.[8] It would be easy to give these patients three- or six-month prescriptions, as is usually done in other provinces, without it affecting the quality of care.

There are no studies in the medical literature showing any kind of therapeutic advantage to a monthly renewal of prescriptions for people with a chronic condition. The average prescription size in Quebec is half that of New Brunswick, Nova Scotia, and Alberta, which means that pharmacists have to fill twice as many prescriptions, thereby doubling the dispensing fees for the same amount of drugs. The only reason for this state of affairs is that Quebec, as part of its Pharmacare program, wanted to make deductibles more "equitable" by establishing them on a monthly basis so that the costs would be spread more evenly over the year. Since deductibles are monthly, prescriptions must be monthly as well, increasing the number of prescriptions and associated fees. The workload for pharmacists is artificially increasing at a time when Quebec has a serious shortage of hospital pharmacists (Daoust-Boisvert 2009). Eliminating the deductible altogether could not only result in significant cost reductions, but also partly relieve the shortage. A recent study revealed that savings could be in the neighbourhood of 18% on prescription costs for chronic conditions (Rabbani and Alexander 2009).

When looking at our analysis of the sources of variation standardized for age, it must be understood that the difference in drug costs related to prescription size is also reflected in the price effect, given the variations in prices paid

(including dispensing fees). The price effect was positive for Quebec (+5.5%) because fewer generic drugs were used (+2.3%) and also because the price of an identical drug in Quebec is higher as compared to the Canadian average (+3.2%). This finding is surprising because Quebec has adopted a most-favoured-nation clause, which means that, in order for the cost of the medication to be reimbursed by the provincial plan, the drug cost must not exceed the best price available in the rest of Canada. The positive price effect of 3.2% seems to be much more representative of the differences in dispensing fees, given the reduced prescription size, than a variation related to ex-manufacturer prices. In fact, Morgan et al. (2005: 11) considered that the price differences for the same drug are primarily determined by the variations in dispensing fees. Given Quebec's policy, which requires the best price available anywhere in Canada for each manufacturer, the price effect for the difference in price between identical drugs, excluding dispensing fees, should be zero or negative for Quebec. Thus, if an end to the monthly dispensing fees resulted in Quebec's prescription sizes being equal to the Canadian average, as seen in Table 2.2, Quebec could save at least $144 million, given that there would be no more needless duplication in dispensing fees.

Volume effect of a universal Pharmacare program

The volume effect would be the only element raising the costs for a universal Pharmacare program over the current system. Eliminating co-payments would increase access to prescription drugs, which would also increase use. Tamblyn et al. (2001) demonstrated that the introduction of co-payments in Quebec's drug insurance plan in 1996–1997 lowered the use of essential drugs by 9% and 14% for seniors and welfare recipients, respectively, and of non-essential drugs by 15% and 22%, respectively. We can assume that withdrawing the co-payments would have the opposite effect. However, the Tamblyn et al. study (2001) looked at the impact on the most economically vulnerable populations, leading us to believe that there would be a lesser impact on the population as a whole. It can be estimated, for example, that consumption among those with private insurance would go up by 5% because they normally have a better health status than those on public drug plans (Lexchin 2001). As for the uninsured, drawing on data provided for the Medicare population in the U.S., it can be estimated that consumption for the uninsured would increased by 20% (Lexchin 2001; Lillard & al. 1999). However, many people insured under provincial government plans currently have no co-payments (see Appendix 1), and their use would therefore not increase.

In the universal Pharmacare simulation models, which were based on available studies (Smith 1993, Tamblyn et al. 2001), it was estimated that such a plan would lead to an approximate 10% increase in use (Palmer d'Angelo Consulting Inc. 1997; 2002). This is a generous estimate and does not take into account that, in some countries with a universal Pharmacare program and lower co-payments, such as Sweden and the United Kingdom (see Figure 3.4), the volume of medication used per person is virtually identical to that of Canada. However, in order to remain as conservative as possible in terms of how much Canada would save if it had universal Pharmacare, we will make the generous assumption that there would be a steep increase in use if co-payments were eliminated. If universal Pharmacare were introduced in Canada, we therefore assume that the overall volume effect for all of Canada would be +10%.

2.4 Analysis of the therapeutic mix effect

The therapeutic mix effect depends on the choice of treatments recommended for the same condition, whether in terms of choice of therapeutic option (choice between therapeutic classes of drugs to treat the same condition) or drug options

(choice of a specific drug in the same therapeutic class). According to Table 2.1, the therapeutic mix effect is negative for all provinces except Ontario (+0.1%) and Quebec (+0.9%). Two main reasons can explain the variations in the therapeutic mix effect: 1) the search by lower income patients with co-payments for the lowest cost to treat their condition, or 2) the existence of institutional conditions allowing physicians to promote the most cost-effective therapeutic choices.

The impact of the first reason is difficult to assess because it assumes that patients and physicians are aware of the price of the drugs, which is usually not the case (Allan & al. 2007). Nevertheless, the search for lowest costs cannot be discarded as a reason explaining differential therapeutic effect. For example, this reason could partly explain the serious negative therapeutic mix effect in the Maritimes. Institutional conditions, however, remain the main reason for the therapeutic mix effect by reducing drug costs, thanks to an optimal therapeutic mix in terms of cost-effectiveness. The main institutional elements for improving the therapeutic mix are clinical and pharmacoeconomic assessments of new drugs to determine which ones should be reimbursed by public drug insurance plans.

In Canada, to obtain approval from Health Canada to market a drug, a company just needs to show that its drug is safe relative to the condition that it is indicated for, and that it is more effective than a placebo. A company can therefore market a drug even if it proves less effective than drugs already on the market to treat the same condition. A pharmacoeconomic assessment of new drugs is essential to establish whether or not they need to be reimbursed through the public drug plan by determining whether the therapeutic benefits justify the cost. Although the pharmacoeconomic drug assessment process only applies to Pharmacare programs (these assessments are too expensive for private plans), they establish prescribing habits among physicians that reverberate in the private plans.

British Columbia:
The Therapeutics Initiative

British Columbia is a pioneer in this area with the implementation of the Therapeutics Initiative (TI) in 1994. The TI is comprised of a group of research academics from the University of British Columbia who developed, very early on, Canadian expertise in assessing therapeutic efficacy and cost-effectiveness through evidence-based medicine (Morgan et al. 2004). Although the TI is a fully independent academic group, the British Columbia government, headed by a majority social democratic party from 1991 to 2001, chose to financially support the TI in order to apply the recommendations from these academic experts to PharmaCare, the public drug insurance plan. This allowed for the establishment of drug price on the basis of reference products. Under reference-based pricing, for each therapeutic class, drug plans reimburse the cost of the reference drug, which is normally the most inexpensive.

The TI was strongly criticized in the beginning because it stood in the way of new drugs being automatically accepted for reimbursement by the public plan, as was the case before its establishment. Seen as unfavorable to the interests of the leading pharmaceutical firms, the TI had to deal with several threats of litigation, a negative ad campaign, and threats from the industry that having such an organization would result in far less biopharmaceutical investment in British Columbia. However, by establishing a strict, evidence-based assessment process and using only data from clinical trials that were performed to the highest research standards, the TI has become a national example of evidence-based medicine in matters related to pharmaceutical evaluation. It is still considered by many to be the only critical source for the assessment of new treatments in Canada unmarred by politics or partisanship (Times Colonist 2009).

The TI not only allows for a reduction in costs, but it also improves the quality of care. For example, the TI's 1999 pharmacoeconomic

assessment of COX-2 inhibitors[9] proved quite unfavourable to this medication. Following the TI reports, PharmaCare imposed significant restrictions on the reimbursement of this new drug, which was very expensive compared to other anti-inflammatories. Because of these restrictions, British Columbians spent $8 less per person per year on their anti-inflammatories compared to other Canadians, reducing sales of COX-2 inhibitors by approximately $40 million per year (Morgan et al. 2004: 273). Consequently, British Columbia residents were less affected than other Canadians by the adverse effects of Vioxx before it was taken off the market in November 2004.

The TI's expertise reduced the cost of the PharmaCare program by an estimated yearly average of 14% (Morgan et al. 2004: 274), not by diminishing the quality of treatment, but by improving it. Most provinces followed the TI example and now have one form or other of pharmacoeconomic assessment to determine whether drugs are to be reimbursed by the public plan.

The TI's success was not only due to PharmaCare's use of its analyses to decide whether a new drug was going to be covered by the province. Its well-regarded publication, *Therapeutics Newsletter*, aimed to inform physicians about the best evidence-based practices. The group also provided medical training on making rational drug treatment choices. Dissemination of knowledge is a crucial aspect of the success for this kind of pharmacoeconomic drug assessment program. The ability to disseminate information and know-how is central to the success of such a program — for example, through medical training and the development of credible clinical guides, with cost-effectiveness in mind, to be in a position to significantly influence the prescribing behaviour of physicians (Jacob 2009: 29).

One can thus assume that TI greatly participated in establishing a medical culture in British Columbia where health professionals use more evidence-based medicine and physicians are less influenced by the promotional activities of pharmaceutical companies. For example, to avoid the undue influence that pharmaceutical promotion has on physicians, British Columbia specifically prohibited pharmacists from releasing, for commercial purposes, information that would permit others to know the prescribing habits of individual physicians.[10] This practice of releasing information for commercial purposes, which is common in the other provinces, usually gives pharmaceutical companies, through IMS Health, an accurate prescribing profile of individual physicians and the changes in this profile over time. It enables them to carry out extremely effective promotional campaigns to unduly influence the prescribing habits of physicians.

Since the Liberals came into power in 2001, the Minister of Health has tried a few times to disband the TI. The major contributions by pharmaceutical companies to British Columbia's Liberal Party may partly explain this desire to put an end to the TI's activities (Times Colonist 2009). Nevertheless, the reputation and support this organization has had in the medical community has always forced the Minister to back off. Two years ago, the Minister of Health established the Pharmaceutical Task Force, mandated with submitting recommendations to him for change. One-third of the members of the Pharmaceutical Task Force were representatives of the pharmaceutical industry. The 12 recommendations included disbanding the TI, or, if it was to be maintained, ensuring that its governance structure was revamped, reducing its influence on PharmaCare and discontinuing its involvement in education and knowledge dissemination (Ministry of Health 2008). In December 2009, British Columbia's Minister of Health announced an end to the TI's direct funding. The yearly $1 million grant will instead be given to the Faculty of Medicine at the University of British Columbia (the TI was independent from this faculty), which must decide whether to continue to fund the TI. UBC's Faculty of Medicine receives about $25 million a year in funding from pharmaceu-

tical companies and is therefore not sheltered from industry pressure (Times Colonist 2009).

The Common Drug Review

The great success of the 2004 National Pharmaceuticals Strategy was in expanding the Common Drug Review (CDR), which was established in 2003, to include all Canadian provinces except Quebec (Health Council of Canada 2009b: 4). The CDR is a national, centralized drug assessment process, inspired in part by the TI. With this process in place, the provinces no longer have to perform their own analyses of new drugs, allowing them to save on assessment costs. The CDR shows the potential for inter-provincial collaboration on drug policies. Establishing the CDR reduced the average time it took to register new drugs on provincial formularies from 552 days in 2004 to 455 days in 2006, and equally reduced wait time disparities between provinces (Skinner and Rovere 2009: 16).[11]

Nonetheless, the CDR acts solely in a consulting capacity. Its recommendations are not systematically adopted by the provincial Pharmacare programs. The final decision as to whether to list a drug in their formularies is up to the provinces individually, respecting the fact that health is a provincial responsibility. When CDR experts submit a negative recommendation for a drug, all provinces usually follow the recommendation. Provincial decisions concur with all recommendations about 90% of the time (Fiona et al. 2009: 1438). Although CDR decisions are not compulsory, this flexibility is perhaps necessary in the Canadian federation, where health decisions are under provincial jurisdiction when budgetary capacity differs. While all provinces except Quebec use the CDR, variations in the therapeutic mix effect between provinces are partly due to the differences in the decision-making interface between the provinces and the CDR. Not only must the centralized assessment process be efficient, which appears to be the case, but the provincial authorities must be able to assess the recommendations locally for a decision as to whether or not to apply them, based on the province's priorities (McMahon et al. 2006). A common assessment process called the Atlantic Common Drug Review is used in the Maritimes, whereas there is a committee of experts for each of the Prairie provinces, and the Committee to Evaluate Drugs serves Ontario. The differences between these committees explain to some extent the disparities in the therapeutic mix effect between provinces.

Another limitation of the CDR is that it only assesses new medications that are considered truly innovative, such as new chemical entities. It does not assess "me-too" drugs or new instructions for a drug previously approved. The CDR has nevertheless set up some pilot projects to begin such analyses.

Another major limitation of the CDR is the difficulty in disseminating information. It is not only a matter of deciding whether a medication should be reimbursed, with or without restrictions, but also of educating physicians and putting practices in place that are consistent with the clinical data. Physicians must therefore be trained and clinical guidelines addressing cost-effectiveness must be produced. This is the CDR's main shortcoming to date. Despite all good intentions by the Canadian Agency for Drugs and Technologies in Health, the CDR's umbrella agency, the resources put in place to disseminate information in order to change physicians' prescribing habits are still limited, and the Agency has not yet managed to transform the medical culture into one of evidence-based medicine. This inter-provincial difference in culture among physicians also explains, in part, the variations in the therapeutic mix effect.

Conseil du Médicament du Québec

Quebec sets itself apart from the rest of Canada through its refusal to join the CDR. Since it wants to encourage the growth of its pharmaceutical industry in every possible way, Quebec normally

TABLE 2.4 **Percentage of new drugs reimbursed by pharmacare programs by province, 2004–2006**

	2004	2005	2006
N.L.	19.6	21.4	30.2
P.E.I.	17.4	16.7	20.9
N.S.	17.4	16.7	32.6
N.B.	21.7	21.4	37.2
Ont.	15.2	9.5	16.3
Man.	17.4	9.5	16.3
Sask.	26.1	16.7	27.9
Alta.	17.4	4.8	20.9
B.C.	15.2	4.8	11.6
Quebec	**37**	**31**	**41.9**
Canadian average, excluding Quebec	**18.6**	**13.5**	**23.8**

SOURCE Skinner and Rovere (2009), Brogan Inc.

approves the reimbursement of a greater number of drugs, which may also explain its refusal to join the CDR's more demanding process[12] (McMahon et al. 2006: 347). However, it has been shown that the implementation of a stricter drug assessment process in terms of cost-effectiveness does not lead to a reduction in biopharmaceutical investment, despite threats from the industry (Morgan and Cunningham 2008).

Quebec established its Conseil du Médicament [Drug Council] in 2003. This organization assesses each drug so that a recommendation can be made as to whether or not to include it in the formularies of the general drug insurance plan. The analyses of the Conseil du Médicament are just as rigorous as those performed by the CDR, but, because of the political environment, the assessment results are interpreted in a way that is more favourable to the industry. At the request of the Minister of Health, drugs can be added to the list of drugs reimbursed by the public plan, regardless of negative results from the pharmacoeconomic assessment by the Conseil du Médicament. Furthermore, when the results are mixed, the Conseil is more willing to accept the registration of drugs for reimbursement, under certain conditions. Thus, Quebec agrees each year to pay for about twice as many new medications as the other provinces.

Thus, it becomes obvious why the therapeutic mix effect is greatest in Quebec (+0.9%). If Quebec made the same therapeutic choices as the Canadian average, it could save $40 million per year (refer to Table 2.2), and $404 million per year if it made the same choices as British Columbia (-8.2%). The policy-makers in Quebec's health sector have noted the problem, and are trying to remedy it. For example, Quebec's Ministère de la Santé et des Services sociaux introduced a bill in November 2009[13] to form the Institut national d'excellence en santé et services sociaux (INESSS) [National Institute of Excellence in Health and Social Services], somewhat modelled after England's National Institute for Health and Clinical Excellence (NICE) (Comité d'implantation de l'INESSS 2008) and which will replace the current Conseil du Médicament. Arguably, Quebec may catch up in terms of therapeutic mix, ensuring more cost-effectiveness by curbing political influence. However, the hope that INESSS will be effective in establishing more rational prescribing habits in Quebec will come into conflict with the powerful pharmaceutical industry lobby. In October 2009, Quebec announced the introduction of a permanent

exchange forum between the industry and the Ministère de la Santé et Services sociaux, allowing the pharmaceutical industry to circumvent all existing laws on lobbying. Industry groups BioQuébec and Rx&D welcomed the introduction of such a forum, which would facilitate the integration of new drugs into the drug insurance plan (The Canadian Press 2009).

The need for a rigorous drug assessment process

In order to improve the quality of medical practice and contain undue costs from the promotion of costly drugs with limited or no therapeutic benefits, a universal Pharmacare plan will have to adopt a pharmacoeconomic drug assessment program. In addition to issuing recommendations, the program must be designed to change medical behaviour and practices in order to instill a culture of evidence-based medicine.

This is not a goal that will be readily achievable. The pharmaceutical industry has often and clearly expressed its disagreement, even hostility, to any type of evidence-based drug assessment process that it feels will compromise its revenue stream, especially when the costs are moderated through the use of reference-based pricing (Morgan and Cunningham 2008). The industry obviously prefers not to have institutional obstacles in promoting its new drugs directly to physicians. Knowing that the American pharmaceutical industry spends an average of $61,000 per physician on promotion (Gagnon and Lexchin 2008), we can expect that the Canadian industry spends a proportional amount. Instilling a culture of evidence-based medicine in the medical profession across Canada would require leadership and a strong institutional will. It would include, for example, the implementation of a national medical professional development system that is financed through public funds and that promotes evidence-based medicine, as was strongly called for by the editor-in-chief of the *Canadian Medical Association Journal* (CMAJ) (Hébert 2008). For example, Australia, considered a leader in the promotion of evidence-based medicine, developed its own independent and publicly-funded national continuing medical education program through the non-profit organization National Prescribing Service. In Canada, we are a far cry from this because, contrary to the CMAJ recommendations for education independent of the pharmaceutical industry, the Canadian Medical Association announced in December 2009 that it was introducing a national continuing medical education program in partnership with Pfizer (Weeks 2009).

If the rest of Canada could draw from the British Columbia example to establish an institutional structure that ensures a more rational choice of drugs and transforms the medical culture to steer it more toward evidence-based medicine, Canada would save about 8% on prescription drug costs. With these drug costs totalling $25.1 billion in Canada in 2008 (CIHI 2009: 62), this would mean a savings of $2 billion per year. Universal Pharmacare would facilitate the establishment of such a structure by ensuring that only drugs proven to be effective in terms of cost and compared to other drugs used for the same conditions, could be reimbursed in Canada. This would give the pharmaceutical industry a clear financial incentive to produce more truly innovative drugs, rather than "me-too" drugs that have higher sales because of the efficiency of promotional campaigns rather than the therapeutic effectiveness of the drugs.

2.5 Findings on price effects

Retail drug prices vary according to the public and private drug insurance plans. Prices in the public plans are determined based on formulas that include the purchase price, the markup by wholesalers and pharmacists, and dispensing fees. Formulas for determining prices vary from one province to the next (Table 2.5).

TABLE 2.5 **Public plan policies for reimbursing drugs and setting cost**

	Reimbursement	Additional policies	Special prices
B.C.	Actual acquisition cost	Wholesale markup (capped at 7%) Dispensing fee (with cap)	Reference price (5 therapeutic classes) Lowest cost among generics
Sask.	Actual acquisition cost	Profit margins (10% to 30%) Dispensing fee (capped at $8.21)	Lowest cost among generics Standing offer contract for generics
Alta.	Actual acquisition cost	Professional fees ($10.22 to $20.94) Inventory allowance ($0.71 to $5.03)	Lowest cost among generics Reference price for similar products Generic price capped at 45% of price of original
Man.	Actual acquisition cost	Professional fees	
Ont.	List price	Dispensing fee (capped at 20% or $7) Margin of 8% on all products	Price-volume agreements with manufacturer Generic price capped at 50% of price of original
Que.	Actual acquisition cost Most-favoured province clause	Actual wholesale markup (capped at $20 for catastrophic drugs) Pharmacist fees capped at 20%	Lowest cost among generics (after 15-year rule) Generic price capped at 60% of price of original
N.B.	Actual acquisition cost	Dispensing fee ($8.40 to $161)	
N.S.	Actual acquisition cost	Professional fees ($10.42 to $15.64); 10% for certain products	
P.E.I.	List price		
N.L.	List price		

SOURCE Paris and Docteur 2006; Morgan et al. 2003; Hollis 2009; provincial drug plan websites.

Price effects vary less from province to province than for the other categories of variation. According to Table 2.1, they range from -2.1% in Nova Scotia to +5.5% in Quebec. These variations can be broken down into a number of factors, namely, differences in the use of generics, and differences in the prices paid for the same drug. The latter differences can in turn be broken down into differences in patented drug prices, differences in generic drug prices, dispensing fees, and wholesale markup.

Price effect due to use of generics

Patented medicines are protected by their patents and have monopoly power over the sale of the medicine. This protection lasts for 20 years. However, after patenting a molecule, it takes seven years on average to develop the drug into a suitable form, obtain approval from Health Canada, and put the drug on the market. Thus, the effective patent lifespan, on average, is 13 years after the product has been marketed (Paris and Docteur 2006: 42). Once the patent expires, competitors can reproduce the drug and market it under a generic form at a lower cost. In 2007, the average prescription cost of a patented drug in Canada was $64.20 while the average prescription cost of a generic drug was $26.28. If a province uses more generics than patented drugs, it can enjoy considerable savings.

In 2007, generics represented 49.2% of the volume of prescriptions and 21.4% of the value, with the rest being solely patented drugs and branded non-patented drugs (CGPA 2008). In terms of cost variation due to disparities in the use of generics, Quebec (+2.3%) again stood out from the rest of Canada by being the province with the lowest use of generics.

This marked difference in Quebec can be explained by the 15-year rule. On average, a pat-

TABLE 2.6 **Percentage of generic prescriptions (in volume) by province, 2007**

	%
N.L.	52
P.E.I.	52
N.S.	52
N.B.	56
Ont.	49
Man.	54
Sask.	52
Alta.	51
B.C.	55
Quebec	**42**
Canadian average, excluding Quebec	**53**

SOURCE IMS Health Compuscript

ented drug will have market exclusivity for 13 years before generic competitors come on the scene (Paris and Docteur 2006: 42). Once the commercial protection has expired, most provinces, including Quebec, only reimburse the cost of the least expensive generic version of the drug. However, for the purposes of more effectively attracting pharmaceutical investment, Quebec grants a privilege to the patented drug industry by reimbursing patented drugs at their full cost for 15 years, even if the patent has expired (OECD 2008: 141). The variation in prescription drug costs resulting from this decreased use of generics is approximately +2.3% per person. The economic impact of the 15-year rule, too often underestimated by Quebec's Ministère des finances (Bahan et al. 2005), can be accurately assessed through this variation. When the variation is converted into actual figures, as seen in Table 2.2, we note that, if Quebec had revoked this industry privilege, it would have saved $102 million in 2007.[14]

Price effect from dispensing fees and wholesale markups

We know very little about dispensing fees and wholesale markups. The inter-provincial differences in wholesale markups are not known, and we cannot find out whether the margins are different for drugs reimbursed by a public plan. We estimate that the wholesale markup is an average of 5% to 7.5% for Canada as a whole (OECD 2008: 46; Hollis 2009: 23). The dispensing fee issue is quite problematic because it is difficult to determine the dispensing amount by province and by drug plan. The lack of data was so problematic that the Patented Medicine Prices Review Board (PMPRB) undertook a major investigation into Canadian dispensing fees. The survey results were expected to be released in 2010.

We showed earlier how the smallest prescription size in Quebec resulted in many needless dispensing fees, amounting to about $144 million per year. However, the partial figures show that private drug insurance plans, as well as people paying out-of-pocket (i.e., those with no insurance) paid more in dispensing fees for prescriptions than the public plans. According to a study simulating the establishment of a universal Pharmacare program (Palmer D'Angelo Consulting Inc. 1997), Pharmacare would reduce total dispensing fees from 23.7% of all prescription drug costs to 21.7%. This 2% saving on all costs would have meant a savings of $502 million for Canada as a whole in 2008. By reducing the percentage of the overall cost of a privately dispensed prescription that is due to dispensing fees and revoking the monthly deductible, a universal Pharmacare program could save $646 million per year, while reducing the shortage of hospital pharmacists in Quebec through the reduction in the overall workload for pharmacists.

Price effect from patented drugs

Patented drug prices are monitored in Canada by the PMPRB. This a quasi-judicial board that exercises control over the ex-manufacturer prices of all patented drugs. Since 1987, the PMPRB's mandate has been to serve in some fashion as a watchdog to prevent too great an increase in the cost of patented drugs and to cap prices for all

TABLE 2.7 **Comparison of Canada with comparable countries that may or may not have been used as a reference country by the PMPRB**

Country	Average patented drug prices of other countries as a percentage of Canadian prices, 2005 (market exchange rate)	R&D spending as a percentage of domestic sales, in ex-manufacturer prices, 2006–2007
Canada	**100%**	**8.1%**
Comparable countries used by the PMPRB		
Germany	96%	22.1%
United States	169%	19.4%
France	85%	16.4%
Italy	75%	6.8%
United Kingdom	90%	39.8%
Sweden	97%	30.7%
Switzerland	109%	105%
Comparable countries not used by the PMPRB		
Austria	78%	15.8%
Australia	78%	10.9%*
Finland	88%	12.9%
Netherlands	85%	10.9%
New Zealand	79%	n/a
Spain	73%	6.7%

* Data for 2005–2006.
SOURCE CEPMB 2006a; CEPMB 2009; EFPIA 2009; Medicines Australia

patented medicines sold in Canada, regardless of whether they are reimbursed by a public plan. Drug prices are set according to four guidelines[15]:

1. Prices of breakthrough drugs are limited to the median of the prices for the same drugs charged in other specified industrialized countries that are set out in the *Patented Medicines Regulations* (France, Germany, Italy, Sweden, Switzerland, U.K. and the U.S.).
2. Prices of new, patented, non-breakthrough drugs (mostly me-too drugs) are limited so that the cost of therapy is in the range of the cost of therapy for existing drugs used to treat the same disease.
3. Existing patented drug prices cannot increase by more than the Consumer Price Index (CPI).
4. The Canadian price of patented medicines can never, under any circumstances, be the highest in the world.

The PMPRB rules ensure some consistency in patented drug prices across Canada and accordingly lower the price effect variations for patented drugs. Price caps for breakthrough patented medicines are set in reference to prices in the comparator countries. However, in order to allow for more pharmaceutical investment in Canada, the PMPRB uses comparator countries with a strong pharmaceutical industry and with an average ex-manufacturer price that is normally much higher than the OECD average, including the four countries with the most expensive prices worldwide: United States, Switzerland, Germany, and Sweden. Across Canada, price regulation is thus structured so that the price of

TABLE 2.8 **Comparison of prescribing level by class and by average price relative to Canada, 2007**

	Share of patented drug prescriptions, in volume	Average price of patented drugs relative to Canada	Share of generic drug prescriptions, in volume	Average price of generic drugs relative to Canada
Canada	52%	100%	48%	100%
United States	33%	212%	67%	47%

SOURCE Skinner and Rovere 2008.

patented medicines in Canada is normally the fourth most expensive price worldwide, in order to increase the country's biopharmaceutical investment in research and development (R&D).

In short, Canadians pay more for their medicines to increase the revenues of the pharmaceutical industry and their investments in R&D. We noted a sharp decline, however, from 1998 to 2008, in R&D investments by patented pharmaceutical companies in relation to Canadian sales. R&D expenditures as a percentage of Canadian sales went from 11.5% in 1998 to 8.1% in 2008 (PMPRB 2009: 41). Allowing unjustified growth in the cost of patented drugs by offering more generous prices does not seem to offer a major "return on investment" to all Canadians. The choice of other comparator countries could be of great benefit to Canada. For example, the PMPRB (2006) made some bilateral comparisons of patented drug prices between Canada and other comparable OECD countries. From these comparisons, we noted that a slightly different choice of comparator countries could have led to substantial savings for Canada.

The comparison of R&D spending ratios to sales in each country shows that the PMPRB policy to use only countries with a strong pharmaceutical sector did not succeed. The median of the average prices of the comparator countries was 96%, while the median of the average prices would have been 85% if the PMPRB had included the other comparator countries in its analysis. When calculating the price cap on Canada's patented drugs, if the PMPRB had also used all of the countries above rather than only the seven designated comparators, the average price of patented drugs would have been about 11% lower. Since $13 billion worth of patented drugs at ex-manufacturer prices were sold in 2008 (PMPRB 2009: 23), this would have saved Canada $1.43 billion in patented drug costs. Even more substantial savings could have been made if the PMPRB had chosen to compare Canadian prices only to countries where prices are the most competitive.

Price effect from generic drug prices

Generic drug prices may also cause variations in the price effect because of the prices paid for identical drugs, even though it is hard to accurately measure these variations between provinces. The PMPRB does not monitor the prices of generic drugs, as it does for patented drugs. This lack of oversight means that drug distribution practices lack a great deal of transparency, even for Canada's public regulatory agencies .

It seems that the generic drug supply and distribution system is particularly inefficient in Canada, including all provinces. Even compared to the United States, which is often cited as the country with the most ineffective price policies for containing drug costs, Canada makes a poor showing. For example, in 2007, while the prices of patented drugs in Canada were 47% of the U.S. prices, the Americans filled more prescriptions with generics, 67% as opposed to 48% for Canadians. Moreover, generic drug prices in Canada averaged 212% of U.S. prices (Skinner and Rovere 2008).

In accounting for prescription distribution by class and based on price, Canada's average retail drug prices in 2005 for all drugs (patented and generics) were on average 134% of the aver-

age price among OECD countries, whereas, in the United States, the average retail price was 130% of the OECD average (OECD 2008: 32). Although the United States is considered an inefficient model for containing drug costs, Canada is doing worse.

The exorbitant price of generic drugs is largely responsible for Canada's inefficiency in terms of cost, to the point where Canada's Competition Bureau looked at the issue and conducted two studies on it (Competition Bureau 2007; 2008). According to the Competition Bureau (2008: 5), Canada could save around $800 million if it were to implement relatively simple recommendations so that generic drugs would not be overreimbursed. This figure includes all provinces, but the potential savings can be broken down for public and private spending. The public drug plans, which account for 48% of generic drug spending, could save approximately $200 million, while private payers, who account for 52% of this spending, could save about $600 million.

Another way of interpreting these figures is that the public drug plans are currently much more efficient in controlling generic drug costs. If a universal Pharmacare plan had been in place in Canada, we could have saved around $383 million annually, simply because of the lower prices public plans pay for generic drugs, in addition to another $417 million if we had applied the Competition Bureau's recommendations.

Quite frankly, the way in which generic drug distribution in Canada is managed is problematic, if not scandalous. Reimbursement prices for generic drugs are set in terms of the percentage of the price of the original drug. For example, the first generic on the market will cost 50% of the original product in Ontario, 60% in Quebec, and 45% in Alberta; the price as a percentage is sometimes reduced if more than one generic comes on to the market. Normally, the choice to substitute a brand product with a generic is up to the pharmacist. Although the prices reimbursed for generics are set in relation to the price of the original drug, strong price competition remains between generic products. However, pharmacies reap the benefits of this price competition, rather than patients. Generic drug manufacturers therefore compete among themselves by trying to influence pharmacies through large rebates and gifts (Noël 2003). Although these gifts and rebates normally go against pharmacists' code of ethics[16], it is estimated that 85% of pharmacies accept such gifts, thus creating an institutionalized form of corruption in the pharmacy sector. Rebates given to pharmacists, which some people call "professional allowances" and others call "bribes," correspond to at least 40% of generic drug sales (Competition Bureau 2008: 7). A medium-sized pharmacy receives $240,000 a year on average in unethical revenues as defined by the pharmacist codes of ethics (Silversides 2009a). Under normal circumstances, this money should benefit the consumer, but pharmacies are pocketing the profits from price competition between generic manufacturers.

Unlike the public and private drug plans, hospitals get their supplies directly from generic manufacturers, and they negotiate prices. A study by the Competition Bureau (2007: 41) revealed that the prices paid by community pharmacies for generics are on average 39% greater than those paid by hospitals. This is in fact the margin of the rebates given to pharmacies. The generic case provides a very clear example of how a universal Pharmacare plan, within which drug prices could be directly negotiated with manufacturers, could provide important savings. This way, taxpayers could save at least 39% on generic drugs sold in pharmacies. Given that retail pharmacies bought $15.7 billion worth of drugs in 2006, and that 21.4% of sales were in generic drugs (CGPA 2008), a universal Pharmacare plan that included price negotiations with generic manufacturers could have saved $1.31 billion in 2006 and put an end to a system of institutionalized corruption in the way it reimburses pharmacies. Note that this savings of $1.31 billion would in no way af-

fect the benefits derived by generic manufacturers since the same savings would accrue to the government instead of the pharmacies.

In 2006, Ontario attacked this system of rebates by adopting the *Transparent Drug System for Patients Act* (TDSPA). The executive officer of the Ontario Drug Benefit (ODB) Program, Ontario's Pharmacare program, needed bodyguards at the announcement of this new policy because of the many threats she had received (Silversides 2009a).[17] The TDSPA capped professional allowances at 20% and reduced the price of the first generic from 63% to 50% of the price of the original drug.[18] Because of the most-favoured-province clause, price reductions were also noticed in Quebec. Even though Ontario's public drug plan, the largest in Canada, was usually used as a reference system by other drug insurance plans, the generic drug manufacturers reacted to the price cuts in Ontario and Quebec by increasing the prices for private plans and public plans in smaller provinces. In Ontario, prior to the TDSPA, the ODBP paid $75.41 for a generic version of an original drug sold at $100, and a private Ontario drug plan paid $79.30. After the TDSPA came into force, the ODBP paid $61 for the same medicine and the private plans paid $87 (Silversides 2009a).

Whereas the prices of generics went from 63% to 50% of the original drug in Quebec and Ontario, moves by the generic manufacturers caused prices to climb from 63% to 70%, and even 75% in other public and private plans (Competition Bureau 2008: 10). Furthermore, by formally reducing the cap on rebates from 40% to 20%, the TDSPA did not end Ontario's rebates. To the contrary, it doubled them. In league with generic drug manufacturers, pharmacies bought more generics than they distributed to patients, and resold the surpluses to generic manufacturers. The pharmacies then bought back the generics, which allowed them to benefit twice from the rebates that had been cut in half (Babbage 2009). This example, on the face of it patently absurd, shows the relative inefficiency of the current system to benefit completely from the potential savings that might result from the reforms needed in the generic drug sector. Only a properly constituted universal Pharmacare program for the entire country would appear to be in a position to fully realize these savings in a transparent way, while eliminating a system based on underhanded dealings.

In order to reduce the cost paid for generic medicines, British Columbia and Ontario, following the Saskatchewan model, started a tendering process for generic products, awarding the entire market held by the public plan to the manufacturer that bids the lowest. This process, inspired partly by the New Zealand experience, could normally result in substantial savings in the cost of generics. However, the system is unworkable at this time for Canada's provincial plans. As noted earlier, Quebec's most-favoured-province clause requires manufacturers to offer the province the best price available in Canada for its reimbursed drugs, either patented or generic (Paris and Docteur 2006: 29–30). This rule allows Quebec to avoid what are often stormy negotiations with the industry. However, the Quebec rule is especially unfavourable to the other provinces, which have more difficulty negotiating rebates with manufacturers when it comes to generic drugs. In fact, Quebec can be considered to have created a price floor for the other provinces, preventing them from successfully using the bargaining power that their public drug insurance plan offers (Hollis 2009: 20–22). For example, Saskatchewan has been using standing offer contracts for a number of years to purchase generic drugs. Through this tendering approach, it is usually possible to fully benefit from the competition between generic drug companies and thus secure significant savings. The generic companies indeed have a vested interested in cutting their prices to get the full share of the Saskatchewan market. However, since companies would have to offer Quebec the same low

prices and Quebec is a much larger market than Saskatchewan, they are extremely reluctant to drop their prices below what their drugs are selling for in Quebec. Quebec's policy thus prevents Saskatchewan from realizing the potential savings of the competitive bidding process between companies (Hollis 2009: 22–24).

On the other hand, Ontario and British Columbia have started a competitive bidding process for generic products. To circumvent the policy in Quebec, however, they negotiate secret rebates, raising a lot of criticism related to the democratic transparency of such a process (Hollis 2009: 24–28; Silversides 2009b). As a result, the provinces calling for tenders are mimicking pharmacies that receive unethical rebates. The provinces secretly negotiate rebates that will not be made public. Moreover, these secret rebates are not available to private drug insurance plans, and people paying out-of-pocket. The official prices stay the same. Rather than increase the transparency of a system of kickbacks, the provinces deal with it by adopting these same questionable practices. With co-payments based on official prices (excluding secret rebates to provinces), patients are paying more than what is fair (Hollis 2008).

Competitive bidding within provincial drug plans is therefore not only ineffective, but also undemocratic. For example, if co-payments are 30% of the official price and a province manages to negotiate a 75% rebate, then the province may even succeed in turning a profit, changing drug insurance into a hidden tax and bypassing all the rules of fairness required in a democratic society. With a universal Pharmacare program, substantial savings could be found transparently and fairly, and put into taxpayers' pockets by way of competitive bidding involving generic manufacturers. The tendering would be based on the model for supplying hospitals, or alternatively on the New Zealand model (Morgan et al. 2007).

2.6 Conclusions on provincial comparisons

The comparison of spending on prescription drugs by provinces revealed the diversity and complexity of the various cost factors across the country. We can draw some conclusions from the analysis of each of the cost factors.

1. Conclusions drawn from the analysis of the volume effect

1.1 A greater use of prescription drugs did not correlate with better health outcomes or savings in other health sectors.

1.2 The amount of prescription drug use is therefore not determined only by the level of co-payments because the British Columbia example shows that better access to medicines is possible while reducing the volume of use.

1.3 The monthly deductible in Quebec has resulted in signifiant needless costs ($144 million per year) and is a major source of inefficiency in the Quebec drug plan. The deductible is partly responsible for the shortage of hospital pharmacists in the province.

1.4 If a universal Pharmacare plan were to be introduced, the overall volume effect for Canada as a whole would be +10%.

2. Conclusions drawn from the analysis of the therapeutic mix effect

2.1 In order to improve the quality of medical practice and contain undue costs from the promotion of expensive drugs without therapeutic benefits, a universal Pharmacare plan must definitely have a rigorous, independent pharmacoeconomic drug assessment program. In addition to determining whether a drug should be reimbursed, the program must seek to change medical practices in order to instill a culture of evidence-based medicine.

2.2 A rigorous drug assessment process would provide a clear financial incentive to the pharmaceutical industry to produce more truly innovative drugs. Currently, there is an incentive to develop imitations of existing medicines that generate more sales because of the effectiveness of promotional campaigns, rather than the effectiveness of the drugs.

2.3 If Canada established a rigorous drug assessment process in conjunction with a universal Pharmacare plan, it is estimated that it could make savings at least equalling those of British Columbia: around 8% of total costs per annum. This would mean savings of $2 billion across Canada as a whole.

3. Conclusions drawn from the analysis of the price effect

3.1 The 15-year exclusivity protection, offered only in Quebec for patented drugs, costs the province approximately $102 million per year.

3.2 A universal Pharmacare program would allow for a 2% reduction in overall prescription drug expenses by decreasing the dispensing fees, which would translate into a savings of about $502 million per year.

3.3 By taking a more rational approach to choosing the comparator countries used by the PMPRB for determining the price of patented drugs, Canada could save $1.43 billion per year.

3.4 Private plans lose $383 million a year by paying higher prices for generics relative to what the public plans pay.

3.5 The current public programs haven't managed to work together to address the unethical rebate system for pharmacists, whereas doing so would allow them to save $200 million on the cost of generic drugs.

3.6 By setting up a supply system such as the hospitals have, a universal Pharmacare program could save at least $1.31 billion per year on the cost of generic drugs, without reducing profits of generic manufacturers.

3.7 The current attempts by provincial drug plans to reduce drug costs are leading to inefficient, unfair, and undemocratic practices, whereas a universal public plan would make it possible to realize these substantial savings in a transparent, efficient, and fair manner.

CHAPTER 3

International comparisons of drug insurance plans

Comparing provincial drug insurance plans is very useful in identifying some of the best practices across the country, but it gives us little information about their effectiveness relative to other countries. In this chapter, we will compare Canada to other OECD countries. More specifically, we will look at five countries that have a universal Pharmacare plan: France, the United Kingdom, Sweden, Australia, and New Zealand. By analyzing these universal Pharmacare plans, we can determine the optimal format for a universal Pharmacare program in Canada.

3.1 Canada against an international backdrop

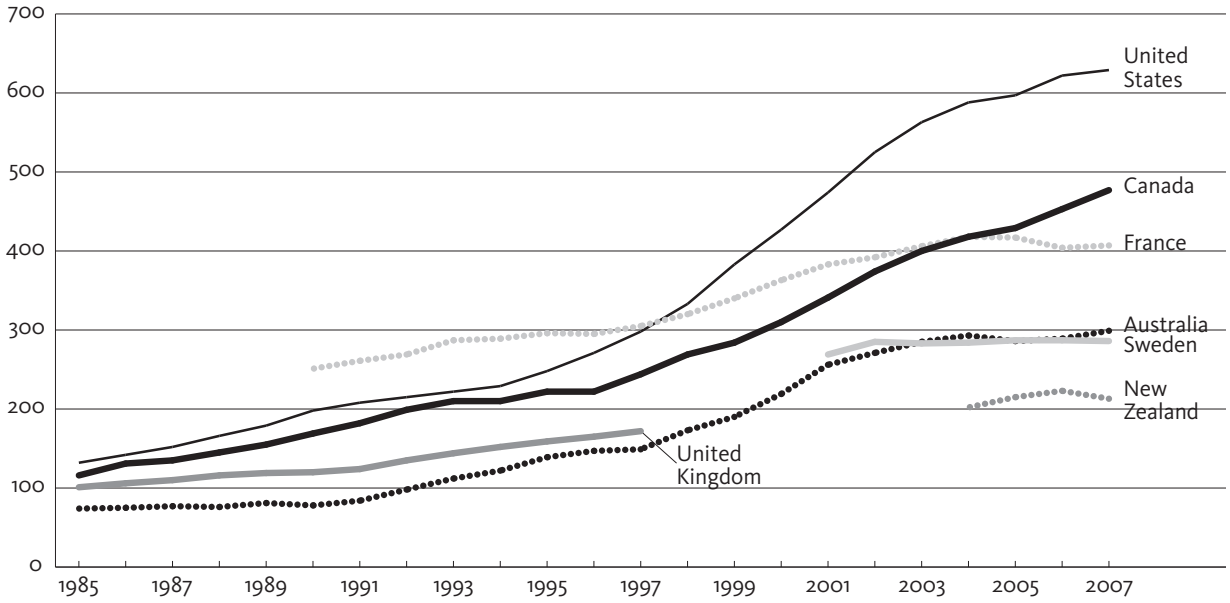
In the first chapter, we noted a steep increase in the cost of prescription drugs in Canada. However, we can see that the actual per capita spending (adjusted for inflation) also grew considerably in the various OECD countries between 1985 and 2008.

We note that most of the countries managed to slow the growth in per capita spending in the past four to six years. Canada stood out, however, for its inability to curb spending on prescription drugs since 2001. The annual real growth (adjusted for inflation) in Canada's prescription drug expenditures (+6.9%) was by far the highest among the countries studied. Canada can only acknowledge failure insofar as the goal of containing the growth in spending is concerned.

The steep increase in Canada's per capita spending was not due to catching up with per capita spending in other countries. On the contrary, Canada spent more per capita on prescription drugs than any of the other countries studied, apart from the United States. Canada also stood out for its lower rate of public spending on prescription drugs, behind only the United States in this regard. The trend seen in these figures is that, when the share of public expenditures out of total expenditures is reduced, the total per capita expenditures is higher.

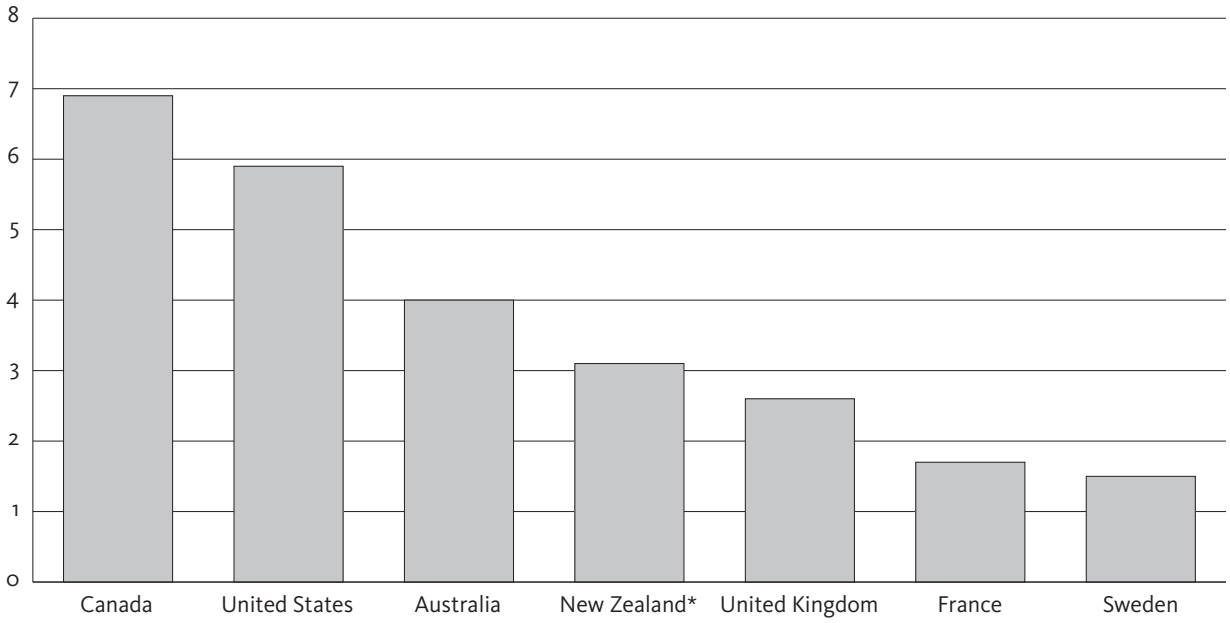
It should also be noted that, for all spending on drugs (prescribed and over-the-counter), Canada is at the back of the pack for OECD countries in terms of public spending, ahead of only the United States and Poland. Moreover, Canada is the country that uses the most private insurance, second only to the United States.

FIGURE 3.1 **Total actual spending on prescription drugs per capita (US$2000, PPP)**



SOURCE OECD Health Data 2009

FIGURE 3.2 **Actual annual growth in spending on prescription drugs from 2001 to 2007 (%)**



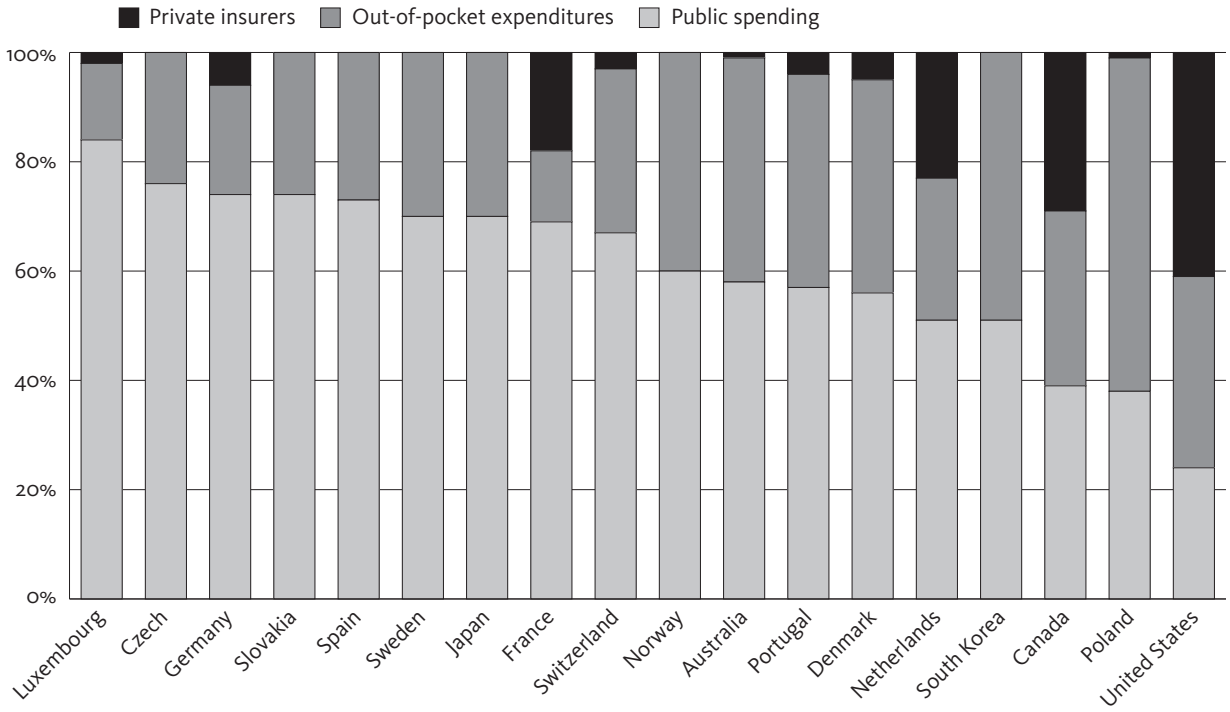
* Average based on available data, 2004 to 2007.
SOURCE OECD Health Data 2009; OECD Main Economic Indicators; NHS Information Centre 2009

TABLE 3.1 **Prescribed drug expenditures per capita by source of finance, 2007 (US$ PPP)**

	Public expenditures	Private expenditures	Total expenditures	Public expenditures out of total expenditures (%)
United States	268	486	754	35.5
Canada	262.5	315.5	578	45.4
Sweden	246	75	321	72.6
New Zealand	160	80	240	74.9
United Kingdom (e)	221	74	295	76.6
France	397.5	89.5	487	81.6
Australia	260	98	358	82.3
Switzerland (e)	307	66	373	94.1

(E) estimate
SOURCE OECD Health Data 2009 and author's estimates (UK)

FIGURE 3.3 **Share of total expenditures on pharmaceutical products by source of finance, 2005 (all OECD countries for which data was available)**

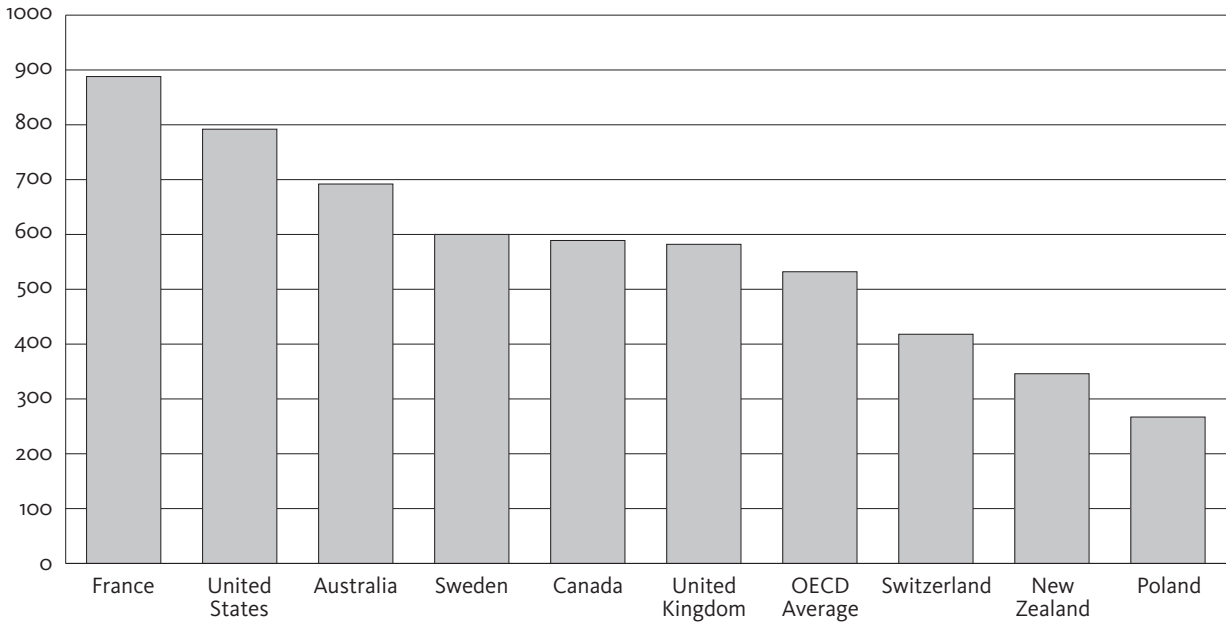


SOURCE OECD 2008; PPRI 2007a

As explained in the first chapter, private drug plans are particularly inefficient. Their strong presence in Canada compared to other countries partly explains Canada's higher total per capita spending and greater annual growth in drug expenditures.

As we saw earlier, total expenditures may be due to a higher volume of medication use per

FIGURE 3.4 **Estimate of the volume of drug use per capita, 2005 (in US$, adjusted based on differences in drug prices, PPP (US$=100))**



SOURCE OECD 2008

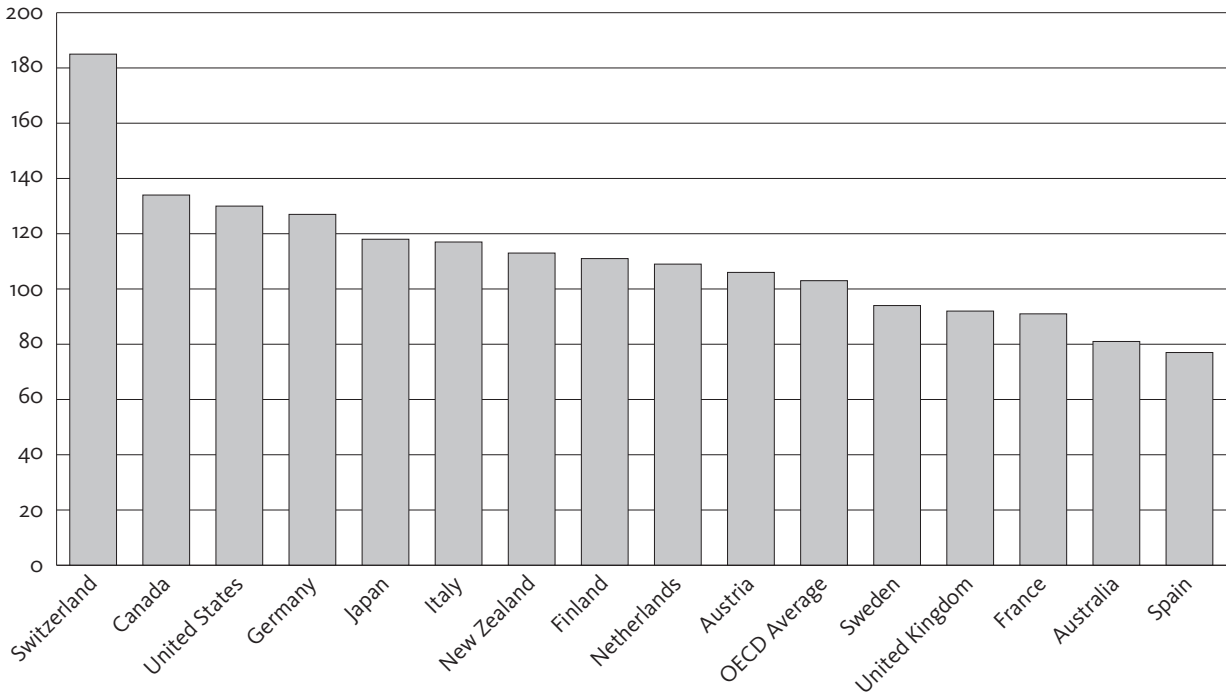
person, among other things. The OECD analyses reveal, however, that Canada does not stand out in terms of high usage, unlike France and the United States. By adjusting the total per capita spending relative to price, we can arrive at an estimate of the volume of units of pharmaceutical products used. Nevertheless, this estimate does not account for the therapeutic mix effect, which can vary from one country to another.

Canada's high per capita spending on prescription drugs cannot be explained by a greater volume of use, but rather by the extremely high retail prices paid in the country. Canada is among the countries that pay the most for their drugs, and is even ahead of the United States, which is known to be an inefficient model in terms of drug prices.

Canada is nevertheless behind Switzerland, and it's necessary to understand why that is. Switzerland pays exorbitant prices for its drugs, almost double the OECD average. This is not as much of a problem for the country because the Swiss people use little medication compared to the OECD average (Figure 3.4). Furthermore, according to Table 3.1, the Swiss government pays over 94% of prescription drug costs, compared to 45% for Canada. Switzerland has agreed to pay this much for its pharmaceutical products because its drug plan is designed both to ensure fair drug access to all citizens by paying close to the full cost, and to help fulfill its industrial policy, ensuring an optimal business environment for pharmaceutical companies. The Swiss government guarantees them favourable revenues with the purpose of attracting investments. It must be understood that the pharmaceutical sector is highly developed in Switzerland, where the Novartis and Roche head offices are located.

The extra spending by Switzerland on public drug coverage is largely compensated for through investment in R&D from the country's pharmaceutical industry. For example, its ratio of pharmaceutical R&D expenditures to domestic sales, in ex-manufacturer prices, was 105% in

FIGURE 3.5 **Relative retail price for an identical volume of pharmaceutical products in the OECD countries, 2005 (US$, market exchange rate)**



SOURCE OECD 2008 - Eurostat OECD PPP Program, 2007

TABLE 3.2 **Average ex-manufacturer prices of medicines in other countries in relation to Canada, by class, 2005 (Market exchange rate: Canada=1)**

	Patented	Generic	Brand-name, non-patented
Australia	0.76	0.83	0.80
Austria	0.78	0.85	0.81
Finland	0.88	0.49	0.75
France	0.85	0.71	0.76
Germany	0.96	0.84	0.91
Italy	0.75	0.76	0.73
Netherlands	0.85	0.80	0.72
New Zealand	0.79	0.23	0.64
Spain	0.73	0.58	0.59
Sweden	0.97	n/a	n/a
Switzerland	1.09	0.99	1.34
United Kingdom	0.90	0.80	0.87
United States	1.69	0.65	2.46
Median	**0.85**	**0.78**	**0.78**

SOURCE PMPRB 2006; PMPRB *Annual Report 2005*

2007, while that ratio was only 8.1% in Canada (PMPRB 2009). It would be totally inefficient for Canada to copy Switzerland and to agree to have the public drug plans accept higher prices, because the costs incurred are not accompanied by similar spinoffs in terms of pharmaceutical investments.

Meanwhile, drug prices remain much higher in Canada compared to countries other than Switzerland and the United States. Average retail prices of patented drugs and generics combined are still higher in Canada than in the United States, however, given the higher dispensing fees and the much lower cost of generics in the United States.

Sales of patented drugs represent 64.9% of all drug sales at ex-manufacturer prices (PMPRB 2009: 23). We saw in Chapter 2 that, if the PMPRB had used all of the countries in the table above to calculate the price cap on Canada's patented drugs rather than limiting itself to the seven designated comparators, then $1.43 billion could have been saved on patented medicines in Canada. If Canada had managed to be at the median for these same countries in terms of ex-manufacturer prices for generics and brand-name, non-patented drugs[19], it could have saved approximately an extra $1.55 billion per year.

These savings would nevertheless remain limited, since Canada would continue to compare itself to countries that have some of the highest prices in the world, such as Switzerland and the United States, to determine its own prices. An alternative for Canada would be to explore scenarios that would allow it to benefit from the most competitive prices internationally.

The New Zealand scenario is one that has been previously examined. That country found ways to have manufacturers of patented and generic drugs compete with each other, in order for it to benefit from substantial savings. In addition to negotiating various rebates with manufacturers, when new drugs do not represent significant therapeutic innovations, New Zealand submits the new drugs to reference prices in each therapeutic category in order to have patented drugs compete with generic drugs. The country also makes use of cross-product negotiations in which a new drug by a company will be reimbursed by the public drug plan if the company agrees to lower the prices of its other drugs already on the market.

New Zealand also uses competitive tendering for generic medicines. These policies allow New Zealand to negotiate effectively on the prices of new drugs listed in the national formularies. Using a set of conservative assumptions, Morgan et al. (2007) compared the prices of New Zealand's prescription drugs with those of British Columbia for the four major therapeutic classes which represent about one-third of sales in Canada. The findings revealed that New Zealand prices were 51% lower on average than those of British Columbia. At the time of the study, British Columbia was also benefiting from a price effect based on the -3.3% price differences the province paid compared to the Canadian average (Morgan et al. 2005). However, in order to abide by the spirit of this study, which estimated the price differences between Canada and New Zealand as conservatively as possible, we will not take this factor into account. If Canada had put the same processes as New Zealand in place to negotiate drug prices, it would have saved 51% off the ex-manufacturer prices for its drugs. Since Canada's total drug costs, at ex-manufacturer prices, were $20.03 billion for 2008, (PMPRB 2009), implementing a system such as the one in use in New Zealand could have led to savings of $10.2 billion, that is, 40% of the total costs of all prescription drugs in Canada.

To realize savings through a competitive tendering process for generics, however, Canada should modify its intellectual property rules slightly to facilitate the introduction of generics once the original patents of the originator drugs have expired. Since 1993, with the coming into force of the Patented Medicines Regula-

tions (notice of compliance), Canada instituted a complex system of proceedings before generics are allowed to enter the market. Canada makes it easy for patented drug companies to obtain several patents on uses of a drug, even though these patents are often not valid.

The system in place, however, does encourage producers of generic drugs to legally challenge these patents in order to show that they are invalid. When the original patent on the drug expires, before a generic can enter the market the generic manufacturer must first prove that all of the other existing patents held on the originator are not valid. Legal cases involving generic and patented drugs have increased exponentially since 1993 (Grootendorst 2009: 14). The problem is that litigation is costly. If generic manufacturers pay litigation costs to enter the generics market, they cannot recover their costs if they are not able to win the tendering process. While patents make it possible to compensate for the costs sunk into research and innovation, there is no mechanism in place to allow companies manufacturing generics to make up for the non-recoverable litigation costs. By simply establishing competitive tendering without revising the intellectual property rules, the static gains (gains in the short term) in price reductions could become dynamic losses (losses in the longer term once companies adapted to the process), gradually dismantling the ability of generics to compete with patented drugs (Hollis 2008). Canada should thus adapt patent rules that could reduce litigation, or ensure temporary exclusivity for generic manufacturers, in order to compensate for their non-recoverable costs. The latter has been done in the United States since the introduction of the *Waxman-Hatch Act* in 1984. New Zealand has adopted a more direct approach: the public sector pays for patent litigation when substantial potential savings are linked to the introduction of a specific generic product.

3.2 Universal Pharmacare abroad

In order to allow fairer access to drugs, many countries have adopted a Pharmacare program covering the entire population, although nearly all of these countries also have co-payments and/or deductibles. To shed light on the debate about implementing such a program in Canada, it would be useful to look at some of these national experiences in order to show the possibility and the sustainability of such programs. Therefore, this section includes a general presentation of the universal Pharmacare programs in France, the United Kingdom, Sweden, Australia, and New Zealand.[20]

France

a. Eligibility and coverage

Citizens of France are covered by a national health insurance system, organized in relation to its citizens' occupations. Public insurance covers prescribed drugs for approximately 99% of the population. The Caisse nationale d'assurance maladie des travailleurs salariés (CNAM) [National Workers' Health Insurance Fund] covers 85% of the population, the Mutualité sociale agricole [Agricultural Mutual Fund] covers farm workers (about 7% of the population), while the the Régime social des indépendants [Independent Workers Social Plan] covers self-employed workers (about 5% of the population) (PPRI 2008: iii).

In addition, most French people (93%) are also covered by a mutual benefit organization, called a "mutuelle," or mutual insurance or private model, and 4% of them are covered by public insurance geared to low-income residents. These supplementary forms of insurance have the effect of providing coverage for co-payments (PPRI 2008: iii).

b. Deductions, co-payments and reimbursements

About 100 medicines, the ones with the white stripes on the label indicating that they are life-

TABLE 3.3 **Markup by wholesalers and pharmacists on pharmaceutical products in France, 2008**

Manufacturing cost (€)	Maximum wholesale markup (%)	Maximum pharmacy markup (%)
0–22.90	9.93	26.1
22.91–150.00	6	10
150.01–400	2	6
Over 400	0	6

SOURCE PPRI 2008, CNAM

sustaining drugs or that they are prohibitively expensive, do not require any co-payment by users. Drugs with a blue label, indicating that the drug is not an essential one, require a co-payment of 65% by the user. Finally, when the drug does not fall under either category and has a white label, a 35% co-payment is required. The difference is covered by the CNAM, the Mutualité sociale agricole, or the Régime Social Indépendant, and therefore the degree of drug coverage depends on the medical impact of the product prescribed.[21] Nevertheless, regional governments provide assistance to people whose income is too low to buy certain medications. Patients can also be exempted from co-payments for certain chronic diseases identified by the Sécurité sociale. Since 2008, French citizens have also had to pay €0.50 per prescription, to a maximum of €50 per year (Commonwealth Fund 2008).

c. Expenses and fees

Wholesalers can apply a markup based on the price of the drug. This markup varies from 0% to 9.93%. Pharmacists can also apply a markup based on the manufacturing cost. The markup varies from 6% to 26.1%.

Finally, a 2.1% value added tax (VAT) is applied to reimbursable pharmaceuticals, and a 5.5% VAT is applied to non-reimbursable pharmaceuticals (PPRI 2008: vii).

d. Drug assessment process

Several government agencies are involved in assessing pharmaceutical products (PPRI 2008: v).

The Agence française de Sécurité sanitaire des Produits de Santé [National Health Products Safety Agency of France] authorizes the sale of drugs. This agency is also in charge of classifying drugs (over-the-counter or prescription drugs), pharmacovigilance, and the control of advertising.

The Haute Autorité de Santé [National Authority for Health] (HAS) assesses medical services. It makes recommendations as to whether or not to include drugs on the list of covered products. Since 2008, the HAS has also been responsible for pharmacoeconomic analyses.

The Comité économique des produits de santé [Economic Committee for Health Care Products] (CEPS) is responsible for assessing cost-effectiveness and negotiating prices with the Association de l'industrie pharmaceutique every five years. The CEPS establishes the prices of medicines reimbursed by the State, and reference prices for each class of drugs, called *tarifs forfaitaires de responsabilité* (TFR), in order to promote generic substitution. The Union nationale des organismes d'assurance maladie complémentaires [National Union of Complementary Health Insurance Organizations] (UNCAM) sets reimbursement rates for pharmaceutical products.

United Kingdom

a. Eligibility and coverage

All British citizens are covered by the National Health Service (NHS), including for prescription drugs.

b. Deductions, co-payments and reimbursements

These elements are determined by each government in the United Kingdom. In Wales, all prescriptions are free since 2007. Scotland plans to abolish all prescription charges by 2011. The abolition of all prescription charge is also currently under review in Ireland.

In England, patients must pay a standard co-payment of £7.10 per pharmaceutical item (PPRI 2007b). Certain categories of patients and their spouses are exempt from these co-payments. Children under 16 years of age, persons 60 years and over, pregnant women, women with a child under the age of one, families receiving social assistance, and patients with certain chronic diseases are all exempt. According to the British health department, in England, 88% of prescriptions are dispensed free of charge, so most patients do not have to apply for reimbursement (politics.co.uk 2009). Patients can buy pre-payment certificates, which free them from having to pay for drugs at a later point, for the duration of the certificate. This process contributes to the increase in the number of prescriptions obtained free of charge.

All drugs approved by the United Kingdom are fully reimbursed unless they are on a negative list, which includes 3,000 or so restricted drugs.[22]

c. Expenses and fees

Manufacturers' prices are not regulated, and there is no tax on drugs in the NHS. On the other hand, the government sets a maximum profit level for companies: a 21% return on invested capital or 6% return on sales (OECD 2008: 110).

d. Drug assessment process

The United Kingdom's National Institute for Health and Clinical Excellence (NICE) only assesses drugs that are deemed controversial. Only 160 products were assessed between 1999, when NICE was established, and January 2009 (Timmins 2009: 1362). NICE prepares guides on medical practices covering a range of topics, including optimal use of medication.

NICE issues its recommendations after independently analyzing all of the clinical and economic data available. During the assessment process, NICE consults the stakeholders, including pharmaceutical companies, who can submit clinical and economic evidence for the assessment of the product's therapeutic value (Fiona et al. 2009: 1438)

Drugs not approved by NICE can still be covered if a local or regional decision is made to that effect. Following the NICE recommendations, however, there is no price negotiation process, which makes it impossible to realize substantial savings (prices are controlled indirectly by the control of company profits). Consequently, NICE has an impact on drug safety, but it has not led to a reduction in the total cost of drugs (Timmins 2009: 1363).

NICE is currently seen as an international model in promoting a culture of evidence-based medicine among all health care providers, and many regional organizations are seeking to draw inspiration from the NICE model (Jacob 2008). So it is not surprising that NICE is also regularly challenged by pharmaceutical lobbies aiming to criticize and dismantle the model (Evans and Boseley 2006; Timmins 2009).

Sweden

a. Eligibility and coverage

All Swedes are covered by a public drug insurance plan called the Läkemedelsförmånerna. The entire plan is financed through taxes.

b. Deductions, co-payments and reimbursements

Patients' co-payments are determined using the total amount they spend on pharmaceutical products over a 12-month period. The more they pay per year for medications, the lower the

TABLE 3.4 **Patient co-payments, in Swedish kroner**[23]

Total cost of prescription drugs over 12 months	Patient co-payment	Maximum paid by patient
Less than 900 (Less than $120)	100%	900 ($120)
901 to 1,700 ($121 to $227)	50%	1,300 ($173)
1,701 to 3,300 ($228 to $440)	25%	1,700 ($227)
3,301 to 4,300 ($441 to $573)	10%	1,800 ($240)
More than 4,300 (More than $573)	0%	1,800 ($240)

SOURCE Moïse and Docteur 2007

co-payment, which is eliminated after spending 1,800 Swedish kroner ($240).

c. Expenses and fees

Dispensing fees are determined by the Läkemedelsförmånsnämnden (LFN). Note that the national network of Swedish pharmacies, Apoteket, was a government monopoly until November 2009. This distribution network included a generics factory generating about 1.2% of Apoteket sales (Moïse and Docteur: 43). Surveys showed that Swedes were pleased with the government monopoly, apart from the restricted hours of operation (Moïse and Docteur 2007: 46). According to the OECD, the Swedish public pharmacy network refutes economic theory, with its distribution costs for prescription and over-the-counter drugs being lower than in countries where there is competition between pharmacies (Moïse and Docteur 2007: 47). The OECD goes so far as to advise against the privatization or deregulation of this network, because deregulation could result in a system of rebates for pharmacies (Moïse and Docteur 2007: 46), as is the case in Canada. However, the OECD does not oppose greater competition for over-the-counter drugs.

The government's monopoly control of Apoteket was dismantled in November 2009 for two principal reasons. First, Sweden was undergoing a lot of pressure from the European Court of Justice, which had ruled that the monopoly on drug distribution was illegal (Davis 2005). The second reason was that the centre-right coalition, which took over from the Social Democratic Party in 2006, had made the dismantling of Apoteket part of its electoral platform, insisting that by introducing competition in the pharmacy sector, efficiency gains could be made. A long-running ad campaign was launched against the head of the Social Democratic Party, Minister of State Göran Persson, regarding the privatization of Apoteket. The ad showed pictures of Fidel Castro, Kim Jong Il, and Göran Persson, and asked what the three men had in common: they were running countries with public pharmacies.

d. Drug assessment process

The medical products agency, Läkemedelsverket, must approve all drugs before they can be sold in Sweden in each therapeutic class. The agency team assesses pharmaceutical products and submits recommendations to a "scientific quality assurance group" (Moïse et Docteur 2007: 9) for acceptance or rejection of the application from pharmaceutical companies. This agency is 95% funded by the fees it requires companies to pay when submitting applications, and 5% by the State. Approvals take 13 months, on average.

All approved pharmaceutical products are then assessed by the LFN. This is an independent agency that decides whether drugs will be covered by the public drug plan. The LFN does not negotiate prices, but prices are an integral part of the pharmacoeconomic analysis in determining whether a drug should be covered. The prices are not regulated.

Australia

a. Eligibility and coverage

Under Medicare, the Australian public health program, all residents are eligible for the Pharmaceutical Benefit Scheme (PBS), a universal Pharmacare program.

The PBS lists all drugs subsidized by the government. The agency is overseen by the Department of Health and Ageing, and administered by Medicare Australia.

b. Deductions, co-payments and reimbursements

The co-payment for PBS drugs is set at a maximum of A$32.90 ($27.42), or A$5.30 ($4.42) for cardholders under the "Safety Net," a social security program.

Patients may also pay a maximum of A$3.79 ($3.16) for the pharmacist's professional fees, as long as this amount does not exceed the maximum co-payment.

Co-payments are reduced when the patient reaches a certain limit, set at A$1,269.90 ($1,058.25) or A$318 ($265) for those under the safety net.[24] Beyond this threshold, all users are entitled to the safety net benefits, except those who were already benefiting from the safety net. People in this latter group do not have to pay anything further once they have reached the threshold.

Any costs exceeding the co-payment are fully assumed by the government for all drugs on the PBS list, called the Schedule for Pharmaceutical Benefits. Prices are reviewed on an annual basis. The reference price for a therapeutic class is established based on the least expensive item, and patients must cover the costs if they opt for a more expensive medicine in the therapeutic class.

c. Expenses and fees

As of July 1, 2009, pharmacists receive A$6.42 ($5.35) for ready-prepared items and A$8.46 ($7.05) for those extemporaneously prepared.[25] They can also apply a markup, ranging from 15% for drugs under A$30 ($25), up to A$70 ($58.33) for drugs over A$1,750 ($1,458.33).

The wholesale markup is set at 7.52% to a maximum of A$69.94 ($58.28).

d. Drug assessment process

Companies that would like their drugs registered for coverage are required to submit the products to the Pharmaceutical Benefit Advisory Committee (PBAC). This independent agency is responsible for making recommendations to the health minister on which drugs to list on the PBS. The minister cannot add a drug to the list if it has not been recommended by the PBAC. The agency considers the efficiency of the products submitted by the pharmaceutical companies that includes a cost comparison of the various comparable treatments. If a drug application is rejected, the company can submit another application for the drug if new information is provided or if it is offering lower prices (Fiona et al. 2009). After receiving PBAC approval, a drug is not necessarily added to the national formularies because the Department of Health and Ageing reserves the right to negotiate prices for new drugs.

New Zealand

a. Eligibility and coverage

All New Zealanders benefit from universal health coverage, which includes the cost of prescription drugs. This coverage is provided through 21 District Health Boards, somewhat similar to the provincial health authorities in Canada (Morgan et al. 2007).

b. Deductions, co-payments and reimbursements

Since September 1, 2008, a co-payment of only NZ$3 ($2.31) per prescription has been required for prescriptions of subsidized drugs, whereas co-payments were typically five times more prior to that date. Prescription medicines are usually

free for children less than 6 years old. The Pharmaceutical Management Agency (PHARMAC) lists on its Pharmaceutical Schedule drugs that are subsidized in New Zealand, and reimbursements are determined by reference prices for each therapeutic class. PHARMAC reimburses on the basis of the least expensive drug for each therapeutic class. Patients who want a more expensive drug must pay 186% of the difference (PHARMAC 2009: 8–9). PHARMAC has a set budget and must ensure that the overall pharmaceutical budget does not exceed the limit. Therefore, the agency is aggressive in negotiating prices with manufacturers (Morgan et al. 2006).

c. Expenses and fees

Dispensing fees are set for fully reimbursed drugs. Patients must pay extra for prescriptions outside of operating hours. As noted earlier, if they buy a medicine that is more expensive than the one that is covered in that therapeutic class, patients must pay 186% of the difference, which includes the pharmacist's markup and the tax (PHARMAC 2009: 8–9).

d. Drug assessment process

In order to be subsidized in New Zealand, all medications must first be therapeutically assessed by the Pharmacology and Therapeutics Advisory Committee (PTAC). Once the assessment is completed, recommendations are sent to PHARMAC, but the recommendations do not determine whether the drug will be added to the national formularies. In light of the therapeutic assessment, PHARMAC performs a pharmacoeconomic and cost-effectiveness analysis of the drug, and negotiates prices with the manufacturers. If a reasonable agreement is reached, the drug is then added to the Pharmaceutical Schedule (Morgan et al. 2006).

The Pharmaceutical Schedule is organized through a reference price system, in which patented drugs and generics can be pitted against each other within a therapeutic class if the former are not actually more effective than the latter. When a new patented drug provides little or no therapeutic improvement, PHARMAC only pays the reference price, which is the price of the least expensive alternative in the therapeutic class. The manufacturer of the new patented drug therefore is in the position of having to lower the price of its drug in order to avoid the situation where patients use only the least expensive alternative. Since patented drug manufacturers try to maintain high prices for their drugs that are on public formulary lists (given that prices in one country are often used by other countries in setting prices), PHARMAC sometimes agrees to cover a high price, and in exchange accepts rebates in the form of spending limits (in addition to negotiating prices, sales volumes are negotiated, and if the sales volume is too high, the manufacturer must commit to pay the difference). New Zealand also uses cross-product negotiations. PHARMAC can accept a high price for a patented drug if, in exchange, the manufacturer lowers the prices of its drugs that are already listed. (Morgan et al. 2007). Negotiations for generic products are carried out through a competitive bidding process by therapeutic class, but it is usually the manufacturer of the original product that offers the best price through a generic version of its product.

What is to be learned from abroad?

National Pharmacare programs in France, United Kingdom, Sweden, Australia, and New Zealand enable one to better grasp how diverse these programs can be in order to respect the national specificity of public health institutions. It is still to be determined, however, if such universal Pharmacare programs are economically efficient as compared to Canada. Based on the indicators examined in Section 3.1, we can make the five following statements when comparing these countries to Canada:

1. The citizens of these countries spend a great deal less on drugs, while consuming an equal or greater amount (except for New Zealand where usage is considerably lower). Per capita spending on prescription drugs in these countries ranges from 51% to 84% of Canada's spending.
2. The citizens in these countries pay less for their medication. The retail price of brand-name and generic drugs in these countries is 16% to 40% lower than in Canada.
3. These countries were successful in suppressing the inflation bulge in terms of drug prices. The actual annual growth in costs for these countries was on average two to three times lower than in Canada (except for Australia, where the increase was 40% lower).
4. These countries made much less use of private funding. The share of public expenditures out of total expenditures for these countries was 60% to 80% higher than that of Canada.
5. These countries were in a much better position to attract pharmaceutical investment than Canada. The ratio of pharmaceutical R&D expenditures to domestic sales in ex-manufacturer prices for Australia, France, Sweden, and the United Kingdom was from 35% to 400% higher than for Canada. The ratio for New Zealand is unknown.

These examples show not only the possibility but also the sustainability and greater effectiveness of a universal Pharmacare program, as compared to existing programs in Canada. There is simply no economic argument to disqualify universal Pharmacare programs, even with first dollar coverage. On the contrary, economic comparisons show how the diverse universal Pharmacare programs are by far more advantageous in terms of costs as compared to the actual situation in Canada.

CHAPTER 4

Future scenarios for Canada

In the introduction to this report, we stated that a properly constituted public drug plan must be based on three fundamental objectives:

1. Equity and access: Ensure universal and equitable access for all.
2. Drug safety: Improve the safety and appropriate use of drugs.
3. Cost control: Ensure the cost of drugs is sustainable for public finances.

We nevertheless mentioned an additional objective: using the drug insurance plan and its institutional environment as an industrial policy to attract investment and increase job creation in the patented and generic pharmaceutical sectors. However, industrial policy objectives must in no way compromise fundamental objectives. In a democratic society, it is unthinkable to agree to compromise the first two fundamental objectives for the sake of an industrial policy. Neither the principles of fairness for drug access nor drug safety should ever be a matter of negotiation: every citizen has a right to access effective treatment, and rights should not be up for bargaining. Nevertheless, the same does not go for controlling costs. It is completely acceptable for a democratic society to agree to increase its drug costs and improve company revenues in order to enhance investments, innovation, and employment. But these incremental costs must be compensated for through spinoffs from the pharmaceutical industry.

The establishment of universal Pharmacare for all prescription drug expenses, with first-dollar coverage, would ensure at the outset that the first essential objective, equitable access, is fully achieved. In order to select the best medicines for each therapeutic class and influence the prescribing habits of physicians to more effectively reach the second objective, a Pharmacare program must be combined with a drug assessment process. This process must be rigorous and proactive with regard to disseminating appropriate information and clinical guidelines to fully meet the second objective. As to the third objective, its achievement should be studied in the context of taking into consideration a set of complementary industrial policy objectives.

In this chapter, we will review four scenarios for implementing a universal Pharmacare program in Canada. We are taking for granted that

the objectives of access and safety are non-negotiable. The four scenarios vary in their compromise between the objectives of cost reduction and industrial policy. The four scenarios are as follows: 1) continue to have high costs for patented medicines for industrial policy reasons that benefit the pharmaceutical industry, as is currently the case; 2) accept a compromise on cost/industrial policy such that Canada is comparable to the OECD average in prices; 3) strengthen industrial policies linked to higher costs of patented drugs; and 4) cancel all industrial policies linked to higher drug costs. Note that the industrial policy for attracting investment and creating employment in the pharmaceutical sector can be maintained in other ways than artificially raising drug costs. We will end the chapter with some considerations for ensuring the best industrial policies in the pharmaceutical sector.

4.1 Scenarios for establishing a universal Pharmacare program in Canada

Based on the analyses presented in earlier chapters, we can now calculate the savings and potential expenses of a universal Pharmacare plan and an accompanying rigorous drug assessment process.

We can take another look at the cost-benefit analyses for establishing universal Pharmacare from the preceding chapters. They will be used as assumptions in the four scenarios for implementing universal Pharmacare according to the desired level of industrial drug cost policy. Eleven items of analysis have been identified:

1. Canada spent $25,141 million on prescription drugs in 2008.

2. A universal drug plan providing first-dollar coverage would increase use by 10%.

3. A universal Pharmacare program would reduce the overall spending on prescription drugs by 2% through a decrease in dispensing fees.

4. If Canada were to establish a rigorous drug assessment process in conjunction with a Pharmacare plan, it is estimated that savings could be at least equal to those of British Columbia, which is approximately 8% of overall prescription drug costs. This would mean savings of approximately $2 billion across Canada as a whole.

5. Private drug plans, with administrative fees in excess of approximately 6% of sales as compared to public drug plans, create an additional expenditure that amounts to $560 million per year in useless administrative fees.

6. Private insurance plans receive tax subsidies on the order of 10% of their expenditures. In 2008, about $933 million in tax subsidies could have been recovered through a universal Pharmacare program.

7. The monthly deductible in Quebec results in needless supplementary costs of $144 million per year and is a major source of inefficiency in the Quebec drug plan.

8. By setting up a supply system such as the hospitals have, a universal Pharmacare program could save at least $1.31 billion per year on the cost of generic drugs, without reducing the profits of generic manufacturers.

9. The 15-year exclusivity protection, offered only in Quebec for patented drugs, costs approximately $102 million per year.

10. Canada could save $1.43 billion per year by taking a more rational approach to choosing the comparator countries used by the PMPRB for determining the price of patented drugs in Canada.

11. Canada could save $10.2 billion on the ex-manufacturer prices of prescription drugs by using the most competitive purchasing processes.

With the above in mind, we can measure the expenditures and savings that would result from establishing a universal Pharmacare pro-

TABLE 4.1 **Scenario 1: Universal pharmacare with the same industrial drug cost policies**

Current expenditure on prescription drugs	**$ 25,141 million**
Distribution of prescription drug costs/benefits	
Growth in expenditures from increase in use	+10% of current expenditure
Reduction in expenditures from decrease in dispensing fees	-2% of current expenditure
Reduction in expenditures from drug assessment	-8% of current expenditure
Elimination of the monthly deductible in Quebec	-$ 144M
Elimination of rebate system for generics	-$1,310M
Total savings on prescription drugs	-$1,454M
Total prescription drug costs with a universal pharmacare plan	$23,687M
Additional impacts other than for prescription drugs	
Elimination of extra administrative costs of private plans	-$560M
Elimination of tax subsidies	-$ 933M
Total of additional impacts	-$ 1,493M
Total net savings	**$2,947M**

gram based on the four scenarios, which differ in their industrial drug cost policies.

Scenario 1: Keep the same industrial policies linked to drug costs

If a universal Pharmacare plan had to be established with the current industrial policies, which are favourable to the pharmaceutical industry, the new plan would still lead to substantial savings. Items 1 to 8 would have to be taken into account, but the costs identified in items 9 to 11 would be maintained.

Taking for granted the assumptions introduced above, we note that, even if we maintained the industrial policies giving favourable prices to manufacturers of patented and generic drugs, substantial savings would still be possible through a universal Pharmacare plan. Such a plan would result in savings of $1,454 million in prescription drug costs alone, a reduction of 6%. Furthermore, such a plan would generate additional savings by eliminating the extra administrative costs of private drug insurance plans and by eliminating the tax subsidies private plans receive. This would mean an additional $1,493 million in savings, allowing Canadians to save a total of nearly $2.95 billion in non-productive expenditures.

Thus, even without the significant bargaining power of universal Pharmacare, it turns out that the plan costs no more than the current system. In fact, it is more economically efficient, even when use is increased by 10%.

Scenario 2: Revise industrial policies linked to costs to be in line with those of other OECD countries

This report has revealed that Canada has put certain measures in place to artificially increase the revenues of brand-name pharmaceutical companies. The first measure is the 15-year rule for Quebec, which has increased prescription drug costs by $102 million per year in that province. Some feel that this rule is compensation for its most-favoured-province clause, but a single price for drugs could be established through universal Pharmacare, *de facto* repealing the most-favoured-province clause. The 15-year rule would no longer have a purpose, other than to give extra privileges to the pharmaceutical industry in comparison to other OECD countries and Canadian provinces. Moreover, we have seen

TABLE 4.2 **Scenario 2: Universal pharmacare with industrial policies linked to drug costs which have been revised to be in line with those of other OECD countries**

Current expenditure on prescription drugs	**$ 25,141M**
Distribution of prescription drug costs/benefits	
Growth in expenditures from increased use	+10% of current expenditure
Reduction in expenditures from decrease in dispensing fees	-2% of current expenditure
Reduction in expenditures from drug assessment	-8% of current expenditure
Elimination of the monthly deductible in Quebec	-$ 144M
Elimination of rebate system for generics	-$ 1,310M
Elimination of the 15-year rule in Quebec	-$ 102M
Review of the price-setting process by the PMPRB	-$ 1,430M
Total savings on prescription drugs	-$ 2,986M
Total prescription drug costs with a universal pharmacare plan	$ 22,155M
Additional impacts other than from prescription drugs	
Elimination of extra administrative costs for private plans	-$ 560M
Elimination of tax subsidies	-$ 933M
Total of additional impacts	-$ 1,493M
Total net savings	**$ 4,479M**

that the PMPRB sets its prices based on those in comparator countries, some of whose prices are among the highest in the world, in order to attract pharmaceutical investments to Canada. By setting patented drug prices at the median of the seven countries that are among the most generous to the industry, Canada is usually in fourth place internationally when it comes to ex-manufacturer prices of patented drugs. Canada could change the way it sets ex-manufacturer prices for patented drugs, however, by using comparator countries that are more representative of its situation in terms of pharmaceutical industry spinoffs. If Canada were to take into account the other representative countries chosen by the PMPRB in its 2005 report, it would slide from fourth to sixth place internationally in terms of ex-manufacturer prices of patented drugs. Accordingly, it would save $1.43 billion. The second scenario thus takes items 1 to 8 into consideration, but also includes items 9 and 10.

This second scenario would lead to more significant savings. Around 12%, or $3 billion, could be saved on the cost of prescription drugs. The savings of $1,493 million in scenario 1 would be maintained, which would mean a total savings of $4,479 million. Policies whereby prices are set at an artificially high level are totally inefficient as industrial policies because the ratio of R&D spending by the patented drug industry to sales is very low in Canada (8.1%) compared with other OECD countries. This ratio has continued to decrease since 1995. If Canada wants to avail itself of effective industrial policies, it could use the savings generated from a universal Pharmacare program, as envisaged in this second scenario, in order to redirect this money into more effective innovation policies, such as direct subsidies, research tax credits, public research funding, or the establishment of public manufacturers.

Scenario 3: Strengthening of industrial policies linked to drug costs

A third scenario would be to strengthen industrial policies linked to the costs of patented drugs in order to more effectively promote the

TABLE 4.3 **Scenario 3: Universal pharmacare with stronger industrial policies linked to drug costs**

Current expenditure on prescription drugs	**$ 25,141M**
Distribution of prescription drug costs/benefits	
Growth in expenditures from increase in use	+10% of current expenditure
Reduction in expenditures from decrease in dispensing fees	-2% of current expenditure
Reduction in expenditures from drug assessment	-8% of current expenditure
Elimination of the monthly deductible in Quebec	-$ 144M
Review of the price-setting process by the PMPRB	+$ 260M
Elimination of rebate system for generics	-$ 1,310M
Total savings on prescription drugs	-$ 1,194M
Total prescription drug costs with a universal pharmacare plan	$ 23,947M
Additional impacts other than from prescription drugs	
Elimination of extra administrative costs of private plans	-$ 560M
Elimination of tax subsidies	-$ 933M
Total of additional impacts	-$ 1,493M
Total net savings	**$ 2,687M**

pharmaceutical industry based in Canada. In this regard, we will consider the possibility of the PMPRB setting patented drug prices, not by way of the median in the seven comparator countries that are currently used, but by way of the median in the three countries with the highest patented drug prices in the world. In 2008, the countries with the highest ex-manufacturer prices were the United States, Germany, and Switzerland. The median of the ratio of foreign prices to Canadian prices for these three countries was 102% (PMPRB 2009: 33). By strengthening its industrial policy in this way, Canada could ensure that it consistently aims for second place internationally in terms of ex-manufacturer prices of patented drugs, rather than fourth place as is currently the case. If Canada strengthened its industrial drug cost policies, the PMPRB would raise the ex-manufacturer prices of patented drugs by 2%. Since sales of patented drugs at ex-manufacturer prices were $13 billion for 2008 (PMPRB 2009: 23), this would mean an additional cost of $260 million.

Even by artificially inflating the ex-manufacturer prices of patented drugs so that Canada takes over second place internationally, a universal Pharmacare plan would bring about savings of 4.7% on all prescription drug costs, in addition to extra savings of close to $1.5 billion by eliminating the extra administrative costs and tax subsidies for private drug plans. Canada could save $2.7 billion overall.

Scenario 4: Cancel industrial drug cost policies

The fourth scenario is based on the New Zealand example. New Zealand has established drug purchasing policies that maximize cost reductions for prescription drugs. Item 11 of the analysis is helpful in this regard, as it shows that, by availing itself of the most competitive purchasing policies, Canada could save $10.2 billion on ex-manufacturer prices for prescription drugs. However, this scenario requires additional consideration because it results in double-counting with some of the other factors. For example, by resorting to the use of reference prices for therapeutic classes, item #11 already includes potential savings through a rigorous drug assessment process (#4). In addition, public tendering for generic

TABLE 4.4 **Scenario 4: Universal pharmacare with cancellation of the industrial policies associated to drug costs**

Current expenditure on prescription drugs	**$ 25,141M**
Distribution of prescription drug costs/benefits	
Savings from competitive purchasing	-$ 10,200M
Growth in expenditures from increase in use	+10% of expenditure
Reduction in expenditures from decrease in dispensing fees	-2% of expenditure
Elimination of the monthly deductible in Quebec	-$ 144M
Elimination of the 15-year rule in Quebec	-$ 102M
Total savings on prescription drugs	-$ 9,251M
Total prescription drug costs with a universal pharmacare plan	$ 15,890M
Additional impacts other than for prescription drugs	
Elimination of extra administrative costs of private plans	-$ 560M
Elimination of tax subsidies	-$ 933M
Total of additional impacts	-$ 1,493M
Total net savings	**$ 10,744M**

drugs includes savings by eliminating generic manufacturer rebates (#8). Next, cross-product negotiations for patented drugs includes potential savings achieved by revamping the price-setting process for patented drugs (#10). Finally, since item #11 was calculated based on the current level of use, the increase in use and decrease in dispensing fees should be calculated only after the expenditures have been adjusted based on the savings from competitive purchasing.

Inclusion of market competition in the drug purchasing policy could therefore mean savings of $9,251 million in prescription drugs, i.e., a 37% savings. An extra $1,493 million could be saved by eliminating the extra administrative costs of private plans and tax subsidies. Such a drug plan would save a total of $10.7 billion per year. Although this scenario is fully achievable with political will, it remains a disquieting scenario for Canada's well-established pharmaceutical industry, which would see some of its advantages disappear. Nevertheless, by containing drug costs, the intent is not to discourage Canadian pharmaceutical investments. On the contrary, strong industrial policies could be developed through other avenues. Nevertheless, it still requires that resources must be organized to come up with the most effective industrial policies.

4.2 Considerations related to Canada's biopharmaceutical policy

As mentioned earlier, pursuing the dual objective of containing drug costs and increasing the revenues of pharmaceutical companies poses a problem. Any increase in revenue can only mean that someone has to spend more. However, it is normal for Canada to have policies that are favourable to Canadian business, and particularly to high-technology companies, in order to attract investment and benefit from the spinoffs in terms of employment and the development of expertise. However, the costs must be measured against the economic benefits when developing and implementing industrial policies.

It must be noted that many types of industrial policies can be favourable to the pharmaceutical sector: direct subsidies, tax subsidies, commercialization of public sector research in cooperation with the business sector, expansion

of intellectual property rights, loan guarantees, and so on. In the four scenarios, only two industrial policies are favourable to the pharmaceutical industry: the 15-year rule in Quebec, and especially the option to deliberately set prices high for patented drugs. The political enthusiasm for instituting a universal Pharmacare plan and realizing the savings associated with such a plan will depend on an analysis of the public costs associated with industrial policies in relation to their spinoffs. Therefore, we think it is important to clarify a few basic steps: 1) identify the economic spinoffs from Canada's biopharmaceutical sector, 2) determine the biopharmaceutical industry's R&D contribution in Canada, and 3) assess the relevance of industrial policies based on increasing drug costs.

1. Pharmaceutical industry spinoffs in Canada

It is difficult to accurately assess the pharmaceutical sector spinoffs. However, we can provide a broad outline of this Canadian industry based on information from various sources. According to Statistics Canada,[26] in 2007, the overall pharmaceutical industry employed 27,376 workers, generated revenues of $8.3 billion, and contributed $4.8 billion in terms of value added (total of the value created by the business). Revenues of $6.8 billion came from exports, while Canada imported $12.2 billion, meaning a trade gap of $5.4 billion. However, these Statistics Canada figures are understated because only pharmaceutical companies whose main business was producing drugs were considered, and the contributions of pharmaceutical companies whose primary focus was research or marketing were omitted.

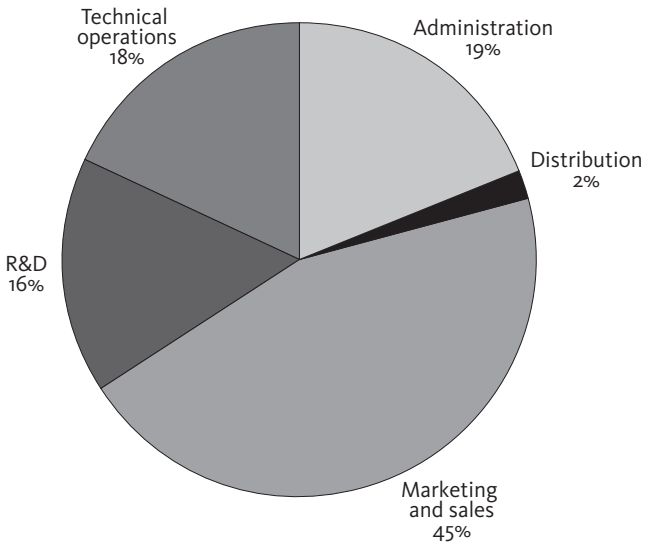
A member survey of Rx&D, the leading association of Canada's innovative pharmaceutical companies, revealed that approximately 86% of direct and indirect jobs created by these companies were located in Quebec and Ontario (PriceWaterhouseCoopers 2005). In its new biopharmaceutical strategy, made public in October 2009, Quebec estimated that 20,900 jobs were related to the biopharmaceutical sector in 2008 (MDEIE 2009), while Ontario's Ministry of Economic Development and Trade estimated that over 21,000 Ontarians worked in this sector. We can therefore estimate that the 42,000 employees in Quebec and Ontario make up approximately 86% of the total employed in the pharmaceuticl sector in Canada. A generous estimate of the number of employees in Canada's biopharmaceutical sector (patented, generic and biotechnological) would be about 50,000.

Since this figure is almost double the employees accounted for by Statistics Canada, we can get a better picture simply by doubling the Statistics Canada figures on revenues and value added. We can assume that Canada's biopharmaceutical industry (patented, biotechnological and generic) generates at least $16.6 billion in revenues, and contributes a maximum of $9.6 billion in terms of value added. According to Statistics Canada, the average salary in the biopharmaceutical sector in 2007 was $59,834, so we can assume that the industry's total payroll expenditures were around $3 billion.

A survey of Rx&D companies gives us a better idea of the distribution by type of payroll expenditure: 41% of employees were involved in promotional activities while 17% worked in R&D. However, large wage differences were observed by type of job, for example, with pharmaceutical representatives being paid 18% more than the R&D staff. By dividing payroll expenditures into type of job, we get a fairer picture of the distribution of resources in this sector.

It is clear that the biopharmaceutical industry deploys three times the amount of energy to sell and promote its products than it does for R&D. Given that R&D accounts for only 16% of the $3 billion in payroll expenditures, we can estimate that Canada's entire pharmaceutical industry had R&D payroll expenditures of only $480 million in 2008, whereas the total payroll for selling and promoting its products was about $1,350 million.

FIGURE 4.1 **Distribution of payroll expenditures by type of job in Rx&D companies, 2003**



SOURCE PriceWaterhouseCoopers 2005, Rx&D

TABLE 4.5 **Gross domestic expenditures on health R&D in Canada by funder, 2007 ($M)**

Federal government	1,185
Provincial governments	341
Businesses initiatives	1,619
Higher education	1,677
Private not-for-profit	509
Foreign	777
Total	6,109

SOURCE Statistics Canada 2009

The industry's financial incentives seem much more oriented toward increasing promotion to generate sales rather than increasing research to find new treatments.

2. Industry contribution to R&D

The prevailing opinion is that the industry's contribution to pharmaceutical R&D is a top priority. The use of industrial policies in this sector is constantly justified by the need to attract private funds in order to undertake R&D and discover new innovative treatments. However, very little consideration is given to the significance of publicly-funded research. The latter is often considered secondary and marginal compared to industry-funded research. It is hard to explain why this preconception is so persistent when the figures clearly show the opposite. Although it is impossible to compare public and private spending on pharmaceutical R&D, Statistics Canada offers a detailed analysis of these expenditures on overall health research (Statistics Canada 2009).

Funding from other countries is almost entirely from foreign firms that are partnering with local firms. Given that the patented drug companies

TABLE 4.6 **Tax subsidies by province for R&D spending in Canada, 2007 (including federal subsidies)**

	B.C.	Alta.	Sask.	Man.	Ont.	Que.	N.B.	N.S.	P.E.I.	N.L.
Effective tax rate for R&D (%)	-96.6	-40.3	-153.5	-142	-112.7	-202	-151	-146.2	-35	-139.5
Net R&D cost per dollar spent by the industry	0.51	0.71	0.39	0.41	0.47	0.33	0.40	0.41	0.74	0.42
Government subsidy portion of each dollar spent by the industry	0.49	0.29	0.61	0.59	0.53	0.67	0.60	0.59	0.26	0.58

SOURCE McKenzie (2005; 2008)

TABLE 4.7 **Tax subsidies in Canadian R&D spending by patented pharmaceutical companies, 2007**

	Western Provinces	Ontario	Quebec	Atlantic Provinces	Canada
Effective tax rate for R&D (%)	-108.1	-112.7	-202	-117.9	-
Net R&D cost per dollar spent by the industry	0.48	0.47	0.33	0.46	-
Government subsidy portion of each dollar spent by the industry	0.52	0.53	0.67	0.54	-
Gross R&D expenditures by the patented pharmaceutical industry (millions of dollars)	124	567.8	561.7	20.5	1274
Net R&D expenditures by the patented pharmaceutical industry (millions of dollars)	59.5	266.9	185.4	9.4	521.2
Government subsidy portion of total R&D (millions of dollars)	64.5	300.9	376.3	11.1	752.8

SOURCE McKenzie (2005; 2008); PMPRB 2009.

alone reported total spending of $1,325 million in R&D in 2007, it is evident that pharmaceutical R&D constitutes the bulk of health research. We can estimate that business enterprises (plus other countries) funded 39% of gross R&D spending in the health sector. However, this figure does not account for a basic component of research funding in Canada: tax subsidies. By adding federal and provincial subsidies, we note that significant subsidies are granted to R&D in each province. Quebec is the most generous, with two-thirds of R&D spending by business enterprises being funded through government subsidies.

Taking these tax subsidies into account, we can re-calculate the actual contribution by patented drug companies to pharmaceutical R&D in Canada. Indeed, 59% of the gross expenditures were tax subsidies and thus indirectly came from the public purse.

While the patented pharmaceutical companies reported current spending of $1,274 million on R&D, the actual (net) expenditures were $521 million. Public funds represented 144% of the private funds.

Considering overall health R&D using the rates above, we can estimate that $1,414 million of the $2,396 million in R&D spending by business enterprises and foreign sources comes from the public purse. Private funding from the industry therefore makes up only 16% of overall health R&D. The low contribution from business to pharmaceutical R&D financing (and overall health R&D) is problematic. It raises serious questions about our determination to organize the entire national system of pharmaceutical innovation around private sector R&D when, at the end of the day, net company R&D funding is relatively weak, if not marginal.

3. Are industrial policies based on drug costs effective?

Increasing the revenues of biopharmaceutical companies through policies geared toward providing favourable prices proves completely ineffective, for a number of reasons. First, these policies are inequitable on a provincial scale. The biopharmaceutical industry is concentrated in Ontario, Quebec, and British Columbia. These three provinces received 94% of venture capital in this sector in 2008 (MDEIE 2009). The poorest provinces, including Newfoundland and Labrador, New Brunswick, and Prince Edward Island, received virtually no spinoff benefits from the pharmaceutical sector (Invest in Canada 2009). However, these provinces paid the same high prices as the rest of Canada to promote the country's pharmaceutical industry established in the wealthier provinces. The poorest provinces therefore pay a share of the development costs of the rich provinces without getting anything in return.

In the scenarios examined earlier, we saw that Canada deliberately sets its prices high to encourage research and development on Canadian soil. The second scenario showed that Canada could save $1.43 billion if its industrial policies regarding the costs of patented drugs were in line with those of other OECD countries. The PMPRB's official reason for setting arbitrarily high prices for our patented medicines is to encourage research and development. Total R&D spending by the patented pharmaceutical industry is $1.31 billion, 59% of which consists of tax subsidies. The PMPRB's policy has therefore been a complete failure, since it leads Canadians to spend $1,530 million to generate $537 million in R&D spending. Canada would benefit enormously by using this money differently to encourage pharmaceutical R&D. For example, it could consider using this money to fund new types of incentives for pharmaceutical innovation, such as on the basis of its global health impact, as proposed by the Health Impact Fund (Hollis and Pogge 2008).

In the fourth scenario, we looked at the possibility of cancelling all industrial policies linked to the costs of drugs. If Canada developed a more competitive purchasing system for its medicines, it could save $10.2 billion, although this argument is somewhat problematic. If Canada were the only country to adopt this strategy, it would save a considerable amount, and the high prices in other countries would ensure sufficient revenues so that the transnational pharmaceutical industry would maintain a high enough profit level to serve as an incentive to develop new products. However, if all countries developed a more competitive purchasing system, profits would drop to a point where the industry might not have sufficient incentives to develop new products. The static gains for Canada, looked at in isolation, could become dynamic losses over the long term if all countries did the same, unless these countries put a public infrastructure in place for research and marketing of new drugs.

Despite these considerations, the current economic cost of Canada's industrial policy is simply abusive. The costs of an industrial policy can only be justified by the multiplying effect of the economic spinoffs. For example, a $1 million government grant to a company would be totally justifiable if it helped increase the spinoff benefits, such as generating five to 10 times the amount in value added (wages, taxes and profits). In the case of Canada's pharmaceutical sector, it is economically unjustifiable for Canadians to pay an extra $10.2 billion to generate only $9.6 billion in value added. This does not make any economic sense and demonstrates the complete inefficiency of the current industrial policies linked to drug costs. Under these conditions, the economic benefits would be greater if, based on the formula devised by John Maynard Keynes, the government used this amount to hire people to dig holes and refill them.

Conclusion

A universal drug plan providing first-dollar coverage, established alongside a rigorous drug assessment process, would not only ensure greater fairness in accessing medications and improve drug safety, but would help contain the inflationary costs of drugs, regardless of the industrial policy Canada chooses.

Even though it has been clearly demonstrated that the industrial policies aiming to artificially increase drug costs are totally ineffective in generating proportionate pharmaceutical spinoffs, the purpose of this report is simply to demonstrate the economic inefficiency of the current drug insurance program. By comparing the various provincial drug plans, we identified the problems with the status quo and were able to measure the savings that could be achieved through a publicly-funded universal drug plan providing first-dollar coverage.

A comparison of Canada with other OECD countries revealed that Canada can be considered an inefficient model in terms of drug policy: 1) we spend more per capita on drugs, the costs of which are growing faster than elsewhere; 2) our public plans are inequitable because they do not provide suitable coverage to a large portion of the population; and 3) the meagre industrial benefits in the biopharmaceutical sector are totally out of proportion with the money given by Canadians in various privileges to the industry.

Canada spent $25.1 billion on prescription drugs in 2008. We have shown that a universal Pharmacare program with first-dollar coverage would result in savings of close to $3 billion (12%) if we maintained our current industrial policies, $4.5 billion (18%) if we brought our biopharmaceutical policies in line with comparable OECD countries, and $10.7 billion (43%) if we eliminated all privileges to the industry in terms of drug costs.

The main argument that is typically used against the establishment of universal Pharmacare is economic in nature. This report has shown that the economic argument in favour of such a program is loud and clear, regardless of which industrial policy is subsequently considered.

Let's not be naive: establishing a national, universal drug plan providing first-dollar coverage is not a simple matter. Government funding, even when lower than comparable private spending, is often extremely difficult to justify publicly. A national Pharmacare program will have to find

a balanced approach to ensure coherence across the country while respecting provincial health jurisdictions. But these are not insurmountable obstacles. Quite the contrary. A clear policy backed by real political will would allow all Canadians to have equal and universal access to the best treatments available, while generating substantial savings over the current plans.

The analysis in this report shows that the only hindrance to establishing a fair, effective drug insurance program is political apathy, not economic or cost restraints.

Notes

1 Quebec is the only province that chose not to participate in this National Pharmaceuticals Strategy. In accordance with the agreements, Quebec does however continue to share health information and best practices with the rest of Canada.

2 The federal government provides drug insurance to Aboriginal Canadians, veterans, the Armed Forces and the RCMP, inmates in federal correctional institutions, and refugees.

3 According to the 2008–2009 annual management report of the Régie de l'assurance-maladie du Québec, administrative fees for the Fonds de l'assurance-médicaments were 1.7% (RAMQ 2009: 97).

4 In order to remain conservative in estimating potential savings, we are not including other costs incurred by private drug plans and paid through individual premiums, such as brokerage fees and promotional expenses or profits paid to shareholders.

5 Ontario announced in April 2010 that they will reduce the price to 25%.

6 At a public conference held in Montreal on November 26, 2009, economist Robert Evans pointed out the extremely regressive nature of this type of tax subsidy, which benefits company shareholders above all. He also stated that the simple withdrawal of hidden tax breaks that employers are taking advantage of through private health and drug insurance plans could make the pharmacare option more attractive to taxpayers (see also Evans 2009).

7 Households are considered underinsured if they spend more than 2.5% of their income in out-of-pocket drug expenses; they are considered uninsured if they spend more than 4.5% of their income in out-of-pocket drug expenses. These ratio do not include the cost of insurance premiums.

8 Note that Quebec's private drug plans do not normally require a monthly deductible. However, pharmacists dispense one month's worth of drugs at a time for them as well, simply out of habit based on the procedure established by the public plan.

9 COX-2 inhibitors are a class of anti-inflammatories, Vioxx, Bextra and Celebrex being the best known in this group. Vioxx was taken off the market in 2004 because one of its major side effects was that it increased cardiovascular problems and the chance of a heart attack. This came to be known as the "Vioxx scandal" because it was discovered that there was evidence of these side effects several years earlier, but that the manufacturer, Merck, had covered it up. Es-

timates based on clinical trials suggest that tens of thousands of people in the United States died after using Vioxx (Topol 2004). It can be deduced from this that hundreds, if not thousands, of Canadians also died after being treated with Vioxx.

10 Bylaws of the Council of the College of Pharmacists of British Columbia, Bylaw 5, sections 35(2) and (3).

11 It is important to note that a shorter wait time is not necessarily better, because a longer period would make it possible to see whether a drug caused adverse effects in other countries where it was introduced. The shorter timeline simply demonstrates that the CDR is not adding to the administrative burden, but that it is helping cut red tape.

12 Quebec is usually resistant to federal initiatives when it comes to health, fearing that the federal government is infringing too much on provincial matters. This distrust is completely understandable. However, the CDR has been established with a fair amount of flexibility in terms of federal-provincial relations. Its purpose is to advise the provinces, but decisions on formularies remain purely provincial. Quebec's refusal to participate in the CDR is therefore based on reasons other than its desire to maintain jurisdictional autonomy.

13 Bill 67: Loi sur l'Institut national d'excellence en santé et en services sociaux.

14 This estimate is far greater than the $25 million estimate by Quebec's Ministère des Finances in 2005, but is still lower than the $120 million estimate by the Canadian Generic Pharmaceutical Association (CGPA 2010).

15 Excerpt from the PMPRB website (accessed December 5, 2009): http://www.pmprb-cepmb.gc.ca/english/view.asp?x=272. However, the PMPRB amended the compendium of its policies, guidelines and procedures in June 2009. The changes were supposed to come into effect on January 1, 2010 in order to strengthen certain controls. The changes are nonetheless relatively minor (IHS Global Insight 2009).

16 For example, the Quebec Code of Ethics of Pharmacists mentions: "3.05.06: A pharmacist must not receive, other than the remuneration to which he is entitled, any benefit, allowance or commission relative to the practice of his profession. Nor shall he pay, offer to pay or undertake to pay such benefit, allowance or commission".

17 The executive officer of the ODBP, Helen Stevenson, resigned in June 2010 after receiving many more death threats after the announcement that Ontario will abolish the system of kickbacks between generic manufacturers and pharmacies (Radwanski 2010).

18 In April 2010, the Ontario Minister of Health, Deb Matthews, announced that the price of generics would be reduced from 50% to 25% of the original brandname drug in order to eliminate the system of kickbacks between generic manufacturers and pharmacies. According to the website of the Ontario Ministry of Health and Long-Term Care, it is estimated that Ontario will thus save $750 M in professional allowances. To compensate for the fact that pharmacies will have lower revenues, the Ontario Government will invest $224 M to increase their revenues, mostly by increasing dispensing fees (Canadian Press 2010). In order to make sure that pharmacies will not compensate their lower revenues by increasing prices on drugs bought by private plans or out-of-pocket, these savings will apply not only to Ontario public plan, but also to private plans and to patients that pay for their drugs out-of-pocket (beginning in 2013). Nevertheless, it remains a possibility that lower prices in Ontario could be compensated by increasing prices in other provinces, like it was the case in 2006 (Silversides 2009a). Savings in Ontario will not necessarily translate in savings for Canada.

The new policy in Ontario can succeed only if provinces manage to coordinate their pharmaceutical policies relating to generic drug prices. In a letter sent to her colleagues in other provinces, the Ontario Minister of Health called for a better coordination of provincial pharmaceutical policies in order to make the new Ontario policy a success (Howlett and Seguin 2010). The necessity of such coordination between provinces for a simple pricing policy for generics led Ontario Premier, Dalton McGuinty, to claim that

the present situation clearly showed the necessity of a real national pharmacare program (Ferguson 2010).

While this new Ontario policy is of great interest, it is still based on questionable premises since it arbitrarily sets the price of generics, whatever their production costs. For generics with production costs under 25% of the original brandname drug price, we can anticipate that some kickbacks will remain. For generics with production costs over 25%, there is a possibility that supply will decrease and we may face some shortages. A tendering process could circumvent these two problems while achieving more important savings since production costs are normally less than 25% of the original brandname drug price.

19 Brand name, non-patented drugs are usually brand name drugs that are not under patent protection anymore.

20 These presentations update and complete the earlier ones by Palmer D'Angelo Consulting Inc. (2002).

21 Information obtained from the CNAM website: http://www.ameli.fr/assures/soins-et-remboursements/combien-serez-vous-rembourse/medicaments-et-vaccins/remboursement-des-medicaments-et-tiers-payant/quels-remboursements-pour-vos-medicaments.php (accessed December 2009).

22 A negative list means that all drugs are covered, except those appearing on this list of restricted drugs.

23 C$1 is worth approximately 7.5 Swedish kroner (PPP, OECD Health Data).

24 Refer to the PBS site: http://www.pbs.gov.au/html/consumer/pbs/about (accessed December 10, 2009).

25 Information obtained from the PBS website: www.medicareaustralia.gov.au/provider/pbs/pharmacists/pricing.jsp (accessed December 10, 2009).

26 For Statistics Canada figures, we have used the data available on the Industry Canada site (http://www.ic.gc.ca/cis-sic/cis-sic.nsf/IDE/cis-sic3254defe.html (accessed December 10, 2009). We used the data for the industry group Pharmaceutical and Medicine Manufacturing (NAICS 3254).

APPENDIX

Description of provincial public drug plans in Canada

Plan	Beneficiaries	Premium	Deductible	Co-payment	Maximum co-payment
		BRITISH COLUMBIA			
Fair Pharmacare (seniors)	A member born before 1939	–	0 to 2% (of fam. income)	25%/ prescription	1.25% to 3%
Fair Pharmacare (E)	Everyone else	–	0 to 3% (of fam. income)	30%/ prescription	2% to 4%
Pharmacare B	CHSLD	–	–	–	–
Pharmacare C	Social Assistance	–	–	–	–
Pharmacare D	Cystic fibrosis	–	–	–	–
Pharmacare F	Disabled child	–	–	–	–
Pharmacare G	Mental health	–	–	–	–
Pharmacare P	Home-based palliative care	–	–	–	–
		ALBERTA			
Seniors	Age 65 and + (individual)	$63.50 (monthly)	–	20%/prescrip. (max $15 each)	–
	Age 65 and + (family)	$118 (monthly)			
Widows / widowers	Age 55 to 64	–	–	30%/oprescrip. (max $25 each)	–
Palliative care	Home-based	–	–	30%/prescrip. (max $25 each)	$1,000
No group	Single persons	$123 (subs: $86.10) / 3 months	–	30%/prescrip. (max $25 each)	–
	Families	$246 (subs: $172.20) / 3 months			

Plan	Beneficiaries	Premium	Deductible	Co-payment	Maximum co-payment
High Cost Drugs	e.g. transplant, HIV, etc.	–	–	–	–
Support income	Social assistance	–	–	–	–
AISH	Permanent disability	–	–	–	–
Alberta Adult Health Benefit	Return to the labour market	–	–	–	–
Alberta Child Health Benefit	Child of low-income families	–	–	–	–
ONTARIO					
Ontario Drug Benefit (ODB)	65+ = Income 16,018*/24 175** and +	–	$100 per person	$6.11/ prescription (max)	–
	65+ = Income 16,018*/24 175** and -	–	–	$2/prescription (max)	–
	CHSLD	–	–	$2/prescription (max)	–
	Homes for special care	–	–	$2/prescription (max)	–
	Home-based care	–	–	$2/prescription (max)	–
	Social Assistance	–	–	$2/prescription (max)	–
Trillium Drug Plan (TDP)	High costs vs. income (+4% income)	–	Income based	$2/prescription (max)	–
Special Drugs	–	–	–	–	–
New Drug Funding Program	Cancer	–	–	–	–
Inherited Metabolic Diseases	Metabolic disorders	–	–	–	–
Respiratory SVP High-Risk Infants	Newborns	–	–	–	–
QUEBEC					
RAMQ	Social Assistance	–	–	–	–
	65+ (94% and above of the GIS***)	–	–	–	–
	65+ (less than 94% of the GIS***)	0 to $585 yearly (income based)	$14.95 / month	32% costs/ prescription	$49.97 / month
	65+	0 to $585 yearly (income based)	$14.95 / month	32% costs/ prescription	$79.53 / month
	Everyone else (without private)	0 to $585 yearly (income based)	$14.95 / month	32% costs/ prescription	$79.53 / month
SASKATCHEWAN					
Special Support	All residents	–	3.4% of income	Based on adjusted income*	
Seniors Drug Plan	65+ (income: - $64,044)	–	–	$15 / prescription	–

Plan	Beneficiaries	Premium	Deductible	Co-payment	Maximum co-payment
Seniors (Deductible)	GIS** + special care home	–	$100 semi-annual	35% / prescription	–
	GIS** + special care home	–	$200 semi-annual	35% / prescription	–
Emergency Assist. Program	Emergency (income)	–	–	Proportional to ability to pay	–
Family Health	No. of children - income	–	$100 semi-annual	35% /prescrip. (0 for child)	–
Supplementary Health	Social Assistance	–	–	$2 /prescrip. (0 for child)	–
SAIL (Sask Aids to Ind. Living)	Paraplegia, c. fibrosis, etc.	–	–	–	–
Palliative Care Program	Terminal stage	–	–	–	–
Workers Health Benefits Program	Workers (low income)	–	$100 semi-annual	35% / prescription	–
Children's Insulin Pump Program	Children (diabetes)	–	–	–	–
Children's Drug Plan	Children aged 14 and -	–	–	$15 / prescription (max)	–
MANITOBA					
Drug Insurance Plan	–	–	% of inc. (2.69% to 6.08%*)	–	–
Employment/income assistance program	–	–	–	–	–
Personal care homes	–	–	–	–	–
Palliative care	–	–	–	–	–
NEW BRUNSWICK					
Plan A	GIS** seniors			$9.05 / prescription	$250
	Seniors without GIS** - low income			$15 / prescription	
Plan B	Cystic fibrosis	$50 / year	–	20% /prescrip. ($20 max)	$500 / family
Plan E	Authorized establishment	–	–	$4 /prescription	$250
Plan F	Min. of Social Dev. card			$4 /prescrip. ($2 children)	$250 / family
Plan G	Special needs children + Social Dev.	–	–	–	–
Plan H	Neurologist prescription	$50 / year	–	Income based (0 to 100%)	–
Plan R	Organ transplant	$50 / year	–	20% /prescrip. ($20 max)	$500 / family
Plan T	Growth hormone	$50 / year	–	20% /prescrip. ($20 max)	$500 / family
Plan U	HIV	$50 / year	–	20% /prescrip. ($20 max)	$500 / family
Plan V	Authorized nursing homes	–	–	–	–

Plan	Beneficiaries	Premium	Deductible	Co-payment	Maximum co-payment
NOVA SCOTIA					
Seniors	With GIS			30% / prescription	$382
	Without GIS	Up to $424 / year		30% / prescription	$382
Min. Comm. Serv.	With income assistance			$5 /prescription	
Cancer	Family income - $15,720 or less	–	–	–	–
Family Program	Families	–	Based on income	20% / prescription	Based on income
Diabetes	Diabetic	–	Based on income	20% / prescription	–
PRINCE EDWARD ISLAND					
Seniors Drug Cost Assistance	Age 65 and +	–	–	$11 + pharmacist fees	–
Children-in-Care	Child Protection Directorate	–	–	–	–
Family Health Benefit	1 child and income under $24,800	–	–	Pharmacist fees	–
Financial Assistance	Social assist. Act	–	–	–	–
Erythropoietin	Kidney failure	–	–	–	–
Diabetes Control	Diabetes	–	–	Insulin: $10 bottle, etc.	–
High Cost Drug		–	–	Income based + pharmacist fees	–
Community Mental Health	Psychiatric	–	–	–	–
MTS		–	–	–	–
Inst Pharmacy / Nursing Home	Private care home + Social assist.	–	–	–	–
Specific: HIB, C. fibrosis, etc.		–	–	–	–
Quit smoking		–	–	–	–
Nutrition program	Children and pregnant women	–	–	–	–
NEWFOUNDLAND AND LABRADOR					
Senior Subsidy	GIS**	–	–	Prof. fees + surcharges (max 10%)	–
Income Support	Unemployed + others (children)	–	–	–	–
Low Income Drug	Low income	–	–	Based on fam. inc. (levels 20%-70%)	–
High Cost Drug	High financial load	–	–	Combination income and cost	5% to 10% of income
Special Needs	Cystic fibrosis or growth	–	–	–	–

Plan	Beneficiaries	Premium	Deductible	Co-payment	Maximum co-payment
YUKON					
Pharmacare	65+	–	–	–	–
Chronic Disease		–	–	–	–
Children and Optical	Under age 19 and family, low income	–	$250 (ind.) or $500 (family)	–	–
NORTHWEST TERRITORIES					
Extended Health Specified Diseases	Specific disease	–	–	–	–
Seniors	Métis+Aborig. - 60+	–	–	–	–
Métis	Very specific disab.	–	–	–	–
Indigent	Poor	–	–	–	–
NUNAVUT					
Extended Health	Specific disease or 65+	–	–	–	–
Indigent	GIS**	–	–	–	–

***** Income adjusted based on number of children
****** Guaranteed Income Supplement
SOURCES CIHI 2009; Palmer D'Angelo Consulting Inc. 2002; Paris et Docteur 2006; Demers et al. 2008; Drugcoverage.ca

UPDATES BY PROVINCE (GOVERNMENT SITES, CONSULTED ON DECEMBER 1, 2009):
BC: http://www.health.gov.bc.ca/insurance/about_hi.html
AB: http://www.health.alberta.ca/AHCIP/prescription-program.html
ON: http://www.health.gov.on.ca/english/providers/program/drugs/drugs_program_mn.html
QC: http://www.ramq.gouv.qc.ca/en/citoyens/assurancemedicaments/index.shtml
MB: http://www.gov.mb.ca/health/pharmacare/index.html
SK: http://www.health.gov.sk.ca/prescription-drugs
NB: http://www.gnb.ca/0051/0212/index-e.asp
NS: http://www.gov.ns.ca/health/Pharmacare/family_pharmacare/family_pharmacare.asp
PEI: http://www.gov.pe.ca/infopei/index.php3?number=16235&lang=E
NFL: http://www.health.gov.nl.ca/health/nlpdp/overview.htm
NWT: http://www.hlthss.gov.nt.ca/english/services/health_care_plan/default.htm
YK: http://hss.gov.yk.ca/programs/insured_hearing/pharmacare/

Glossary

Catastrophic drug coverage
A drug plan covering only high and/or unusual drug expenses.

Compliance
Degree to which the instructions and prescriptions given by the physician are followed.

Co-payment
The co-payment is the percentage (or portion) of drug costs that an insured person must pay once the deductible has been paid. In other words, when the cost of a drug exceeds the deductible, the individual pays only a portion of the extra charge. This portion is called the co-payment.

Deductible
The deductible is a set amount constituting the first portion of the drug cost that an insured person must pay when buying drugs that are covered through insurance, either public or private.

Ex-manufacturer prices
Drug prices as they leave the factory (these exclude wholesale and pharmacy markup, and dispensing fees).

Markup
Amount added to the cost of a product.

Out-of-pocket expenditures
Expenditures paid directly by the patient to obtain his drugs.

Pharmacare
A drug insurance plan through which the government pays part of the cost of prescription drugs.

Premium
The premium is the amount a person must pay yearly to his/her insurer (public or private) to be eligible for drug coverage.

Universal pharmacare with first-dollar coverage
A drug insurance plan in which the government pays the full cost of prescription drugs.

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Canada has an American-style system of paying for drugs, and it yields American results — inequity, waste, and high costs. Marc-Andre Gagnon provides a comprehensive analysis of the major benefits to Canadians from a true Pharmacare system of universal, first-dollar public coverage. To date, however, private insurers, Big Pharma, anti-tax ideologues and apathetic governments have kept this beyond our reach.

Robert G. Evans, OC, Ph.D.,
Professor of Economics, University of British Columbia

Marc-André Gagnon, in this impressive and brilliant new report, presents us a clear and incisive analysis of one of the most important ideas in health care system organization: the pharmacare option. Opening some daring but well-documented new perspectives, he helps us understand the fundamental challenges posed by medication reimbursement politics and their impact on our capacity to optimize costs, practices and clinical outcomes for our patients.

Alain Vadeboncoeur, MD,
Head of Emergency Medicine, Montreal Heart Institute

The way that we pay for prescription drugs is broken. Politicians hide behind the excuse that universal public coverage is too expensive. This study by Marc-André Gagnon exposes that excuse as a fallacy. We can save money and cover everyone in the country. Medicare works and pharmacare is no different.

Joel Lexchin, MD,
Professor School of Health Policy and Management, York University

The authors and the Canadian Health Coalition are to be congratulated on this well-done analysis that clearly shows a universal publicly-funded prescription drug benefit to be not only better for Canadians, but cheaper. The only downside is that the pharmaceutical industry might have to trim its obscene profits a little.

Marcia Angell, MD,
Harvard Medical School, former editor-in-chief, New England Journal of Medicine

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