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Canadian Pharmacare

Performance, Incentives, and Insurance

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Executive summary

Since the 1970s, provincial governments have taken away from Canadians a great deal of their freedom to choose the prescription drugs they use. Provincial drug-benefit plans now account for almost half of the country's prescription spending, forcing Canadians to trade off an easily measured burden on taxpayers with benefits to patients that are not well measured. Provinces vary significantly in how they provide this coverage. This paper discusses differences between provincial drug plans with respect to breadth of coverage and cost sharing between patients and taxpayers, and introduces two new measurements to describe how provincial Pharmacare plans perform as insurers and how generous they are to their beneficiaries. Finally, we compare these measurements with provinces' spending on their prescription benefit plans and consider which provinces get most value for their taxpayers' money.

The first of these measures is called the Prescription Choice Index. It assesses how quickly provinces accept new medicines for coverage by their public drug-benefit plans. Thus, it looks at prescription drug-benefit plans from the perspective of Canadian patients and addresses the question of how patients might rank different provinces' programs, if they were able to choose easily between them. We find that Quebec, Alberta, and Saskatchewan lead by this measurement, with the Atlantic Provinces faring the worst.

The second measure is called the Prescription Insurance Index. It gauges how well provincial Pharmacare plans function as insurers, which offer protection against catastrophic disease rather than relatively predictable illness. This is an important index because provincial Pharmacare plans operate differently from the government monopoly that supplies "insurance" for physicians' and hospitals' services, which covers costs from the first dollar. Provincial drug-benefit plans have patients pay some costs, thus giving them some control of how the money is spent. Saskatchewan, Alberta, and Quebec lead this index too, with Prince Edward Island, Ontario, and Newfoundland lagging.

When the two indexes are combined, we find that Quebec likely performs best overall, with the Atlantic Provinces performing the worst.

We also compare these results with how much each provincial drug benefit plan spends per resident, on an age-adjusted basis. Again, we find that Quebec likely performs best on "value for money" according to these criteria, whereas Saskatchewan and Alberta purchase their performance at a high cost to taxpayers. Ontario spends a lot but buys little, according to our Prescription Choice and Prescription Insurance Indexes. On the other hand, New Brunswick and Prince Edward Island spend little on Pharmacare and receive little in return, according to our measurements.

In light of recent moves to centralize decisions over the inclusion of medicines in formularies (lists of medicines covered), we compare and contrast the transparency with which provinces currently manage this function.

We discuss techniques that provincial drug-benefit plans have used to manage costs, and find that success on both our performance indexes and managing spending is associated with policies such as cost-sharing with beneficiaries (through co-payments and deductibles) and limiting benefits via income-testing.

Furthermore, we propose that moves to centralize government control of patients' access to prescription drugs at the national level, as recently recommended by Mr. Roy Romanow's Commission and provincial premiers, is a false hope for improving the management of Canada's government-run drug benefit plans. The ability to compare, contrast, and evaluate competing plans, as we have done, is more likely to generate information required to improve them.

Increasing drug costs and what causes them

Prescription drugs in Canada's health care system

Prescription drugs occupy a unique place in Canada's health care systems. No reasonable person can deny that they are medically necessary. They prolong life, improve quality of life, and substitute for risky surgical interventions. However, they have escaped the government monopoly over the provision of health services and health insurance that took over physicians' and hospitals' services after the Second World War. The Canadian government completed this monopoly with the passage of the Canada Health Act of 1984. Through restrictive conditions on its transfer payments to provincial governments for health care, this law has effectively eliminated Canadians' ability to obtain private health insurance or use their own money for most physicians' or hospitals' services. This is not the case with prescription drugs.

Pharmacare is one of the few areas where provincial governments are currently comfortable examining and implementing the trade-offs among paying for prescriptions through government revenue, private insurance, and directly by patients. Because governments to date have refused to entertain these options for paying physicians or hospitals for medically necessary services, we are unable to observe what would happen if Canadians were free to choose comprehensive health insurance that would cover their needs. Regrettably, this renders us incapable of making meaningful recommendations about how co-payments, deductibles, and income-testing could affect areas such as preventive health and disease management, which include the use of prescription drugs in concert with other health services.

Although this "silo effect" is unfortunate, we leave the broader analysis of these trade-offs for health care overall to others, while noting that, in most other countries where governments promise universal health care to their residents, direct payment by patients, private insurance, and private hospitals and clinics play important roles in delivering better health outcomes for less cost than in Canada. **[Esmail and Walker, 2004]**

Despite the absence of a government monopoly in this area, provincial governments have established drug benefit plans (generally referred to as "Pharmacare") that now consume about half of Canada's spending on prescription drugs. These plans often require that beneficiaries pay some pharmaceutical costs directly through deductibles or co-payments, a feature that the Canada Health Act generally forbids for other health services. As well, these plans impose restrictions on the pharmaceutical benefits that they provide their clients by maintaining ***formularies*** (lists of medicines that are covered by the plan) and by imposing restrictions on physicians' autonomy in prescribing some subsidized medicines.

Previous research on increasing spending

The ballooning spending on prescription drugs has alarmed provincial governments and motivated them (unsuccessfully) to rein in spending and attempt to improve their measurements of the effectiveness of their pharmaceutical spending. Despite efforts to control pharmaceutical budgets, spending on provincial Pharmacare programs has been rising steadily since the mid-1980s, with a sharp increase in the early 1990s. The latter trend has basically continued through the end of the twentieth century. Two factors drive costs: use and price (especially of newer medicines). Also, with a large portion of the population entering into their "drug intensive" years (45 to 75 years of age), compounded by the introduction of many new drugs, the nominal cost of prescription medicines has sky-rocketed. Furthermore, while prices of specific products have not increased substantially (and, in fact, drop when patents expire on brand-name medicines and generic copies become available) switching to newer, patented drugs has contributed largely to the increase in per-unit costs of prescriptions. **[Federal/Provincial/Territorial Working Group on Drug Prices/PMPRB, 2001; Morgan, 2001; 2002]** Indeed, Professor Morgan's examination of spending growth in British Columbia's Pharmacare demonstrated that it is not so much the increasing number of prescriptions, but that those prescriptions are for newer medicines, that is increasing costs. **[Morgan, 2002]**

In an analysis of Pharmacare benefits from 1975 to 2000, Professors DiMatteo and Grootendorst identified the factors contributing to much of the growth in provincial pharmaceutical spending. **[DiMatteo and Grootendorst, 2002]** With respect to generally defined factors, they found that the "age" of the population (proportion of the population within certain age ranges) is an important determinant of government spending on medicines. A high proportion between the ages of 45 and 64 years explains an increase in pharmaceutical spending and a high proportion between the ages of 65 and 74 years even more so. Perhaps counter-intuitively, they found that the larger the share of population 75 years old and greater, the less pharmaceutical spending by provincial plans. This likely reflects a "healthy survivor" phenomenon where those surviving to 75 years and beyond are naturally healthier than those who die at a younger age.

The impact of other potential explanatory factors (specifically defined for each province) is less definitive: sometimes positive in some provinces and negative in others, or statistically significant in some provinces but not others. Some variables do not relate specifically to pharmaceutical policy. For example, incoming federal transfers were associated with significant increases in pharmaceutical spending in five provinces but explained a reduction in spending in four of the remaining five. This indicates that increased federal transfers did not find their way into Pharmacare budgets in at least some of the provinces. (However, federal transfers were bundled into the

combined Canada Health and Social Transfer during some of the period, disguising explicit health transfers and muddying the impact of the transfers.)

Increases in real per-capita Gross Domestic Product resulted in lower provincial drug spending in Nova Scotia, Prince Edward Island, New Brunswick, and Saskatchewan. This is likely due to the "means testing" applied to those seeking assistance from the public plans in the Maritime Provinces. That is, as people earn more they no longer qualify for publicly subsidized prescription drugs. Saskatchewan also has a means-tested program, though offered to a broader range of residents.

With respect to specific changes in policies to contain costs, statistically significant reductions in Pharmacare spending were seen with increases in co-payments, a finding that confirms previous research such as the RAND Health Insurance Experiment, which tested the effects of out-of-pocket payments in the United States. [Newhouse et al., 1993] However, Ontario did not realize significant cost-savings with the introduction of a senior's co-payment ranging from $2.00 to $6.11, depending on household income. This is likely due to the co-payment not being particularly substantive: the RAND Health Insurance Experiment suggests that co-payments become useful at containing costs when they move up to 25% of the cost of the health good or service.

British Columbia's Reference Drug Plan (which subsidizes only lower-priced drugs within a "therapeutic class") had a statistically insignificant effect on spending following its introduction. According to the analysis, this may have been due either to a lack of suitable enforcement or to a lack of comprehensiveness of the policy. Nevertheless, the policy was targeted at some of the largest ticket items, Cyclooxygenase II (COX-II) inhibitors, cardiac medications such as Angiotensin II Converting Enzyme Inhibitors and nitrates and anti-ulcer medications (Proton Pump Inhibitors).

In Quebec, the share of costs borne by general government revenues decreased significantly after the introduction of the province's new plan for universal coverage in 1997. However, this is because much of the provincial expenditure was shifted to the residents as mandatory premiums, which are taxes by another name. Those with means to contribute to the program were doing so, via premiums, while provincial spending was limited to those without means.

Finally, DiMatteo and Grootendorst found that the passage of time itself explains increasing drug costs. This is likely due to newer drugs costing more than older ones, while patients nevertheless chose them for perceived superior benefits. This trend started in 1984, according to the analysis.

Efforts to control drug costs

Public and private health insurers have employed various mechanisms to manage this spending. Pharmaceutical cost-containment has taken various forms, most commonly formularies (lists restricting the drugs covered by the plans), maximum allowable costs (paying a specified dollar amount for a specific drug or class of drugs), lowest cost alternative (substituting a generic version for a brand-name version of a drug after its patents have expired), and reference pricing (standardizing payment for a class of drugs or a particular condition to the lowest-cost treatment available).

Formularies

A formulary is a list of prescription drugs that an insurer will subsidize. Each province uses a formulary for its Pharmacare plan. For most drugs, any physician can write a prescription for a Pharmacare client and the province will subsidize it, no questions asked. This is called a full listing. In some cases, provinces will only subsidize listed drugs under restrictive conditions. Restricted access, or partial listing, is defined as either restricting the types of physicians (e.g. specialists) who have the ability to prescribe a subsidized drug or restricting payment for a particular drug to patients whose physicians or pharmacists have received special authority to have those prescriptions subsidized. Special authority involves justifying the choice of therapy to a department of the health ministry or to an organization at arm's length that chooses to approve the payment or not.

Global evidence about formularies' effectiveness in containing costs is mixed. In one well-known paper addressing privately insured patients in the United States, Horn *et al.* [1996] found that restrictive formularies were generally related to an increase in visits to emergency rooms and admissions to hospital, but that increased co-payments had a mixed relationship with other, costly interventions. For the purposes of this paper, which compares provincial formularies, we simply accept that they exist, without commenting on their effectiveness in reducing overall health costs, and determine which perform best according to our criteria.

Restrictions on prescribing

Another method of reducing costs is to restrict coverage of drugs. Such restrictions on prescribing have also been found to have negative consequences in Canada. For example, when Cipro™ (*ciprofloxacin HCL*) was introduced, Saskatchewan restricted

its coverage of the drug, causing patients and doctors to minimize their use of it. Prescriptions for that medicine were only 0.9 of every 1000 prescriptions for the relevant afflictions, such as pyelonephritis and "asthmatic bronchitis" (the other prescriptions being for less expensive drugs for those conditions). In Quebec, which did not restrict its coverage, *ciprofloxacin* accounted for 55.8 of every 1000 prescriptions. Saskatchewan saved money on the prescriptions but Quebec saw rates of hospitalization for those conditions decrease. Because provincial taxpayers pay the full cost of hospitalizations, it is likely that Saskatchewan's policy of restricting reimbursement for Cipro™ was penny wise but pound foolish. Taking both the costs of hospitalization and the cost of the drug into account, it looks like Quebec made the better choice. **[LeLorier and Derderian, 1998]**

Generic and other substitutions

Using another method to contain costs, all provinces except Quebec force pharmacists to fill prescriptions with generic medicines once the patents on their brand-name counterparts expire, unless the physician specifies "no substitution" on the prescription or receives special authority.

British Columbia has taken this to an extreme with the Reference Drug Program, which bundles chemically different drugs for certain conditions into therapeutic classes and freely subsidizes only the lowest-cost medicine in the class. A previous paper has demonstrated that this did not contain costs but shifted them to individuals, and may have had negative health consequences for affected patients. **[Graham, 2002]**

The Common Drug Review—a national formulary?

Furthermore, the method for making decisions about which medicines to include in formularies is slowly becoming nationalized. Although the Atlantic Provinces have been co-operating on such decisions for a few years, each province has, to date, evaluated new drugs on a case-by-case basis, resulting in tremendous variation across formularies. **[Anis, Guh, and Wang 2001]** This variation was an impetus for the Common Drug Review (CDR), which seeks to make recommendations to provinces about the relative values of medicines. Although it is still in its infancy, does not force provinces to comply with its recommendations, and does not include Quebec, the premise for the CDR is based on the assumption that one, centralized agency can make the best decisions about which medicines to include in formularies for the whole country.

The Common Drug Review, managed by the Canadian Coordinating Office of Health Technology Assessment, reviews clinical, economic, and other relevant

information and makes recommendations to the provinces on the value of specific drugs. It made its first recommendations, on a handful of drugs, in May 2004. Because of the limits of the Common Drug Review, we should expect significant inter-provincial variation in drug coverage to continue.

Nevertheless, it is a step in the direction of more centralized government control of prescription spending. One idea that supporters of government monopoly over health care have proposed is National Pharmacare, whereby the federal and provincial governments would maintain one national formulary and governments would take over all pharmaceutical spending from individuals. Supposedly, this centralized approach would lead to better control of costs and effectiveness.

The Canadian and provincial governments are unlikely to impose a National Pharmacare in the foreseeable future. Although the governments continue to discuss it, they are nowhere near agreement. The Hon. Roy Romanow, in the report of his commission on Canadian health care, proposed moving in this direction. His recommendations included a compulsory national formulary and central purchasing agency, to which all provinces would subscribe, and an increase in federal pharmaceutical spending through a Catastrophic Drug Transfer, to cover all patients' costs in excess of $1,500 annually. **[Commission on the Future of Health Care in Canada, 2002: 189–210]**

While the standardization of formularies so that every Canadian has the same access to medicines seems a reasonable objective, it assumes that one, central agency can perfectly evaluate information about the costs and benefits of a given drug and cast judgment upon its value within the entire, complex, system of health care. We are of the view that this is likely outside the bounds of human competence and that the best such information is generated through competitive processes, that is, insurers competing against each other to provide the best coverage by evaluating and funding medicines from competing manufacturers.

While such robust competition does not currently exist in Canada, the autonomous decision-making of provincial health ministries approximates it. Therefore, this paper discusses the strengths and weaknesses of various provincial policies, with the aim of convincing Canadians and their governments that they should adopt, adapt, and improve best practices in pharmaceutical benefits rather than eliminate these comparisons altogether. We trust that when Canadians have the information to compare the relative strengths and weaknesses of various plans, they will demand alternatives more creative than an even more centralized system of pharmaceutical benefits.

Measuring the performance of Pharmacare—the Prescription Choice Index

This section and the next introduce two indices that measure how provincial drug-benefit plans perform. As discussed above, increasing costs have forced managers of these plans to limit patients' ability to get any medicine without conditions, through formularies and restricted access. Furthermore, as Mr. Romanow's report pointed out, some Canadians are left unprotected from catastrophic drug costs through lack of insurance. [Commission on the Future of Health Care in Canada, 2002: 197–98] Therefore, we have created indices to assess these two elements in the design of Pharmacare plans.

With respect to choice (or accessibility), the trade association for the research-based pharmaceutical manufacturers, R_x&D, periodically publishes reviews of how long it takes for medicines to be approved by provincial managers and at least one commercial information provider, IMS Health, sells this type of data to those who have a business interest in it.

With respect to insuring against catastrophic drug costs, a team from the University of British Columbia recently examined the generosity (or "fairness") of each province's drug-benefit plans and simulated what the impact on private payment would be if a national Pharmacare program were to adopt the rules of each province. [Coombes et al., 2004] They measured the share of household income that different families would have to spend on prescription drugs, suggesting that a 4% limit would be "fair." Provincial plans that covered less than 96% of household income were not "fair." It is a technically good analysis that measures only generosity as a share of household income subsidized, not how much each provincial plan costs its taxpayers, nor what medicines each plan covers.

We are unaware of other analyses that seek to measure both the length of time Canadians wait for government coverage and the breadth of medicines covered, while relating these to costs across provincial Pharmacare plans; as well as the success of provincial Pharmacare plans as "insurers" in the classic sense.

The Prescription Choice Index

Our Prescription Choice Index measures how quickly beneficiaries of provincial drug-benefit plans can get new prescription drugs. We are not of the view that governments should automatically subsidize, willy-nilly, every new medicine that comes out of drug-makers' pipelines. Indeed, we doubt whether designing and managing phar-

maceutical benefits, or any health insurance, are a legitimate function of government at all. We suspect that if our governments returned the ever-increasing amount of taxes allocated to health care to the tax payers, Canadians would use some of those dollars to pay premiums for health-insurance contracts that would fund treatments in case of catastrophic illness, while the rest would go into accounts to pay for non-catastrophic, relatively predictable medical costs, including many prescriptions. This method of financing health care, generally discussed under the term Medical Savings Account (MSA) has been discussed elsewhere. [See, e.g., Ramsay, 1998] It suffices to say here (with regret) that such arrangements do not yet exist in Canada. Because our governments do not let us maintain such accounts but have taxed us to fund Pharmacare schemes that now cover most of the population to some degree (especially in the larger provinces), it is appropriate to examine how this intervention affects Canadians' access to prescription drugs.

Professor F. Lichtenberg, in his analyses of the US Medicare population, concludes that spending on new medicines more than pays for itself by substituting for costs in hospitals and of other health services. [e.g., Lichtenberg, 2001; 2002] In Canada, while some research points to similar benefits, the data do not demonstrate statistical significance. [Esmail, 2003; DiMatteo and Grootendorst, 2002; Zelder, 2000] Therefore, the Prescription Choice Index does not assess deductibles or co-payments that provinces levy. Asking patients to take responsibility from the first dollar of coverage does not deny choice between medicines, it simply increases patients' motivation to make the appropriate trade-off between taking a medicine and all the other goods and services upon which they can spend their money. However, when governments tax residents to fund programs that have restricted formularies, it is appropriate for us to examine the choice of medicines that those programs afford patients. Choice, under this narrow definition, is a good thing. However, it must be balanced with the cost of choice, which is largely borne by taxpayers, and which we discuss below.

It is also important to note that the delay in provinces' listing new medicines on their formularies is subsequent to delay imposed by the Canadian government's requirement that Health Canada determine the safety and efficacy of new medicines before issuing a license that allows Canadians to use them. This license is called a Notice of Compliance (NOC), and Health Canada takes significantly longer to issue its licenses than regulators in other developed countries do. [See, e.g., Rawson, 2003] Our Prescription Choice Index does not include this time.

IMS Health, a commercial information provider, tracks the time between Health Canada's issuing an NOC receipt to formulary listing in each province. Furthermore, each drug is either fully or partially listed. That is, drugs for which any physician can write a subsidized prescription without conditions are categorized as fully listed, whereas those for which the drug-benefit plan imposes restrictions, such as special authority, are categorized as partially listed. Using data provided courtesy

of IMS, we were able to construct the average time to listing on provincial formularies for all newly patented prescription drugs for a three-year period between 1998 and 2001 and a subsequent two-year period from 2001 to 2003. [Table 1] The comparison shows trends in the type of listings and time to attain them. [1]

We show two periods so that we can identify any significant changes in how different provinces listed new medicines. As Table 2 shows, significant changes occurred between the two periods. All the provinces except Newfoundland improved the time to partial listing, while time to full listing generally increased. This could reflect provinces' changing policies or new sales approaches by manufacturers increasingly pessimistic about receiving full listing. Because the provinces differ on whether a drug receives restricted coverage through the manufacturer's application or through the decision of the pharmacy and therapeutics committee, both scenarios are likely.

Some medicines, however, do not get on formularies at all. Approvals for inclusion in a formulary as a proportion of drugs receiving NOC is an indicator of choice afforded to patients through provincial plans. As well, whether provinces list new drugs fully or partially also informs us about accessibility of new drugs to patients. Table 3 shows that there are significant differences between provinces' propensity to list new drugs fully or partially. Some provinces have also seen dramatic shifts in the percentage of full and partial listings on their formularies between the two periods.

Saskatchewan and British Columbia both prefer to grant new products partial listing. Alberta and Manitoba, on the other hand, favor granting full listing. Both partial listing and taking a long time to list a new drug reduce patients' choice. However, there is no obvious relationship between the times to listing, as shown in Table 1 and Table 2, and the allocation of full versus partial listings, as shown in Table 3. Nor is it clear, given the shorter time required to achieve partial listing, whether patients' access is better improved by fully listing a drug, even if it takes a long time, or having it partially listed faster. Therefore, our Prescription Choice Index achieves a balance between these trade-offs.

For example, of the products that Newfoundland does list, it performs exceptionally poorly in the length of time taken to partially list products while it performs rather well in the time to full listing. Conversely, British Columbia performs at the top of the heap in time to partial listing, while falling to middle of the road status in time to full listing. Although British Columbia lists a high share of drugs partially, thus reducing access, the speed with which it lists them improves access.

[1] The two periods cover different times: two years for the former and three for the latter. This is due to way IMS Health furnished us with its proprietary data. The firm gave us data for the full five years and the latter two years within the overall period, from which we could calculate the earlier three years, but could not separate the overall period into two periods of equal time.

Table 1: Time to listing new medicines on provincial formularies from Health Canada issuing Notice of Compliance

	March 1, 1998 to February 28, 2001		March 1, 2001 to February 28, 2003	
	Days to full listing	Days to partial listing	Days to full listing	Days to partial listing
British Columbia	423	413	458	270
Alberta	419	513	447	375
Saskatchewan	311	389	357	282
Manitoba	408	461	667	481
Ontario	504	533	513	393
Quebec	302	377	360	310
New Brunswick	509	578	588	458
Nova Scotia	545	638	507	373
Prince Edward Island	536	764	No new listings	No new listings
Newfoundland	523	728	441	1,111

Source: IMS Health, 2003; authors' calculations

Table 2: Change in time to listing from 1998–2001 to 2001–2003

	Time to full listing	Time to partial listing
British Columbia	8%	(35%)
Alberta	7%	(27%)
Saskatchewan	15%	(28%)
Manitoba	63%	(4%)
Ontario	2%	(26%)
Quebec	19%	(18%)
New Brunswick	15%	(21%)
Nova Scotia	(7%)	(42%)
Prince Edward Island	n/a	n/a
Newfoundland	(16%)	53%

Table 3: Provincial listings of single-source products as a share of NOCs issued

	March 1, 1998 to February 28, 2001			March 1, 2001 to February 28, 2003		
	Total (of 171)	Full (of total)	Partial (of total)	Total (of 115)	Full (of total)	Partial (of total)
British Columbia	74 (43%)	42 (57%)	32 (43%)	26 (23%)	10 (38%)	16 (62%)
Alberta	83 (49%)	57 (69%)	26 (31%)	34 (30%)	23 (68%)	11 (32%)
Saskatchewan	98 (57%)	36 (37%)	62 (63%)	46 (40%)	18 (39%)	28 (61%)
Manitoba	101 (59%)	60 (59%)	41 (41%)	43 (37%)	24 (56%)	19 (44%)
Ontario	72 (42%)	26 (36%)	46 (64%)	29 (25%)	14 (48%)	15 (52%)
Quebec	107 (63%)	80 (75%)	27 (25%)	56 (49%)	34 (61%)	22 (39%)
New Brunswick	60 (35%)	22 (37%)	38 (63%)	18 (16%)	9 (50%)	9 (50%)
Nova Scotia	83 (49%)	39 (47%)	44 (53%)	24 (21%)	12 (50%)	12 (50%)
Prince Edward Island	22 (13%)	12 (55%)	10 (45%)	0 (0%)	0 (0%)	0 (0%)
Newfoundland	75 (44%)	27 (36%)	48 (64%)	13 (11%)	8 (62%)	5 (38%)

Source: IMS Health, 2003.

[1] Overall Listed Sub-Index

The Prescription Choice Index comprises four sub-indices, equally weighted. These weights are arbitrary but we can think of no reason to sacrifice this simplicity. The first sub-index, the Overall Listed Sub-Index, is simply the proportion of new drugs, measured by Health Canada's NOCs issued, that a province listed on its formulary during the period, without differentiating full from partial listing. We give this one-quarter of the weight in the Prescription Choice Index.

[2] Delay to Overall Listing Sub-Index

The Delay to Overall Listing Sub-Index, is derived from the weighted average time to listing on the formulary from the date Health Canada issues an NOC. We must define a range of days across which the sub-index can be normalized. We use zero days as the best case; that is, there is no delay in listing a drug on the formulary after Health Canada has issued its NOC. (This period does not actually exist). Because we are calculating the index over two periods, we want it to be consistent for both periods. Of all 20 observations of times to full listing (ten provinces over two periods), Newfoundland in the period 2001 to 2003 had the longest delay: 699 days. Therefore, we take this as the worst case in developing our sub-index. We use 699 as the denominator for both periods, to allow longitudinal comparison. For example, British Columbia took 342 days for listing overall in the second period (2001 to 2003). The sub-index for British Columbia is constructed as: 100 * {1 – (342 / 699)} = 51. When weighted by one quarter, it contributes 13 points to the Prescription Choice Index for British Columbia.

[3] Fully Listed Sub-Index and
[4] Delay to Partial Listing Sub-Index

The Fully Listed Sub-Index is the ratio of fully listed NOCs to the number of NOCs listed overall, both fully and partially, and weighted one quarter. The Delay to Partial Listing Sub-Index balances this by giving credit for having a faster time to partial listing than full listing. The best performer in this case is British Columbia during the period from 2001 to 2003, which granted partial listing 188 days faster than full listing (as reported in Table 1: 270 days less 458 days). The worst performer was Newfoundland, which took 670 days longer to grant partial listing than full. We scale this up by adding 188 to the difference between the number of days to partial listing and the number of days to full listing for all 20 observations. This transforms the figure for British Columbia to zero and for Newfoundland to 858 = 670 + 188. We then calculate, for British Columbia, 100 * {1 – (0 / 858)} = 100; for Newfoundland, 100 * {1 – (858 / 858)} = 0. To clarify further, for Alberta in the same period, the time to full listing was 447 days and the time to partial listing was 375 days, so: –72 = 375 – 447. When that is scaled up: 116 = –72 + 188; calculating: 100 * {1 – (116 / 858)} = 86. When weighted by a quarter, it contributes 22 points to the Prescription Choice Index for

Alberta (figures rounded). (In the second period, 2001–2003, Prince Edward Island listed no new drugs, so we "forced" the worst case for the Delay to Overall Listing and Delay to Partial Listing Sub-Indices).

Table 4 shows the Prescription Choice Index for the earlier period, March 1998 to February 2001, and Table 5 shows it for the later period, March 2001 to February 2003. Across the two periods, no province significantly increased the choice that it afforded patients. Prince Edward Islanders obviously suffered the worst reduction of choice, with Newfoundlanders coming a close second. However, there does appear to be a trend towards more partial listings, gained more quickly. Interestingly, provinces with different overall results can have similar sub-indices and provinces with similar overall results earn them from different sub-indices. As an extreme example of the former, both Prince Edward Island and British Columbia scored 14 on the Fully Listed Sub-Index, but British Columbia ranked third and Prince Edward Island last in the period from 1998 to 2001, because of Prince Edward Island's under-performance on the other sub-indices.

Table 4: Prescription Choice Index for provincial drug plans, March 1998 to February 2001

	Overall Listed Sub-Index	Delay to Overall Listing Sub-Index	Fully Listed Sub-Index	Delay to Partial Listing Sub-Index	Choice Index	Rank
British Columbia	11	10	14	20	55	3
Alberta	12	9	17	17	55	3
Saskatchewan	14	12	9	17	53	5
Manitoba	15	10	15	18	57	2
Ontario	11	9	9	19	47	6
Quebec	16	13	19	17	66	1
New Brunswick	9	5	9	18	41	8
Nova Scotia	12	4	12	17	44	7
Prince Edward Island	3	2	14	13	32	10
Newfoundland	11	2	9	14	35	9

Table 5: Prescription Choice Index for provincial drug plans, March 2001 to February 2003

	Overall Listed Sub-Index	Delay to Overall Listing Sub-Index	Fully Listed Sub-Index	Delay to Partial Listing Sub-Index	Choice Index	Rank
British Columbia	6	13	10	25	53	4
Alberta	7	10	17	22	56	2
Saskatchewan	10	14	10	22	55	3
Manitoba	9	4	14	25	52	5
Ontario	6	9	12	23	50	6
Quebec	12	13	15	21	61	1
New Brunswick	4	6	13	23	46	8
Nova Scotia	5	9	13	23	50	6
Prince Edward Island	0	0	0	0	0	10
Newfoundland	3	0	15	0	18	9

Measuring the performance of Pharmacare—the Prescription Insurance Index

An insurance plan that functioned well would take on the liability of catastrophic expenses for relatively unpredictable and otherwise unmanageable diseases while keeping patients financially liable for diseases relatively more predictable and less costly to treat. We assembled three groups of ten drugs each based on the prevalence of the diseases they treat and their estimated annual cost per patient in 2003. We estimated annual cost per patient by taking the price of the most common dosage and multiplying it by the number of doses taken annually by the median patient. We determined prevalence from the World Health Organization [2002].

The first group of drugs (***high volume/low price***), treating highly prevalent diseases (present in 1.6 or 1.7 per 1,000 population), such as hypertension and type II diabetes, but for a relatively low cost (average cost per dose, $1.62) had a probability of being covered by provincial formularies of 79%. The second group (***medium volume/medium price***), a higher-priced group, with an average cost per dose of $4.59, comprised drugs treating less prevalent diseases (present in approximately 0.2 to 0.6 per 1,000 population) such as Alzheimer's, schizophrenia, and epilepsy. These drugs were covered by provincial formularies 76% of the time. The third group (***low volume/high price***), treating rare diseases such as rheumatoid arthritis and multiple sclerosis (prevalent in about 0.03 to 0.08 per 1,000 population), cost an average of $622 per dose, and were covered in only 49% of cases. Table 6 lists these drugs, as well as their estimated annual costs, per patient. (There is some overlap in estimated annual costs between the medium volume / medium price group and the low volume / high price group because the trade-off between prevalence and price is not precise.)

Of the drugs in the first group that were added to a formulary, provincial plans took an average of 309 days following receipt of Health Canada's NOC to list them. Drugs in the second group were added to a formulary an average of 428 days following Health Canada's NOC. Drugs in the third and most expensive group were added an average of 503 days after Health Canada's approval. This is not indicative of well-functioning insurance plans. From this analysis, not only are the drugs for catastrophic diseases least likely to become listed by provincial formularies, those that are listed face serious delays of nearly a year and one half following their approval by Health Canada.

Provincially, substantive differences in coverage and likelihood of coverage arise. [Table 7] The first category of drugs described, high volume / low price, had an average approval time ranging between 224 days in Saskatchewan to 875 days in Prince Edward Island. The moderate volume / moderate price group of drugs had a range of 942 days between the average listing time (333 days) of the quickest province, Nova

Table 6: Estimated annual costs of three groups of drugs, 2003

Drug	Cost per Year ($CDN)	Drug	Cost per Year ($CDN)	Drug	Cost per Year ($CDN)
High Volume / Low Price		Medium Volume / Medium Price		Low Volume/ High Price	
Actos	1,007	*Seroqual*	1,372	*Avonex*	16,796
Diovan	383	*Zyprexa*	2,464	*Rebif*	17,004
Atacand	394	*Topamax*	2,175	*Infergen*	12,500
Avandia	704	*Lamictal*	1,449	*Betaseron*	17,108
Gluconorm	412	*Neurontin*	1,868	*Octostim*	1,308
Avapro	394	*Mirapex*	1,084	*Remicade*	32,900
Monocor	347	*Aricept*	1,609	*Copaxone*	12,319
Lipitor	785	*Exelon*	1,675	*Dostinex*	3,500
Hyzaar	241	*Reminyl*	1,671	*Enbrel*	15,600
Coreg	927	*Risperadal*	1,503	*Rebetron*	1,677

Source: McKesson Canada (personal communication with Tanya Tabler); authors' calculations.

Table 7: Average days to formulary acceptance of three categories of prescription drugs

	BC	AB	SK	MB	ON	QC	NB	NS	PEI	NF
High Volume/Low Price										
TTL	261	264	224	253	474	282	335	280	875	439
Prop'n Listed	70%	100%	100%	90	70%	90%	80%	60%	50%	70%
Medium Volume/Medium Price										
TTL	403	389	416	539	751	344	245	333	1276	437
Prop'n Listed	70%	90%	90%	90	90%	90%	60%	70%	70%	50%
Low Volume/High Price										
TTL	428	202	251	429	580	309	682	456	1117	547
Prop'n Listed	80%	70%	80%	40%	20	80%	30%	20%	40%	30%

Scotia, and the average listing time (1,276 days) of Prince Edward Island, the slowest province. The low volume / high price group also had a significant range in its average time to listing in various provinces. Alberta, with an average approval time of 193 days, shows the least waiting time to listing while Prince Edward Island was again the slowest, with an average listing time of 1,117 days from the date of Health Canada's NOC to formulary listing.

This allows us to assess how well these provincial plans perform as insurers. Overall, the answer must be "poor" because, in every province except Alberta, the government subsidizes relatively inexpensive medicines for relatively predictable and manageable ailments before it covers catastrophic pharmaceutical expenses.

[1] Completeness Sub-Index

In order to quantify this effect, we gave different weights to the three groups of drugs in order to construct our Prescription Insurance Index, which has two sub-indices. The Completeness Sub-Index reflects how many of the ten drugs in each group are listed. For example, in British Columbia, 70% of the drugs in the first two groups are listed, and 80% of those in the "low volume / high price" groups are. For the purposes of insurance, it is more important that the drugs in the latter group are listed than the first. Therefore, we multiply the share of listed drugs by weights of 1 for the first group, 2 for the second group, and 3 for the third group. We then divide by the maximum number of points a province can achieve: 600 = 100 + (2 * 100) + (3 * 100). For British Columbia, this results in 0.75. We then multiply this figure by 100 and divide by 2, to compose it into a sub-index forming half of the Prescription Insurance Index. For British Columbia, the sub-index is 38.

This method implies that it is three times more valuable for provinces to list medicines in the low volume / high price group as it is to list those in the "high volume / low price" group. Of course, the weights reflect a value judgment on our part and others might assign different weights; but the important issue here is to recognize that, with limited resources, provinces must trade off between subsidizing people who are suffering catastrophic pharmaceutical expenses and providing a general benefit that many people could pay for on their own.

[2] Delay Sub-Index

The Delay Sub-Index looks at how quickly provinces list these medicines and assigns the same weights as above. As with the similar sub-indices in the Prescription Choice Index, we must define a range of days over which to spread the sub-index from zero to 100, initially. We take zero days as the best case and Prince Edward Island's time to listing as the worst. For all three groups of drugs, Prince Edward Island had the longest time to listing. [Table 7]

British Columbia's average time to listing for the first group was 261 days, for a rating of 1 – (261 / 875) = 0.70. Prince Edward Island's rating was 1 – (875 / 875) = 0. If a province had a delay of zero days from Health Canada's approval to listing, this function would equal 1.00. As above, we weight these numbers for the three groups, sum them, and divide by the "best case" (600, as described above), multiply by 100, and divide by 2 to compose the sub-index. Note that this sub-index is of no interest to patients who currently need these medicines, because they have already been listed. However, it defines a "leading indicator" for how provinces will fare as new medicines for catastrophic diseases are invented and marketed.

The two sub-indices are added with equal weight to create the Prescription Insurance Index. If a province listed all of these medicines without delay, its score would be 100. In fact, they range from 26 to 80, as shown in Table 8.

Table 8: Prescription Insurance Index for provincial Pharmacare plans (scale = 100)

	Completeness Sub-Index	Delay Sub-Index	Insurance Index	Rank
British Columbia	38	33	70	4
Alberta	41	38	79	2
Saskatchewan	43	37	80	1
Manitoba	33	31	63	5
Ontario	26	23	49	9
Quebec	43	36	78	3
New Brunswick	24	28	53	7
Nova Scotia	22	33	54	6
Prince Edward Island	26	0	26	10
Newfoundland	22	28	50	8

Note: Sub-indices may not sum to index values due to rounding.

The delay, or decision not to list certain drugs on provincial formularies will affect the patient's access to the drug. If the government has crowded out privately insured pharmaceutical benefits by reducing residents' incentive and ability to pay for private health insurance, more patients than necessary will be stuck with a plan, paid for by taxes, that does not provide good insurance.

If the plan is focused on providing benefits to a limited number of people, as is the case in Newfoundland, it should be able to act as a better insurer than provinces, such as British Columbia, whose plans are designed more as an entitlement. It is a little odd that the Atlantic provinces, whose plans target narrower populations than other provinces' plans do, cannot satisfactorily address their beneficiaries' catastrophic pharmaceutical needs. We suspect that this is because their populations are too small to contain diversified risk-pools, which prevents them from being able to provide proper insurance. As well, incomes are lower in the Atlantic Provinces but prices for medicines are the same as in Ontario. Therefore, the real level of taxation necessary to fund a drug-benefit plan is higher in the Atlantic Provinces and unlikely to be achieved.

Ontario, Canada's richest province, is the most disappointing in this Index. It both fails to list a number of important drugs and takes a long time to list those that it does pick. Ontario appears to be the extreme example of a drug benefit gone wrong. While (or, perhaps, because) the province provides generous benefits to the majority that has relatively manageable prescription costs, it appears to fail to act as a good insurer for those with catastrophic costs. When it comes to voters, more of them have minor illnesses than catastrophic ones. Therefore, the political incentive to satisfy the most voters distorts the design of an insurance plan managed by government. While this may make sense politically, it is yet another reason why provision of medical services, particularly prescription drugs, ought to be kept out of the political sphere.

Spending performance

As noted above, Professors DiMatteo and Grootendorst identified three age groups that had independent explanatory power for per-capita spending in provincial drug benefit plans. The greater the share of middle-aged and elderly people, the greater is pharmaceutical spending. However, the greater the share of very elderly people, the less is pharmaceutical spending. Provincial policy-makers cannot be held responsible for these demographic conditions, so we analyze provinces' pharmaceutical spending, per capita, in 2000, as adjusted for the age of each province's population. We do this by using the co-efficients determined by DiMatteo and Grootendorst's ordinary least squares regression with robust standard errors to normalize all provinces' populations to that of Ontario in 2000.

For example, British Columbia's actual spending was $124 per capita, and Ontario's was $144. However, about 0.9% more of British Columbia's population is between 45 and 64 years old. Every 1% increase in the share of the population accounted for by this group adds about $2.51 to spending per capita. Therefore, the actual spending "punishes" British Columbia for having more people in this group. The adjusted figure subtracts $2.26 to counter this. On the other hand, British Columbia has about 0.4% more people aged 75 years and more. A 1% increase in this group, proportionally, explains a reduction of about $12.04 in spending per capita. The actual figure "rewards" British Columbia unjustly, so we add $4.82 to counter this.

See **Table 9** and **Table 10.** In these tables, we rank the provinces according to spending, with the province spending the least assigned "1", and the one spending most assigned "10."

Table 9: Actual provincial drug plan spending per-capita in 2000 (1992$) and shares of demographic groups

	Actual spending per capita	Population aged 45 to 64	Population aged 65 to 74	Population aged 75 plus	Rank
British Columbia	$124	23.6%	7.0%	6.0%	9
Alberta	$110	20.9%	5.7%	4.4%	5
Saskatchewan	$88	20.2%	7.2%	7.4%	2
Manitoba	$91	21.3%	6.9%	6.8%	4
Ontario	$144	22.7%	7.1%	5.6%	10
Quebec	$120	24.7%	7.3%	5.5%	7
New Brunswick	$87	24.0%	6.9%	6.2%	1
Nova Scotia	$122	24.0%	7.0%	6.3%	8
Prince Edward Island	$90	23.4%	6.9%	6.3%	3
Newfoundland	$117	25.1%	6.6%	5.1%	6

Source: DiMatteo and Grootendorst, 2002; StatsCan CANSIM II. Figures rounded for presentation.

Table 10: Adjusted provincial drug plan spending per-capita in 2000 (1992$) and adjustments by demographic groups

	Adjusted spending per capita	Adjustment for population aged 45 to 64	Adjustment for population aged 65 to 74	Adjustment for population aged 75 plus	Rank
British Columbia	$128	($2)	$2	$5	8
Alberta	$123	$5	$23	($14)	7
Saskatchewan	$114	$6	($2)	$22	6
Manitoba	$112	$4	$3	$14	4
Ontario	$144	$0	$0	$0	10
Quebec	$110	($5)	($3)	($1)	3
New Brunswick	$94	($3)	$3	$7	1
Nova Scotia	$129	($3)	$2	$8	9
Prince Edward Island	$100	($2)	$3	$8	2
Newfoundland	$113	($6)	$8	($6)	5

Source: DiMatteo and Grootendorst, 2002; authors' calculations. Figures rounded for presentation.

Cost-sharing in provincial plans

Although there is tremendous variation in provincial drug-benefit plans and it would be easy to over-generalize when comparing them, it is valuable to discuss the provinces' plans according to criteria important to their success. Two of these are fiscal. First, we address whether the plan is an entitlement for the entire population (or at least seniors), regardless of their incomes, or whether the benefits are limited by a means-test. Second, using information on province's drug benefit plans in 2003, we examine whether, and how much, beneficiaries pay directly, via co-payments or a deductible, versus how much taxpayers contribute to patients' benefits.

British Columbia

British Columbia's programs for both seniors and the general population date back to January 1974. Cost-sharing mechanisms were implemented in June 1977 for households in the general population and in 1987 for seniors. The province employed deductibles and co-payments tempered with a maximum beneficiary contribution as means of reining in spending. Later, with drug budgets increasing at a seemingly unsustainable rate, the province took more aggressive cost-containment action. The Reference Drug Plan was introduced in 1995 as an aggressive method of controlling pharmaceutical spending. The policy eventually limited payment to the cheapest drugs for blood-pressure medications like Angiotensin Converting Enzyme Inhibitors and Calcium Channel Blockers; anti-angina medications known as Nitrates; and anti-inflammatory medications used for arthritis. Although the provincial government persists with this policy, it has proved unsuccessful because, rather than taking a significant dent out of expenditures, it shifted costs to patients without slowing overall pharmaceutical spending. [Graham, 2002]

British Columbia's provincial pharmaceutical policy has been characterized by universality. Until 1994, no distinction between high-income and low-income (non-senior) households was made with respect to deductibles or co-payments. Similarly, until 2003, seniors' drug coverage was universal, regardless of income, meaning the poor contributed a significantly larger proportion of their net income directly to prescription drug spending than did more affluent seniors. Thus, to argue for this type of program on the grounds of redistribution is flawed.

In 2003, a means test was introduced to British Columbia's Pharmacare program. Deductibles and ceilings (the maximum amount the patient pays in a year) are based on 40 income brackets with the co-insurance remaining constant for nearly every income bracket. (A co-payment of 25% to 30% was introduced for every income

bracket, with the exception of the highest bracket, where co-payment is 100% until the maximum drug expenditure is reached.) The co-insurance is significant enough to curb over-use.

The means test is not without its shortcomings, however. Rather than making coverage contingent on means, regardless of age, seniors are given preferential treatment. For example, in 2003, the low-income ceiling for a non-senior family is about $15,000, whereas it is about $33,000 for a senior household. Furthermore, the means-tested deductibles are 1% higher for working-age households than seniors. The co-payment structure also varies with age. Seniors enjoy a 25% co-payment, while families without a senior pay for 30% of their drug costs, up to the ceiling amount. As long as the province gives more generous benefits to those within age groups that use more drugs at the expense of those who use less, it cannot expect to contain the Pharmacare budget. (Other provinces also give preferential treatment to seniors, often regardless of need.)

Scope

- available to seniors and non-seniors, means-tested for both

Cost-sharing structure

- means-tested deductible (lower for seniors)
- maximum beneficiary contribution
- seniors co-payment: 25%
- non-senior co-payment: 30%

Catastrophic coverage

- complete coverage for all prescription costs above defined (means-tested) spending limits.

Alberta

Alberta's publicly funded prescription drug programs for seniors started in 1970. Initially, income brackets were used to determine beneficiaries' premiums. However, in 1972, the seniors benefit program became universally available for seniors and was expanded to include other residents on a means-tested basis.

Co-insurance for all individuals covered by provincial drug plans (with the exception of those receiving social services) were 20% of the total cost of the prescription until 1994 when they increased to 30% with a maximum contribution per prescription of $25. Seniors' coverage remains a premium and deductible-free entitlement program. Non-group coverage is provided to individuals and families, charging

quarterly premiums. A lower quarterly premium is available to low-income residents. As well, provisions for a waiver of the premium are available depending on income.

Coverage is limited to $25,000 per beneficiary per year with extension of coverage considered on a case-by-case basis. This is the opposite of a good insurance program. No annual beneficiary contribution cap has been defined.

Cost-containment mechanisms employed by this program include use of a formulary, lowest-cost-alternative pricing (mandatory generic substitution), and some use of the maximum allowable cost strategies.

Scope

- seniors' entitlement
- crude means test for coverage of non-seniors

Cost-sharing structure

- 30% to a maximum of $25 per prescription

Catastrophic Coverage

- limited to $25,000 per beneficiary per year, with additional coverage considered on a case by case basis.

Saskatchewan

Saskatchewan's provincial drug programs for both seniors and the general public were introduced in 1975. Cost sharing from 1975 to 1987 was simply a flat fee per prescription (co-payment), giving beneficiaries no indication of the real cost of the prescription. No premiums or deductibles were used up to this point. From 1987, the province instituted deductibles and co-insurance.

From March 1993 to the present, deductibles and maximum beneficiary contribution have been tied to annual household income, or means tested. Since July 2002, eligibility for public programs became limited to families with drug costs exceeding 3% to 4% of adjusted income.

Beneficiaries of the Guaranteed Income Supplement (GIS), Saskatchewan Income Plan (SIP), or Family Health Benefits (FHB) are subject to a lesser cost-sharing scheme. Independent GIS beneficiaries pay a deductible of $200 semi-annually and 35% of the drug costs after the deductible has been reached. GIS recipients in assisted living facilities and FHB recipients pay a deductible of $100 and a 35% co-insurance thereafter. Children of FHB beneficiaries receive prescription benefits at no charge. This means testing, or focusing of benefits to those in need, is a step in the right direction when attempting to control spending.

Scope

- means tested program for seniors and families alike

Cost-sharing structure

- poor: $100-200 deductible; 35% co-insurance

Catastrophic coverage

- drug costs > 3%–4% of adjusted income; not well defined.

Manitoba

Manitoba's coverage for both the general public and seniors dates back 1973. Cost sharing began in 1975: a 20% coinsurance after the deductible of $50 had been met. Increases in both the deductible and co-insurance occurred until 1996 when a means-tested program was introduced by abolishing co-insurance and setting a deductible as a share of household income. Low-income seniors and non-seniors were required to pay 2% of their adjusted income as the deductible, after which time the entirety of the drug cost was covered. Higher-income residents were required to contribute 3% of their adjusted income to drug costs. After reaching that, 100% of the drug cost became covered.

This relatively simple, transparent program has successfully shifted from an age-based entitlement program to an entirely needs-based program.

Scope

- means tested (seniors and non-seniors are tested alike)

Cost sharing structure

- adjusted income less than $15,000 annually: 2% of adjusted income (deductible)
- adjusted income greater than $15,000 annually: 3% of adjusted income (deductible).

Catastrophic coverage

- complete (100%) coverage for expenses over 2% of income for low-income individuals and over 3% of income for higher income residents.

Ontario

At its inception in 1975, Ontario's seniors' drug benefit was reserved for the poor but it soon became simply an age-based entitlement. The Trillium program, which provides pharmaceutical benefits for the general population, has been income-based since it began in 1995.

In July 1996, however, some means testing was re-introduced to the Ontario Drug Benefit Program. High-income seniors pay a deductible and a flat rate per prescription. Seniors below this threshold pay a much-reduced flat rate per prescription. With just one segmentation between "low" and "high" income, it is possible to have very low earners pay a disproportionate part of their income toward drugs, compared to those whose incomes approach the "high income" cut-off. Similarly, the seniors whose income barely surpasses the "high income" divider pay a significantly greater proportion of their income than the highest income earners in that category.

Prior to 1996, the Trillium program offered full coverage after the deductible had been met. Deductibles vary depending on the size and income of household. A small, per prescription, co-payment is charged (though actually waived by many pharmacies) for Trillium beneficiaries after they have met the deductible. As noted above, the co-payment is likely too small to give most patients an incentive to manage their consumption after they have met the deductible.

Scope

- means-tested Trillium program for working age residents
- quasi-means-tested Ontario Drug Benefit Program for seniors

Cost-share structure

- high-income seniors: $100 deductible and flat-fee per prescription
- low-income seniors: flat fee per prescription
- Trillium program: deductible and flat fee per prescription

Catastrophic Coverage

- coverage with a small co-payment for all expenses beyond the defined deductible.

Quebec

Quebec seniors enjoyed full coverage, regardless of income from 1972 to 1992. Between 1992 and 1996, low-income seniors were distinguished from high-income seniors through their receipt of the Guaranteed Income Supplement (GIS). Those receiving full GIS continued to receive full coverage while those not receiving full GIS paid a flat rate per prescription up to a maximum contribution.

After 1996, all seniors paid co-insurance of 25% up to a maximum monthly deductible, except for those receiving GIS. As of 2003, seniors receiving at least $945 per month of GIS saw a reduction of monthly deductible from $45.67 to $16.66 and of the annual contribution to $200 from $548.

Quebec's non-senior population saw a universal prescription-drug program introduced in August 1996. Cost-sharing initiatives include co-insurance rates of 25% per prescription after a monthly deductible had been met. All Quebecers must either have private insurance or belong to the plan. However, Quebec does not fund its plan for the general population from tax revenues but through compulsory premiums—a social levy. In 2003, non-seniors and those not receiving income assistance saw their annual premiums rise from $420 to $460.

Scope

- universal coverage, either private or public

Cost-sharing structure

- seniors and non-seniors: deductible and 25% co-insurance

Catastrophic coverage

- 75% coverage of all drug costs after the deductible is met.

New Brunswick

Since its inception in 1975, the New Brunswick Prescription Drug Program has served seniors only. No drug program for the working-age population has been introduced. The Prescription Drug Program has evolved from an entitlement program to one that includes some means testing. From 1975 to 1983, seniors in New Brunswick enjoyed full coverage. After 1983, a flat rate per prescription was introduced, varying with income. Low-income seniors do not pay premiums and their payments are capped at an annual maximum contribution. Other seniors, those who do not receive GIS and are otherwise not low-income, are required to pay a monthly premium to the plan administrator, Atlantic Blue Cross. If a senior does not enroll in the plan within 60 days of turning 65, he or she may face higher premiums than customary and may be denied coverage depending on any medical conditions.

Scope

- means-tested seniors drug program

Cost-sharing structure

- flat rate per prescription, varying with income

Catastrophic coverage

- payments from low-income seniors are capped.

Nova Scotia

Like other Atlantic provinces, Nova Scotia does not offer a drug program to the general population. It does, however, have provisions in place for disabled persons, their dependents, and seniors. Between October 1974 and May 1990, all seniors enjoyed full coverage. Subsequent to that, a flat, per-prescription co-payment was introduced. Between 1993 and 1995, a means test, based on the GIS benefit was introduced to determine the extent to which the patient would share costs. As well, the plan charges an annual premium, dependent on income.

The co-payment is now co-insurance set at 33% per prescription to a maximum of $30 and a maximum annual contribution of $350 per senior through co-payments.

Scope

- means-tested seniors and disabled drug program

Cost-sharing structure

- 33% co-insurance to a maximum per prescription ($30) and annual contribution ($350)

Catastrophic coverage

- full coverage (100%) for seniors and disabled individuals after the maximum contribution is met.

Prince Edward Island

Prince Edward Island introduced its senior prescription drug coverage, Prince Edward Island Drug Cost Assistance Plan for seniors, in 1986, the last province in Canada to introduce such a program. Full coverage was provided for one year, after which a flat fee per prescription was instituted. this is still used today. Low-income residents also have access to the provincial program. Since May 2001, the province has provided assistance to families with one child and earning $22,000 or less by requiring them only to pay the dispensing fee for drugs.

Scope

- low-income residents and seniors

Cost-sharing structure

- flat fee per prescription, variable depending on the type of prescription

Catastrophic coverage

- coverage with co-payments for seniors, low-income individuals and single-parent families.

Newfoundland

A prescription drug subsidy, the Newfoundland and Labrador Prescription Drug Program, which is available only to low-income seniors, has been in existence since 1980. Seniors receiving the GIS pay only the dispensing fee plus 10% of the ingredient cost if it is over $30. Other seniors receive no drug subsidy. Non-seniors receive subsidy only if they are on full social benefits. Because of the limited number of beneficiaries, it is difficult to compare this plan to those of other provinces.

Scope

- seniors with low incomes and non-seniors with very low incomes

Cost-sharing structure

- flat fee plus nominal portion of drug cost

Catastrophic coverage

- coverage with co-payments for seniors and low-income individuals with proportionally high drug costs.

Deciding the formulary

Each province maintains a formulary listing which medicines it will subsidize and the conditions and extent to which it will do so. The generic term for the body that recommends changes to a formulary is the "pharmacy and therapeutics committee" (P&T committee). This committee, usually composed of experts in the fields of medicine, pharmacy, pharmacoeconomics, epidemiology, pharmacokinetics, and so on, either makes formulary decisions directly or makes recommendations to the Minister. Below is an overview of the make-up of each province's P&T Committee and its criteria for including drugs in the formulary, using information collected from provincial health ministries' public websites.

We recognize that transparency and clarity are difficult to measure as well as to value. If manufacturers share commercial information, in confidence, with managers of provincial plans, the government cannot be wholly transparent with its residents about how decisions are made. As well, criteria must be flexible to accommodate analysis of unique, new products. However, an assessment of these factors is useful when reviewing performance.

British Columbia

P&T committee

Notably, no description of the drug review committee, names or qualifications of members, is freely available.

Required documentation

1. evidence of Notice of Compliance (NOC), Drug Identification Number (DIN), and product monograph
2. unrestricted letter of consent permitting communication with Health Canada, other Canadian provinces and territories, Canadian Coordinating Office of Health Technology Assessment (CCOHTA), and with the Patented Medicines Prices Review Board (PMPRB), regarding the product under review
3. current pricing information
4. manufacturer's assurance of ability to supply product
5. disclosure of any patent issues
6. information on availability of the drug prior to its receiving a NOC, either as compassionate supply, special-access program, or as a clinical trial
7. copies of published trials in peer-reviewed literature on therapeutic use, efficacy, safety, and adverse effects

8 pharmacoeconomic evaluation in accordance with the CCOHTA or Ontario guidelines
9 master formulation sheet to include all active ingredients, all raw ingredients, all excipients, dyes, and fillers
10 written notification of any change in the product (monograph, DIN, formulation, price)

British Columbia does not have deadlines for formulary submission, though the committee meets semi-annually.

Checklist

× Are the members of the formulary body easily identifiable?
× Are there easily accessible criteria that describe how the P&T committee evaluates a new medicine?
✓ Are there guidelines that submissions should follow?

Alberta

P&T committee

The expert committee that decides listings comprises four medical doctors and two pharmacists with administrative and scientific support from three pharmaceutical experts from the Clinical Drug Services and Evaluation branch of Blue Cross, the arms-length organization that adjudicates drug claims for provincial drug programs. As well, the director for pharmaceutical policy at the Ministry of Health and Wellness acts as a liaison.

Criteria for inclusion

The criteria for inclusion are general and meant to be applied flexibly, having regard to each individual case. They may be modified or adapted as the situation may require. Not all criteria will apply in each case.

1 Clinical studies must have demonstrated the safety and efficacy of the product in appropriate populations.
2 The product must have demonstrated therapeutic advantage over other presently accepted therapies or treatments of the disease entity for which the product is indicated or be significantly more cost-effective than present accepted therapy.
3 Consideration of the product will include clinical efficacy, risk/benefit ratio, toxicity, compliance, clinical outcomes, Health Canada advisories, population health issues and any other factor affecting the value of the product.

4 Limitations may be placed on reimbursement for certain products.
5 Products having high cost implications may not be listed or may be restricted by special authorization procedures.
6 For line extensions, the product must be at least cost-neutral.
7 Additional considerations may include: the type of drug, class, or indications for use; whether the product is interchangeable; availability of alternative products or therapies; unit cost; volume of use for similar products; potential cost savings; expenditure management; patent issues; coverage provided by other programs; any other relevant product.
8 Generic products, first entry, must provide at least 25% savings unless the product would provide significant potential cost-savings, where the product is designated as an old drug by Health Protection Branch with limited market potential, where the cost of manufacturing is too high to allow the savings, where the drug is primarily dispensed by hospitals or outpatient pharmacies or any other consideration.
9 A product is granted "fast-track" status if "Priority Review" status has been granted by the Therapeutics Products Directorate, Health Canada.

Requirements for submissions of new chemical entities

1 consent letter authorizing discussion among CCOHTA, PMPRB, Alberta Cancer Board, regional health authorities, and governments of any other province or territory in Canada
2 complete bibliography in the form of a medical literature database search
3 copy of comprehensive summary, clinical and pre-clinical studies
4 copy of DIN, NOC and product monograph
5 status of patent
6 copy of completed and approved Certified Product Information Document or a Master Formula and final product specifications
7 Certificates of Analyses from two batches of each strength and/or dosage form of finished submitted product
8 price information: price in Alberta and lowest price in Canada
9 economic information using CCOHTA guidelines and including specified Alberta form

Checklist

- ✓ Are the members of the formulary body easily identifiable?
- ✓ Are there easily accessible criteria that describe how the P&T committee evaluates a new medicine?
- ✓ Are there guidelines that submissions should follow?

Saskatchewan

P&T committee

The drug review process begins with clinical evidence being reviewed by the Drug Quality Assessment Committee (DQAC) appointed by the Minister of Health and made up of specialists in internal medicine, clinical pharmacists, and pharmacologists. The findings of DQAC are reported to the Saskatchewan Formulary Committee (SFC). Along with the findings of DQAC, the SFC considers the anticipated cost and impact on patterns of practice. The SFC makes a recommendation to the Minister of Health, who then acts on its recommendation. Submissions are generally reviewed in order of receipt, with updates to the formulary published quarterly.

Criteria for inclusion

1. Products produced by manufacturers approved as acceptable suppliers by the SFC will be considered.
2. Only drug products formulated and produced in accordance with sound manufacturing principles and found to comply with official standards will be considered.
3. Drugs that are valid therapeutic agents with proven clinical effectiveness for the diagnosis, prevention, or treatment of physical or mental disorders will be listed. Availability of suitable alternative agents and potential for undesirable effects will be considered.
    a. Clinical documentation must clearly demonstrate therapeutic advantages such as:
        i. more effective in treating the condition(s) for which the drug is intended
        ii. increased safety as shown by reduced toxicity and reduced incidence of adverse reactions and/or side effects
        iii. improved dosing schedule
        iv. reduced potential for abuse or inappropriate use.
4. Anticipated cost of a product of equivalent therapeutic effectiveness must offer a potential economic advantage over listed alternatives.
5. The cost of therapy relative to the clinical efficacy is reviewed and compared to the cost of therapy relative to efficacy of alternative agents.
6. Products that contain the same amount of the same active ingredient in an equivalent dosage form and are of acceptable equivalent therapeutic effectiveness will be listed as interchangeable.
7. The following drugs will not be listed:
    a. fertility agents
    b. drugs used in erectile dysfunction
    c. certain over-the-counter preparations
    d. drugs used primarily in hospitals
    e. antineoplastic agents
    f. anti-tuberculosis drugs

g blood derivatives
h vaccines and sera.

Checklist

- × Are the members of the formulary body easily identifiable?
- ✓ Are there easily accessible criteria that describe how the P&T committee evaluates a new medicine?
- ✓ Are there guidelines that submissions should follow?

Manitoba

P&T committee

The Manitoba Drug Standards and Therapeutics Committee, the independent body that recommends drug interchangeability and the economic value of drug benefits gives recommendations to the Minister of Health for listing on the provincial formulary. The body is made up of three physicians and three pharmacists, nominated by the colleges and advocacy bodies of each respective profession. The committee met eight times in 2001 and approved 205 drugs for formulary status.

While no formal submission requirements are outlined for new molecule approvals, requirements for generic drug approval and status for interchangeability are outlined.

Checklist

- × Are the members of the formulary body easily identifiable?
- × Are there easily accessible criteria that describe how the P&T committee evaluates a new medicine?
- × Are there guidelines that submissions should follow?

Ontario

P&T committee

The Drug Quality and Therapeutics Committee, made up of members from medicine, pharmacy, pharmacology, epidemiology, health economics, and other disciplines has 12 members, including the chairperson, who are freely identified in the text of the formulary. Their mandate is to:

1 advise the Minister on the operation of programs designed to assist people of Ontario to obtain prescribed pharmaceutical products of quality at reasonable cost

2 to establish, maintain, and apply criteria to evaluate the quality and therapeutic value and cost of drug products and to recommend to the Minister those products that should be considered for publicly funded drug programs and advise the Minister on the conditions under which such products should be funded
3 to recommend to the Minister which drug products should be designated as interchangeable products or listed drug products for the purposes of the Drug Interchangeability and Dispensing Fee Act, and the Ontario Drug Benefit Act
4 to monitor and evaluate, on a continuous basis, the list of drugs available in the light of drug-use patterns, experience, and current scientific knowledge
5 when requested, to contribute and support Ministry efforts on education about publicly funded drugs and related issues
6 to review and assess information related to drugs and pharmaceutical products prepared for the Committee and for the Minister by selected consultants, from time to time, as requested by the Minister
7 at the Minister's request, to act as liaison between the Minister and professional, educational, and other groups
8 to provide advice on relevant drug, pharmaceutical, policy, and therapeutic questions and issues solicited or requested by the Ministry of Health, from time to time.

Required documentation for single-source products

1 brand name, generic name, strength, dosage form (including various package sizes)
2 the regulation under which the submission is being made (either the Ontario Drug Benefit Act or the Drug Interchangeability and Dispensing Fee Act)
3 if submitted under the Drug Interchangeability and Dispensing Fee Act, the name of the original product to which an interchangeability designation is being sought
4 the type of listing requested (e.g. General Benefit or Limited Use)
5 any exemptive regulations being applied for (e.g. additional strength)
6 a fast-track request, if applicable.

The Ministry also provides a number of publicly available worksheets and forms to aid manufacturers in submitting scientific information about the drug. Unsuccessful applications may be appealed.

Checklist

- ✓ Are the members of the formulary body easily identifiable?
- ✓ Are there easily accessible criteria that describe how the P&T committee evaluates a new medicine?
- ✓ Are there guidelines that submissions should follow?

Quebec

P&T committee

Under new legislation, Quebec's Conseil du medicament (Conseil) has now taken shape. Its mandate is to update the provincial formulary and to promote the appropriate use of medications. The decision-making body includes 15 members with various qualifications to bring to the drug-approval process. Physicians and pharmacists make up the majority of the group, with representation from the Interdisciplinary Health Research Group at the University of Montreal, a professor of bioethics, and a professor of theology rounding out the Conseil. The group is to include four persons who are neither physicians nor pharmacists nor representatives of an insurer, administrator of an employment benefit plan, drug manufacturer, or wholesaler. This is the first committee to involve bioethics and theology formally. The group's mandate is to consider scientific and economic issues along with social and ethical issues.

Part of the group's mandate is promoting efficient use of drugs. With support from industry, the group will support optimal and cost-effective drug use through drug use review studies and the implementation of corrective measures if necessary and continuing medical education, publication, and other activities to increase professional awareness. Specific agreements with companies that market COX-2 inhibitors and proton pump inhibitors address promoting rational use of drugs.

Checklist

- ✓ Are the members of the formulary body easily identifiable?
- × Are there easily accessible criteria that describe how the P&T committee evaluates a new medicine?
- × Are there guidelines that submissions should follow?

Atlantic Provinces

P&T committee

The Atlantic Provinces have joined together in a common drug review, known as the Atlantic Common Drug Review. This involves a submission being sent to each of the provinces, with common requirements.

Requirements for submissions of new chemical entities

1. executive summary
2. NOC from Health Canada
3. product monograph
4. therapeutic classification
5. clinical evidence on efficacy, effectiveness, and safety

6 economic information
7 information on pricing and availability
8 a letter authorizing each of the Atlantic provinces to communicate with other jurisdictions and federal programs, Health Canada, PMPRB, and CCOHTA
9 a letter specifying the current or intended Compendium of Pharmaceuticals and Specialties (CPS) listing status
10 a copy of the Pharmaceutical Advertising Advisory Board (PAAB) approved promotional materials.

Approval process

1 drug submission to each province, then
2 the province's copy goes to the secretariat for screening, recording, and tracking
3 Atlantic Pharmacare Review Committee (APRC) (composed of drug plan managers for the provinces) receives list of all new submissions and identifies reviewers
4 drug evaluation summary prepared and discussed by the Atlantic Expert Advisory Committee (EAC), composed of physicians, pharmacists, and other experts from Atlantic provinces
5 EAC advises on the drug's place in therapy
6 Department of Health in each province reviews the advice of EAC in the provincial context and makes a decision regarding benefit status.

Checklist

× Are the members of the formulary body easily identifiable?
✓ Are there easily accessible criteria that describe how the P&T committee evaluates a new medicine?
✓ Are there guidelines that submissions should follow?

For a summary of how each province scores on the criteria for transparency, see Table 11.

Table 11: Transparency of formulary listing for provincial drug benefit plans, 2003

	Committee members easily identifiable?	Listing criteria easily identifiable?	Guidelines for submissions?
British Columbia	×	×	✓
Alberta	✓	✓	✓
Saskatchewan	×	✓	✓
Manitoba	×	×	×
Ontario	✓	✓	✓
Quebec	✓	×	×
Atlantic	×	✓	✓

Conclusion and policy Implications

When comparing historical spending to our indices [Table 12], we can draw conclusions about how effective different provinces are at making trade-offs between cost-containment, patient-choice, and good principles of insurance. For example, we can point out that Quebec does very well when we compare our adjusted spending to our indices and Ontario does very poorly. [2]

Table 12: Adjusted provincial drug plan spending per-capita in 2000 (1992$), Prescription Choice Index 2001 to 2003, and Prescription Insurance Index 2003

	Adjusted spending per capita rank (lowest spender = 1)	Prescription Choice Index rank (most choice = 1)	Prescription Insurance Index rank (best insurance = 1)
British Columbia	8	4	4
Alberta	7	2	2
Saskatchewan	6	1	1
Manitoba	4	5	5
Ontario	10	9	9
Quebec	3	3	3
New Brunswick	1	7	7
Nova Scotia	9	6	6
Prince Edward Island	2	10	10
Newfoundland	5	8	8

Ontario

Ontario's under-performance is likely due, in part, to its skewed incentives. Means testing is very weak. In 2002, seniors, regardless of income, paid only $6.11 per prescription after hitting an annual deductible of $100. Working-age Ontarians face similarly weak incentives to manage their consumption of prescriptions. This means that the Ontario Drug Benefit Plan does not have enough resources to make medicines accessible to those in greater need, especially if they have catastrophic needs.

Quebec

Most Quebecers, on the other hand, pay co-insurance of 25% per prescription after meeting their deductibles, which are generally higher than in Ontario. This motivates them to govern their consumption and, potentially, to avoid wasting prescriptions and leaves more resources for the plan to make drugs, including those for catastrophic illness, more

[2] We cannot make robust statements about which province provides the best value for money because we do not know how much Canadians value the criteria for prescription choice and prescription insurance measured by our indices. We do not know how much Canadians would be willing to pay to "buy" one more point on either of our indices.

accessible. There has been some evidence that Quebecers on very low incomes were unable to fill prescriptions immediately after the program was launched but the government has reduced their costs out of pocket since the plan started. [Graham, 2002: 38–42]

British Columbia

British Columbia performs poorly on spending but in the top half on both performance indices. One of the arguments that BC Pharmacare managers put forward for the Reference Drug Plan, which restricted reimbursement for drugs in certain classes, was that it would free up resources for other drugs. While they have not controlled spending, it looks like this claim may be true to a degree. In the past couple of years, British Columbia has introduced means testing and we should expect to see an improvement in spending performance. (For a more complete comparison of Quebec and British Columbia, see Graham 2002: 28–32).

Alberta and Manitoba

Alberta's profile is similar to that of British Columbia. It is a relatively big spender. Although Alberta had co-insurance during the period examined, it had no deductible for seniors. Manitoba, which performs in the middle of the road, had a means-tested deductible but no co-payments! Quebec's experience suggests that both deductibles and co-payments should be high enough, and means-tested, to motivate patients to manage the cost of their prescription drugs.

The Atlantic Provinces

The Atlantic Provinces are difficult to compare with the other provinces, because they provide coverage for less of their population than other provinces do.

Transparency and performance

With respect to processes governing how provincial plans decide to list new medicines on their formularies, we could find no connection between the three criteria we examined and our measurements of performance. For example, Quebec has neither explicit criteria nor guidelines for the submission of new drug applications but does well on our measurements. Ontario has both, as well as a P&T committee that is easily identified. Ontario's processes are transparent, yet it performs poorly. Manitoba has none of the three elements of transparency that we examined, yet does quite well.

In light of this, we find it remarkable that anyone would suggest eliminating these diverse bodies of decision-makers in favour of one, centralized, committee that will eventually eliminate our ability to observe the effects of different policies across the country, none of which anyone can fully anticipate. Canadians will be better served by a variety of such committees, whose output others can assess by criteria that are as objective as possible.

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