RESEARCH PAPER

Use of Product Listing Agreements by Canadian Provincial Drug Benefit Plans

Recours aux ententes relatives à l'inscription des produits par les régimes provinciaux d'assurance médicaments au Canada

STEVEN G. MORGAN, PHD
Associate Professor, School of Population and Public Health
Associate Director, Centre for Health Services and Policy Research
University of British Columbia
Vancouver, BC

MELISSA K. FRIESEN, BA
Research Facilitator, Centre for Health Services and Policy Research
University of British Columbia
Vancouver, BC

PAIGE A. THOMSON, MPA
Policy Analyst, Centre for Health Services and Policy Research
University of British Columbia
Vancouver, BC

JAMIE R. DAW, MSC
Policy Analyst, Centre for Health Services and Policy Research
University of British Columbia
Vancouver, BC

Abstract

Background: Product listing agreements (PLAs) between drug manufacturers and drug plans are increasingly common worldwide. Use of PLAs by Canadian provinces has not previously been documented.

Methods: We collected data from all provinces on funding and PLA use for 25 drugs that were reviewed by the Common Drug Review (CDR) in 2010 or 2011 and funded by at least one province as of May 2012. We measured correlations between coverage and PLA use, and CDR recommendations and PLA use.

Results: The number of drugs from our sample funded by provinces ranged from three in Prince Edward Island to 21 in Ontario. PLA use ranged from zero in Quebec, Prince Edward Island, and Newfoundland and Labrador to 20 in Ontario. The correlation between drugs funded and PLAs used by each province was statistically significant (r=0.57, p=0.04); excluding Ontario, however, the correlation was not significant (r=0.10, p=0.40). There was a stronger correlation between the number of provinces funding a drug and the number using PLAs among the subset of drugs with negative CDR recommendations (r=0.87, p<0.01) versus those with positive recommendations (r=0.52, p=0.03). Of the 12 drugs sampled with a negative CDR recommendation, 10 were funded with a PLA in at least one province.

Interpretation: There is wide interprovincial variation in PLA use and evidence that PLAs may be used to fund drugs that are not otherwise cost-effective. If global pricing strategies are making PLAs necessary, Canadian governments should collaborate to improve the equity, transparency and effectiveness of PLAs across provinces.

Résumé

Contexte : Les ententes relatives à l'inscription des produits (EIP) entre fabricants de médicaments et régimes d'assurance médicaments sont de plus en plus communes dans le monde. Le recours aux EIP par les provinces canadiennes n'a pas été documenté jusqu'à maintenant.

Méthodes : Nous avons recueillis des données de toutes les provinces sur le financement et le recours aux EIP pour 25 médicaments qui ont été évalués dans le cadre du Programme commun d'évaluation des médicaments (PCEM), en 2010 et 2011, et qui ont été financés par au moins une province en mai 2012. Nous avons calculé la corrélation entre la couverture par le régime d'assurance et le recours aux EIP, ainsi qu'entre les recommandations du PCEM et le recours aux EIP.

Résultats : Dans notre échantillon, le nombre de médicaments financés par les provinces varie entre 3 à l'Île-du-Prince-Édouard et 21 en Ontario. Le recours aux EIP varie entre 0 au Québec, à l'Île-du-Prince-Édouard et à Terre-Neuve-et-Labrador et 20 en Ontario. La corrélation entre les médicaments financés et le recours aux EIP dans chaque province est statistiquement significative (r=.57, p=.04); à l'exception de l'Ontario, toutefois, où la corrélation n'est pas significative (r=.10, p=.40). Il y avait une plus forte corrélation entre le nombre de provinces qui financent un médicament et le nombre de provinces qui ont recours aux EIP, et ce, pour la sous-catégorie de médicaments qui ont reçu une recommandation défavorable de la part du PCEM (r=0.87, p<0.01), par rapport à ceux dont la recommandation était favorable

(r=0.52, p=0.03). Parmi les 12 médicaments de l'échantillon qui ont reçu une recommandation défavorable du PCEM, 10 étaient financés dans le cadre d'une EIP dans au moins une province.
Interprétation : Il y a une grande variation interprovinciale dans le recours aux EIP et il s'avère que le recours aux EIP est peut-être employé pour financer des médicaments qui ne seraient pas efficient par rapport au coût. Si les stratégies de prix mondiales rendent nécessaire le recours aux EIP, les gouvernements au Canada devraient collaborer pour améliorer l'équité, la transparence et l'efficacité des EIP dans les provinces.

Around the world, negotiated contracts between drug manufacturers and healthcare payers are becoming increasingly common (Adamski et al. 2010; Carlson et al. 2010). Known under a variety of names, a common element of these product listing agreements (PLAs) is the negotiation of confidential prices that are typically achieved through rebates that may or may not be tied to drug expenditures, utilization patterns or health outcomes. Though Canadian hospitals have long used confidential purchasing arrangements, provincial drug plans rarely negotiated confidential price rebates before 2006 (Gorecki 1992; Morgan et al. 2003; Paris and Docteur 2007). In recent years, however, some provinces have begun to use PLAs routinely, and in 2010, a Pan-Canadian Purchasing Alliance was established to coordinate PLA negotiations for some new medicines on behalf of participating provinces (Lynas 2010).

The use of PLAs may result in otherwise unattainable price discounts as manufacturers are said to be increasingly reluctant to provide transparent price reductions because other domestic or international payers will demand the same (Docteur et al. 2008; Seiter 2010). PLAs may also promote appropriate utilization, budgetary certainty or value-based remuneration if they include appropriate terms related to drug marketing, expenditure or outcomes (Carlson et al. 2010). These potential benefits do, however, come with drawbacks, including reduced decision-making transparency, additional administrative and legal costs, and potential for increased price disparities across payers (Adamski et al. 2010).

The levels of and variations in PLA use among Canadian provinces have potentially important implications for the consistency of drug prices and access across the country. At present, however, no province currently publishes information about PLA use for all funded medicines. This lack of public information about provincial use of PLAs to date makes it difficult to engage in informed debate about this policy tool in Canada. Several authors have gathered information about the types of negotiated agreements that have been tried in one or more provinces (Carlson et al. 2010; Nason and Sproule 2011; Stafinski et al. 2010). To our knowledge, however, no study has systematically documented the use of PLAs in Canada. We aimed to fill this evidence gap by collecting information from all provinces about PLA use for a sample of pharmaceuticals for which manufacturers recently sought coverage under provincial drug plans.

Methods

Lacking public sources of data, we requested information about PLA use directly from policy makers in each province. Owing to the sensitive nature of information concerning PLAs, we first consulted with policy makers to determine the information that could and could not be made publicly available. In May 2012, we asked policy makers whether they could disclose drug-specific information about coverage, PLA use and PLA type (for example, simple rebates, price-volume agreements or outcomes-based pricing). After gathering information and feedback from all 10 provinces, in July 2012 we requested drug-by-drug information for a sample of drugs that received an initial Common Drug Review (CDR) recommendation in 2010 or 2011 and that were funded in one or more of the provinces at the time. A total of 35 drugs had been first reviewed by the CDR in 2010–2011. We excluded nine of these drugs because they were not listed for coverage by any province as of May 2012 – and, hence, wouldn't generate data about PLAs. We also excluded one drug, Janumet, on advice that confidentiality clauses regarding related PLAs in some unnamed provinces would necessarily limit participation in our study.

Provinces were asked to indicate whether each of the selected drugs was funded by the drug plan as of the survey date, the conditions of funding (i.e., special authority or otherwise) and whether a PLA was in place. Although Quebec does not participate in the CDR process, we selected these drugs for study because, being relatively new medicines for which manufacturers have sought public coverage, they were likely candidates for PLAs in provinces that now regularly use such contracts.

For each province, we computed the total number of drugs in our sample that were funded and the total number for which a PLA was in place. For each drug in our sample, we computed the total number of provinces providing funding and the total number of provinces with a PLA in place. Across provinces, we tested for correlations between the number of drugs covered and the number of PLAs used. Between the subset of drugs receiving a positive CDR recommendation and the subset receiving a negative CDR recommendation, we compared the average number of provinces providing funding and the average number of provinces with a PLA in place. Within the subsets of drugs with positive and negative CDR recommendations, we tested for correlations between the number of provinces covering a drug and the number of provinces with a PLA in place. All correlations were tested using two-tailed Pearson's product-moment correlation coefficients (r).

Results

Policy makers advised that provinces are unable to provide details about the specific terms of each PLA in place because these are confidential. We were therefore limited to documenting only the presence of a PLA for each drug but not the type of PLA applied. Table 1 lists for each province the total number of drugs from our sample that were funded and the total number for which a PLA was in place (full results regarding drug-by-drug coverage and PLA use provided by each province are available in Appendix 1 [available online at longwoods.com/

content/23376). The number of drugs funded by each province ranged from three (Prince Edward Island) to 21 (Ontario). The number of drugs for which provinces had PLAs in place ranged from zero (Quebec, Prince Edward Island, and Newfoundland and Labrador) to 20 (Ontario).

TABLE 1. Province-specific totals for drugs funded and PLAs used

	Total Funded (n=25)	Total PLAs	% Funded with PLAs
Ontario	21	20	95
British Columbia	14	7	50
Manitoba	6	6	100
Saskatchewan	17	3	18
Alberta	11	3	27
Nova Scotia	10	1	10
New Brunswick	8	1	13
Quebec	17	0	0
Newfoundland and Labrador	11	0	0
Prince Edward Island	3	0	0

Policy makers in Quebec and Newfoundland and Labrador indicated that current legislative frameworks governing their public drug plans do not allow for PLA negotiation. Specifically in Quebec, PLAs are not used owing to legislation that requires equal pricing between the public drug plan and private insurers. In contrast, in Manitoba, a utilization management agreement (UMA; akin to a PLA) is a statutory requirement for all drugs funded by Manitoba Pharmacare. Thus, although Manitoba funded among the fewest drugs from our sample, PLAs were in use for all six of the drugs funded there. A further 13 drugs from our sample were under review for coverage in Manitoba at the time we requested information; if listed, those drugs would also have UMAs/PLAs in place. PLAs are also used for virtually all funded drugs in Ontario. Of the 21 drugs in our sample funded by Ontario, the only one funded without a PLA is a combination product (telmisartan and amlodipine) that costs less than the individual drugs would cost separately (Ontario 2012). Policy makers in British Columbia were able to disclose that they had PLAs in place for seven of the 14 drugs from our sample funded by BC PharmaCare; for our sample of drugs, this was the second highest number of PLAs in use by any province. However, BC policy makers were not able to identify which drugs were funded with PLAs in place except for the case of eculizumab, for which a PLA was negotiated by the Pan-Canadian Purchasing Alliance (Blackwell 2012). Eculizumab was also the only drug in our sample for which New Brunswick and Nova Scotia had PLAs in place.

TABLE 2. CDR recommendations and rates of drug coverage and PLA use by provinces

Drug	Most Recent CDR Recommendation	Number of Provinces Funding Drug	Number of Provinces with PLA for Drug
Azelaic acid	List	8	2[a]
Telmisartan / Amlodipine	List	7	0
Brinzolamide and timolol maleate suspension	List in manner similar to comparator(s)	10	2[a]
Golimumab	List in manner similar to comparator(s)	9	1[a]
Fingolimod	List with criteria/conditions	2	0
Aripiprazole	List with criteria/conditions	9	2[a]
Aztreonam for Inhalation Solution	List with criteria/conditions	4	0
Denosumab	List with criteria/conditions	8	2[a]
Febuxostat	List with criteria/conditions	7	1[a]
Lacosamide	List with criteria/conditions	8	1[a]
Tadalafil	List with criteria/conditions	4	1[a]
Tocilizumab	List with criteria/conditions	8	2[a]
Velaglucerase alfa	List with criteria/conditions	1	1
Eculizumab[b]	Do not list	5	6
Ticagrelor	Do not list	2	0
Calcitriol	Do not list	2	1
Canakinumab	Do not list	1	1
Certolizumab pegol	Do not list	3	1[a]
Eltrombopag olamine	Do not list	1	1
Mometasone furoate + formoterol	Do not list	3	1[a]
Paliperidone palmitate	Do not list	5	3[a]
Prasugrel hydrochloride	Do not list	4	1[a]
Romiplostim	Do not list	1	1
Sapropterin dihydrochloride	Do not list	1	0
Saxagliptin	Do not list	5	4

[a] Numbers may be higher as British Columbia was unable to disclose the specific drugs for which it had PLAs in place.

[b] The Pan-Canadian Purchasing Alliance negotiated a PLA for eculizumab; Nova Scotia has this PLA in place should the drug be funded on a case-by-case basis.

The correlation between the number of drugs funded by each province and the number of drugs with PLAs in use by each province was positive, moderate and statistically significant ($r=0.57$, $p=0.04$). At the time data were collected, however, Ontario funded significantly more

of the sample drugs than most other provinces and used PLAs far more frequently than all other provinces. When Ontario's data are excluded, the correlation between the number of drugs funded and the number of PLAs in place for each province was no longer significantly different from zero (r=0.10, p=0.40).

Table 2 summarizes the CDR recommendations and the extent of provincial coverage and PLA use for each of the 25 drugs in our sample. More provinces funded drugs that received positive CDR recommendations (mean = 6.5 provinces, CI: 5.0, 8.1) than those with negative CDR recommendations (mean = 2.8 provinces, CI: 1.8, 3.7). Excluding British Columbia because of incomplete PLA data at the product level, there weren't significant differences in the average number of provinces using PLAs for drugs with positive CDR recommendations (mean = 1.2, CI: 0.7, 1.6) versus drugs with negative CDR recommendations (mean = 1.6, CI: 0.7, 2.5). Within these categories, and excluding British Columbia, there was a stronger correlation between the number of provinces funding a drug and the number using PLAs for that drug among the subset with negative CDR recommendations (r=0.87, p<0.01) versus those with positive CDR recommendations (r=0.53, p=0.03).

Interpretation

We documented wide interprovincial variation in the coverage and use of PLAs for a sample of 25 drugs recently reviewed by the CDR. Such variations may result in disparities in drug prices, access to medicines, or both. We also found that the recommendations of the CDR were correlated with the number of provinces funding drugs but not with the number of provinces using PLAs. That is, among recently reviewed drugs, a CDR "yes" generally means "yes" in terms of coverage decisions by multiple provinces, but a CDR "no" does not necessarily mean "no" in terms of coverage in all provinces. It appears that some provinces are using PLAs to fund drugs that would otherwise not be fundable at list prices. For example, saxagliptin was issued a "no" recommendation by the CDR, but was listed in five provinces, with four of the provinces using a PLA.

The use of PLAs in Canadian provinces reflects a global trend. Manufacturers' pricing strategies are shifting in response to the widespread use of external reference pricing policies internationally. As of 2010, it is estimated that at least 24 European countries use external reference pricing policies to limit domestic pharmaceutical prices to levels determined by prices available in other countries (Leopold et al. 2012). Price tests of Canada's Patented Medicine Prices Review Board are also based on international comparisons (PMPRB 2012). Similarly, the Quebec government limits drug prices according to prices in other provinces (Quebec 2012). When such policies are in place, any transparent price concession offered to one payer must be passed on to other payers. The Organisation for Economic Co-operation and Development and the World Bank have both observed that the widespread use of such external reference pricing policies is resulting in the harmonization of official "list" prices for pharmaceuticals and the increased use of confidential negotiations as a means for manufacturers to price-discriminate across payers (Docteur et al. 2008; Seiter 2010).

The global trends in drug pricing strategies have important implications for Canada. PLA-based pricing strategy places each purchaser into independent negotiations wherein only the manufacturer knows the final prices paid in all markets. Smaller jurisdictions are at a disadvantage in such a marketplace for at least two reasons. First, significant technical, legal and administrative resources are required for PLA negotiation and enforcement that were not required in the era of transparent drug pricing. Second, the outcome of drug price negotiations is influenced primarily by the purchasing power of the drug plan, which in turn is a function of the size of the population the drug plan covers. Because of these factors, larger jurisdictions can better afford negotiations and will likely obtain better deals.

PLAs can also leave patients at a significant disadvantage if drug coverage is inadequate. When price rebates are confidential and paid directly from a manufacturer to an insurer (private or public), patients must still pay inflated list prices if they are uninsured or if their coverage involves deductibles or co-insurance. This is a particularly serious problem in Canada because many Canadians are uninsured and most provincial drug plans involve significant patient cost-sharing that is a function of list prices for drugs (Daw and Morgan 2012). Thus, Canadian patients are not currently protected against paying inflated list prices for pharmaceuticals – whether those inflated prices are a result of domestic PLA use by government, global pharmaceutical pricing strategies by firms, or both.

Finally, the secrecy of PLAs raises important concerns in terms of policy transparency and accountability. Robertson and colleagues (2009) have argued that the obfuscation of price information through PLAs used for Australia's national Pharmaceutical Benefit Scheme makes it difficult for physicians to consider cost-effectiveness and potentially undermines the evidence-based approach to formulary decision-making that has long been established there. In the Canadian context, Dhalla and Laupacis (2008) have argued that price secrecy is part of a wider problem of opacity concerning the evaluation of medicines that limits informed decision-making by funders, prescribers and even patients. Notwithstanding these concerns, some level of price secrecy may be justified if global market trends are inflating list prices to facilitate price discrimination by way of confidential negotiations across and within all markets. That is, provided safeguards are in place to protect small provinces and patients from bearing undue costs, there may be legitimate public value in price secrecy through PLAs.

Limitations

Our study has several limitations worthy of discussion. First, our analysis of PLA use was based on a small sample of recently reviewed medicines and therefore provides no information concerning trends in the use of PLAs or the extent of PLA use for older medicines. Secondly, our data collection process was deliberately consultative given the sensitive nature of information concerning PLAs. This is unlikely to have biased the results in terms of accuracy of reporting; however, it might have resulted in requesting less information than might have

been made available through freedom of information requests or legal appeals. Finally, it is important to note that we did not assess whether PLAs are effective at achieving desired goals. Owing to the confidentiality of PLAs, an analysis of their effectiveness would be possible only by governments themselves, perhaps by auditors-general across provinces.

Conclusion

The significant variation observed in PLA use across Canada establishes a tension that will need to be resolved. The largest funder of medicines in Canada, the Ontario government, uses PLAs routinely as part of its drug coverage process. Major healthcare funders worldwide are also doing so, including public and private insurers in the United States, United Kingdom, Australasia and Europe (Adamski et al. 2010; Carlson et al. 2010). Yet, many small-scale payers (in Canada and internationally) do not use PLAs and may therefore be paying more than their fair share for medicines.

In an effort to increase collective negotiation power and make the benefits of PLA negotiation available across Canada, provinces have taken important steps towards collaboration on PLA negotiation through the Pan-Canadian Purchasing Alliance. Collaboration is critical to equity of outcomes in Canada considering that the public drug budget for Ontario ($4.48 billion) is on the same order of magnitude as the entire gross domestic product for Prince Edward Island ($5.01 billion) (CIHI 2012 ; Statistics Canada 2011). Making collaboration a routine and sustainable practice will require new resources to coordinate actors and maintain commitment on joint decisions that often involve significant local political pressures. However, if a new global paradigm of confidential drug pricing has in fact undermined the value of price regulation by international price comparisons, some federal support for collaboration on PLA negotiations could come through a modernization of the PMPRB's roles and regulations or through a redeployment of some of its $11.8-million budget (PMPRB 2012).

Canadian policy makers at the federal and provincial levels also need to consider the out-of-pocket burden of under- and uninsured Canadians who would face "list prices" that do not reflect the discounts offered internationally under the new global paradigm of drug pricing through PLAs. The same problem has been identified in the United States, where private and public insurers have been negotiating rebates on inflated list prices for many years. Experts there suggest that the only viable means to protect patients from inflated prices is to provide adequate drug coverage for all (Danzon and Towse 2003). In the Canadian context, this would require that governments stitch gaps in pharmacare coverage. Doing so could increase the purchasing power of pharmacare programs while addressing this key drawback of the new global pricing paradigm.

Finally, if PLA negotiations are here to stay, provinces and the federal government must work together to define national standards for transparency of policy making in this arena. Such a standard should be based on a careful analysis of principles and purposes behind transparency so as not to take power away from governments when the use of confidential rebates can be legitimately defended. Following such a process, it is likely that disclosure of

information about when PLAs are used and their general structure would be among the minimum requirements for legitimate accountability and, therefore, legitimate authority in negotiation processes (Bovens 2007). Establishing such a standard of PLA disclosure to which all provinces are bound would set clear rules of engagement and thereby reduce negotiation costs, prevent manufacturers' using price secrecy to game the system and increase the legitimacy of PLA processes.

Acknowledgements

Funding for this project was provided by the Canadian Institutes for Health Research (CIHR). Sponsors had no role in the project or in decisions to publish results.

Correspondence may be directed to: Steven G. Morgan, PhD, Centre for Health Services and Policy Research, University of British Columbia, 201 – 2206 East Mall, Vancouver, BC V6T 1Z3; e-mail: morgan@chspr.ubc.ca.

References

Adamski, J., B. Godman, G. Ofierska-Sujkowska, B. Osińska, H. Herholz, K. Wendykowska et al. 2010. "Risk Sharing Arrangements for Pharmaceuticals: Potential Considerations and Recommendations for European Payers." *BMC Health Services Research* 10: 153.

Blackwell, T. 2012 (April 26). "Provinces' New Weapon Against Big Pharma: Each Other." *National Post*. Retrieved April 2, 2013. <http://news.nationalpost.com/2012/04/26/provinces-new-weapon-against-big-pharma-each-other/>.

Bovens, M. 2007. "Public Accountability." In E. Ferlie, L.E. Lynn and C. Pollitt, eds., *The Oxford Handbook of Public Management* (pp. 182–208). Oxford: Oxford University Press.

Canadian Institute for Health Information (CIHI). 2012. *Drug Expenditure in Canada*, 1985–2011. Ottawa: Author.

Carlson, J.J., S.D. Sullivan, L.P. Garrison, P.J. Neumann and D.L. Veenstra. 2010. "Linking Payment to Health Outcomes: A Taxonomy and Examination of Performance-Based Reimbursement Schemes between Healthcare Payers and Manufacturers." *Health Policy* 96(3): 179–90.

Danzon, P.M. and A. Towse. 2003. "Differential Pricing for Pharmaceuticals: Reconciling Access, R&D and Patents." *International Journal of Health Care Finance & Economics* 3(3): 183–205.

Daw, J.R. and S.G. Morgan. 2012. "Stitching the Gaps in the Canadian Public Drug Coverage Patchwork? A Review of Provincial Pharmacare Policy Changes from 2000 to 2010." *Health Policy* 104(1): 19–26.

Dhalla, I. and A. Laupacis. 2008. "Moving from Opacity to Transparency in Pharmaceutical Policy." *Canadian Medical Association Journal* 178(4): 428–31.

Docteur, E., V. Paris and P. Moise. 2008. *Pharmaceutical Pricing Policies in a Global Market*. Paris: Organisation for Economic Co-operation and Development.

Gorecki, P.K. 1992. *Controlling Drug Expenditures in Canada: The Ontario Experience*. Ottawa: Economic Council of Canada.

Leopold, C., S. Vogler, A.K. Mantel-Teeuwisse, K. de Joncheere, H.G.M. Leufkens and R. Laing. 2012. "Differences in External Price Referencing in Europe – A Descriptive Overview." *Health Policy* 104(1): 50–60.

Lynas, K. 2010. "New Momentum for a Pan-Canadian Purchasing Alliance for Prescription Drugs." *Canadian Pharmacists Journal* 143(6): 264–65.

Morgan, S., M. Barer and J. Agnew. 2003. "Whither Seniors' Pharmacare: Lessons from (and for) Canada." *Health Affairs* 22(3): 49–59.

Nason, E. and J. Sproule. 2011. *Industry–Payor Agreements for Pharmaceuticals: Backgrounder for Roundtable*. Edmonton: Institute of Health Economics.

Ontario. 2012. Ontario Drug Benefit Formulary/Comparative Drug Index, Effective from April 1, 2013. Retrieved April 2, 2013. <https://www.healthinfo.moh.gov.on.ca/formulary/index.jsp>.

Paris, V. and E. Docteur. 2007. *Pharmaceutical Pricing and Reimbursement Policies in Canada*. OECD Health Working Papers. Paris: Organisation for Economic Co-operation and Development.

Patented Medicine Prices Review Board (PMPRB). 2012. *Compendium of Policies, Guidelines and Procedures*. Ottawa: Author.

Quebec. 2012. *Règlement sur les conditions de reconnaissance d'un fabricant de médicaments et d'un grossiste* A-29.01. Quebec: Author.

Robertson, J., E.J. Walkom and D.A. Henry. 2009. "Transparency in Pricing Arrangements for Medicines Listed on the Australian Pharmaceutical Benefits Scheme." *Australian Health Review* 33(2): 192–99.

Seiter, A. 2010. A Practical Approach to Pharmaceutical Policy. Washington, DC: World Bank.

Stafinski, T., C.J. McCabe and D. Menon. 2010. "Funding the Unfundable: Mechanisms for Managing Uncertainty in Decisions on the Introduction of New and Innovative Technologies into Healthcare Systems." *PharmacoEconomics* 28(2): 113–42.

Statistics Canada. 2011. Gross Domestic Product, Expenditure-Based, by Province and Territory. CANSIM table 384-0002, Catalogue no. 13-213-PPB. Retrieved April 2, 2013. <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/econ15-eng.htm>.

RESEARCH PAPER

Use of Product Listing Agreements by Canadian Provincial Drug Benefit Plans

Recours aux ententes relatives à l'inscription des produits par les régimes provinciaux d'assurance médicaments au Canada

STEVEN G. MORGAN, MELISSA K. FRIESEN, PAIGE A. THOMSON AND JAMIE R. DAW

Appendix 1

TABLE A1. Province-specific drug coverage and PLA use (BC, AB, SK, MB, ON)

Drug	Indication	BC	AB	SK	MB[b]	ON
Aripiprazole	Schizophrenia and related disorders	Listed[a]	Listed without PLA	Listed without PLA	Listed with PLA	Listed with PLA
Azelaic acid	Rosacea	Listed[a]	Listed without PLA	Listed without PLA	Listed with PLA	Listed with PLA
Aztreonam for inhalation solution	Cystic fibrosis	Under review	Listed without PLA	Listed without PLA	Under review	Under review
Brinzolamide and timolol maleate susp.	Glaucoma and ocular hypertension	Listed[a]	Listed without PLA	Listed without PLA	Listed with PLA	Listed with PLA
Calcitriol	Psoriasis	Not listed	Not listed	Not listed	Not listed	Listed with PLA
Canakinumab	Cryopyrin-associated periodic syndrome	Not listed	Not listed	Not listed	Not listed	Funded with PLA
Certolizumab pegol	Rheumatoid arthritis	Listed[a]	Listed without PLA	Not listed	Under review	Funded with PLA
Denosumab	Osteoporosis, post-menopausal	Listed[a]	Under review	Listed without PLA	Listed with PLA	Listed with PLA
Eculizumab	Paroxysmal nocturnal hemoglobinuria	Funded with PLA	Listed with PLA	Listed with PLA	Under review	Funded with PLA
Eltrombopag olamine	Chronic immune thrombocytopenic purpura	Not listed	Not listed	Not listed	Not listed	Funded with PLA
Febuxostat	Gout	Listed[a]	Under review	Listed without PLA	Under review	Funded with PLA
Fingolimod	Multiple sclerosis	Under review	Under review	Listed without PLA	Under review	Under review
Golimumab	Arthritis, psoriatic, rheumatoid; ankylosing spondylitis	Listed[a]	Listed without PLA	Listed without PLA	Under review	Funded with PLA
Lacosamide	Epilepsy, partial onset seizures	Listed[a]	Listed without PLA	Listed without PLA	Under review	Listed with PLA
Mometasone furoate + formoterol	Asthma	Listed[a]	Under review	Not listed	Not listed	Listed with PLA
Paliperidone palmitate	Schizophrenia	Listed[a]	Listed with PLA	Listed with PLA	Not listed	Listed with PLA
Prasugrel hydrochloride	Acute coronary syndrome	Listed[a]	Not listed	Listed without PLA	Under review	Funded with PLA
Romiplostim	Chronic immune thrombocytopenic purpura	Not listed	Not listed	Not listed	Not listed	Funded with PLA
Sapropterin dihydrochloride	Phenylketonuria	Not listed	Not listed	Not listed	Under review	Under review
Saxagliptin	Diabetes mellitus (type 2)	Not listed	Listed with PLA	Listed with PLA	Listed with PLA	Listed with PLA
Tadalafil	Pulmonary arterial hypertension	Listed[a]	Under review	Listed without PLA	Under review	Funded with PLA
Telmisartan / Amlodipine	Hypertension	Under review	Listed without PLA	Listed without PLA	Under review	Listed without PLA
Ticagrelor	Acute coronary syndrome	Under review	Not listed	Listed without PLA	Under review	Under review
Tocilizumab	Rheumatoid arthritis	Listed[a]	Under review	Listed without PLA	Listed with PLA	Funded with PLA
Velaglucerase alfa	Gaucher's disease	Not listed	Under review	Not listed	Under review	Funded with PLA

Listed = Drug listed on provincial formulary with or without conditions or special authorization requirements

Funded = Drug funded on special terms but not listed on provincial formulary

[a] British Columbia was unable to disclose the specific drugs for which it had PLAs in place.

[b] Utilization management agreements are a listing requirement for all new drug products.

RESEARCH PAPER

Use of Product Listing Agreements by Canadian Provincial Drug Benefit Plans

Recours aux ententes relatives à l'inscription des produits par les régimes provinciaux d'assurance médicaments au Canada

STEVEN G. MORGAN, MELISSA K. FRIESEN, PAIGE A. THOMSON AND JAMIE R. DAW

Appendix 1

TABLE A2. Province-specific drug coverage and PLA use (QC, NB, NS, PEI, NL)

Drug	Indication	QC	NB	NS	PEI	NL
Aripiprazole	Schizophrenia and related disorders	Listed without PLA	Listed without PLA	Listed without PLA	Not listed	Listed without PLA
Azelaic acid	Rosacea	Listed without PLA	Not listed	Listed without PLA	Not listed	Listed without PLA
Aztreonam for Inhalation Solution	Cystic fibrosis	Not listed	Under review	Listed without PLA	Not listed	Listed without PLA
Brinzolamide and timolol maleate susp.	Glaucoma and ocular hypertension	Listed without PLA	Listed without PLA	Listed without PLA	Listed without PLA	Listed without PLA
Calcitriol	Psoriasis	Listed without PLA	Not listed	Not listed	Not listed	Not listed
Canakinumab	Cryopyrin-associated periodic syndrome	Not listed	Not listed	Not listed	Not listed	Not listed
Certolizumab pegol	Rheumatoid arthritis	Not listed	Not listed	Not listed	Not listed	Not listed
Denosumab	Osteoporosis, post-menopausal	Listed without PLA	Listed without PLA	Listed without PLA	Not listed	Listed without PLA
Eculizumab	Paroxysmal nocturnal hemoglobinuria	Not listed	Listed with PLA	PLA in place	Not listed	Not listed
Eltrombopag olamine	Chronic immune thrombocytopenic purpura	Under review	Under review	Not listed	Not listed	Not listed
Febuxostat	Gout	Listed without PLA	Listed without PLA	Listed without PLA	Not listed	Listed without PLA
Fingolimod	Multiple sclerosis	Not listed	Under review	Under review	Not listed	Listed without PLA
Golimumab	Arthritis, psoriatic, rheumatoid; ankylosing spondylitis	Listed without PLA	Listed without PLA	Listed without PLA	Listed without PLA	Listed without PLA
Lacosamide	Epilepsy, partial onset seizures	Listed without PLA	Listed without PLA	Listed without PLA	Not listed	Listed without PLA
Mometasone furoate & formoterol	Asthma	Listed without PLA	Not listed	Not listed	Not listed	Not listed
Paliperidone palmitate	Schizophrenia	Listed without PLA	Not listed	Not listed	Not listed	Not listed
Prasugrel hydrochloride	Acute coronary syndrome	Listed without PLA	Not listed	Not listed	Not listed	Not listed
Romiplostim	Chronic immune thrombocytopenic purpura	Not listed	Not listed	Not listed	Not listed	Not listed
Sapropterin dihydrochloride	Phenylketonuria	Listed without PLA	Not listed	Under review	Not listed	Not listed
Saxagliptin	Diabetes mellitus (type 2)	Listed without PLA	Not listed	Under review	Not listed	Not listed
Tadalafil	Pulmonary arterial hypertension	Listed without PLA	Not listed	Not listed	Not listed	Not listed
Telmisartan / Amlodipine	Hypertension	Listed without PLA	Under review	Listed without PLA	Listed without PLA	Listed without PLA
Ticagrelor	Acute coronary syndrome	Listed without PLA	Under review	Not listed	Not listed	Not listed
Tocilizumab	Rheumatoid arthritis	Listed without PLA	Listed without PLA	Listed without PLA	Not listed	Listed without PLA
Velaglucerase alfa	Gaucher's disease	Not listed	Not listed	Not listed	Not listed	Not listed

Listed = Drug listed on provincial formulary with or without conditions or special authorization requirements

Funded = Drug funded on special terms but not listed on provincial formulary

[a] While eculizumab is not funded, a PLA negotiated through the Pan-Canadian Purchasing Alliance is in place should government funding be provided on case-by-case basis.