

COST-SHARING FOR HEALTH CARE SERVICES: AN ALTERNATIVE STRATEGY FOR PHARMACEUTICAL REIMBURSEMENT IN ONTARIO

Christopher J. Longo

¹Health Policy and Management, DeGroot School of Business; Centre for Health Economics and Policy Analysis, McMaster University; Dalla Lana School of Public Health, University of Toronto, Canada

Corresponding Author: cjlongo@mcmaster.ca

ABSTRACT

In most Canadian provinces many health services outside of the Canada Health Act have some element of cost-sharing, co-payments or service limits. These limitations can have significant financial impacts on patients and families related to both chronic and acute illnesses. Previous published research has shown significant financial burdens for homecare, devices and pharmaceuticals in diseases like cancer. Examination of existing funding policies raises the question: Can we restructure, or redistribute government funding in a way that minimizes these burdens to the most vulnerable populations (typically those under age 65 and in the lowest income quartile).

Current Ontario policies related to pharmaceutical reimbursement were reviewed, and an alternate policy strategy that might better address patient level burden is presented using a case study approach, with the goal of mitigating financial burden. Cost neutrality could be obtained via offsets through higher co-payments in other populations to ensure no increase to existing funding envelopes.

Key Words: *Pharmaceutical policy, patient out-of-pocket costs, cost-sharing, insurance coverage*

In most provinces in Canada many health services outside of the Canada Health Act have some element of cost-sharing, co-payments or service limits. These policies can have significant impacts on patients and their families related to both chronic and acute illnesses. Previous published research has shown significant financial burdens for homecare, devices and pharmaceuticals in diseases like cancer and stroke.¹⁻¹¹ Research has demonstrated that cost borne by patients related to health care delivery depends on a number of variables including, age, insurance coverage, and type of disease.^{1,12,13} Additionally, there is literature that suggests the financial impact is influenced by both income and education.^{14,15} One key aspect of patient costs is related to pharmaceutical reimbursement policies.

Ontario has six drug reimbursement programs, three are related to typical care of patients including cancer patients, and we will focus on these. The other three (inherited metabolic disease program, respiratory syncytial virus program for high risk infants, and the Visudyne program) only apply in special cases and will not be considered here. The

three relevant programs are: the Ontario Drug Benefit program (ODB), the New Drugs Funding Program for cancer care (NDFP), and the Special Drugs Program (SDP). Together these three programs deliver coverage for the majority of drugs in the province of Ontario.

The ODB covers costs for seniors, those with high costs relative to their income (Trillium program), those living in a long-term care or special care facility, those receiving home care services, and the users of the Ontario Works program, or if you are on social assistance. In many of these cases a small co-payment is required. Co-payments for seniors are means tested, with those having incomes below \$16,018 (\$24,175/couple) paying only \$2 per prescription and those over these amounts paying an annual \$100 deductible, and thereafter \$6.11 per prescription. The author notes that an Ontario proposal in 2012 to add a third tier for seniors earning over \$100,000 was proposed for adoption in 2014 but was never enacted.

The Trillium program is a means-tested program administered quarterly where the patient/family pays 4% of net household income as a

deductible (based on their previous year's income) and thereafter only a \$2 per prescription fee.

The SDP program covers specific drugs, but this program does not require any deductible and is not means tested. Specific drugs for the following diseases are included: cystic fibrosis, thalassaemia, HIV, end stage kidney disease, bone marrow transplant, growth failure, schizophrenia, and Gauthier's disease.

The NDFP covers intravenous cancer drugs delivered in hospital. It covers 100% of costs, but only when delivered in a hospital setting. Drugs delivered in a private clinic are not eligible, and patients would then be required to pay 100% of the costs, although some private plans do cover up to 90% of these costs.

For the most part the existing drug programs, as listed above, protect most Ontarians from catastrophic costs. However, there does seem to be a fairly well defined population that still find themselves in challenging financial situations related to their illness. These are typically those whose income is above the poverty level, but still insufficient to deal with a large financial shock related to disease diagnosis and treatment (typically those in the lowest income quartile). Additionally, the current funding strategies do not address issues related to other health care services that may also draw on financial resources, including the impact on income and travel related costs to access care.

Looking specifically at prescription drugs, to better illustrate the current gaps in coverage a case-study approach may prove illustrative. The case studies used are related to a breast cancer diagnosis, one a mid-50s single mother of two with an income of \$20,000/year and no insurance coverage (patient A), and the other a mid-50s married mother of two with a combined family income of \$120,000/year with private insurance coverage (patient B). These examples would represent the lowest and highest income quartiles in Ontario. By drawing on "data on file" from the author as well as some existing published literature on patient costs¹⁻³, and examining how the current funding formulas behave in each of these cases, we can see how each family is impacted financially. It is important to note that the Ontario Drug benefit does not cover all drugs, and hence depending on medication requirements even those covered by ODB may still experience some prescription drug costs. We also note that private

insurance coverage varies considerably; but, on average, those with insurance experience less financial hardship.

In the paragraphs to follow a proposed alternate funding model is examined to see if it could mitigate some of the financial inequalities seen in the current health care system. Although this case is specific to cancer it is likely that the benefits of an alternate funding model may prove advantageous in other complex diseases requiring high health care resource use.

As stated earlier, the goal is to identify a better funding model, as a zero sum game, that would result in those most vulnerable being more able to manage the financial shock that accompanies an illness and its treatment. This new model would need to go beyond the evaluation of drugs alone, but the impact on drug expenditures would be a notable component. To be clear, it is recognized that a zero sum game requires some assumptions in terms of additional revenue, and additional expenditures and hence it is expected that adjustments may be required based on actual usage patterns.

What type of strategy is most likely to mitigate the financial shock in the most vulnerable populations? Assuming that expenditures exceeding 4% of net income are excessive (current Trillium model is 4% of net household income) as a starting point. Then consider applying a means test across all treatment modalities, not just drugs. In this proposal we have adopted a threshold of 12% of net income for all forms of medical expenditure as excessive (set at three times current limits, which some might still consider excessive). Based on the author's "data on file" for cancer patients this would still identify a high number of patients (25% in the lowest income quartile) that exceed this new threshold.

A subsidy could be considered so that the total patient burden does not exceed 12%; although, this would be a subsidy beyond the domain of drugs (perhaps homecare or devices coverage). Another consideration would be for those with existing expenditures that exceed 12% to receive a fast track through Trillium to mitigate scenarios where these high costs are resulting in choices to refuse treatment on financial grounds. An offsetting policy change to finance this could be to create a three-tiered seniors model rather than the existing two-tier model, where deductibles and co-pays would increase at double the

threshold (\$32,036 single, \$48,350 couple). The new three tier model would include a 100% increase in deductible (to \$200) and a 50% increase in prescription fee (to \$9.17 per prescription) for the high income seniors. Minor adjustments to these rates to obtain a zero sum game may be required, but would likely not exceed this amount to create a full cost offset within the current funding envelope.

Using this alternate strategy, we can now compare the existing funding strategy to the alternate strategy. In examining the existing data it is worth noting that there is a negative skewness in healthcare

cost data. Hence mean data may be misleading. In an effort to be more conservative an analysis using median data was undertaken as the default, knowing these numbers will be lower and may slightly underestimate the financial burden. Although this does miss the influence of the outliers, and hence would be a conservative estimate of the burden (both in cost per month and months of treatment), evidence of an excessive burden using these numbers would be very telling. The resulting tables for current and alternative funding models using this scenario are shown in Tables 1 & 2.

TABLE 1 Patient out-of-pocket costs over treatment course, based on the current funding model^a

Description	Patient A	Patient B	Notes
Drug cost/treatment course	\$158	\$0	Longo & Bereza, 2011
Total medical costs/treatment course	\$2318	\$473	Same duration for uninsured
% of NET income, drugs	1.8%	0%	Income adjusted for duration
% of NET income, medical costs	26.0%	1.0%	Income adjusted for duration

a= Includes drugs, devices, homecare, complementary & alternative medicine, but excludes parking, travel and lost income

TABLE 2 Patient out-of-pocket costs over a treatment course, based on a proposed alternate funding model^a

Description	Patient A	Patient B	Notes
Drug cost/treatment course	\$0	\$0	Same duration for uninsured
Total medical costs/treatment course	\$2,160	\$473	Same duration for uninsured
% of NET income, drugs	0%	0%	Income adjusted for duration
% of NET income, medical costs	24.2% (12% after subsidy)	0.5%	Income adjusted for duration

a= Includes drugs, devices, homecare, complementary & alternative medicine, but excludes parking, travel and lost income.

Even under these conservative assumptions patient A still has expenditures easily exceeding the 12% threshold, and the new model lowers their expenditures for drugs to zero. However, other medical costs are still significant, albeit reduced. As mentioned earlier, programs outside of prescription drugs might consider a subsidy when the total costs for medically related services exceed 12%, which in this example would result in an additional 12.2% reduction in patient expenditures related to their disease.

Budget Considerations

An examination of data from Statistics Canada and CIHI suggests that the additional revenue generated

from a third tier would be approximately \$281 million per annum, with an average impact on individuals in tier 3 of \$163/annum (Table 3). These revenues would be made available to subsidize expenditures for vulnerable populations with health services expenditures exceeding 12% of income. If cancer expenditures are typical for vulnerable populations the average monthly payout would be about \$1200 over a typical 6-12 month period suggesting a subsidy of approximately \$10,000 per individual, and would allow a subsidy of up to 28,000 individuals per year. To be clear, this is redistributive, as the revenue would be from high income seniors, but the beneficiaries would be low income seniors and non-seniors.

TABLE 3 Additional revenue in Ontario based on addition of a third tier for deductible and co-payment

#	Description	Value	Source
1	Number of Ontarians 65+ (2013)	4582210	Stats Can CANSIM Table 111-0008
2	Median 65+ income	\$44,100	Stats Can CANSIM Table 204-0404
3	Number above tier-3 threshold (conservative)	2291105	Using median \$44,100 as cut-off
4	Percentage filling a prescription	75%	CIHI, Drug use among Seniors 2002 to 2008 ¹⁶
5	Total number filling a prescription in tier-3	1718329	Calculated #3 x #4
6	Additional deductible @ \$100/individual	\$171,832,875	Calculated \$100 x #5
7	Average number of prescriptions/annum/person	20.8	CIHI, Drug use among Seniors 2002 to 2008 ¹⁶
8	Additional revenue from co-pay @ 3.05/fill	\$109,010,776	Calculated #5 x #7 x \$3.05
	Total new revenue	\$280,843,651	
	Average increment in annual cost/tier-3 user	\$163.44	

Policy Implications

Many policies are designed in such a way as to ensure the majority of the population receives the services they need without financial barriers, and this proves mostly true in health care for the province of Ontario. However, issues arise when the size of the population who's service needs are not met becomes more significant. Although the threshold for an acceptable percentage in distress is not well defined, when those populations exceed 20% this is likely high enough to consider policy examination. Previous research has shown that for the primary cancers (breast, colorectal, lung and prostate) more than 20% of the population has financial burdens that are problematic¹, and recent changes in funding and service limits since this data was published suggest these numbers are likely higher today.

The alternate policy strategy put forward here is intended to mitigate these patient expenditures, and move more of the population into scenarios where these costs are manageable. In this way more of the population is able to obtain care without financial hardship, which ultimately may reduce further health risks if individuals are able to avoid compromises to treatment or nutrition choices, as is evidenced in other research studies.^{17,18}

Limitations

In using these cases the author has made a number of fairly large assumptions, including that those with no supplemental insurance would bear more of the burden in all cases. The author did take a conservative approach by using median rather than mean values; yet, even in these conservative scenarios, we observe much higher risk and significant financial hardship in the lower income populations and those without insurance. These numbers are also aggregates, with a fair bit of data variability, including variations in the level of private coverage. Examination of specific costs related to drugs is difficult as only summary information was collected, but totals appear to be consistent with other published data from Canada.¹³ It is understood that many of those vulnerable individuals would find a way to obtain government coverage, but still many do not have the knowledge or advocacy to get the care they need. There is greater than a 40 fold increase in expenditures as a percentage of income for the uninsured single person compared to those privately insured in our case study (24.2%

versus 0.5%). It should be noted that the costs identified in early research is now somewhat outdated, but based on recent policy changes it is likely that this data source systematically underestimates the out-of-pocket costs experienced today, so in this regard the analysis is conservative. Finally, the author recognizes that these two cases represent extremes, and it does raise the question: what percentage of the population are truly at risk? An examination of the cancer database from earlier research¹ reveals that if we consider the 12% threshold as the target for intervention, we find that 19.7% of the sample had greater than 12% (and 44.7% were greater than 5%), which reinforces that this issue involves a significant portion of the population in cancer. It is not unreasonable to expect similar challenges with other chronic conditions like stroke.

CONCLUSIONS

It has been well documented that certain segments of the general population are more vulnerable to significant out-of-pocket costs related to complex illnesses like cancer and stroke. The differences in out-of-pocket expenditures between populations are partly a reflection of medical care related policy decisions. Presented here is an alternate policy strategy that has the potential to mitigate some of these financial shocks for the most vulnerable populations, with only a modest effect on other populations in an effort to remain cost-neutral at a health system level

REFERENCES

1. Longo CJ, Deber R, Fitch M, Williams AP. Financial and family burden associated with cancer treatment in Ontario. *Supportive Care in Cancer* 2006;14:1077-85.
2. Longo CJ, Deber R, Fitch M, et al. An examination of cancer patients' monthly "out-of-pocket" costs in Ontario". *European Journal of Cancer Care* 2007;16:500-7.
3. Longo CJ, Bereza BG. A comparative analysis of monthly 'out-of-pocket' costs for breast cancer patients versus other common cancers in Ontario, Canada. *Current Oncology* 2011;18(1):e1-e8.
4. Arozullah AM, Calhoun EA, Wolf M, et al. The financial burden of cancer: Estimates from a study

- of insured women with breast cancer. *J Supportive Oncology* 2004;2(3):271-8.
5. Cohn RJ, Goodenough B, Foreman T, Suneson J. Hidden financial costs in treatment for childhood cancer: an Australian study of lifestyle implications for families absorbing out-of-pocket costs. *J Pediatr Hematol Oncol* 2003;25(11):854-63.
 6. Darby K, Davis C, Likes W, Bell J. Exploring the financial impact of breast cancer for African American medically underserved women: a qualitative study. *J Health Care for the Poor & Underserved* 2009;20(3):721-8.
 7. Di Carlo A. Human and economic burden of stroke. *Age and Ageing* 2009;38:4-5.
 8. Dewey HM, Thrift AG, Mihalopoulos C, et al. Out of pocket costs to stroke patients during the first year after stroke – results from the North East Melbourne Stroke Incidence Study. *Journal of Clinical Neuroscience* 2004;11(2):134-7.
 9. Lines LM, Lang K, Wallace JF, Menzin J. Out-of-pocket costs among women with breast cancer: Data from the medical expenditure panel survey, 1996-2005. *American Association for Cancer Research* 2009; Breast Cancer Symposium, Conference publication: 69(2S).
 10. Gordon LG, Ferguson M, Chambers SK, Dunn J. Fuel, beds, meals and meds: Out-of-pocket expenses for patients with cancer in rural Queensland. *Cancer Forum* 2009;33(3):202-8.
 11. Given BA, Given CW, Stommel M. Family and out-of-pocket costs for women with breast cancer. *Cancer Practice* 1994 May/June;2(3):187-93.
 12. Heeley E, Anderson CS, Huang Y, et al. Role of health insurance in averting economic hardship in families after acute stroke in China. *Stroke* 2009;40(6):2149-56.
 13. Lauzier S, Mausell E, Drolet M, et al. Wage losses in the year after breast cancer: extent and determinants among Canadian women. *J Natl Cancer Inst* 2008;100:321–32.
 14. Finkelstein EA, Tangka FK, Trogdon JG, et al. The personal financial burden of cancer for the working-aged population. *Am J Managed Care* 2009;15(11):801-6.
 15. Bradley CJ, Given CW, Roberts C. Race, socioeconomic status, and breast cancer treatment and survival. *J Nat Cancer Inst* 2002;94(7):490-6.
 16. Canadian Institute for Health Information, Drug Use Among Seniors on Public Drug Programs in Canada, 2002 to 2008 (Ottawa, Ont.: CIHI, 2010).
 17. Kapral MK, Wang H, Mamdani M, et al. Effect of socioeconomic status on treatment and mortality after stroke. *Stroke* 2002;33:268-75.
 18. Thomas D, Frankenberg E. Health, nutrition and prosperity: a microeconomic perspective. *Bull World Health Organ* 2002;80(2):106-13.