Public prescription drug plan coverage for antiretrovirals and the potential cost to persons living with HIV in Canada:

a descriptive study

Deborah Yoong, BScPhm, PharmD

Department of Pharmacy, St. Michael's Hospital, Toronto, ON

Ahmed M. Bayoumi, MD, MSc, FRCPC

Centre for Urban Health Solutions, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, ON

Department of Medicine, University of Toronto, Toronto, ON

Linda Robinson, BScPhm

Department of Pharmacy, Windsor Regional Hospital, Windsor, ON

Beth Rachlis, PhD

Ontario HIV Treatment Network, Toronto ON

Tony Antoniou, PharmD, PhD

Department of Family and Community Medicine, St. Michael's Hospital, Toronto ON

Corresponding author:
Deborah Yoong
yoongd@smh.ca

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Introduction

International guidelines recommend that combination antiretroviral therapy for people living with human immunodeficiency virus (HIV) infection be initiated promptly after diagnosis and continued for life to decrease morbidity, mortality, and the risk of transmission to uninfected individuals[1-5]. However, in Canada, the list price for first-line single tablet regimens is approximately $15,000 per year[6] and none of Canada's publicly funded drug plans provide universal coverage of all prescription drugs. Instead of a single national plan, each of Canada's 10 provinces and 3 territorial governments of Canada manage and deliver health care services for their residents, including medication coverage (several federal plans insure specific populations). Each plan decides on eligibility criteria for public drug insurance, level of subsidy, and products listed on the drug formulary. Consequently, Canadians with identical prescriptions may pay substantially different amounts and may rely on private insurance, public funders, out-of-pocket payments, or a combination of these to pay for their medication[7-9].

Financial burdens are associated with medication non-adherence[10]. Research indicates that medicine costs sometimes compete with other demands, leading to cost-related non-adherence, which may manifest as foregoing prescribed medications in favour of spending on other priorities or altering a medication's dosing to make a prescription last longer[10,11]. Accordingly, cost-sharing mechanisms that require large out-of-pocket payments for antiretrovirals may be important to address, particularly for people without drug insurance and those with more limited income [12,13]. Non-adherence to antiretrovirals can lead to uncontrolled HIV replication and subsequently, to increased risks of disease progression[14], drug resistance[15], and HIV transmission[16,17]. Because viral suppression prevents infection at the individual level[5,16-18] and may be effective in reducing transmission at the population level1[19-21], affordable and accessible antiretroviral therapy for all should be considered and has been highlighted as a fundamental component of a public response to the HIV epidemic[2]. Our primary objective was to describe and compare the reimbursement policy of all Canadian public drug insurance programs for antiretroviral drugs. To illustrate the financial burden that people living with HIV in Canada encounter in trying to obtain their HIV medication, we used two clinical scenarios to estimate the potential annual out-of-pocket expenditures when patients are prescribed HIV medication in each jurisdiction.

Methods

Sources of data

We searched the government websites of all jurisdictions in Canada that offered coverage for antiretroviral drugs in December 2017 (Appendix 1). We extracted data including eligibility criteria, cost-sharing rules, permission to coordinate with private payers, and whether there were restrictions pertaining to the prescriber or the dispensing pharmacy (Appendix 2). To validate the data, we asked a pharmacist in each jurisdiction with expertise in providing HIV care or familiarity with the respective antiretroviral reimbursement plans and systems required to secure drug coverage for individual patients to review the information for accuracy (with the exception of the federal programs and Nunavut where we did not have an email address of a representative pharmacist). If there were incorrect data, the pharmacist consulted another local representative and a consensus was reached. We focused exclusively on HIV treatment and not coverage of antiretrovirals for HIV prevention.

Patient Scenarios

To illustrate and compare the annual out-of-pocket expenditures for antiretrovirals in working individuals, we created two clinical scenarios that reflected typical patients seen in clinical practice who did not have any work-place or private drug insurance and did not belong to groups typically eligible for publicly funded drug coverage, such as seniors (age ≥65 years), children, and social assistance recipients. The first case was a single man, age 30, with no dependents and a net annual household income of $39,000. The second case was a married woman, age 48, with two children and a net annual household income of $80,000. In each case, the individual was prescribed abacavir/lamivudine/dolutegravir, a commonly prescribed first-line single tablet antiretroviral regimen listed in all public drug formularies.

Calculation of costs

For each jurisdiction, we calculated each person's expected annual expenditure for the antiretroviral regimen according to the applicable plan and the cost-sharing rules (Table 1, Appendix 3). For example, in Nova Scotia, for both case scenarios, there is no premium, no deductible, but four co-payments of $11.25 for each 90-day prescription totaling $45 annually. While there is also no premium in Ontario, the man with an income of $39,000 would be required to pay an annual deductible of $1344 (3.446% of $39,000) plus four co-payments of $2 for each of his

prescriptions, resulting in $1352 paid out-of-pocket. Each calculation was verified by the same pharmacist who confirmed coverage details and any discrepancies were resolved by consensus with a second local representative. We assumed a 90-day supply was obtained 4 times a year and, to simplify comparisons, used the same income in each region although programs use different income values used for calculating benefits. For example, deductibles in Ontario are calculated using *net* household income, while Manitoba calculates a "total adjusted family income" as the *total taxable* income minus $3,000 for each dependent under the age of 18. We calculated prescription costs using the amount reimbursed by Ontario's Ministry of Health and Long-Term Care to pharmacies, as listed on the Ontario Drug Benefit formulary in December 2017[6]. We therefore assumed that prices were similar across jurisdictions and that any effect of negotiated prices discounts were minimal and excluded mark-ups and professional' fees. This was a descriptive, non-qualitative analysis without pre-determined hypotheses; thus, no statistical analyses were conducted.

Results:

Public prescription plans

We found inter- and intra-jurisdictional variability in cost-sharing rules for antiretrovirals across public drug programs (Table 1 and 2). Five federal drug insurance programs and at least one program in each province or territory provided some form of financial assistance for registered residents of Canada requiring HIV treatment. All five federal programs, which are portable across the country, fully subsidized the cost of antiretrovirals for eligible patients regardless of their age or income. Beyond these programs, the governments of British Columbia, Alberta, the Northwest Territories, Nunavut, and Prince Edward Island also offered universal coverage of antiretrovirals for all of their residents living with HIV. In New Brunswick, because premiums and co-payments were waived and not collected, the plan functioned as a universal one.

All other jurisdictions had either a co-payment, a deductible, or both for antiretrovirals. Quebec also collected a yearly income-based premium of $0 to $667 from non-insured individuals whether they purchased drugs or not. There was no limit to the annual income-based deductible collected in Manitoba, Newfoundland and Labrador, Ontario, and Saskatchewan, and high incomes did not disqualify an individual from receiving government assistance in any

jurisdiction except in Newfoundland and Labrador where there was no assistance available for a resident with a net household income of greater than $150,000 annually.

In almost all regions where antiretroviral expenses were shared, fees were reduced or waived for individuals with very low incomes. Seniors, in contrast, incurred the same out-of-pocket expenses as their non-senior counterparts with the same income in Manitoba and Nova Scotia. Ontario, Quebec, Saskatchewan, and Newfoundland and Labrador, had multiple programs with eligibility criteria varying according to age, income, or drug costs.

The programs also differed in other ways. First, although British Columbia, Alberta, New Brunswick, and Prince Edward Island provide antiretrovirals at no cost to their residents, these provinces did not provide universal coverage of non-HIV related prescriptions. Second, coordination of benefits with private insurers was allowed in all programs sharing antiretroviral costs except Quebec. Similarly, a patient living in New Brunswick was not eligible for free antiretrovirals from the government if she received any benefits from a private plan, whether the plan was full or partial. Third, there were interprovincial differences in antiretroviral prescribing and dispensing, with seven jurisdictions (Alberta, British Columbia, New Brunswick, Nova Scotia, Ontario, Saskatchewan, and the Yukon) and Correctional Service Canada placing restrictions on the prescriber authorizing the regimen, and five provinces (Alberta, British Columbia, New Brunswick, Nova Scotia, Prince Edward Island) and Correctional Service Canada assigning designated pharmacies to dispense these therapies.

Patient scenarios and calculated costs

The annual cost of single-tablet abacavir/lamivudine/dolutegravir in in the Ontario Drug Benefit formulary was $15,552.[6] Our first hypothetical case of a single man with an annual income of $39,000 had no out-of-pocket expenses if he lived in Alberta, British Columbia, Northwest Territories, Nunavut, New Brunswick, or Prince Edward Island, but had an annual prescription cost that varied from $45 to $1944 if he resided elsewhere (Figure 1, Appendix 3). Our second hypothetical case, a married woman with about twice the annual household income of the first case, received her medications at no cost in the same six regions, incurred the same expense if she lived in Nova Scotia, the Yukon, and Quebec (although would have had to pay a greater premium when she filed her higher household tax return) and

paid $2720 to $7993 (17% to over 50% of the antiretroviral cost) if she lived in one of the remaining regions (Figure 1 and 2, appendix 3).

Interpretation

We studied antiretroviral reimbursement policies across public drug plans in Canada. Our main finding was that there is considerable variability across public drug insurance programs for these high-cost drugs, such that an individual may incur hundreds or thousands of dollars of additional costs based solely on location. Our descriptive review identified this disparity was most striking for high income earners without private drug insurance. For these individuals, out-of-pocket expenses would be zero in six regions and could be up to 100% of the antiretroviral cost in jurisdictions with no maximum annual contribution, namely Saskatchewan, Manitoba, Ontario, and Newfoundland and Labrador. While the principle of progressivity - that high income earners should contribute a greater proportion of their income to shared expenditures - is often cited as a criterion for fairness, our cases illustrated that this philosophy is not universally adopted across the country. Our case of the lower income male paid a greater proportion of his income for antiretrovirals than our woman with a higher income in Nova Scotia, Quebec and the Yukon (Figure 3). However, even among high income earners enrolled in cost sharing plans, our review revealed there was disparity in the proportion of income used to calculate medication costs and varied according to where they lived. In Manitoba, an individual earning greater than $75,000 would have a deductible of 6.9% of the family income compared to 4% in Ontario (Table 2). In addition to variability in government subsidies, our review also found a considerable range of program complexity in terms of eligibility, administration, and restrictions placed on providers or dispensing pharmacies. Although we did not evaluate the administrative overhead costs associated with these complexities, others have indicated that considerable cost savings are possible when drug insurance programs are simplified and streamlined.[22] The complexity of navigating several programs with differing eligibility criteria and application process may also prove challenging, especially in specific-subgroups of people with HIV, such as individuals with co-existing cognitive disability or recent immigrants to Canada.

Our finding of heterogeneity with Canada's public drug programs is consistent with prior work; however, the differences across jurisdictions found in other reviews were attributed to the lack of programs for certain sub-

populations,[8] drug costs not exceeding the required premiums or deductibles to receive assistance,[7] or difference in formulary listing[9]. In contrast, while we found that all jurisdictions listed most antiretrovirals and, with the exception of Newfoundland and Labrador, each had a program to provide coverage for all sub-populations, the main differences in coverage were due to variations in the amount of individual subsidies based on criteria. In six jurisdictions, antiretrovirals were fully covered with an HIV diagnosis being the only requirement for eligibility aside from having provincial/territorial health coverage; in the remaining regions, income and age primarily determined the subsidy received. Our results suggest that while establishing antiretroviral prescribing programs and formulary listings are necessary conditions for access to coverage, they are insufficient to ensure universal equitable access to antiretrovirals.

Examples of policy options that could address these inequities across the country in eligibility criteria and value of subsidies include a comprehensive pharmacare program[22] or explicit national standards for listing and reimbursing drugs for all age and income groups, perhaps with particular attention to drugs that have implications for public health[23]. For example, medications for tuberculosis and many sexually transmitted infections are universally covered in all or almost all jurisdictions, respectively. On April 10, 2018, the government of Saskatchewan joined eleven jurisdictions and announced they also would provide universal HIV drug coverage to their residents[24]. In recent years, Canadian jurisdictions (with the exception of Quebec) have established common mechanisms to make listing recommendations through the Common Drug Review and to conduct price negotiations through the pan-Canadian Pharmaceutical Alliance[25]. We believe it is also necessary to have national standards and processes to ensure fair and equal cost-sharing mechanisms across the country.

Our study has several limitations. First, we evaluated general reimbursement rules but did not address variations in restrictions for specific antiretrovirals. Second, while we gathered data from government websites that inform the public of all available programs, some information may have been missed as details may have only been available in full policy documents. As we only chose two illustrative scenarios, our findings should not be interpreted as being comprehensive (representing all scenarios) or representative (representing the most common scenarios), although we believe they will be relevant for many patients. We did not conduct analyses to determine which reimbursement

policies were most prohibitive; this was beyond the scope of our research. Although we solely used the listed drug price from the Ontario drug benefit formulary for our out-of-pocket expenditure comparison and other jurisdictions may have negotiated higher or lower medication prices resulting in different out-of-pocket costs, the actual price would have no implication for patients in jurisdictions which only used income-based deductibles (e.g. Manitoba, Ontario, and Saskatchewan) or capped out-of-pocket payments (e.g. Quebec, Yukon). Our study was also restricted to public antiretroviral coverage for adults; we did not examine reimbursement policies for children and youth. Finally, while we documented inequities in cost-sharing, we did not examine whether these inequities result in financial hardship or negative health outcomes. Exploratory research has suggested antiretroviral-associated costs compete with other essential needs[26]. Our group and others have shown that cost-sharing arrangements for antiretrovirals result in significant numbers of patients who are unable to afford their medications[27,28] and consequently, non-adherence[12,13].

Our study revealed stark inter- and intra-jurisdiction differences for antiretroviral coverage, despite the existence of a public drug plan in each jurisdiction. These disparities result in unequal costs for individuals living in Canada with identical prescriptions, hindering health equalities across the nation. Addressing cost sharing inequities may be an important strategy for policy makers to consider to achieve Canada's commitment to the final two goals of the UNAIDS strategy, in which 90% of all people living with HIV know their HIV status, 90% of all people diagnosed with HIV receive antiretroviral therapy, and 90% of all people receiving HIV treatment are virally suppressed by 2020[29].

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Table 1. Characteristics of all Canadian publicly funded federal drug plans that cover antiretrovirals for adults and seniors, December 2017

Public drug program eligibility	Cost sharing requirements				Restrictions		plan covers non-HIV related drugs
	Premium[1]	Deductible[2]	co-payment[3]	co-ordinates with other payers	prescriber	pharmacy	
Non-insured Health Benefit (NIHB) program A registered First Nation person, an Inuk recognized by an Inuit land claim organization	$0	$0	$0	private first	none	none	yes
Interim Federal Health program (IFHP) Resettled refugees, protected persons, refugee claimants, victims of human trafficking, detainees	$0	$0	$0	N/A	follows provincial policy	follows provincial policy	follows provincial formulary
Veteran Affairs Canada prescription drug program Royal Canadian Mounted Police members, Canadian war veterans, eligible Canadian Armed Forces members and certain wartime civilians	$0	$0	$0	private first	none	none	benefits related to plan
Correctional Service Canada (CSC) Federal inmates	$0	$0	$0	N/A	CSC institution physician	CSC institution	yes
Canadian Forces Health Services (CFHS) Canadian Armed Forces Personnel and authorized visiting military forces, foreign military exchange personnel and their dependents	$0	$0	$0	N/A	none	local base pharmacy or community pharmacy if after hours	yes

[1]*Premium*: the amount an individual must pay to be enrolled in the program
[2]*Deductible*: the amount that must be paid by the individual before the program pays for any part of the drug costs.
[3]*Co-payment:* the amount or portion an individual pays with each prescription filled.

Table 2. Characteristics of all Canadian publicly funded Provincial/Territorial drug plans that cover antiretrovirals for adults and seniors, December 2017

Public drug program eligibility	Cost sharing plan				Restrictions		plan covers non-HIV related drugs
	Premium[1]	Deductible[2]	co-payment[3]	co-ordinates with other payers	prescriber	pharmacy	
Alberta							
Alberta Health Care Insurance Plan, Specialized High Cost Drug Program ● Registered[4] Alberta resident	$0	$0	$0	no	yes	yes	no
British Columbia							
British Columbia Centre for Excellence HIV Drug Treatment Program ● HIV-positive British Columbia resident ● Resident with coverage from another jurisdiction awaiting BC medical coverage	$0	$0	$0	no	yes[5]	yes	no
Manitoba							
Pharmacare Program ● Registered Manitoba resident	$0	3.05 to 6.9% of adjusted family income[6] Not prorated; minimum $100/year	$0	province first	no	no	yes
Employment and Income Assistance – Prescription drugs	$0	$0	$0	province first	no	no	yes
New Brunswick							
Prescription Drug Program, HIV/AIDS ● Registered New Brunswick resident not receiving private insurance	$0[7]	$0	$0[7]	no	yes	yes	no

Newfoundland and Labrador (NL)							
NL Prescription Drug Program Registered resident of Newfoundland and Labrador **Foundation plan** ● residents that qualify for income support benefits	$0	$0	$0	N/A	no	no	yes
Access Plan ● families with children with net income ≤ $42,870 ● couples without children with net income ≤ $30,009 ● single individuals with net income ≤ $27,151	$0	$0	20-70% of total prescription cost (varies with income)	private first	no	no	yes
Assurance Plan ● residents with eligible drug costs that exceed 5% of net income <$40,000	$0	$0	co-payment rate =incomex5%/total drug expenditure	private first	no	no	yes
● residents with eligible drug costs that exceed 7.5% of net income between $40,000-$74,999	$0	$0	co-payment rate =incomex7.5% / total drug expenditure	private first	no	no	yes
● residents with eligible drug costs that exceed 10% of net income $75,000 to <$149,999	$0	$0	co-payment rate =incomex10% / total drug expenditure	private first	no	no	yes
65Plus Plan ● residents age 65 or older who receive old age security benefits and guaranteed income supplement	$0	$0	maximum $6 dispensing fee	private first	no	no	yes
Northwest Territories							
Extended Health Benefits for Specified Disease Conditions ● for non-indigenous registered NWT resident	$0	$0	$0	private first	no	no	yes
Metis Health Benefits program ● for registered indigenous Metis and resident of the NWT	$0	$0	$0	private first	no	no	yes
Extended Health Benefits for Seniors program ● for non-indigenous and non-Metis registered residents of the NWT who are at least 60 years of age	$0	$0	$0	private first	no	no	yes
Nova Scotia (NS)							
NS Department of Health and Wellness – Provincial high cost drug program ● registered resident of NS	$0	$0	$11.25 dispensing fee	private first	yes	yes	no
Nunavut							
Extended health benefits program ● non-indigenous registered Nunavut resident with a specified condition ● non-indigenous resident age 65 or older ● registered resident who is	$0	$0	$0	private first	no	no	yes

not fully covered by 3rd party insurance							
Ontario							
Ontario Drug Benefit							
• resident of long-term care facility • Ontario resident enrolled in the **Home Care** program • Individual enrolled in **Ontario Works** for income support • Individual enrolled in the **Ontario Disability Support Program** for income support and other services	$0	$0	$2 per prescription	private first	yes	no	yes
• Registered resident age 65 or older with net annual income ≤ $19,300 (single) or net annual income of ≤$32,300 (with spouse)	$0	$0	$2 per prescription	province first	yes	no	Yes
• Age 65 or older with annual net income >$19,300 (single) or >$32,300 (with spouse)	$0	$100	$6.11 per prescription	province first	yes	no	yes
Trillium Drug Program • Registered Ontario residents with high drug costs	$0	~4% of net household income pro-rated and payable quarterly	$2 per prescription	private first	yes	no	yes
Prince Edward Island (PEI)							
PEI pharmacare, AIDS/HIV program • Registered HIV-positive PEI residents	$0	$0	$0	no	No	yes	no
Quebec							
Regie de l'assurance maladie du Quebec							
• Recipient of Social Assistance and Social Solidarity Program • a single adult, age 18-25, living with parents and a full-time student in an educational institution at the secondary, college or university level	$0	$0	$0	no	no	no	yes
• Registered Quebec resident age 65 or more receiving 94-100% of the guaranteed income supplement, without private insurance	$0	$0	$0	no	no	no	yes
• Registered Quebec resident age 65 or older receiving 1-93% of guaranteed income supplement, without private insurance	0-$667 (varies with net family income)	$19.45 monthly	After deductible, (total cost of Rx – 19.45) x 34.8% up to maximum of $52.65/month ($632/year)	no	no	no	yes
• Registered Quebec resident age 65 or older not receiving any guaranteed income supplement, without private insurance	0-$667 (varies with net family income)	$19.45 monthly	After deductible, (total cost of Rx – 19.45) x 34.8% up to maximum of $88.83/month	no	no	no	yes

			($1066/yr)				
• Registered resident of Quebec without private insurance	0-$667 (varies with net family income)	$19.45 monthly	After deductible, (total cost of Rx – 19.45) x 34.5% up to maximum of $88.83/month ($1066/yr)	no	no	no	yes
Saskatchewan[8]							
Saskatchewan Drug Plan							
Special Support Plan • Registered resident with drug costs greater than 3.4% of taxable income	$0	3.4% of taxable income	$0	province first	yes	no	yes
Seniors Drug Plan • age 65 with net income of ≤$68,000	$0	$0	maximum of $25 per prescription	province first	yes	no	yes
Supplementary Health Program	$0	$0	$2 per prescription	province first	yes	no	yes
Yukon							
Chronic Disease and Disability Benefits Program • registered Yukon residents	$0	first $250 of eligible costs per year ($500 per family)	$0	private first	yes	no	yes
Pharmacare and Extended Health Benefits Program • registered residents age 65 or older or over 60 years of age and married to a Yukon resident who is 65 years or older	$0	$0	$0	private first	yes	no	yes

[1]*Premium*: the amount an individual must pay to be enrolled in the program
[2]*Deductible*: the amount that must be paid by the individual before the program pays for any part of the drug costs.
[3]*Co-payment:* the amount or portion an individual pays with each prescription filled.
[4]Registered residents are defined as residents with valid provincial/territorial health coverage
[5]all antiretroviral regimens must be authorized by a British Columbia Centre for Excellence physician before medications can be dispensed
[6]In Manitoba, an "adjusted total family income" is the total taxable income minus $3,000 for each dependent under the age of 18 (www.gov.mb.ca/health/pharmacare/estimator.html)
[7]In New Brunswick, a co-payment of 20% of the prescription to a max of $20 or $500/family unit/year with annual registration of $50 is not collected
[8]On April 10, 2018, the government of Saskatchewan announced a change in their reimbursement policy to providing universal coverage for HIV medication to all registered residents. Data presented are those extracted in December 2017.

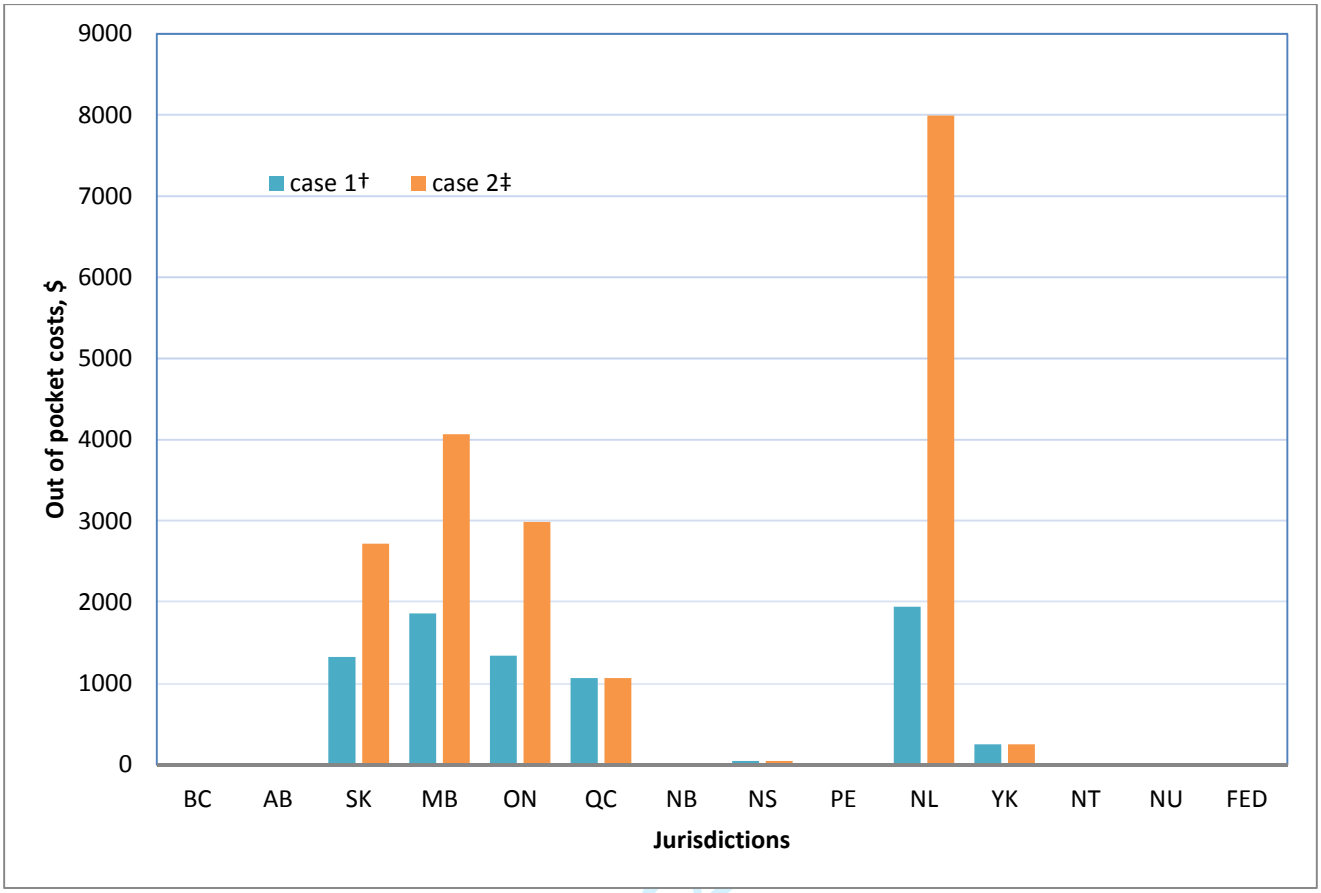

Figure 1: Estimated annual out-of-pocket costs to purchase single tablet abacavir/lamivudine/dolutegravir in each jurisdiction, excluding mark-ups and professional fees. The total annual cost of the antiretroviral regimen is $15, 552. BC = British Columbia, AB = Alberta, SK= Saskatchewan, MB = Manitoba, ON = Ontario, QC = Quebec, NB = New Brunswick, NS = Nova Scotia, PE = Prince Edward Island, NL = Newfoundland and Labrador, YK = Yukon, NT = Northwest Territories, NU = Nunavut, FED = federal programs.

†Case 1 is a single man with no dependents and annual income of $39,000.

‡Case 2 is a married woman with two dependents and an annual net household income of $80,000.

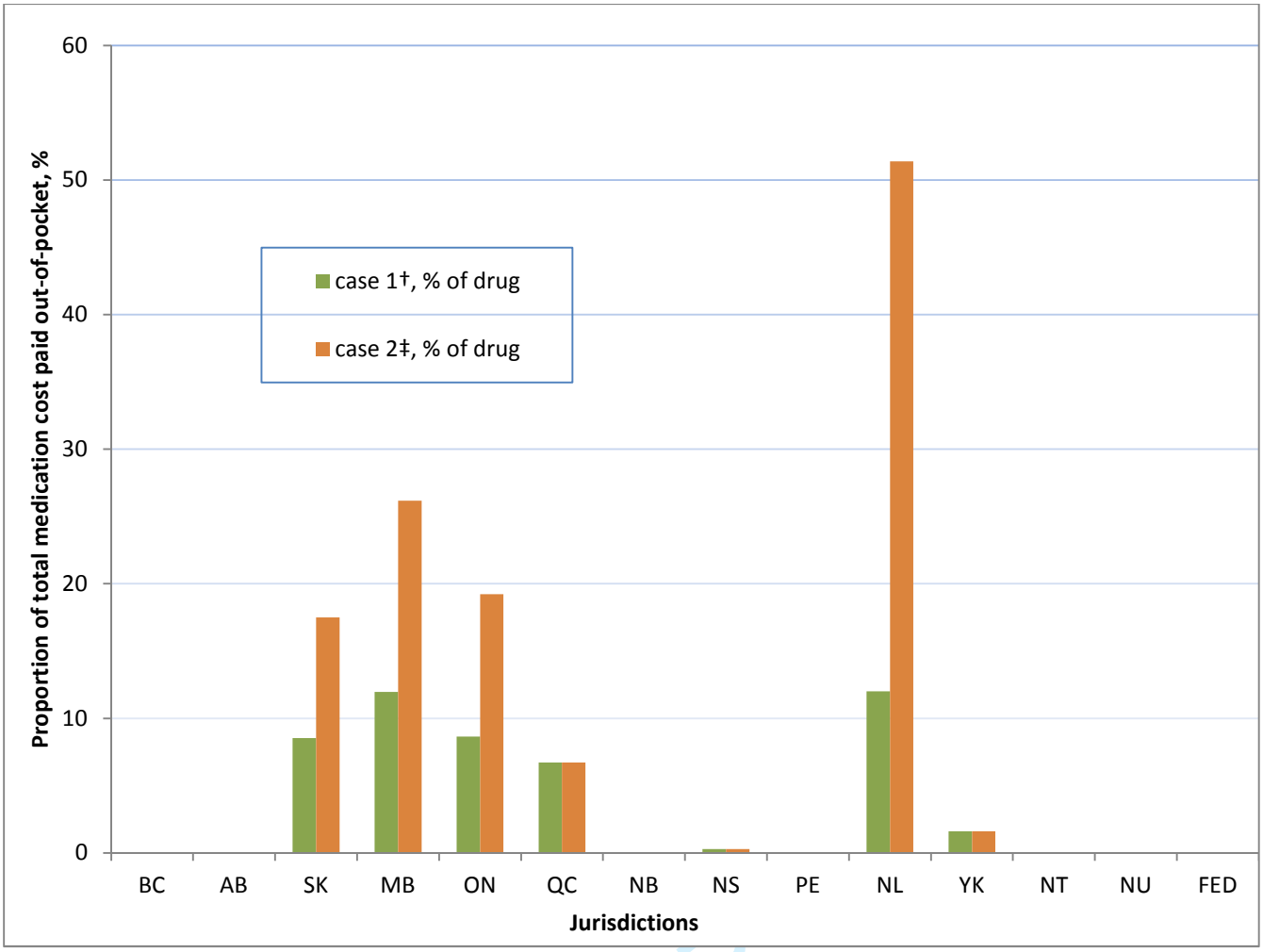

Figure 2: Proportion of annual cost of single tablet abacavir/lamivudine/dolutegravir paid out-of-pocket-pocket. The total annual cost of the antiretroviral regimen is $15, 552. BC = British Columbia, AB = Alberta, SK= Saskatchewan, MB = Manitoba, ON = Ontario, QC = Quebec, NB = New Brunswick, NS = Nova Scotia, PE = Prince Edward Island, NL = Newfoundland and Labrador, YK = Yukon, NT = Northwest Territories, NU = Nunavut, FED = federal programs

†Case 1 is a single man with no dependents and annual income of $39,000.

‡Case 2 is a married woman with two dependents and an annual net household income of $80,000.

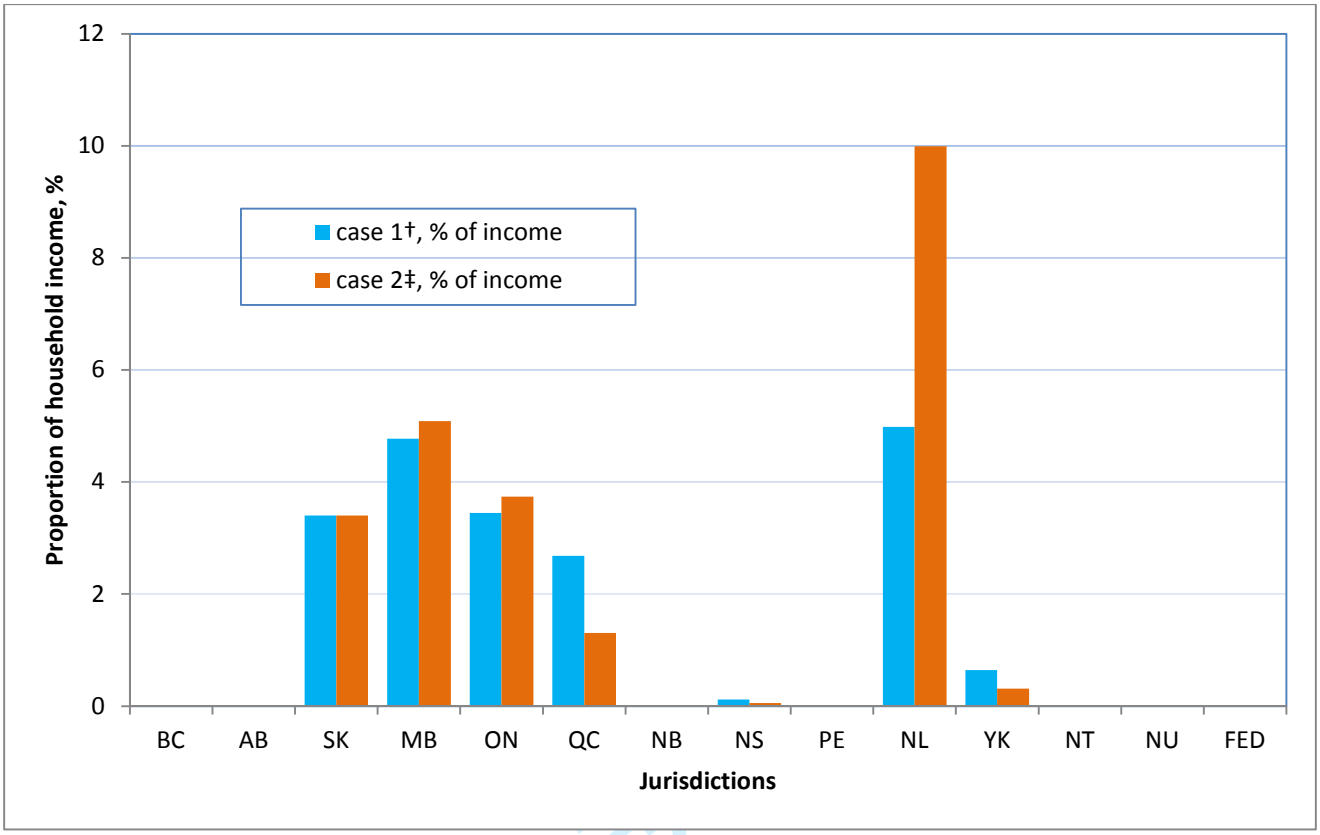

Figure 3: Proportion of household income needed to purchase single tablet abacavir/lamivudine/dolutegravir in each jurisdiction. The total annual cost of the antiretroviral regimen is $15, 552. BC = British Columbia, AB = Alberta, SK= Saskatchewan, MB = Manitoba, ON = Ontario, QC = Quebec, NB = New Brunswick, NS = Nova Scotia, PE = Prince Edward Island, NL = Newfoundland and Labrador, YK = Yukon, NT = Northwest Territories, NU = Nunavut, FED = federal programs

†Case 1 is a single man with no dependents and annual income of $39,000.

‡Case 2 is a married woman with two dependents and an annual net household income of $80,000.

Appendix 1. Provincial, Territorial and Federal health ministries in Canada

Jurisdiction	Health ministry	Website
Federal*		
Non-Insured Health Benefit Program	First Nations and Inuit Health	https://www.canada.ca/en/indigenous-services-canada/services/non-insured-health-benefits-first-nations-inuit.html
Interim Federal Health Program	Interim Federal Health Program	https://www.canada.ca/en/immigration-refugees-citizenship/services/refugees/help-within-canada/health-care/interim-federal-health-program/eligibility.html
Veteran Affairs Canada	Veteran Affairs Canada	http://www.veterans.gc.ca/eng/services/health/treatment-benefits
Correctional Service Canada	Correctional Service Canada Health Services	http://www.csc-scc.gc.ca/health/index-eng.shtml
National Defence and the Canadian Armed Forces	Canadian Forces Health Services	http://www.forces.gc.ca/en/caf-community-health-services/index.page
Province/Territory		
Alberta	Alberta Health	www.health.alberta.ca/
British Columbia	British Columbia Ministry of Health	www2.gov.bc.ca/gov/content/health
Manitoba	Manitoba Health, Seniors and Active Living	https://www.gov.mb.ca/health/index.html
New Brunswick	New Brunswick Department of Health	https://www2.gnb.ca/content/gnb/en/departments/health.html
Newfoundland and Labrador	Newfoundland and Labrador Department of Health and Community Services	https://www.gov.nl.ca/health-and-wellness/
Northwest Territories	Northwest Territories Health and Social Services	https://www.hss.gov.nt.ca/en
Nova Scotia	Nova Scotia Department of Health and Wellness	https://novascotia.ca/DHW/
Nunavut	Nunavut Department of Health	https://www.gov.nu.ca/health
Ontario	Ontario Ministry of Health and Long-Term Care	http://www.health.gov.on.ca/en/
Prince Edward Island	Health PEI	https://www.princeedwardisland.ca/en/topic/health-pei
Quebec	Quebec Department of Health and Social Services	http://www4.gouv.qc.ca/EN/Portail/Citoyens/ServicesEnLigne/Pages/SanteServicesSociaux.aspx
Saskatchewan	Saskatchewan Ministry of Health	https://www.saskatchewan.ca/government/government-structure/ministries/health
Yukon	Yukon Health and Social Services	http://www.hss.gov.yk.ca/

*Federal programs that insure specific populations

Appendix 2. Data collection form for all federal, provincial and territorial public plans that cover antiretrovirals for adults and seniors

Name of all public drug program available to cover antiretrovirals	Cost sharing requirements				Any restrictions?		Does the plan cover non-HIV related drugs?
	Premium yes/no? amount? maximum?	Deductible yes/no? amount? maximum?	Co-payment yes/no? amount? maximum?	Co-ordination with other payers yes/no? who is 1st payer?	prescriber	Dispensing pharmacy	
Name of jurisdiction:							
What is the plan name and eligibility criteria for: a. general population?							
b. social assistance?							
c. seniors (over age 65)							

[1]*Premium*: the amount an individual must pay to be enrolled in the program
[2]*Deductible*: the amount that must be paid by the individual before the program pays for any part of the drug costs.
[3]*Co-payment:* the amount or portion an individual pays with each prescription filled.

Appendix 3. Calculation of annual out-of-pocket expenses for ARV regimen[1], December 2017

Jurisdiction	Clinical scenario 1: Single man earning after tax income of $39,000/year purchasing regimen that costs $15,552 annually ($1296/month)				Clinical scenario 2: Married female with 2 children earning after tax household income of $80,000 purchasing a regimen that costs $15552 annually ($1296/month)			
	Premium	Deductible	Co-payment	Total costs (premium + deductible + co-payment), $	Premium	Deductible	Co-payment	Total costs, (premium + deductible + co-payment), $
Alberta	0	0	0	0	0	0	0	0
British Columbia	0	0	0	0				
Manitoba	0	39,000x4.79% = 1868	0	1868[2]	0	(80,000-6000) x 5.5% = 4070	0	4070[2]
New Brunswick	0	0	0	0	0	0	0	0
Newfoundland and Labrador	0	0	Co-payment rate = 39,000 x 5% ÷ 15,552 = 12.5% Co-payment= 12.5% x 15552 = 1944	1944	0	0	Co-payment rate = 80,000 x 10% ÷ 15,552 = 51.4% Copayment = 51.4% x 15552 = 7993	7993
Northwest Territories	0	0	0	0	0	0	0	0
Nova Scotia	0	0	4x11.25 = 45	45	0	0	4x11.25 = 45	45
Nunavut	0	0	0	0	0	0	0	0
Ontario	0	39,000x3.446 % = 1344[3]	4x2=8	1352	0	80,000x3.736% = 2989[3]	4x2=8	2997
Prince Edward Island	0	0	0	0	0	0	0	0
Quebec	0-677	$19.45	(1296 – 19.45) x 34.8% = 463.69	1066 + premium Yearly maximum of $1066 used as monthly value exceeds monthly maximum of $88.83/month	0-677	$19.45	(1296 – 19.45) x 34.8% = 463.69	1066 + premium Yearly maximum of $1066 used as monthly value exceeds monthly maximum of $88.83/month
Saskatchewan[4]	0	39,000x3.4% = 1326	0	1326[2]	0	80,000X3.4% =2720	0	2720[2]
Yukon	0	250	0	250	0	250	0	250
Federal Programs (Non-insured health Benefit program, Interim Federal health program, Verteran Affairs Canada, Correctional Service Canada, Canadian Forces Health Services)	0	0	0	0	0	0	0	0

[1]ARV regimen = antiretroviral regimen consisting of the single co-formulated tablet abacavir/lamivudine/dolutegravir
[2]Total cost is underestimated as deductible was calculated with after tax income rather than using taxable income as required by provincial program
[3]Deductible determined from grid in "A Guide to Understanding the Trillium Drug Program", Queen's Printer for Ontario, 2013.
[4]On April 10, 2018, the government of Saskatchewan announced a change in their reimbursement policy to provide universal coverage for HIV medications to all registered residents. Data presented are those extracted in December 2017