



# Comparative Review: Inter-provincial Pharmacare for the Six Most Commonly Prescribed Chemotherapies in the Treatment of Adult Brain Cancer in Canada.

**Updated: November 2023**

Research: Shamini Ayyadhury, Anita Angelini, Shalane Basque, Kaviya Devan, Lia Loebenberg, Jessica Soares

BCC Ambassador Advisors: Jessica Soares & Gosia Brzozowska

*Report prepared by Shamini Ayyadhury on behalf of the Brain Cancer Canada Pharmacare Research Committee, Education & Research Subcommittee, Partnerships and Stakeholders*

Overview ..... 3

Findings .....	3
Scope of Review & Data .....	4
The 6 Most Commonly Prescribed Brain Cancer Drugs .....	4
Table 1 Generic Name, Brand Name, and Form of Medication Administration <sup>11</sup> .....	5
Coverage Conundrums and Chemotherapy Costs .....	5
Data Analysis & Explanation of Terms .....	6
Drug Coverage by Each Province and Territory .....	6
Table 2 Provincial Coverage of Cancer Drugs (Overall), According to Type <sup>a</sup> .....	8
Table 3 Provincial Coverage of Each of the Six Most Commonly Prescribed Take Home Cancer Drugs, According to Type .....	10
Coverage and Co-payment in Each Province or Territory, per Medication .....	11
Table 4 Coverage for Take-Home-Cancer-Drugs (THCD) and Co-payment Conditions, by Province or Territory, and by Type of Brain Cancer Drug .....	12
References .....	16

## Overview

In the fall of 2022 Brain Cancer Canada set out to determine the extent to which the 6 most commonly prescribed chemotherapy medications for the treatment of malignant adult brain cancer, in the take-home-cancer-drug (THCD) form, are supported through provincial drug plans versus requiring patients and caregivers to pay out of pocket for treatment. Patients diagnosed with the most aggressive form of brain cancer require drugs that are highly specialized and very costly. According to a report from PDCI Market Access, using 2022 data, average annual costs for take home cancer drugs for brain and central nervous system cancer patients is \$62,701.00 CAD.<sup>1</sup>

Across Canada, drug coverage disparities exist for patients of all types of cancer, as well as for patients of other non-cancerous yet severe and rare diseases. The disparities that exist owing to the lack of a national drug program, and a patchwork of alternate mechanisms of support in each province and territory, are well documented by a number of advocacy groups and health economists.<sup>1-9</sup> Brain Cancer Canada applauds this work and is supportive of the extensive calls for reform of pharmacare in Canada as result. Within the literature, the label given to the existence of disparities is the *postal code lottery*.<sup>9</sup>

The direct experience of Brain Cancer Canada ambassadors, either as patients or caregivers, informed the need for the review.<sup>2</sup>

## Findings

Brain Cancer Canada confirms that, specifically for brain cancer patients, there are differences in drug coverage across Canada based on the province or territory the patient lives in, the patient's age, net family income, inconsistent coverage across provinces and territories for chemotherapies used in combination with other chemotherapies, the brand of medication prescribed, and other factors that further compound the inequities, see Tables 3 and 4.

1. Temozolomide, the first-line chemotherapy in the global standard of care for treatment of brain cancer,<sup>10</sup> is not covered in 3 provinces or territories, or coverage may be obtained but with conditions.
2. Of the 6 most commonly prescribed adult brain cancer chemotherapy medications, Lomustine and Procarbazine in take-home-cancer-drug form are covered the most across Canada, surpassing the coverage of Temozolomide, even though Temozolomide is the global standard of care for almost all brain cancer patients.
3. Bevacizumab and Carmustine are not covered in 11 provinces and territories.

## Scope of Review & Data

This review includes 6 of the most commonly prescribed brain-cancer drugs in the adult brain cancer setting. The chemotherapies for inclusion in this review were identified by Dr. Sheila Singh, a Brain Cancer Canada grant recipient, advisor, and scientist at McMaster University's Cancer Research Centre.

The drug coverage plans and practices of 13 provinces and territories: Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Ontario, Prince Edward Island, Quebec, Saskatchewan, and Yukon have been included.

This report summarizes the data pertaining to publicly funded insurance programs.

Data are not easily accessible. For the purposes of this report, data were gathered and compiled from academic literature available online, federal and provincial government publications and websites, publications of other cancer support organizations in Canada, Canadian news media articles, and interviews with brain cancer patients and caregivers. In some cases, information was obtained through a phone call to a representative of the respective drug plan, health agency of the respective province or territory, or to a hospital-based pharmacist or social worker who assists patients with navigating and completing forms to access drug coverage. In many instances, there are multiple plans and programs either nested within each other or adjacent to each other that guide the scope and sequence of coverage available.

The layers of difficulty to access data from a research perspective are also indicative of the challenge presented to patients and their caregivers who, not only dealing with the diagnosis of brain cancer, also then are required to begin the process to determine how they might gain coverage for their critically needed chemotherapy.

Readers should note that the Ministry of Health in each province or territory and the health plans providing drug coverage in each province or territory update their coverage terms on a regular basis. Data are subject to change. The data included in this report are the best available data at time of print.

## The 6 Most Commonly Prescribed Take-Home Chemotherapies for Adult Brain Cancer

The 6 most commonly prescribed chemotherapy drugs for brain cancer are identified in Table 1. Some of the medications are used in tandem with other chemotherapies as combination medication.

Table 1 Generic Name, Brand Name, and Mode of Medication Administration<sup>11</sup>

<b>Generic Name</b>	Temozolomide	Carmustine	Procarbazine	Vincristine	Lomustine	Bevacizumab
<b>Brand Name</b>	Temodar, Temodal, TMZ	BiCNU	Matulane	<i>Leurocristine</i> <i>Oncovin</i> <i>LCR</i> <i>VCR</i>	Gleostine CeeNU	Avastin MVASI ZIRABEV
<b>Administration</b>	Oral	Injectable	Oral	Injectable	Oral	Oral

These medications are sometimes used in tandem with other chemotherapies.

### Coverage Conundrums and Chemotherapy Costs

The conditions for drug coverage for the six brain cancer chemotherapies included in this review vary across Canada. See Table 4.

In some provinces and territories, medications may be covered by a provincial program and access to the drug immediate. In others, there may be multiple conditions that apply, for example, if the patient is under 25 years of age, if the patient is over 65 years of age, and/or on the basis of a percentage of net family income.<sup>12</sup>

Notably, during a patient's prime income-earning years coverage may not be available. In Ontario alone, 17-30% of all cancer patients aged 25-64 have no form of drug coverage.<sup>12</sup> Additionally, chemotherapy dosing is frequently based on the weight of the patient, and the higher the dosing, the more of the medication required, resulting in the higher the cost of the chemotherapy.<sup>13</sup>

Applications submitted to gain coverage require additional documentation and processing requires additional time. Therein, access to the chemotherapy may not be immediate for the patient. In some provinces and territories, for example Newfoundland and Labrador, applications for coverage for chemotherapies are subject to a co-pay in which the patient may be required to pay 5%, 7.5% or up to 10% of net family income per year.<sup>14</sup>

Data from a 2006 cost-effectiveness study in British Columbia indicate that Temozolomide patients received an average of 5.1 cycles of drug treatment, with an average cost per patient of \$10,746.00 (CAD).<sup>15</sup>

## Data Analysis & Explanation of Terms

### Drug Coverage by Each Province and Territory

Table 2 offers an overview of cancer drug coverage for each province and territory for cancer drugs overall, not chemotherapies specific to only brain cancer and not specific to the 6 chemotherapies included this review. The table distinguishes between oral cancer drugs, intravenous (IV) cancer drugs, and supportive care drugs. Note: the data presented are current to 2022 and the subject to change from the time of print of this review.

Some notations in Table 2 indicate coverage if on formulary. What is Formulary? Each province and territory has a medical formulary established by the Ministry of Health. The formulary acts as a guide to practitioners, pharmacists, hospitals and institutions for drug products that are eligible for provincial drug plan coverage, interchangeability of drugs according to legislation, and a comparative pricing guide for drug products.<sup>16</sup>

Some notations in Table 2 indicate coverage through exception status. What is exception status? Some brain cancer chemotherapies are listed as exception status. This means that once the medication is prescribed, a review for drug coverage is based on a set of additional criteria usually tied to the status and progression of disease, and the status and progression of treatment. For example, the criteria to obtain exception status in Nova Scotia for the use of Temozolomide include: if the medication is being used in tandem with another therapy (radiation); if the medication is used following radiation therapy; if the patient exhibits a good Karnofsky score (a score that identifies the patient's current neurological condition and level of functional impairment) and has not previously been treated with Temozolomide in combination with therapy; on onset of recurrent disease; and on the basis of the time interval since the patient's last course of Temozolomide.<sup>17</sup>

In the Northwest Territories, the drug coverage programs include Non-Insured Health Benefits Program for First Nations and Inuit residents, The Metis Health Benefits Program for Metis residents, and the Extended Health Benefits program for non-aboriginal and Metis residents.

If a drug is not listed on the Non-Insured Health Benefits list, then a request from an attending practitioner for an exception drug may be made.<sup>18</sup>

Some notations in Table 2 indicate coverage through special authorization. What is special authorization? For example, in the Northwest Territories, patients have access to a new, additional, formulary specific to patients in active cancer treatment. If a patient has been approved for oral chemotherapy, they have access to all of the medications listed in the formulary. If a patient requests, and is approved, for another medication on the formulary for a cancer-related need, they are also granted access. Access for patients is granted for six months. If treatment is longer than six

months, the access to formulary is aligned with the treatment plan. If the duration of the treatment plan is not known, and if treatment is longer than six months, then a patient may request extended access to the formulary.<sup>18-21</sup>

Some notations in Table 2 indicate limited coverage. What is limited coverage?<sup>22</sup> In some provinces and territories, limited coverage may apply. In Prince Edward Island, for example, a patient must meet drug indications, may be required to apply for coverage through a separate program like the High Cost Drug program, and then may receive coverage up to a specified amount based on a percentage of family income.

Table 2 Provincial Coverage of Cancer Drugs (Overall), According to Type<sup>a</sup>

Province or Territory, in alphabetical order	Oral Cancer Drugs	IV Cancer Drug	Supportive Care Drugs
<i>Alberta</i>	Covered if on formulary	Covered if on formulary	Not covered
<i>British Columbia</i>	Covered if on formulary	Covered if on formulary	Not covered
<i>Manitoba</i>	Covered if on formulary	Covered if on formulary	Exception status
<i>New Brunswick</i>	Exception status	Covered if on formulary	Covered if on formulary
<i>Newfoundland and Labrador</i>	Exception status	Covered if on formulary	Exception status
<i>Northwest Territories</i>	Covered if on active cancer Formulary, otherwise by Special Authorization	Covered if on NIHB formulary	Covered if on formulary, otherwise exception status
<i>Nova Scotia</i>	Exception status	Covered if on formulary	Exception status
<i>Nunavut</i>	Covered if on NIHB formulary or Extended Health Benefits Special Conditions List	Covered if on NIHB formulary or Extended Health Benefits Special Conditions List	Covered if on formulary, otherwise exception status
<i>Prince Edward Island</i>	Limited coverage	Covered if on formulary	Limited coverage
<i>Ontario</i>	Exception status	Covered if on formulary	Exception status
<i>Saskatchewan</i>	Covered if on formulary	Covered if on formulary	Covered if on formulary
<i>Quebec</i>	Exception status	Covered if on formulary	Exception status
<i>Yukon</i>	Exception status	Covered if on formulary	Exception status

<sup>a</sup> Table extracted and adapted from MacPhail&Snow<sup>6</sup>

At the time of writing, all provinces and territories in Canada indicate cancer chemotherapies, in intravenous (IV) form, are covered by provincial drug plans if the medication is listed on the provincial formulary and administered in a hospital setting.<sup>5</sup> See Table 2 and 3. These are the injectable (IV) form of the medication requiring hospital supervision for administration.

The data in Table 3 indicate that coverage for take-home cancer drugs, across the 6 most commonly prescribed chemotherapies for adult brain cancer, varies. On the basis of specific chemotherapy:



- Temozolomide, the first-line chemotherapy in the global standard of care for brain cancer treatment, in the form of a take-home-cancer-drug, is not covered in 3 provinces: Newfoundland and Labrador, with conditions in Nova Scotia and Prince Edward Island. As of 07/23 Ontario indicates coverage for Temozolomide.
- Of the 6 most commonly prescribed chemotherapy medications for adult brain cancer, Lomustine and Procarbazine in the take-home form are covered the most extensively across Canada in 12 provinces and territories, surpassing Temozolomide coverage even though Temozolomide is the leading standard of care for almost all brain cancer patients.
- Bevacizumab and Carumustine are not covered in take-home form in at least 11 provinces and territories.
- Procarbazine, Vincristine and Lomustine are part of a therapeutic combination, yet only 4 provinces or territories provide coverage for all three drugs.

On the basis of provincial summaries in Table 3:

- British Columbia provides the highest rate of coverage across the group of take-home-cancer-drugs, providing financial assistance for five
- Table 3 Provincial Coverage of Each of the Six Most Commonly Prescribed Cancer Drugs, According to Type

Table 3 Provincial Coverage of Each of the Six Most Commonly Prescribed Take Home Cancer Drugs, According to Type

	Hospital Administered Cancer Drug*	Take Home Cancer Drugs, Oral or Self Injectable					
	Temozolomide (IV form)	Temozolomide	Carmustine	Procarbazine	Vincristine	Lomustine	Bevacizumab
<i>Alberta<sup>a</sup></i>	Yes	Yes	No	Yes	Yes	Yes	No
<i>British Columbia<sup>b</sup></i>	Yes	Yes	Yes	Yes	No	Yes	Yes
<i>Manitoba<sup>c</sup></i>	Yes	Yes	No	Yes	No	Yes	No
<i>New Brunswick<sup>d</sup></i>	Yes	Yes	No	Yes	No	Yes	No
<i>Newfoundland and Labrador<sup>e</sup></i>	Yes	No	No	Yes	No	Yes	Yes
<i>Northwest Territories<sup>f</sup></i>	Yes	Yes	No	Yes	No	Yes	No
<i>Nova Scotia<sup>g</sup></i>	Yes	No (conditions)	No	Yes	Yes	Yes	No
<i>Nunavut<sup>h</sup></i>	Yes	Yes	No	Yes	No	Yes	No
<i>Ontario<sup>i</sup></i>	Yes	Yes (as of 07/2023)	No	Yes	Yes	Yes	No
<i>Prince Edward Island</i>	Yes	No (conditions)	Yes	No	Yes	Yes	No
<i>Quebec<sup>k</sup></i>	Yes	Yes	No	Yes	No	No	No
<i>Saskatchewan<sup>l</sup></i>	Yes	Yes	No	Yes	Yes	Yes	No
<i>Yukon<sup>m</sup></i>	Yes	Yes	No	Yes	No	Yes	No
<i>Proportion of provinces &amp; territories covering the medication</i>	13/13	10/13	2/13	12/13	5/13	12/13	2/13

- Each province and territory covers the intravenous (IV) form of Temozolomide administered in a hospital setting. In practice, when possible, patients are treated with Temozolomide as a take-home-cancer-drug in oral form. Residents of Nunavut, Northwest Territories, and Yukon may be required to travel outside of the province or territory for treatment.

<sup>a</sup> Data compiled from Alberta Outpatient Drug Benefit Program<sup>23</sup>

<sup>b</sup> Data compiled from Data compiled from BC Cancer Benefit Drug List<sup>24</sup>

<sup>c</sup> Data compiled from Manitoba Home Cancer Drug Program<sup>25, 26</sup>

<sup>d</sup> Data compiled from New Brunswick Drug Plans Eligibility<sup>27, 28</sup>

<sup>e</sup> Data compiled from Newfoundland and Labrador Prescription Drug Program Plan Overview, Special Authorization Drugs<sup>29-31</sup>

<sup>f</sup> Data compiled from Northwest Territories Non-Insured Health Benefits, Metis Health Benefits Program, Extended Health Benefits Program<sup>18-20</sup>

<sup>g</sup> Data compiled from Nova Scotia Pharmacare<sup>17, 32, 33</sup>

<sup>h</sup> Data compiled from Nunavut Extended Health Benefits, Non-Insured Health Benefits, Nunavut Drug Formulary<sup>34-36</sup>

<sup>i</sup> Data compiled from Ontario Ministry of Health Drug Formulary, Trillium Drug Plan, Exceptional Access Program, New Drug Funding for Cancer Care Program<sup>37-40</sup>

<sup>j</sup> Data compiled from Health PEI Formulary Drugs, Health PEI Catastrophic Drug Program<sup>41, 42</sup>

<sup>k</sup> Data compiled from Sorin et. al., Pan Canadian Pharmacare Program<sup>3</sup> & Gouvernement du Quebec RAMQ<sup>43</sup>

<sup>l</sup> Data compiled from Saskatchewan Cancer Agency<sup>44</sup>

<sup>m</sup> Data compiled from McPhail & Snow<sup>6</sup> and Yukon Drug Formulary<sup>45, 46</sup>

## Coverage and Co-payment in Each Province or Territory, per Medication

Table 4 offers information on the extent of coverage and co-payment assessed in each province or territory for each of the six most commonly prescribed brain cancer drugs in the adult setting.

In recent years, additional cancer pharmacare programs have been created to complement the coverage provided by provincial pharmacare. Information about the complementary drug programs offering take-home-chemotherapy-drug (THCD) coverage and the conditions through which there are costs to be paid by the patient are included in the Table.

In the case that a drug is not covered, certain eligibility requirements are in place which precipitate the need for applications to be filed by patients and their cancer care teams. As noted by the CanCertainty Coalition and Canadian Cancer Society, according to the Ontario Auditor General's survey, oncologists report up to 182 hours per year, per oncologist, spent on the administration of such applications.<sup>47</sup> Very often, these additional requirements are a requirement of the complementary drug coverage program identified per province or territory in Table 4.

The data summarized in Tables 2, 3, and 4 make it clear that coverage for take-home-cancer-drugs for brain cancer patients, as well as cost of premium and co-payments, vary across provinces and territories. Additionally, the number of drug coverage programs, depth of coverage, and range of application requirements differ across provinces and territories.

Table 4 Coverage for Take-Home-Cancer-Drugs (THCD) and Co-payment Conditions, by Province or Territory, and by Type of Brain Cancer Drug

Province or Territory	DRUG PROGRAM FOR ELIGIBLE THCD COVERAGE	DRUG PLAN: COST TO PATIENT	Temozolomide (Oral)	Carmustine (injectable)	Procarbazine (ORAL)	Vincristine (injectable solution)	Lomustine (ORAL)	Bevacizumab (ORAL)
<b>Alberta<sup>a</sup></b>	Outpatient Cancer Drug Benefit Program	Free of charge for THCD on formulary	100%	No	100%	100%	100%	No
<b>British Columbia<sup>b</sup></b>	BC Cancer Benefit Drug List	Free of charge for THCD on formulary	100%	100%	100%	No	100%	100%
<b>Manitoba<sup>c</sup></b>	Home Cancer Drug Program	Free of charge for THCD on formulary	100%	Not listed	100%	Not listed	100%	Not listed
<b>New Brunswick<sup>d</sup></b>	New Brunswick Drug Plans Formulary	Annual premiums based on income a 30% co-pay to a maximum per prescription, also based on income	100%	No	Yes under NB Drug Plan, Seniors Plan, Correctional Services Plan, Adult Residential Facilities, Social Development Clients, Nursing Home Residents	No	Yes under NB Drug Plan, Seniors Plan, Correctional Services Plan, Adult Residential Facilities, Social Development Clients, Nursing Home Residents	No
<b>Newfoundland and Labrador<sup>e</sup></b>	Newfoundland and Labrador Prescription Drug Program	Coverage of prescription medications for those with low incomes deemed as: individual: under \$27,000.00/yr; couples without children: \$30,009/year; families with children: \$42,870/year	Requires special authorization	No	may vary by income and program	No	may vary by income and program	may vary by income and /program
<b>Northwest Territories<sup>f</sup></b>	Non-Insured Health Benefits Program (First Nations and Inuit Residents)	Data not available at time of print	Yes	No	Yes	No	Yes	No

Metis Health Benefits Program (Metis Residents)

Extended Health Benefits (Non-aboriginal and Metis residents)

Extended Health Benefits for Specified Disease Conditions Program – for non-Aboriginal and Metis residents of NWT. Administered by Alberta Blue Cross on behalf of Government of Northwest Territories.

<b>Nova Scotia<sup>g</sup></b>	Take Home Cancer Drug Fund (only drugs that are publicly insured by the Nova Scotia Pharmacare Program are covered by this fund)	If out-of-pocket costs are greater than 4% of net family income, the remaining drug cost may be reimbursed under this program	Exceptional drug status	No	may vary by income and coverage program (seniors pharmacare, community services pharmacare, drug assistance for cancer patients)	No, including under exceptional status coveragee	may vary by income and coverage program (seniors pharmacare, community services pharmacare, drug assistance for cancer patients)	No
<b>Nunavut<sup>h</sup></b>	Non-Insured Health Benefits Program (First Nations and Inuit Residents)	Data not available at time of print	Yes	No	Yes	No	Yes	No
<b>Ontario<sup>i</sup></b>	Ontario Drug Benefit Program: 21 and younger, 65 and older, long term care, special care, community care, Ontario Works and Ontario Disability Services Program Trillium Drug Program	Deductible: 4% of household income after taxes Co-pay up to \$2 per eligible drug dispensed	Exhaust private insurance first. Then Trillium Drug Program (with thresholds). Then apply for grant from	Not listed on Ontario Frug Formulary but coverage under	100%	100% Only covered if using the Novopharm Ltd. brand	100%	No

	Exceptional Access Program - Case-by-case Review Program		pharmaceutical company.	Ontario Drug Benefit					
			As of July 2023 – listed for coverage under Ontario Ministry of Health						
<b>Prince Edward Island<sup>j</sup></b>	Prince Edward Island Pharmacare	Sliding scale according to annual household income 0-\$20,000/yr annual income: 3% of annual income	This medication does not require the submission of a pharmacare special authorization as long as the prescription is written by an oncologist.	% varies based on program	No	% varies based on program	% varies based on program	No	
	PEI High Cost Drug Program	\$20,000/yr-\$50,000/yr annual income: 5% of annual income \$50,000/yr-\$100,000/yr annual income: 8% of annual income \$100,000/yr and above annual income: 12% of annual income							
<b>Quebec<sup>k</sup></b>	Régie de l'assurance maladie du Québec (RAMQ)	Annual premium: \$0-\$662 based on net family income Monthly deductible: \$22.25 Monthly out of pocket maximum: \$95.31 Annual out of pocket maximum: \$1,144	65%	No	65%	No	No	No	No

<b>Saskatchewan<sup>l</sup></b>	Saskatchewan Cancer Agency	Free of charge for THCD on formulary	Yes	No	Yes	Yes	Yes	No
<b>Yukon<sup>m</sup></b>	Yukon's Pharmacare	Cost of take home cancer drugs for Yukon patients treated in BC are responsibility of the patient if they are not covered by the patient's extended health plan, the Non-Insured Health Benefits Program (NIHB), or the province/territory they are from.	100%	No	100%	No	100%	No

<sup>a</sup> Data compiled from Alberta Outpatient Drug Benefit Program<sup>23</sup>

<sup>b</sup> Data compiled from Data compiled from BC Cancer Benefit Drug List<sup>24</sup>

<sup>c</sup> Data compiled from Manitoba Home Cancer Drug Program<sup>25, 26</sup>

<sup>d</sup> Data compiled from New Brunswick Drug Plans Eligibility<sup>27, 28</sup>

<sup>e</sup> Data compiled from Newfoundland and Labrador Prescription Drug Program Plan Overview, Special Authorization Drugs<sup>29-31</sup>

<sup>f</sup> Data compiled from Northwest Territories Non-Insured Health Benefits, Metis Health Benefits Program, Extended Health Benefits Program<sup>18-20</sup>

<sup>g</sup> Data compiled from Nova Scotia Pharmacare<sup>17, 32, 33</sup>

<sup>h</sup> Data compiled from Nunavut Extended Health Benefits, Non-Insured Health Benefits, Nunavut Drug Formulary<sup>34-36</sup>

<sup>i</sup> Data compiled from Ontario Ministry of Health Drug Formulary, Trillium Drug Plan, Exceptional Access Program, New Drug Funding for Cancer Care Program<sup>37-40</sup>

<sup>j</sup> Data compiled from Health PEI Formulary Drugs, Health PEI Catastrophic Drug Program<sup>41, 42</sup>

<sup>k</sup> Data compiled from Sorin et. al., Pan Canadian Pharmacare Program<sup>3</sup> & Gouvernement du Quebec RAMQ<sup>43</sup>

<sup>l</sup> Data compiled from Saskatchewan Cancer Agency<sup>44</sup>

<sup>m</sup> Data compiled from McPhail & Snow<sup>6</sup> and Yukon Drug Formulary<sup>45, 46</sup> and BC Cancer Drug Funding<sup>48</sup>

## References

1. Lamb-Palmer D., Loschmann C., Henricks P., Shen J., Dowson JP., Mohideen S., *Uncovering the Hidden Costs of Take-Home Cancer Drugs*. Canadian Cancer Society; November 2021. Available at: [https://cdn.cancer.ca/-/media/files/about-us/media-releases/2022/thcd-report/uncovering-the-hidden-costs-of-take-home-cancer-drugs\\_08-11-21-2.pdf?rev=822dfd734dea497a94b0ca3dcf6db8dd&hash=3AA30A8EA7878E242DAEB0107C3D623C](https://cdn.cancer.ca/-/media/files/about-us/media-releases/2022/thcd-report/uncovering-the-hidden-costs-of-take-home-cancer-drugs_08-11-21-2.pdf?rev=822dfd734dea497a94b0ca3dcf6db8dd&hash=3AA30A8EA7878E242DAEB0107C3D623C) (accessed September 2022).
2. Lieberman C. Brain Cancer Widow Calls for Equitable Access to Chemotherapy Treatment in Canada. *Global News*. 2022. Health. Available at: <https://globalnews.ca/news/9225267/chemotherapy-treatment-equitable-access-needed/>
3. Sorin M., Franco E. L. & Quesnel-Vallée A. Inter- and Intraprovincial Inequities in Public Coverage of Cancer Drug Programs across Canada: A Plea for the Establishment of a Pan-Canadian Pharmacare Program. *Current Oncology*. 2019; 26:266–269. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6726272/> (accessed September 2022).
4. Group asks: why are at-home cancer patients on the hook for chemo drugs? *CTVNews*. 2015. Health. Available at: <https://www.ctvnews.ca/health/group-asks-why-are-at-home-cancer-patients-on-the-hook-for-chemo-drugs-1.2303891> (accessed November 2022).
5. MacPhail C., Snow S. Not all Canadian Cancer Patients are Equal – Disparities in Public Cancer Drug Funding across Canada. *Current Oncology*. 2022; 29:2064-2072. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8947051/>
6. Collyer K. Canadian patients struggle to finance cancer treatment. *Global News*. 2014. Canada. Available at: <https://globalnews.ca/news/1654757/canadian-patients-struggle-to-finance-cancer-treatment/> (accessed October 2022).
7. Brain cancer patient pays \$8K a month for drug treatment. *CBC News*. 2015. Calgary. Available at: <https://www.cbc.ca/news/canada/calgary/brain-cancer-patient-pays-8k-a-month-for-drug-treatment-1.3122479> (accessed November 2022).
8. Chai C. The cost of cancer: How much do cancer drugs cost Canadians? *Global News*. 2014. Canada. Available at: <https://globalnews.ca/news/1656699/the-cost-of-cancer-how-much-do-cancer-drugs-cost-canadians/> (accessed October 2022).
9. Government of Canada. *A Prescription for Canada: Achieving Pharmacare for All, Final Report of the Advisory Council on the Implementation of National Pharmacare*. Ottawa, Ontario: Health Canada; June 2019. Available at: <https://www.canada.ca/content/dam/hc-sc/images/corporate/about-health-canada/public-engagement/external-advisory-bodies/implementation-national-pharmacare/final-report/final-report.pdf> (accessed September 2022).
10. Fernandes C, Costa A, Osorio L, Costa Lago R, Linhares P, Carvalho B, Caeiro C. De Vleeschouwer S. Chapter 11 Current Standard of Care in Glioblastoma Therapy. In: De Vleeschouwer S., ed. *Glioblastoma*. Codon Publications; 2017.
11. Drug Monographs. Multiple Revision Dates. In: BC Cancer Drug Manual©. Badry, Nadine (editor). BC Cancer. Vancouver, British Columbia. Available at <http://www.bccancer.bc.ca/>. (Accessed 20 May 2023).
12. Bick, R. Ontario Budget Submission: Equal Access to Take-home Cancer Drugs. 2022. CanCertainty Coalition. Available at: [https://assets.nationbuilder.com/cancertainty/pages/34/attachments/original/1675197220/CanCertainty\\_Coalition\\_Ontario\\_Budget\\_Proposal\\_2023\\_%28FULL%29.pdf](https://assets.nationbuilder.com/cancertainty/pages/34/attachments/original/1675197220/CanCertainty_Coalition_Ontario_Budget_Proposal_2023_%28FULL%29.pdf)
13. Cancer Care Ontario. Position Statement to Address Use of Height and Weight in the Best Equation to Calculate Body Surface Area in Order to Minimize Calculation Errors. Available at: <https://www.cancercareontario.ca/sites/ccocancercare/files/assets/CCOBodyCalculation.pdf>
14. Newfoundland and Labrador. Health and Community Services. The Assurance Plan. Available at: <https://www.gov.nl.ca/hcs/prescription/nlpdp-plan-overview/>
15. Mahbasa V, Taylor S. Re-evaluation of the Cost Effectiveness of Temozolomide for Malignant Gliomas in British Columbia. *Journal of Oncology Pharmacy Practice*. 2006;12:2. Available at: [https://journals.sagepub.com/doi/10.1177/1078155206069161?url\\_ver=Z39.88-2003&rfr\\_id=ori:rid:crossref.org&rfr\\_dat=cr\\_pub%20%20pubmed](https://journals.sagepub.com/doi/10.1177/1078155206069161?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%20pubmed) (accessed September 2022.)
16. Ontario Ministry of Health. Ontario Public Drug Programs. Available at: [https://www.health.gov.on.ca/en/pro/programs/drugs/odbf/odbf\\_formulary.asp](https://www.health.gov.on.ca/en/pro/programs/drugs/odbf/odbf_formulary.asp)
17. Nova Scotia. Pharmacare. Criteria for Coverage of Exception Status Drugs. Available at: <https://novascotia.ca/dhw/pharmacare/documents/Criteria-for-Exception-Status-Coverage.pdf>
18. Northwest Territories Non-insured Health Benefits Program. IHB Program Non-Insured Health Benefits Drug Benefit List. Available online: <https://nihb.express-scripts.ca/NIHBProvider/benefits/pharmacy?page=drugbenefit-grid&benefit=pharmacy> (accessed March 2023).



19. Northwest Territories Metis Health Benefits Program. Available at: <https://www.hss.gov.nt.ca/en/services/supplementary-health-benefits/metis-health-benefits#:~:text=Through%20this%20program%2C%20NWT%20residents,the%20M%C3%A9tis%20Health%20Benefits%20program> (accessed March 2023).
20. Northwest Territories Extended Health Benefits Program. Available at: <https://www.hss.gov.nt.ca/en/services/supplementary-health-benefits/extended-health-benefits-specified-disease-conditions> (accessed March 2023).
21. Indigenous Services Canada. First Nations and Inuit Branch. 2020. Non-Insured Health Benefits Drug Benefit List. Available at: <https://www.sac-isc.gc.ca/eng/1572888328565/1572888420703#s4e>
22. Prince Edward island. Health PEI. High Cost Drug Program. Available at: <https://www.princeedwardisland.ca/en/information/health-pei/high-cost-drug-program>
23. Alberta Health Services. Outpatient Cancer Drug Benefit Program. Available at: <https://www.albertahealthservices.ca/services/page2328.aspx>
24. British Columbia Cancer Provincial Health Services Authority. BC Cancer Benefit Drug List. Available at: <http://www.bccancer.bc.ca/systemic-therapy-site/Documents/Policy%20and%20Forms/Benefit%20Drug%20List.pdf>
25. Province of Manitoba. Manitoba Health. Pharmacare Program. Available at: [https://web22.gov.mb.ca/eFormulary/glossary.aspx#part\\_one\\_benefit](https://web22.gov.mb.ca/eFormulary/glossary.aspx#part_one_benefit)
26. CancerCare Manitoba. Manitoba Home Cancer Drug Program. Available at: <https://www.cancercare.mb.ca/Treatments/pharmacy/home-cancer-drug-program>
27. New Brunswick Health. New Brunswick Drug Plans Formulary. Available at: <https://www2.gnb.ca/content/gnb/en/departments/health/MedicarePrescriptionDrugPlan/NBDDrugPlan/ForHealthCareProfessionals/NewBrunswickDrugPlansFormulary.html>
28. New Brunswick Government. New Brunswick Drug Plans Eligibility and Frequently Asked Questions. Available online: <https://www2.gnb.ca/content/gnb/en/departments/health/MedicarePrescriptionDrugPlan/NBDDrugPlan/questions.html>
29. Newfoundland and Labrador Health and Community Services. Newfoundland and Labrador Prescription Drug Plan Product Database. Available at: <https://www.health.gov.nl.ca/health/prescription/newformulary.asp>
30. Newfoundland and Labrador Health and Community Services. Newfoundland and Labrador Prescription Drug Program Plan Overview. Available online: <https://www.gov.nl.ca/hcs/prescription/nlpdf-plan-overview/>
31. Newfoundland and Labrador Health and Community Services. Special Authorization Drugs. Available at: <https://www.gov.nl.ca/hcs/prescription/covered-specialauthdrugs/>
32. Nova Scotia Pharmacare. Formulary. Available at: <https://novascotia.ca/dhw/pharmacare/formulary.asp>
33. Nova Scotia Pharmacare. Benefits and Reimbursement. Available at: <https://novascotia.ca/dhw/pharmacare/benefits-and-reimbursement.asp>
34. Government of Nunavut. Drug Formulary. Available at: [https://www.gov.nu.ca/sites/default/files/gn\\_drug\\_formulary\\_binder\\_1\\_final\\_dec\\_2021.pdf](https://www.gov.nu.ca/sites/default/files/gn_drug_formulary_binder_1_final_dec_2021.pdf) (accessed March 2023).
35. Government of Nunavut. Extended Health Benefits. Available at: <https://gov.nu.ca/health/information/extended-health-benefits-ehb-eligible-specified-conditions>
36. Nunavut Department of Health. Non-Insured Health Benefits. Available at: <https://www.gov.nu.ca/health/information/non-insured-health-benefits> (accessed March 2023).
37. Ontario Ministry of Health. Ontario Drug Benefit Program. Available at: [https://www.health.gov.on.ca/en/pro/programs/drugs/odbf\\_eformulary.aspx](https://www.health.gov.on.ca/en/pro/programs/drugs/odbf_eformulary.aspx)
38. Ontario Ministry of Health. Ontario Trillium Drug Program. Available at: [https://www.health.gov.on.ca/en/pro/programs/drugs/funded\\_drug/fund\\_trillium.aspx](https://www.health.gov.on.ca/en/pro/programs/drugs/funded_drug/fund_trillium.aspx)
39. Ontario Ministry of Health. Ontario Exceptional Access Program. Available at: [https://www.health.gov.on.ca/en/pro/programs/drugs/eap\\_mn.aspx](https://www.health.gov.on.ca/en/pro/programs/drugs/eap_mn.aspx)
40. Ontario Ministry of Health. New Drug Funding for Cancer Care Program. Available at: [https://www.health.gov.on.ca/en/pro/programs/drugs/funded\\_drug/fund\\_new\\_drug.aspx](https://www.health.gov.on.ca/en/pro/programs/drugs/funded_drug/fund_new_drug.aspx)
41. Prince Edward Island. Health PEI Formulary Drugs: Oncology. Available at: <https://www.princeedwardisland.ca/sites/default/files/publications/oncologyformulary.pdf>
42. Prince Edward Island. Health PEI Catastrophic Drug Program. Available at: <https://www.princeedwardisland.ca/en/information/health-pei/catastrophic-drug-program>
43. Gouvernement du Quebec. Régie de l'assurance maladie du Québec (RAMQ). Available at: <https://www.ramq.gouv.qc.ca/en/citizens/prescription-drug-insurance/find-out-whether-a-drug-covered>
44. Saskatchewan Cancer Agency. Saskatchewan Cancer Agency Drug Formulary. Available at: [http://www.saskcancer.ca/images/pdfs/health\\_professionals/drug\\_formulary/drug\\_formulary/SCA\\_Drug\\_Formulary\\_-\\_2023-02-01.pdf](http://www.saskcancer.ca/images/pdfs/health_professionals/drug_formulary/drug_formulary/SCA_Drug_Formulary_-_2023-02-01.pdf)
45. Yukon Drug Formulary. Available at: <https://ihs.gov.yk.ca/drugs/f?p=161:9000>
46. Yukon. Yukon's Drug Plans. Available at: <https://yukon.ca/en/health-and-wellness/medical-professionals/find-drug-coverage-information>

47. *Auditor General Report Finds Cancer Patients in Ontario Face Delays and Safety Issues Related to Take-Home Cancer Treatments*. CanCertainty Coalition and Canadian Cancer Society; December 2017. Available at: [https://www.cancertaintyforall.ca/auditor\\_general\\_report\\_finds\\_cancer\\_patients\\_in\\_ontario\\_face\\_delays\\_and\\_safety\\_issues\\_related\\_to\\_take\\_home\\_cancer\\_treatments](https://www.cancertaintyforall.ca/auditor_general_report_finds_cancer_patients_in_ontario_face_delays_and_safety_issues_related_to_take_home_cancer_treatments) (accessed December 2022).
48. BC Cancer Drug Funding. 2023. Available at: <http://www.bccancer.bc.ca/health-professionals/clinical-resources/pharmacy/drug-funding>