Prescribed Drug Spending in Canada, 2023

A Focus on Public Drug Programs

Methodology Notes

Canadian Institute for Health Information
Institut canadien d'information sur la santé

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Data sources

National Prescription Drug Utilization Information System

The drug claims and formulary data used in this analysis comes from the National Prescription Drug Utilization Information System (NPDUIS) at the Canadian Institute for Health Information (CIHI), as submitted by provincial/territorial public drug programs in Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia and Yukon, as well as 1 federal public drug program administered by the First Nations and Inuit Health Branch (FNIHB) at Indigenous Services Canada. NPDUIS houses pan-Canadian information related to public program formularies, drug claims, policies and population statistics. It was designed to provide information that supports accurate, timely and comparative analytical and reporting requirements for the establishment of sound pharmaceutical policies and the effective management of Canada's public drug benefit programs.

NPDUIS includes claims accepted by public drug programs, either for reimbursement or to be applied toward a deductible.[i] Claims are included regardless of whether the individual actually used the drugs. Public drug program spending does not include spending on drugs dispensed in hospitals or on drugs funded through cancer agencies and other special programs.

NPDUIS also collects claims data on all drugs dispensed in community pharmacies — regardless of payer — in Manitoba, Saskatchewan and British Columbia.

NPDUIS does not include information regarding

- Prescriptions that were written but never dispensed; and
- Diagnoses or conditions for which prescriptions were written.

i. In Manitoba and Saskatchewan, this includes accepted claims for people who are eligible for coverage under a provincial drug program but have not submitted an application and, therefore, do not have a defined deductible.

Claims data sources

Table Claims data sources from public drug programs in 12 jurisdictions

Jurisdiction	Plan/program description
Newfoundland and Labrador	65Plus Plan
	Access Plan
	Assurance Plan
	Foundation Plan
	Pandemic Plan
	Select Needs/Cystic Fibrosis Plan
	Select Needs/Growth Hormone Plan
Prince Edward Island	Catastrophic Drug Program
	Children in Care Drug Program
	Diabetes Drug Program
	Family Health Benefit Drug Program
	Financial Assistance Drug Program
	Generic Drug Program
	High Cost Drug Program
	Immunization Program
	Nursing Home Drug Program
	Opioid Replacement Therapy Program
	Seniors' Drug Program
	Sexually Transmitted Disease (STD) Drug Program
	Smoking Cessation Program
Nova Scotia	Diabetes Assistance Program
	Drug Assistance for Cancer Patients
	Family Pharmacare Program
	Palliative Care Drug Program
	Seniors' Pharmacare Program
	Under 65 — Long-Term Care (LTC) Pharmacare Plan

Jurisdiction	Plan/program description
New Brunswick	New Brunswick Drug Plan
	New Brunswick Prescription Drug Program • Seniors • Nursing Home Residents • Social Development Clients • Individuals in Licensed Residential Facilities • Children in Care of the Minister of Social Development and Special Needs Children • Multiple Sclerosis • HIV/AIDS • Cystic Fibrosis • Organ Transplant Recipients • Growth Hormone Deficiency
	Medical Abortion Program
	Extra-Mural Program
	Tuberculosis Drug Plan
	Pharmacist Administered Publicly Funded Seasonal Influenza Vaccine
Quebec	Public Prescription Drug Insurance Plan
Ontario	Ministry of Children, Community and Social Services (MCCSS)
	Ontario Drug Benefit Program (ODB)
Manitoba	Employment and Income Assistance Program
	Palliative Care Drug Access Program
	Personal Care Home Drug Program
	Pharmacare
Saskatchewan	Universal Program
Alberta	Non-Group
	Palliative
	Seniors
British Columbia	Assurance Program
	Children in the At Home Program
	Cystic Fibrosis
	Fair PharmaCare
	Nicotine Replacement Therapies
	Palliative Care
	Psychiatric Medication Program
	Recipients of B.C. Income Assistance
	Residential Care
Yukon	Children's Drug and Optical Plan
	Chronic Disease Program
	Pharmacare
Indigenous Services Canada	Non-Insured Health Benefits

Jurisdiction notes

All jurisdictions

Claims for drugs administered outside of the public drug plan/program (e.g., through hospital-based programs or cancer agencies) and covered by jurisdictions are not submitted to NPDUIS.

Prince Edward Island

Claims dispensed through the Children in Care Drug, Financial Assistance Drug, Catastrophic Drug, Seniors' Drug, Diabetes Drug, Family Health Benefit Drug, Generic Drug, High Cost Drug, Nursing Home Drug, Opioid Replacement Therapy, Immunization, Smoking Cessation and Sexually Transmitted Disease (STD) are included in NPDUIS. Claims for all other plans are not submitted.

Ontario

As of January 1, 2020, the Ministry of Health implemented a fee-per-bed capitation model for long-term care (LTC) pharmacy professional services, which replaced its fee-for-service model. This change should be noted when examining trends in public drug spending for LTC facilities.

Alberta

Claims dispensed through the Income Support, Alberta Adult Health Benefit, Assured Income for the Severely Handicapped and Alberta Child Health Benefit programs are not submitted. Claims dispensed to residents of long-term care facilities are not submitted to NPDUIS.

British Columbia

A portion of the spending on drugs used in opioid dependence — the witness ingestion fees for the Methadone Maintenance Payment Program in British Columbia — is not submitted to NPDUIS. The public drug program spending for this drug class is underestimated.

Indigenous Services Canada

As of October 2017, claims processed on behalf of the First Nations Health Authority in British Columbia are not submitted to NPDUIS.

Limitations

As claims data indicates only that a drug was dispensed, and not that it was used, it may not always reflect utilization. A patient may take all, some or none of a dispensed prescription.

NPDUIS does not contain information regarding diagnoses or the conditions for which prescriptions were written. Therefore, the conditions that contribute to drug program spending cannot be identified with certainty. However, identifying the most common indications for the drug classes that account for the majority of spending gives an idea of which conditions are the main contributors.

Terms and definitions

Please note that some of the terms below may have alternate definitions. The stated definitions are meant only to reflect how these terms were used in the context of this analysis.

accepted claim: A claim where the drug program accepts at least a portion of the cost, either toward a deductible or for reimbursement.

active beneficiary: An individual with at least one claim accepted by a public drug program, either for reimbursement or applied toward a deductible. In Manitoba and Saskatchewan, active beneficiaries are also individuals with accepted claims who are eligible for coverage under a provincial drug program but who have not submitted an application and, therefore, do not have a defined deductible.

Anatomical Therapeutic Chemical (ATC) level: A classification system that divides drugs into different groups according to the organ or system on which they act and their chemical, pharmacological and therapeutic properties. This analysis uses the 2023 version of the ATC classification system.

biologic: A drug made from living organisms or their cells. Biologic drug molecules are generally larger and more complex than chemically produced pharmaceutical drugs.

biosimilar: A biologic drug that is a highly similar version to the reference biologic drug.

broad therapeutic category: Subgroups of chemicals classified by the World Health Organization at the first level of the ATC classification system. At this level, groups are, in theory, regarded as groups of different chemicals that act on the same organ or system.

chemical: Chemical substances classified by the World Health Organization at the fifth level of the ATC classification system. Each unique code represents a distinct chemical or biological entity within the respective drug class.

chemical paid: A chemical that has had, at least, part of at least one claim paid by a plan/program as a benefit.

claim: 1 or more transactions, with the final result indicating that a prescription had been filled and dispensed in exchange for payment.

copayment: The portion of the claim cost that individuals must pay each time they make a claim. This may be a fixed amount or a percentage of the total claim cost. When calculated as a percentage of the total cost, it is also known as “co-insurance.”

cost sharing: The amount of the total prescription cost accepted by the plan/program that is not paid by the plan/program (i.e., the amount of the total prescription cost accepted that is paid out of pocket by the beneficiary or through another plan/program/insurer).

cost-sharing mechanisms: The ways through which prescription costs can be shared between drug programs and their beneficiaries (e.g., copayments, deductibles, premiums).

deductible: The amount of total drug spending an individual must pay in a given year (or other defined time period) before any part of his or her drug costs will be paid by the drug program. A deductible may be a fixed amount or a percentage of income (income-based deductible).

drug: See *chemical*.

drug class: Subgroups of chemicals classified by the World Health Organization at the fourth level of the ATC classification system. At this level, subgroups are, in theory, regarded as groups of different chemicals that work in the same way to treat similar medical conditions (e.g., the chemical subgroup statins includes chemicals such as atorvastatin, rosuvastatin and simvastatin).

drug program: A program that provides coverage for drugs for a set population; it has defined rules for eligibility, payment and the drugs it covers.

drug program formulary: A formal listing of the benefits eligible for reimbursement under a specific drug benefit plan/program and the conditions under which coverage is provided. For the purpose of NPDUIS, a “benefit” means a drug, product, medical supply, equipment item or service covered under a drug benefit plan or program.

drug program spending: The amount paid by the drug program toward an individual’s prescription costs, including the drug cost, professional fees paid to the pharmacy and markup charged by the pharmacy. This amount may not reflect the impact of any rebates from drug manufacturers. Any portion of the prescription cost paid by the individual or a third-party private insurer is not captured in this amount.

geographic location (neighbourhood): Summary of Statistical Area Classification (SAC) type as defined in the Postal Code Conversion File Plus (PCCF+) reference manual. Defined as urban (SACtypes 1, 2 and 3) and rural/remote (SACtypes 4, 5, 6, 7 and 8). The patient's postal code is used for this measure.

indication: Refers to the use of a drug for treating a particular disease. For example, gastroesophageal reflux disease is an indication for proton pump inhibitors.

jurisdiction: The federal/provincial/territorial jurisdiction responsible for the drug program formulary and for financing the paid amount of accepted claims.

neighbourhood income quintile: As defined in the PCCF+ reference manual, neighbourhood income per person equivalent is a household size–adjusted measure of household income. The patient's postal code is used for this measure.

paid beneficiary: An individual who has had, at least, part of at least one claim paid by a plan/program as a benefit.

paid claim: A claim for which the drug program paid at least a portion of the cost.

palliative: Individuals who have been diagnosed by a physician or nurse practitioner as being in the end stage of a terminal illness or disease, who are aware of their diagnosis and have made a voluntary informed decision related to resuscitation, and for whom the focus of care is palliation and not treatment aimed at a cure.

premium: The amount an individual must pay to enrol in the drug program.

program spending per paid beneficiary: The average amount paid by the plan/program per individual, for whom the public plan/program paid at least part of 1 claim.

public drug coverage: Drug coverage offered to individuals by the federal/provincial/territorial jurisdictions.

reference biologic: The biologic drug to which a proposed biosimilar is compared. Generally it is the first version of the drug approved for sale in Canada.

total drug program spending: See *drug program spending*.

General methods

Brand, generic, reference biologic and biosimilar products

Identification of brand, generic, reference biologic and biosimilar products is based on the methodology developed by CIHI using data sources such as the Health Canada Drug Product Database (HC-DPD), the Health Canada Notice of Compliance (HC-NOC) and the Health Canada Patent Register. Products may be categorized in one of the following categories:

1. **Brand-name products:** Products submitted as new drug submission/active ingredient(s) to Health Canada as reported by the HC-NOC database, associated with a patent number as reported by the Health Canada Patent Register database or manufactured by an innovative pharmaceutical research company.
2. **Generic products:** Products with a description that contains the main active ingredient as reported by Health Canada and/or a prefix of a generic company name (e.g., NOVO, APO, PMS, RATIO, SANDOZ); products not otherwise defined as brand-name, reference biologic or biosimilar products.
3. **Reference biologic products:** Products assigned with Schedule D (Biological products) as reported by the HC-DPD and submitted as new drug submission/active ingredient(s) to Health Canada as reported by the HC-NOC database.
4. **Biosimilar products:** Products assigned with Schedule D (Biological products) and identified as biosimilar to a reference biologic product in the product monograph as reported by the HC-DPD.

Over-the-counter products (those with an assigned schedule of “OTC” as reported in the HC-DPD) were excluded from analyses involving brand-name and generic drugs.

Drug classification systems

Drugs can be analyzed using many different classification systems. For the purposes of the *Prescribed Drug Spending in Canada, 2023* analysis, the following systems were used:

- The drug identification number (DIN), as assigned by Health Canada: A DIN is specific to manufacturer, trade name, active ingredient(s), strength(s) of active ingredient(s) and pharmaceutical form. In this analysis, references to drug products are implied to be specific to the DIN level.

- The pseudo–drug identification number (PDIN), as assigned by a drug program, in cases where a benefit has not been assigned a DIN by Health Canada: This may occur when a benefit is not a drug product (e.g., a glucose test strip); when it is a compound consisting of multiple drug products, each with its own DIN; or when it is a pharmacy service (e.g., medication review).
- The 2023 version of the World Health Organization ATC classification system, as reported in the HC-DPD:[ii]
  - In the ATC classification system, drugs are divided into different groups according to the organ or system on which they act and their chemical, pharmacological and therapeutic properties.
  - The ATC does not distinguish between strength, dosage, route or form of drug, except as implied by the ATC (e.g., inhaled corticosteroid).
  - Drugs are classified in groups at 5 different levels:
    - The drugs are divided into 14 main groups (first level), with 1 pharmacological/therapeutic subgroup (second level).
    - The third and fourth levels are chemical/pharmacological/therapeutic subgroups.
    - The second, third and fourth levels are often used to identify pharmacological subgroups when they are considered more appropriate than therapeutic or chemical subgroups.
    - The fifth level is the chemical substance.
- Drug products assigned a DIN but not assigned to an ATC classification by Health Canada are automatically classified under the ATC classification “unassigned.”
- Benefits assigned a PDIN are automatically classified under the ATC classification “not applicable.”
- Where appropriate, CIHI may assign DINs or PDINs to other ATC classifications. Some of the non-drug CIHI classifications are Diabetic (Z99A), Wound Care (Z99D), Ostomy (Z99G), Other Medical Supplies (Z99M), Respiratory (Z99R) and Pharmaceutical Services (Z99P).

Drug program spending on and use of DINs and PDINs not assigned to ATC classifications are included in total amounts, but the default drug classes “unassigned” and “not applicable” are not counted as drug classes. This applies to any count of drug classes, to any top 10 lists (i.e., they are not included in any top 10 lists, even if their utilization or spending level puts them in the top 10) and to chemical-level analyses (e.g., high-cost drugs, chemicals).

ii. Although Health Canada typically assigns drug products to a fifth-level ATC, in some cases it may assign an ATC at the fourth or even third level.

Calculation methods

Claims from 2018 to 2022 from 11 jurisdictions submitting claims data to NPDUIS (Newfoundland and Labrador, P.E.I., Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, B.C. and Yukon) — excluding Newfoundland and Labrador Provincial/Pandemic Plan, Prince Edward Island Immunization Program, New Brunswick Pharmacist Administered Publicly Funded Seasonal Influenza Vaccine and Ontario non–ODB MedsCheck Program — were used for this analysis.

Data from Indigenous Services Canada was excluded from this analysis because data was not available after 2019.

Contribution to growth

Contribution to growth is expressed in percentages and is calculated as the change in spending for the specific drug class divided by the change in overall spending between 2 consecutive years.

Growth rate

Growth is expressed in percentages and is calculated as the change in spending between 2 consecutive years divided by the spending from the previous year.

Rate of use

Calculated by dividing the number of active beneficiaries who had at least one claim for the group (e.g., broad therapeutic category, drug class) by the total number of active beneficiaries.

Total drug program spending

Calculated by summing the amount that the drug program paid for each accepted claim.

Total drug program spending per paid beneficiary

Calculated by dividing the total amount paid by the public drug program by the total number of paid beneficiaries.

Total drug program spending per paid beneficiary per chemical

Calculated by dividing the total amount paid by the public drug program per chemical by the number of paid beneficiaries per chemical.

Factors that may influence drug use and expenditure in Canada

- Prices
  - Changes in the unit prices of drugs (both patented and non-patented)
  - Changes in retail and wholesale markups and professional fees
  - Availability of generics
  - International prices
  - Inflation
- Entry of new drug chemicals
- Volume of drug use
  - Population-related
    - Changes in population size
    - Changes in population structure/distribution
    - Age, sex and ethnicity
    - Changes in health status of a population
    - Emergence of new diseases
    - Epidemics
    - Prevalence and severity of disease
  - System-related
    - Changes and transition associated with health system reform
    - Availability and access to third-party insurance coverage
    - Changes in policies and programs
    - Extent of formulary listings
    - Eligibility and copayments
  - Research- and technology-related
    - New treatment approaches
    - Drugs replacing surgery
    - Drug therapy for previously untreatable or undertreated diseases
    - Availability of more and/or improved diagnostic technology
    - Outcomes of research, evidence-based preventive or curative approaches in diagnosis or treatment
    - Use of programs and technology in monitoring patients

- Pharmaceutical industry–related
  - Development of new drug products (e.g., new strengths, new drug forms, presentations)
  - Promotion of drugs to physicians
  - Drug sampling
  - Direct-to-consumer advertising
- Practice- and people-related (health care providers and consumers)
  - Changes in prescribing and dispensing practices
  - Number and mix of prescribers (specialists, general practitioners, nurse practitioners and others)
  - Multiple doctoring
  - Consumers' expectations and behaviours
  - Adherence to treatment

Federal, provincial and territorial drug programs

More information on public drug programs is available from the following websites:

Newfoundland and Labrador Prescription Drug Program

Prince Edward Island Pharmacare

Nova Scotia Pharmacare

New Brunswick Prescription Drug Program

Quebec Public Prescription Drug Insurance Plan

Ontario Drug Benefits

Manitoba Pharmacare Program

Saskatchewan Drug Plan

Alberta Prescription Drug Program

British Columbia PharmaCare

Yukon Pharmacare

Northwest Territories Health Care Plan

Nunavut Health Care Plan

Indigenous Services Canada Non-Insured Health Benefits Program

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