Pharmaceutical Distribution:

The Value and Challenges of Supplying Medications to Canada's Healthcare System

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Pharmaceutical distributors are the critical link in the pharmaceutical supply chain between manufacturers and pharmacies, hospitals, and clinics. They ensure that Canadians have continuous and timely access to the medications they need for optimal health.

In Canada, **1 in 2 adults** and **1 in 4 children** have taken at least one prescription[1]

In 2023, Canadian pharmacies and hospitals purchased **1.2 billion** units† of drugs[2]

In 2023, distributors supplied **91%** of all drug purchases[2], delivering **240,000 orders** per week on average

Value Of Pharmaceutical Distribution To Canadian Healthcare

From 2014 to 2024, the **number of distribution centres declined from ~50 to ~30^**

On average, distributors served* **~3,100 pharmacies, ~240 hospitals, ~180 other centres**

Distributors covered* an average annual distance **>20 million kilometres**

>99% accuracy in order fulfillment*, ensuring that the right products are delivered, reducing drug wastage

On average, distributors managed **over 4 million packs# of products,** valued at **more than $700M***

Served an average of 490 customers in rural areas*, supporting health equity across the country

80% of orders delivered within 24 hours* despite extreme weather conditions; 70% of surveyed pharmacies identified **next-day delivery as distributors' most crucial service**

Sharing of data across the healthcare system, supporting public health initiatives and improving overall market insights

From 2014 to 2024, **the number of distributors declined from 19 to 17^**

Inventory Management

Achieved <0.3% in product loss in 2023 while maintaining 34% of inventory as buffer stock

Closed-loop Supply Chain

Manage product returns, destruction and recalls, and alert pharmacies when drugs are on or off back-order

Infrastructure Investments

Invested over half a billion dollars into developing new infrastructure and improving automation in the past 5 years

Supporting Economies

Employs over 10,000 diversely skilled people across Canada^

Data were obtained from a mix of primary data from a diverse panel of 11 distributors, desk research, internal IQVIA data assets, and a survey of 50 random pharmacies nationwide.
[1] Statistics Canada; [2] IQVIA Canada. PharmaFocus 2028; † Units may represent examples such as individual bottles, syringes, or blister strips within a box; * In 2023; ^ Data from CAPDM, based on CAPDM members surveyed, total number in the industry may be higher; # One pack is equivalent to one stock keeping unit (SKU) and may represent examples such as individual bottles or boxes.

Pharmaceutical Distribution:

The Value and Challenges of Supplying Medications to Canada's Healthcare System

Funding for the distribution of medicines is based primarily on a percentage of the drug's listed price. This distribution funding includes all costs associated with getting the drug from the manufacturer to a pharmacy, hospital, or clinic anywhere in Canada.[3]

Cost-to-Serve Evolution

Operating costs have risen by 23% between 2021 and 2022[4]

Fuel costs surged by 30% over the past 5 years[1]

Annual climate disruptions have doubled in the past 3 decades[5]

Cold chain management is required by the market's newest and fastest-growing drug classes[2], and at **significantly greater cost**

UNSUSTAINABLE PRESSURE

Funding Model Evolution

PMPRB changed its comparator countries, **lowering the ceiling price of patented drugs**[2]

pCPA continues to implement new pricing initiatives that **reduce the price of generic drugs**[2]

12 P/Ts have policies to initiate/transition patients on originator biologics **to more affordable biosimilars, which require the same cold chain management**[6]

Funding model for pharmaceutical distribution has **not changed for at least 15 years**[3]

PMPRB: Patented Medicines Prices Review Board;
pCPA: pan-Canadian Pricing Alliance; P/T: provinces and territories

Despite facing challenges related to rising costs and funding constraints, **distributors remain committed to supporting the healthcare system** by maintaining a stable supply chain.

Regardless of the lower list prices for generic and biosimilar products, the **processes and costs required for their distribution remain the same.**

CAPDM and its members strongly support the affordability of drugs, but not at the cost of reduced physical access for Canadian patients.

Innovations to distributor funding should be considered to ensure a stable supply of medicines both now and into the future.

Data were obtained from a mix of primary data from a diverse panel of 11 distributors, desk research, internal IQVIA data assets, and a survey of 50 random pharmacies nationwide.
[1] Statistics Canada; [2] IQVIA Canada. PharmaFocus 2028; [3] CAPDM 2023 Scoping Paper; [4] Canadian Chamber of Commerce, 2020. Production-Cost Increases Outpacing Consumer Inflation, Survey Says;
[5] Canadian Institute for Climate Choices, 2020. Tip of the Iceberg: Navigating the Known and Unknown Costs of Climate Change; [6] AJMC The Center for Biosimilars.

Executive summary

Access to medications has a considerable impact on a patient's quality of life, and timely treatment helps reduce both the burden and costs on our healthcare system. In 2021, roughly 1 in 2 Canadian adults and 1 in 4 children required a prescription medication within a single month.[1] These medications are predominantly obtained from retail pharmacies and hospitals, which collectively purchased $43 billion worth of drugs in 2023.[2] This equates to 1.2 billion units* of medications. **Pharmaceutical distributors supply over 90% of these medications across Canada and are the critical link in the pharmaceutical supply chain between manufacturers and pharmacies, hospitals, and clinics.**

Distributors include primary wholesalers, self-distributing pharmacy chains, and specialty distributors. Currently, 17 distributors operate approximately 30 distribution centres^ across the country, delivering medications to the nearly 13,000 pharmacies and hospitals that supply Canadians with their medicines.[2,3] Canada's vast geography – **spanning 9.9 million square kilometres as the world's second-largest country** – presents unique logistical challenges for distributors. Moreover, **seasonal temperatures can fluctuate by as much as 50°C between winter and summer.**[4] As such, careful planning and specialized packaging is required to protect temperature-sensitive products throughout the distribution process. These factors highlight the intricacy of pharmaceutical distribution and the need for robust systems to ensure product quality across diverse conditions.

Distributors have demonstrated **expertise in inventory management, in mitigating drug shortages, and in handling controlled substances**, which together contribute to a seamless supply chain. This is partly due to the entire distribution process functioning under a stringent regulatory framework and licensing requirements, with distributors continually facing a growing regulatory burden. Despite these challenges, distributors maintain high standards of speed, accuracy, and efficiency to ensure that Canadians receive their necessary medications while preserving the integrity of these drugs throughout the supply chain.

* Units may represent examples such as individual bottles, syringes, or blister strips within a box

^ Based on CAPDM membership; total number of distributors in the industry may be higher

Distributors are responsive to both internal market demands and external influences. They continuously **adapt to the increasing number and complexity of pharmaceutical products and support equitable healthcare for all Canadians by maintaining a reliable supply to rural communities.** Distributors have also **found innovative solutions during weather-related emergencies and played a crucial role in Canada's COVID-19 pandemic response.** The adaptability of distributors will be increasingly tested with specialized handling such as cold chain management becoming more common with new products, and as weather-related disasters increase in frequency.

Funding for pharmaceutical distribution in Canada is linked directly to listed drug prices, a model that has remained unchanged for 15 years. Distribution funding varies based on whether the medication is a brand name or a generic. Since generics are priced at a fraction of brand name products, distributors receive lower funding for them even though the services required for both are identical. Generic drugs currently represent approximately 80% of the medications moving through the supply chain.[2] As the use of generics continues to grow, the pharmaceutical supply chain is becoming increasingly strained as these high-volume products are also the least funded. The fiscal insufficiency of this stagnant model is compounded by two main pressures: (1) decreasing drug prices, which directly impact distributor funding, and (2) rising regulatory requirements and operational costs, such as inflation, fuel prices, labour shortages and wages, which are uncontrolled.

These challenges have prompted a collaborative effort among distributors and their partners to reassess Canada's current pharmaceutical distribution model. This report highlights the crucial role distributors play in the healthcare system, the challenges of the current funding mechanism, and the need to explore reforms to ensure the sustainability of the distribution sector. Innovative approaches to distribution funding should be considered to strengthen the overall resilience of this critical supply chain that arms Canada's healthcare systems with the life-saving medications and products patients require, when and where they need them.

Introduction

Pharmaceuticals are essential to human health. In Canada, 1 in 2 adults and 1 in 4 children required a prescription medication within a single month in 2021.[1,5] Pharmaceutical distributors supply these medications to both clinical and community settings within Canada's healthcare system, playing a vital role in ensuring that Canadians receive the medications they need for optimal health. This section provides a concise overview of the pharmaceutical distribution sector and the objectives of this report.

[1] *Statistics Canada*
[2] *Data derived from IQVIA Canada's PharmaFocus offering. © IQVIA Canada or its affiliates. All rights reserved.*

Collaborative effort to examine the pharmaceutical distribution sector

The Canadian Association for Pharmacy Distribution Management (CAPDM) represents the industry that supplies the nation's healthcare system with medications to support the health and well-being of patients. Concerns about the viability of the pharmaceutical supply chain under various market pressures prompted CAPDM to collaborate with its members and partners, including IQVIA Solutions Canada Inc., a leader in health data and analytics, to illustrate the value of the sector to Canada's healthcare system and the challenges of sustaining these services within the current framework. Unless otherwise stated, this report focuses on Canadian pharmaceutical distribution.

This report presents key findings, supported by various data sources, that demonstrate the essential role that distributors play in ensuring that Canadians have ongoing access to their medications. An extensive review of publicly available information was conducted. Industry trends were illustrated using IQVIA's internal data assets, while a random sample of 50 pharmacies nationwide was surveyed to gather their perspectives on the pharmaceutical supply chain. A diverse panel of 11 distributors, representing small, medium, and large enterprises, contributed data and insights on key aspects of distribution. Information shared by those participating distributors provided a better understanding of their distribution services. However, specific data may not have been available for all participating distributors. In those instances, averages or sums were calculated from the available data.

Overview of pharmaceutical distribution

Pharmaceutical distribution is similar to other well-known business-to-business consumer goods industries, such as automotive parts or food and beverage, where products are sold to distributors for delivery to retail outlets, gaining efficiencies from consolidation and honed expertise.

THE PHARMACEUTICAL SUPPLY CHAIN

Distributors are a critical link in the pharmaceutical supply chain, streamlining orders and deliveries between hundreds of drug manufacturers and thousands of pharmacies, hospitals, and clinics (**Figure 1**). In doing so, they ensure the safe, secure, and timely access to medications for millions of Canadians and the healthcare professionals who treat them. Together, distributors enable equitable physical access to medications for Canadians.

Figure 1. Pharmaceutical supply chain

Handling, licensing, regulatory, and reporting requirements vary widely for pharmaceutical products, which can be classified as either branded or generic. Both are chemically equivalent, but generics are priced at a fraction of the cost of brand name drugs (**Figure 2**).

Figure 2. Types of drugs

Both brands and generics encompass traditional and specialty drugs. Traditional drugs include the more common pills and tablets that are used to treat a wide variety of conditions. Specialty drugs, especially biologics, are typically much more expensive than traditional medications. This is because they are made from components of living cells that require strict storage and handling protocols, such as cold chain temperature control. Some well-known biologic drugs include insulin and vaccines, which are often administered through injections (**Figure 2**).

Distributors supply over 90% of all prescription medications consumed in Canada.[2] The complexity and enormity of the services provided by distributors largely go unnoticed, given their seamless supply to the healthcare system.

SUPPLYING CANADIANS FROM COAST TO COAST TO COAST

Anyone needing medications, whether prescription or over-the-counter, ultimately benefits from the pharmaceutical supply chain. Most people receive their medications from the **nearly 13,000 retail pharmacies and hospitals across Canada. Retail pharmacies dispensed 822 million prescriptions** in 2023, representing 83% of total drug purchases nationwide.[2] Serving these patients is uniquely challenging due to Canada's vast geography and climate. **Canada is the world's second-largest country at 9.9 million square kilometres and ranks among the world's least densely populated nations.**[6] Of its population of 41 million people, 66% live within 100 kilometres of the United States border[7] and **approximately 20% are dispersed over rural geography**, served in part by 1.1 million two-lane-equivalent kilometres of public roads – of which just 40% are paved – or by plane.[8]

Canada's seasonal temperatures can swing by as much as 50°C between winter and summer.[9] As such, careful planning and specialized packaging is required to protect sensitive products from extreme temperatures during transport. Temperature control is required by both Health Canada and product manufacturer specifications, and it is fundamental to ensuring both patient safety and product integrity.

In 2024, distributors operated approximately 30 distribution centres[^] (DCs) across the country, most of which are situated in urban areas (**Figure 3**). This highlights the extensive distances distributors must cover to deliver medications across the country. These long distances can pose substantial logistical challenges, especially when delivering to rural areas and travelling during extreme weather conditions.

-51°C
Lowest temperature in 2023 (Shepherd Bay, NU)

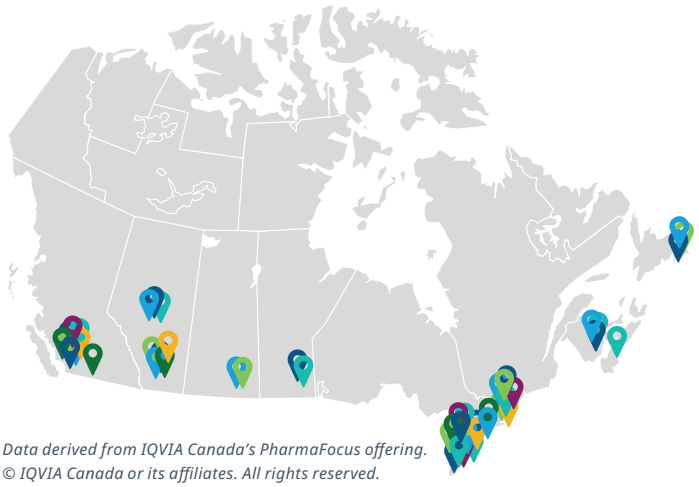
42°C
Highest temperature in 2023 (Lytton, BC)

206 cm
Highest monthly snowfall in 2023 (Vernon, BC)

65%
% land mass with snow for >6 months per year

Data derived from the Government of Canada website.

Figure 3. Pharmaceutical distribution centres



Data derived from IQVIA Canada's PharmaFocus offering.

DISTRIBUTION CHANNELS AND NOTABLE MARKET SHIFTS

Medications move through two main channels: direct or indirect distribution. Roughly 91% of prescription medications moved through indirect distribution in 2023[2], in one of three models:

- Primary wholesalers
  - Purchase products from various manufacturers and distribute them to patient-serving locations (e.g., pharmacies, hospitals, clinics)
  - Host individual platforms through which pharmacies and hospitals can order medications
- Self-Distributing Pharmacy Chains (SDPCs)
  - Large-scale retail businesses that operate multiple pharmacy locations and manage their own distribution
- Specialty distributors
  - Deliver specialty products, which often require cold chain management, to specialty pharmacies, clinics, or directly to patients
  - Offer additional services, such as patient support programs and infusion clinics

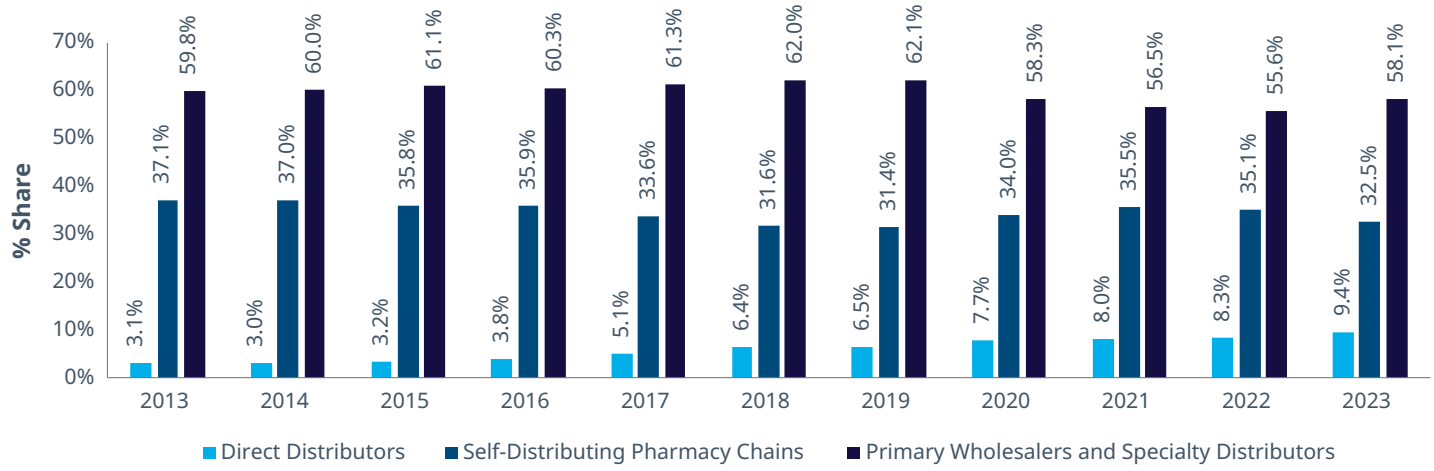
The remaining 9.4% of prescription medications moved through direct distribution, wherein manufacturers shipped products directly to pharmacies, hospitals, or clinics. These products may include those that require direct-to-patient management due to their fast-expiring nature or custom-made specifications. Others may be hospital products acquired through consolidated procurement systems and therefore shipped direct.

Primary wholesalers and specialty distributors collectively handled the majority of the market volume over the past two decades, managing 58.1% of drug volume in 2023.[2] In the same year, SDPCs accounted for 32.5% of total drug volume.[2] The 9.4% of drug purchases that were directly distributed by manufacturers in 2023 was a substantial increase from 3.1% in 2013 (**Figure 4**).[2] The main driver of this decade-long direct distribution share increase is attributed to the exceptional growth in specialty drugs.

[^] Based on CAPDM membership; total number of distributors in the industry may be higher

In the early years, specialty drug use was supported by limited manufacturer distribution only. However, the distribution chain has since evolved to support the increasing demand for this segment of the market.[2] During roughly that same period, from 2014 to 2024, the number of primary wholesalers decreased from 12 to 6^ due to consolidation, increased operational costs, and market shifts toward specialty distribution. In contrast, the number of SDPCs remained stable^, suggesting that consumer use of pharmacy chains has been consistent. Specialty distributors are the fastest-growing segment, with just one in 2014 and six by 2024.

Figure 4. Trends in pharmaceutical distribution by channel



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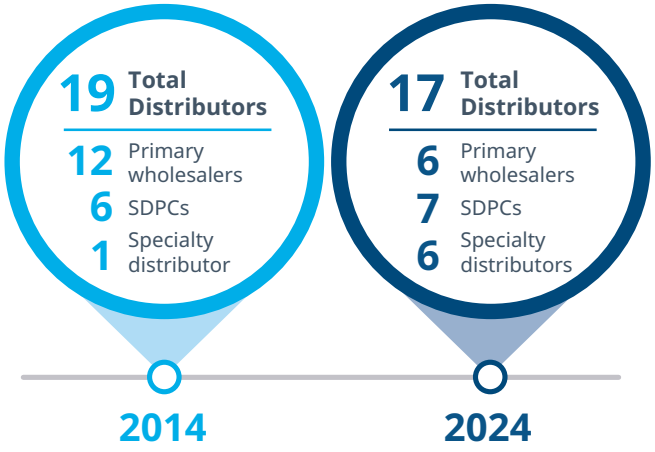
Throughout this report, primary wholesalers, SDPCs, and specialty distributors are collectively referred to as "distributors." **They are the conduits through which more than 90% of medications travel to reach patients.** The trends described above will be discussed in more detail in later sections of this report.

This section provided an overview of the pharmaceutical distribution industry and outlined the aim of this report. The sections that follow delve more deeply into the industry's contributions to patient care and the healthcare system, as well as the complexity that underpins its operations.



Data based on CAPDM members; total number of distributors in the industry may be higher.

^ Based on CAPDM membership; total number of distributors in the industry may be higher

Value delivered by pharmaceutical distributors

Infrastructure

Distributors work with stakeholders across and outside the pharmaceutical supply chain to ensure that patients get access to the drugs they need. In 2023, participating distributors each served an average of 3,500 different customers across the supply chain, with the majority being pharmacies (**Figure 5**).

Figure 5. Average manufacturers and customers served by participating distributors in 2023

170 pharmaceutical manufacturers

3,100 pharmacies

240 hospitals

180 other healthcare institutions such as long-term care homes

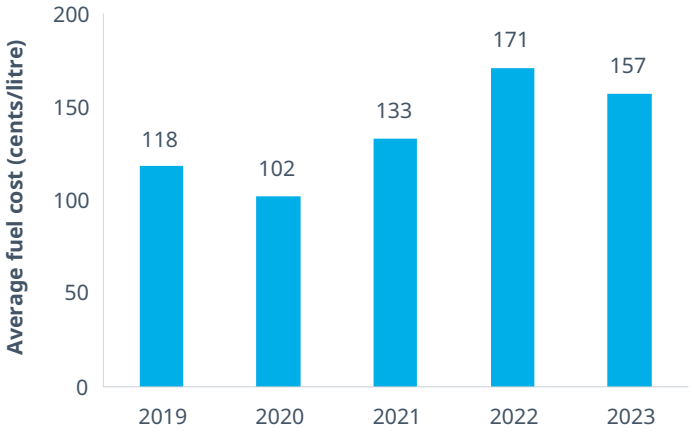
An average distributor works with
~3,500 different customers
across the supply chain*

** Based on data provided by reporting distributors for 2023*

In 2023, participating distributors travelled an average distance of **more than 20 million kilometre**s from their DCs (**Figure 3**) to serve these customers. This is the equivalent of travelling around the equatorial circumference of the earth 500 times or **driving from St. John's, Newfoundland to Victoria, British Columbia 2,700 times.** These distances are covered against a backdrop of rising fuel costs, which have surged by 30% over the past five years (**Figure 6**), nearly double the increase in the cost of living.[10,11] Increasing congestion, particularly in urban areas, is also a significant concern.[12,13] These factors lead to increased operational costs and logistical challenges for distributors, which significantly impact their efficiency.

On average, warehouse costs made up 19% of participating distributors' overall operational expenses in 2023, followed by administrative costs at 20%, with the **largest proportion (48%) attributed to human resources**. To navigate the complex regulatory environment distributors operate within, and to effectively manage vendors and customers, respond to market demands, and ensure the continuous delivery of critical products to the healthcare system, skilled personnel are essential. Together, distributors directly employ thousands of people and indirectly support the employment of many others, including couriers, third-party contractors, and other service providers. It is estimated that the **industry employs more than 10,000 people across Canada^.**

Figure 6. Average national retail fuel price



Data derived from Statistics Canada.

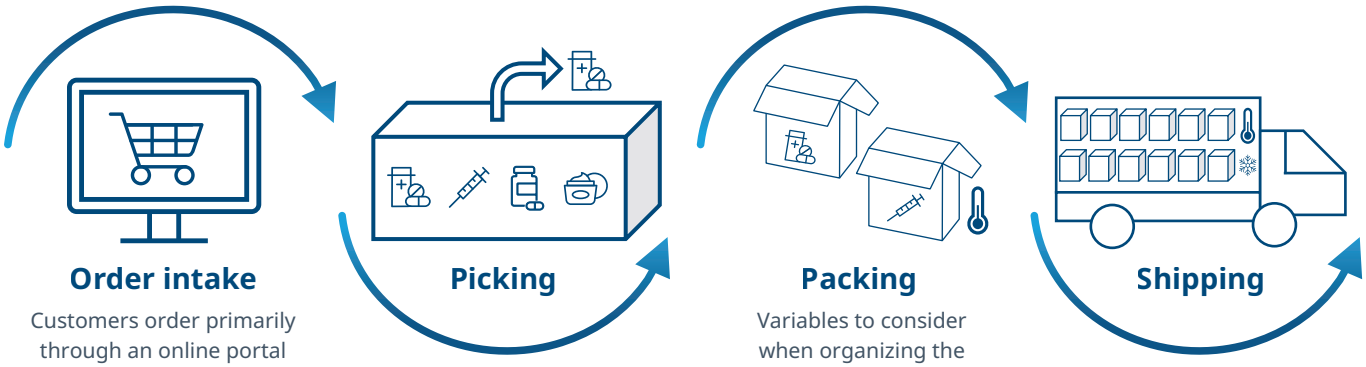
^ Based on CAPDM membership; total number of distributors in the industry may be higher

Expertise

INVENTORY MANAGEMENT

In 2023, participating distributors **managed more than 4 million packs*** **of products on average, valued at more than $700 million.** This inventory was effectively managed, as **less than 0.3% of participating distributors' total inventory was lost** in 2023. Overall, distributors' accuracy and efficiency are driven by their strict adherence to rigorous policies from order receipt to delivery. Upon receiving an order, a coordinated execution of staffing, paperwork, and packaging ensues (**Figure 7**). The entire process is documented, with signatures required from qualified personnel at each handover point for effective tracking.

Figure 7. Summary of distribution workflow



Order intake

Customers order primarily through an online portal such that orders are processed automatically.

Inventory is then allocated to the order.

Picking

Products are picked, labelled, and moved to their designated areas (ambient, cold chain, or controlled substances).

Some items may need to be broken down to the unit size specified in the order (e.g., blister packs instead of boxes).

Packing

Variables to consider when organizing the primary shipment packaging include requirements for temperature control, loss prevention, spill protection, the size of the order, and courier capabilities.

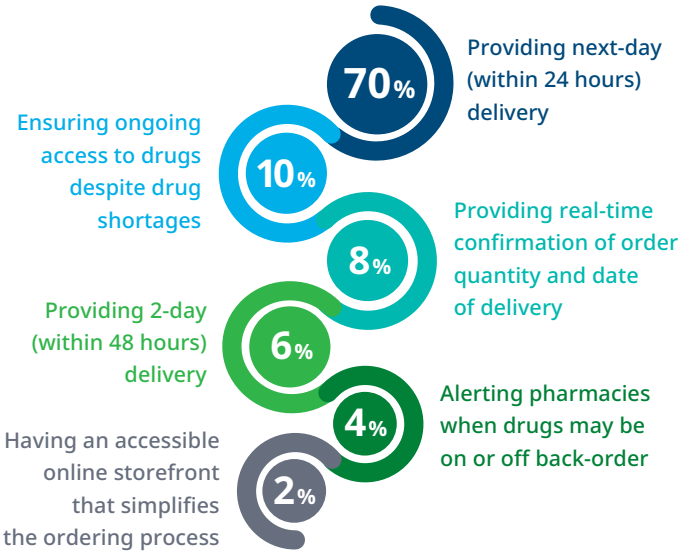
Shipping

Shipments are checked for quality, sorted by route and sequence, and set up for tracking. Invoices and shipping documentation are prepared.

In the past year, participating distributors delivered an **average of approximately 240,000 orders per week**. Despite the high volume, an **average order fulfilment accuracy exceeding 99%** was achieved. Achieving 100% accuracy indicates that all orders were shipped to the appropriate customer without any errors or missing items. This exceptional accuracy rate helped reduce drug wastage and ensured that patients maintained consistent access to their prescription medications. From 2021 to 2023, participating distributors **delivered an average of 80% of their orders within 24 hours and 90% within 48 hours.** Of pharmacies surveyed, 70% identified next-day delivery as the most valuable service provided by distributors, emphasizing that the absence of this service could negatively impact patient health. Respondents also highlighted the importance of other distributor services, with most rated as valuable or very valuable (**Figure 8**).

* One pack is equivalent to one stock keeping unit (SKU) and may represent examples such as individual bottles or boxes

Figure 8. Proportion of respondents that identified each distributor value-add service as the most important



Data derived from a survey of 50 random pharmacies across Canada.

MANAGING DRUG SUPPLY

Drug shortages are a growing concern within Canadian health systems, with manufacturers reporting an average of 238 new shortages per month between 2017 and 2020.[14] Policies have been implemented to mitigate the impact of shortages, including the development of a tiered notification and protocol system to minimize disruptions.[15] **Distributors play a crucial role in preventing shortages by maintaining buffer stock**, which refers to keeping a reserve of pharmaceutical products to ensure uninterrupted supply. In 2023, **buffer stock made up an average of 34% of the inventory held by participating distributors, with an estimated value of nearly $360 million.**

Distributors also alert pharmacies when medications are on or off back-order, allowing pharmacies to manage their inventory more effectively and ensure continuous access for their patients. This and other strategies are highly valued by pharmacies, with one respondent noting that **distributors secured inventory for their pharmacy during drug shortages based on their historic order volume.**

Another crucial aspect of the pharmaceutical supply chain that distributors manage is product returns and recalls. Due to their strategic network placement (e.g. between manufacturers and pharmacies) and logistical capabilities, distributors are well positioned to handle these tasks. During recalls, distributors promptly alert customers and collect the recalled items, ensuring that defective products are swiftly removed from the market to protect patient safety and maintain regulatory compliance.

In 2023 alone, Health Canada issued 29 different recalls for medications.[16] Managing these activities imposes significant costs on distributors. In 2023, product returns and recalls cost participating distributors nearly $310,000 on average, which are additional expenses not recouped through manufacturers.

98%

of surveyed pharmacies value distributors' ability to **ensure patients have continuous access to their medications**

Distributor strategies to mitigate drug shortages

- Perform regular auditing of inventory and have responsive systems for demand supply planning
- Enforce the four-eyes principle whereby any significant activity or decision is reviewed and approved by at least two independent and competent individuals
- Have regular meetings with manufacturers to assess supply, demand, and potential risks
- Implement demand controls to protect inventory during periods of limited supply (e.g., align functions across the organization and deploy allocation processes according to historic usage patterns)
- Share relevant shortage information with provincial health authorities

HANDLING CONTROLLED SUBSTANCES

One special category of drug handled by distributors is controlled substances, the most common of which being narcotics. These drugs are subject to additional government regulations due to their potential for abuse[17] and are thus associated with additional processes at every step of the supply chain (**Figure 9**).

In 2023, **distributors handled more than 30 million units^ of narcotics, which represented nearly all (98%*) of the narcotics required by the Canadian healthcare system**. The ability of distributors to handle such a significant portion of the market demonstrates their ability to meet stringent regulatory requirements and ensure that controlled substances are distributed responsibly and securely. Distributors must hold a valid licence to handle narcotics, which requires regular renewals and the appointment of qualified personnel to oversee compliance.[17] There is zero tolerance for missing products or inventory discrepancies, and all unresolved gaps must be investigated and reported to authorities. Only designated, qualified personnel are permitted to access the controlled substances inventory, which is held in specialized vaults.

Every shipment must follow a strict chain of custody, with signatures required at each transfer point. Additionally, all packages are secured with tamper-evident seals and transported in tamper-proof tape and/or envelopes to detect any unauthorized access during transit.

In addition to these processes, distributors are required to submit monthly activity reports to Health Canada, with additional reports as needed (**Figure 10**). These reports help government agencies track the movement of restricted drugs, ensuring public health safety.

*" It takes one person **one whole week** to prepare the sales records of controlled substances required for **monthly regulatory reports**."*

Figure 9. Additional resources required to handle controlled substances

IT: information technology; RFID: Radio Frequency Identification

* Data derived from IQVIA Canada's Territorial Sales Analysis offering, June 2024. © IQVIA Canada or its affiliates. All rights reserved.
^ Units may represent examples such as individual bottles or blister strips within a box.

Figure 10. Additional reports required for handling controlled substances

DATA AND REPORTING

All distributors are required to provide regular reports to government agencies, such as Health Canada and provincial health ministries, that detail the inventory received, stocked, and shipped out. Reports on vaccine sales are also shared with provincial governments, which play a crucial role in monitoring public immunization programs and overall public health. By closely monitoring the distribution of both regular and controlled substances, government agencies can better prevent misuse and ensure that medications are available to those who need them. This system supports the early detection of any discrepancies or potential issues in the supply chain, thereby safeguarding the community.

Being at the centre of various healthcare industry stakeholders, distributors have access to unique data and insights that benefit the industry as a whole. Distributors regularly provide inventory movement and order reports on a weekly, monthly, or quarterly basis, to manufacturers and customers alike. These reports are vital for effective demand planning.

Most distributors also share data with IQVIA, a partner with various stakeholders in the pharmaceutical supply chain and beyond. These distributors not only provide data but also receive consolidated market trend information from IQVIA. Overall, this collaborative data-sharing ecosystem enhances efficiency within the pharmaceutical supply chain. By leveraging the insights provided by distributors and IQVIA, manufacturers can make more informed decisions, optimize production schedules, and better anticipate market needs. Regulators and other government agencies also use such market insights to bolster public health initiatives, monitor drug safety, and ensure the availability of essential medications. This synergy ultimately leads to improved patient outcomes by ensuring that drugs are readily available when and where they are needed.

Product safety and security

Pharmaceutical distributors must comply with stringent regulatory requirements to ensure that patients receive medicines that meet the highest standards for safety and quality (**Figure 11**). The main regulatory framework distributors adhere to is the *Canadian Food and Drugs Act* and its accompanying *Food and Drug Regulations*, which set out requirements for the manufacturing, packaging, labelling, importation, storage, distribution, and sale of prescription and non-prescription drugs.[18,19] These practices involve maintaining an establishment licence, complying with Good Manufacturing Practices (GMP) and Good Distribution Practices (GDP) across all activities, and satisfying additional and/or alternate requirements for specific drugs, such as controlled substances and cannabis.

Figure 11. Regulatory requirements for distributors

Distributors must adhere to several policies and guidelines derived from the acts and regulations to ensure compliance with regulatory standards.[20] Some key examples include:

- ***GUI-0001 Good Manufacturing Practices Guide for Drug Products:*** This guide outlines the standards for manufacturing and distribution practices to ensure the quality and safety of drug products.
- ***Good Manufacturing Practices Guidance Document – Natural and Non-Prescription Health Products:*** This guide outlines the standards for manufacturing and distribution practices to ensure the quality and safety of natural and non-prescription products.
- ***GUI-0069 Guidelines for Environmental Control of Drugs during Storage and Transportation:*** These guidelines provide standards for maintaining the quality and safety of drugs during storage and transportation, ensuring that they remain effective until they reach the consumer.
- ***GUI-0050 Annex 11 – Computerized Systems:*** This annex outlines the requirements for computerized systems used in the manufacturing and distribution of drugs, ensuring data integrity and system reliability.

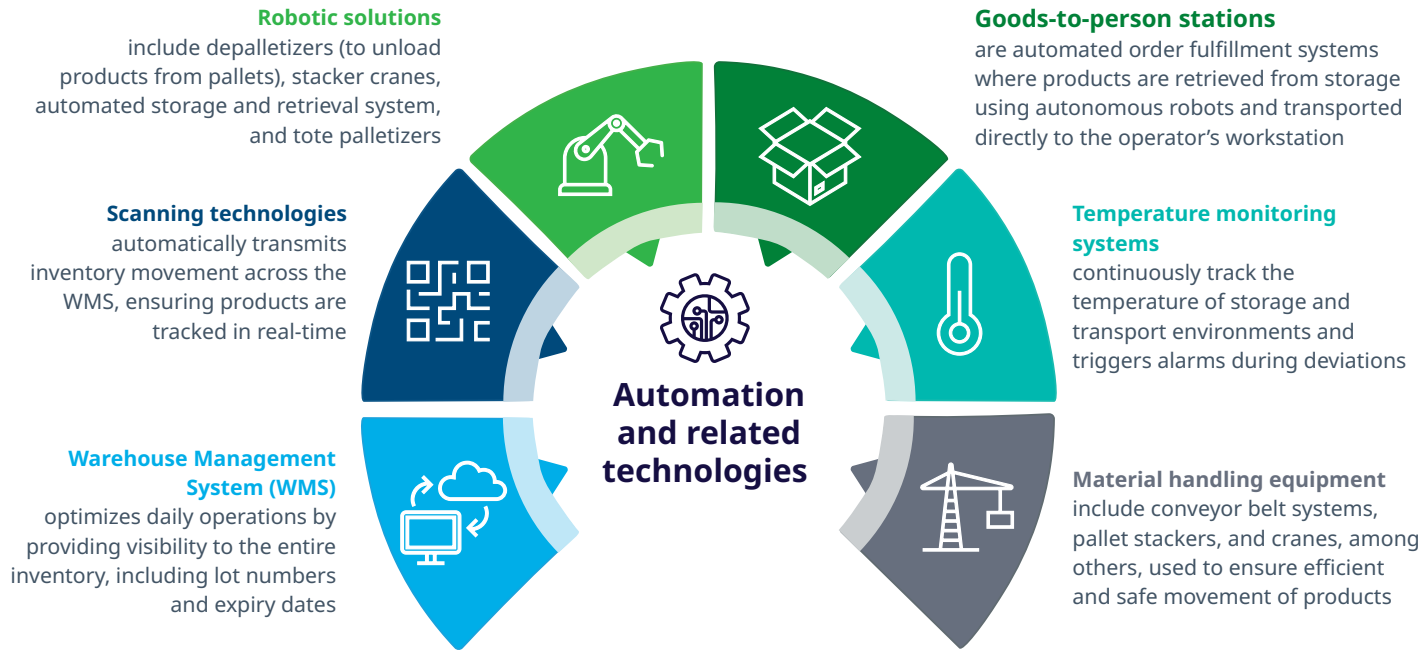
Complying with these policies increases the burden on distributors. For example, **adhering to GUI-0069 involves continuous mapping and proof that storage and transportation temperatures are maintained throughout the supply chain, which alone is estimated to cost distributors $20 million annually.**[21] Nonetheless, distributors remain steadfast in their commitment to protect patients by ensuring that the highest standards for safety and quality are consistently met.

Responsiveness

NEW PRODUCT INNOVATION

Between 2018 and 2022, the volume of prescription drugs dispensed from Canadian pharmacies has grown at a compound annual rate of 2.3%, which is more than double that of the population growth.[2,22] To meet the demands of a growing market, **participating distributors spent over half a billion dollars on developing new infrastructure and improving automation or related technologies** during roughly the same period. This included building new DCs, Warehouse Management System (WMS) integration, portal upgrades, and overall technology enhancements (**Figure 12**). These facilities not only enhanced the efficiency of deliveries by expanding the overall distribution footprint, but also bolstered local economies by supporting economic growth and community development.

Figure 12. Automation technologies employed



In the past five years, branded drugs accounted for 81% of market sales in dollar value, while generic drugs made up 73% to 77% of the prescription volume (**Figure 13**).[2] This trend indicates that payers are predominantly covering the costs of branded medications, but **the majority of drugs moving through the supply chain are generics**. The steady increase in the volume of generic drugs flowing through the market illustrates that distributors are managing more products with less funding, since distribution funding is associated with drug list prices.

Over the same period, **specialty drugs continued to be the fastest-growing segment of the market, increasing market share from 23% in 2019 to 44% in 2023.**[2] Since 2019, the market share of specialty drugs in the retail space has grown at a compound annual growth rate (CAGR) of 14% (**Figure 14**). This is nearly three times the CAGR of the overall retail pharmacy sales, highlighting the increasing complexity of the market as well as how distribution funding has not kept pace with the added intricacies of these products.

Figure 13. Trends in brand and generic share of total drug purchases and prescription volume

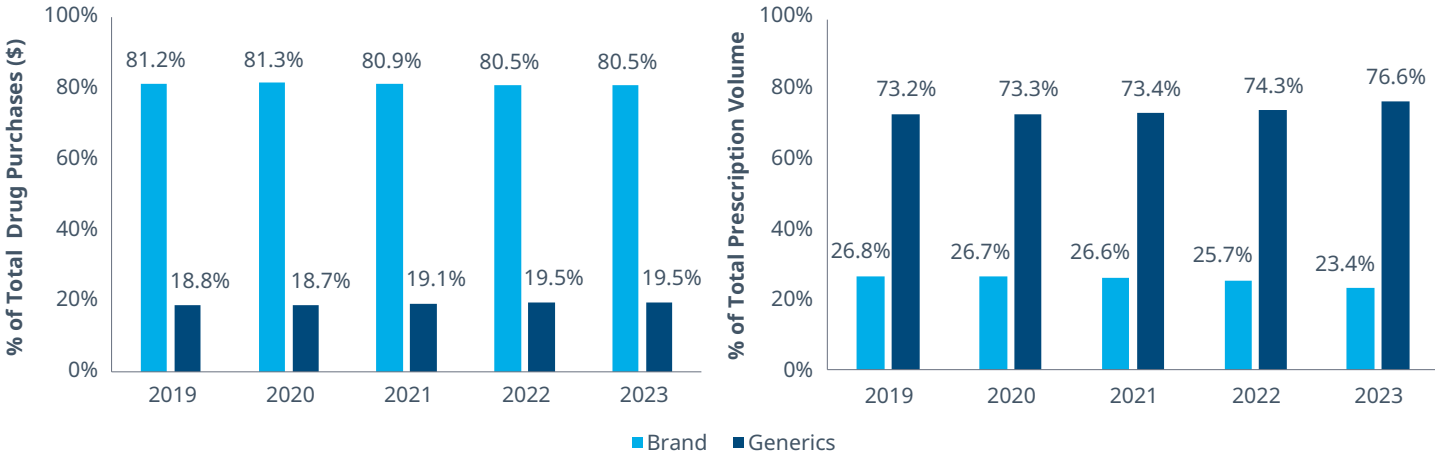


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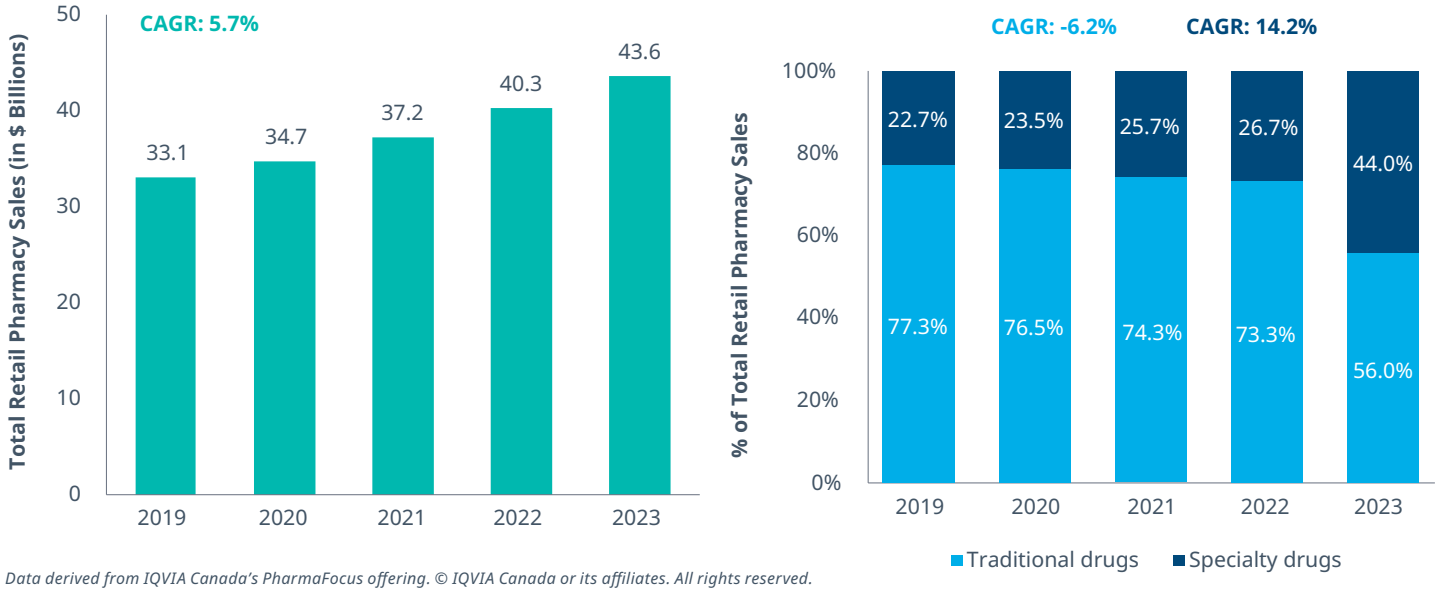
Figure 14. Trends in retail pharmacy sales



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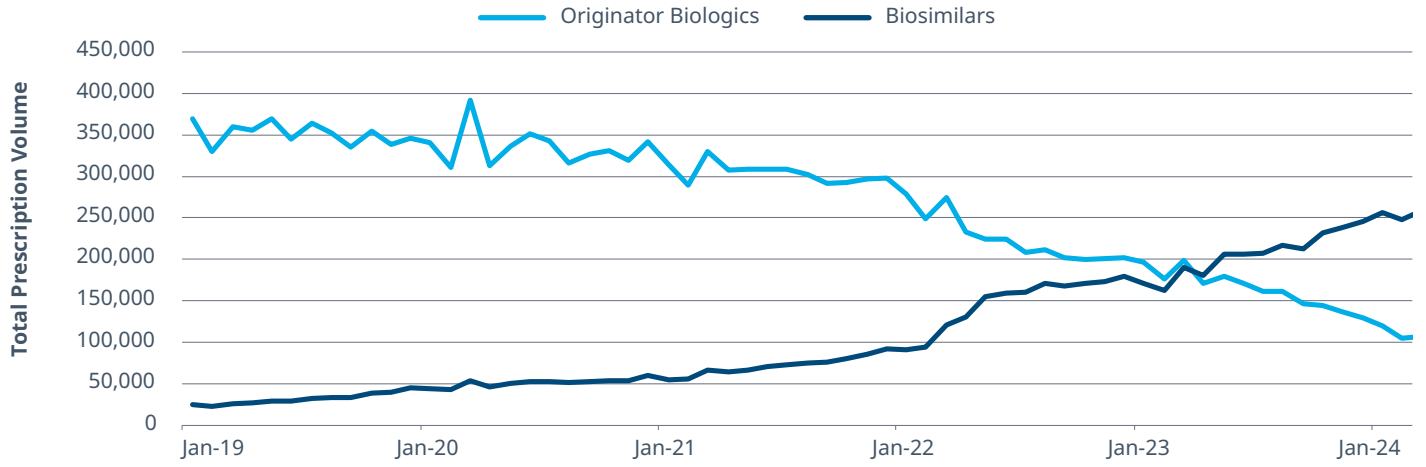
Our enhanced understanding of disease complexity has fuelled the demand for more advanced precision medicines[23], making biologic drugs the most active and rapidly expanding sector of the market.[2] Where traditional branded drugs have generics, biologic drugs have biosimilars, which are highly similar and clinically comparable products to the originator biologic. Biologics accounted for $18 billion worth of retail pharmacy and hospital purchases in 2023, representing 41% of the total market, while biosimilars captured 4% of the market with sales at $1.8 billion.[2] Since 2019, biosimilar transition initiatives have been gradually adopted across Canada. Currently, 12 provinces and territories have policies in place requiring patients to either initiate treatment with certain more affordable biosimilars and/or transition from originator biologics to these biosimilars in order to maintain public coverage.[24,25] These policies have contributed to an increase in the use of biosimilars (**Figure 15**), which may considerably impact the sustainability of distributor services. Like traditional generic products, biosimilars are priced at 25% to 30% lower than their originator biologics[26], resulting in increasingly reduced funding for distributors despite the unchanged processes and costs required to distribute these products.

The overall growth in specialty drugs has required distributors to implement cold chain management for a larger portion of their inventory. This process involves maintaining products within a specific temperature range throughout their journey from production to consumption (**Figure 16**).

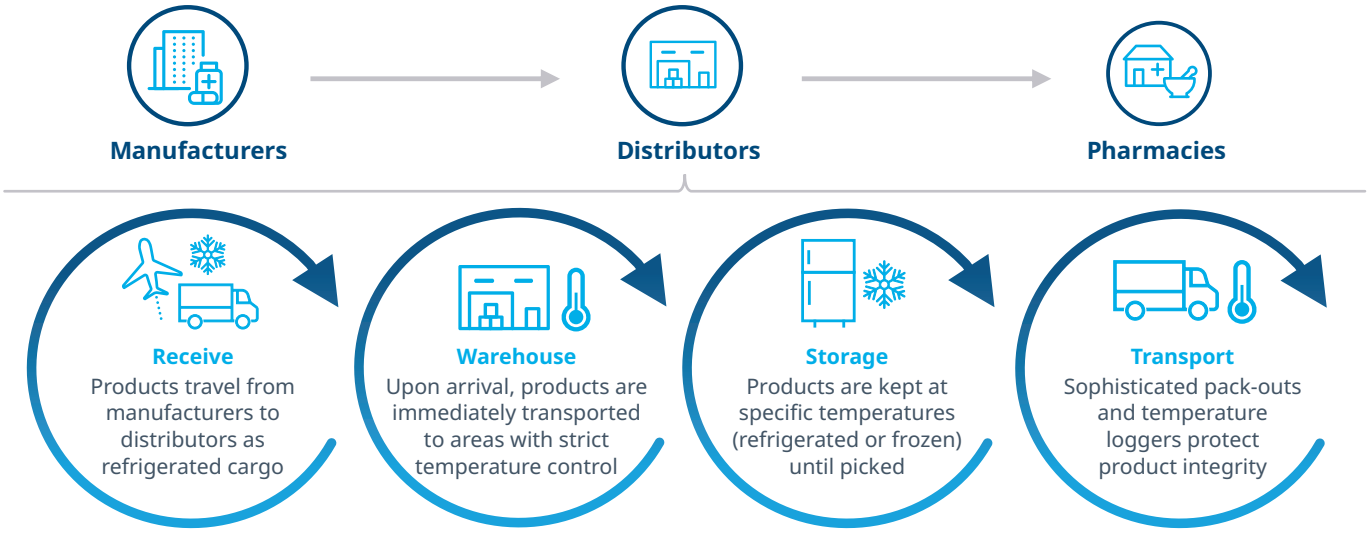
Cold chain management is resource intensive because it requires specialized equipment, including sophisticated pack-outs and temperature sensors. These specialized handling methods increase the risk of waste or damage during delivery. In 2023, **cold chain management represented an average of 16% of the overall operational expenses for participating distributors**. Distributors also expanded their capacity to handle all potential storage requirements for the COVID-19 vaccines, including incorporating new refrigeration and freezer systems to meet the expected frozen (-20°C) and ultra-frozen (-80°C) temperature requirements. One distributor estimated that they **invested resources to increase their capacity by 30% to 40% to effectively support the vaccine rollout.** With the steady growth of the specialty drugs market in recent years, this aspect of the pharmaceutical distribution model is expected to become more prominent.

Figure 15. Trends in prescription volume of originator biologics and biosimilars



Based on 15 molecules with biosimilars available (adalimumab, bevacizumab, enoxaparin, etanercept, filgrastim, infliximab, insulin aspart, insulin glargine, insulin lispro, pegfilgrastim, ranibizumab, rituximab, somatropin, teriparatide, and trastuzumab). Data derived from IQVIA Canada's CompuScript offering, September 2024.

Figure 16. Summary of cold chain management



CLIMATE EVENTS

Weather-related disasters often disrupt the usual distribution route and process as a result of impassable infrastructure. Canada faces extreme weather conditions, including scorching heatwaves that fuel forest fires and winter storms that render roads impassable. Distributors may proactively choose to not deliver products on extremely cold days to avoid potential product losses from an increased likelihood of road closures and accidents. Nationally, **only 40% of public roads are paved**, adding to the challenge.[8]

In Canada, the average annual number of **weather-related disasters has more than doubled** between 2010 and 2019 compared with the three prior decades, highlighting the increasing need for robust contingency plans and adaptive logistics strategies to maintain the continuity of drug supply during emergencies.[27] Although emergency response plans are in place, each situation is unique and demands a tailored solution. Uncertainty also adds complexity to the situation, often requiring distributors to quickly adapt and devise a plan based on limited available information. In such extraordinary situations, distributors coordinate with special couriers, regional health authorities, pharmacies, and among themselves to ensure that patients continue to receive their prescription drugs.

During weather-related disasters, the top priority for distributors involves restoring electric power to their DCs and coordinating with government agencies to designate their deliveries as essential services. Although distributors directly serve the hospitals, pharmacies, and clinics that patients depend on for their medications, they must still undergo the same process each time to prove their essential nature. This often involves identifying the appropriate government agency to contact and negotiate arrangements. This may take up to a full day, which is long enough to put patients at risk.

Case Study: Weather-related emergencies in British Columbia

In 2021, devastating flooding blocked the main highway connecting Chilliwack and Abbotsford, leaving many communities in the lower mainland inaccessible. Several distributors responded rapidly to this emergency to ensure continued access to life-saving medications for their patients. The extent of the emergency meant that distributors needed to quickly leverage resources, as they were unable to rely on existing emergency preparedness plans that utilized the now impassable road infrastructure. For one distributor, a seaplane cargo service was employed to make their deliveries by air. Another distributor partnered with an established courier that was able to maintain service to the area via their fleet of planes. In both situations, distributors had to prioritize medications for distribution and absorb additional costs for the cargo services, surge personnel, and coordination efforts. The flooding was a protracted emergency, and distributors maintained their services throughout to ensure that community pharmacies and their patients were able to receive their medications.

Distributors also initiated emergency plans during recent wildfires. In these events, physical access and limited infrastructure were not the only complexities to overcome. Distributors had to navigate the existing emergency network to have their fleet identified and allowed to pass by restricted roads. They took on the communication and access challenges, as well as the risk of lost cold chain inventory due to lengthy waiting stages for passage approval.

Weather-related emergencies are likely to become more common, so **recognizing the integral role that distributors play needs to be reflected in the preparedness plans of regional and federal emergency services to guarantee that distributors can continue serving impacted communities.**

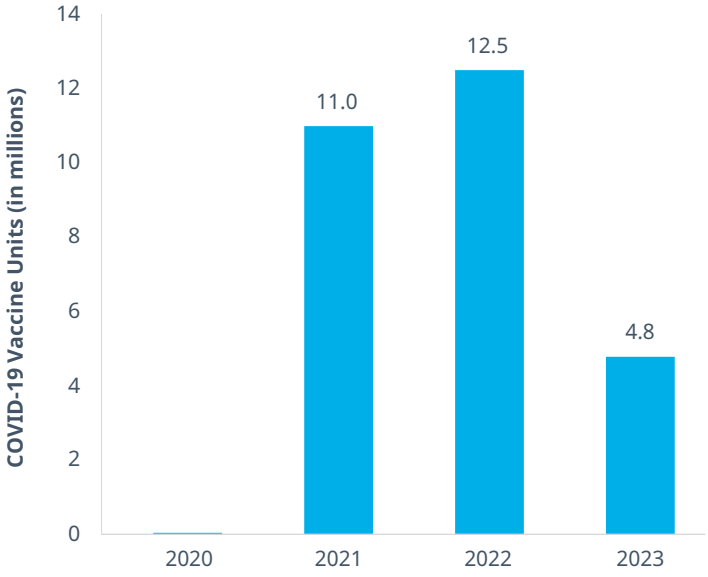
PANDEMIC RESPONSE

The COVID-19 pandemic was an unprecedented emergency that greatly impacted the Canadian healthcare system, with distributors playing an integral role in the response. The intricate logistical network that distributors have cultivated over the years enabled their swift assistance by leveraging established supply chains, distribution centres, and transportation routes. Distributors pivoted their standard business model to support the delivery of personal protective equipment while maintaining their regular services to pharmacies. The supply and demand of key medical supplies such as hand sanitizers was continuously monitored and reported on by distributors manually, as the constant flux was difficult to predict given the stockpiling and shortages occurring during this time. In addition to leveraging existing networks, some distributors increased their overall capacity just to manage the unprecedented flow of vaccines.

Additional cold chain management infrastructure was required to manage the influx of the temperature-sensitive vaccines. This included expanding cold storage facilities, enhancing transportation capabilities, and implementing advanced monitoring systems to ensure the integrity of the vaccines throughout the distribution process.

This framework played a crucial role in Canada's rapid response and recovery during the pandemic. It enabled distributors to ship more than 28 million units* of vaccines between 2020 and 2023 (**Figure 17**). The rapid transition from a nonexistent product to the distribution of 11 million units of vaccines in a single year – amid a backdrop of unprecedented pandemic restrictions – is a testament to distributors' expertise, adaptability, and commitment to meeting critical healthcare needs.

Figure 17. COVID-19 vaccines shipped by distributors



Data derived from IQVIA Canada's Canadian Drugstore and Hospital Purchases Audit offering, July 2024.

*Data derived from IQVIA Canada's Canadian Drugstore and Hospital Purchases Audit offering, July 2024. © IQVIA Canada or its affiliates. All rights reserved. Units may represent examples such as individual vials, ampoules, and syringes.

Rural services

Approximately **20% of Canada's population live in rural communities, which are spread across roughly 75% of the country's 9.9 million square kilometres.**[28] Due to the geographic isolation of these communities, access to healthcare remains a significant challenge for Canadians living there.[29] Provincial and territorial governments are committed to addressing the issues in rural healthcare and ensuring equitable access[2], with distributors being instrumental in this effort by maintaining a dependable pharmaceutical supply chain.

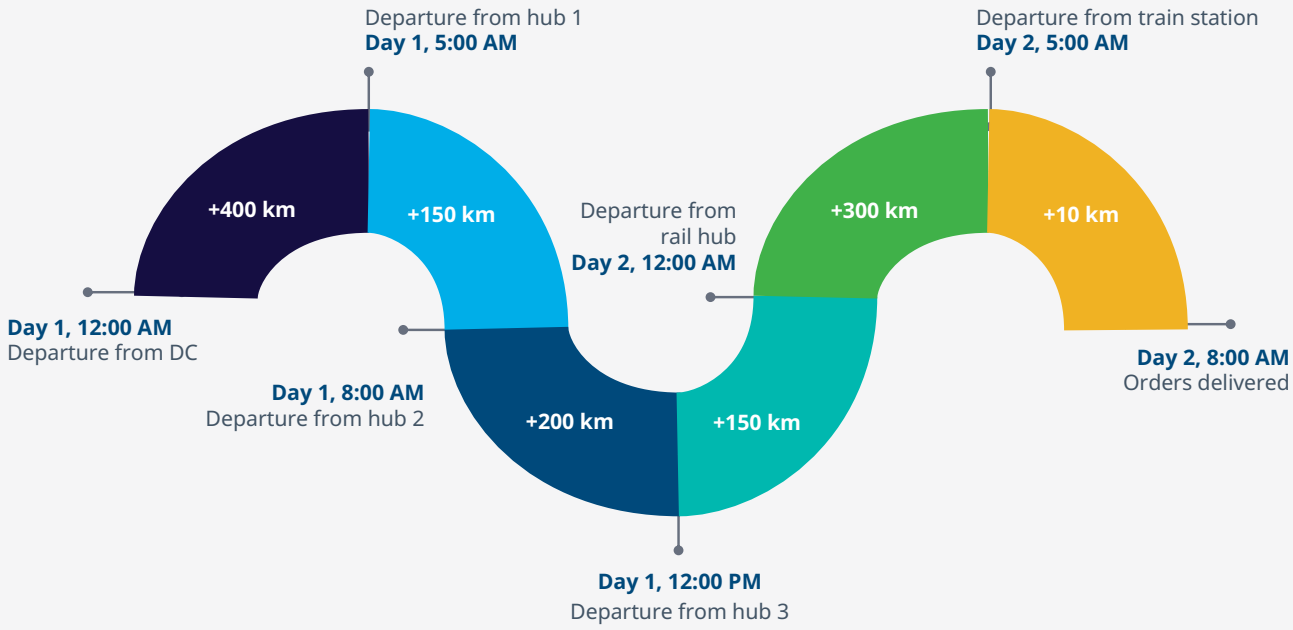
In 2023, each participating distributor served an average of 490 rural pharmacies, hospitals, and clinics, delivering an average of nearly 2,470,000 orders. Access to these communities is often challenging, as year-round road access may not always exist. For example, of those 490 rural customers, roughly 100 require deliveries via plane, amounting to an average of almost 140,000 orders by air per distributor in 2023. Distributors also rely on transportation modes such as trains and ferries, and can be constrained by their fixed schedules and unforeseen delays. Consequently, distributors must take additional precautions and use sophisticated pack-outs with temperature sensors to ensure that medications remain within the appropriate temperature range. Delays can cause deviation from the recommended storage temperature, leading to medications needing to be recertified for use by the manufacturers. This requires distributors to provide a precise log of the duration the products were outside the specified temperature range and other relevant information. This reliance on external schedules further complicates the logistics of distribution to rural communities. However, even with the additional resources required to serve these communities, distributors receive the same amount of compensation for these deliveries as they would for any other.

Case Study: Distributors implement creative approaches to serve rural communities

Accessing rural areas is a challenge that must be overcome to deliver life-saving medications to patients in those communities. Those challenges, which pose logistical and financial hurdles to distributors, include limited or inaccessible road networks and significant distances from distribution centres.

Some smaller distributors are unable to enter the rural market because of the increased risk and operational expenses associated with rural distribution. However, they frequently step in during special situations, which often involves operating at a loss. In one case, a distributor leveraged an existing partnership with a courier and the support of staff from the clinic requiring the delivery to get necessary medications 1,000 kilometres north of Vancouver. The project was successful and is an example of smaller distributors being able to quickly pivot and meet the needs of rural communities.

Another distributor had a 48-hour window to deliver pharmaceutical products, including those that required cold chain management, to a rural community in Ontario that was more than 1,000 kilometres away from its DC. Due to the distance and lack of accessible roads, the distributor had to coordinate six different hand-off points with four different transportation providers, including a rail company. This laborious coordination was further complicated by the need to meet the time constraints of different terminal and train schedules. These deliveries are common when serving rural communities, with a similar coordination required for the reverse logistics (i.e. return of goods and pack-outs).



Despite the unique challenges faced by distributors when serving rural communities, they remain committed to them. By ensuring that essential goods and services reach even the most isolated locations, distributors play a vital role in promoting health equity across the country.

Financial sustainability of pharmaceutical distribution

Distribution funding

The funding model for pharmaceutical distribution is complex and primarily involves pharmacy reimbursement or specific agreements between distributors and provinces. In both cases, **distributor funding is calculated as a percentage of the provincially listed drug price.**[21]

Generic products are typically priced as a percentage of the original list price of branded drugs, often falling within a range of 25% to 85%.[26] Despite the lower development costs for generic products compared with branded drugs, the processes and costs required for their distribution remain the same. While biologic drugs are listed at a higher price than traditional drugs, the higher funding that may have been generated from these products are often eclipsed by higher distribution costs.

Table 1[*] illustrates the impact of increased generic use within the current funding model. Generic alternatives of apixaban, an oral anticoagulant, have been available since 2022 and cost 25%[#] of their brand name counterpart. Despite the number of prescription claims for generic apixaban in 2023 (6.6 million) being more than 150% higher than brand name apixaban claims in 2019 (4.3 million), total dollar sales – and thus distributor funding – from these generics represent less than 50% of the brand name sales from five years earlier. In other words, **distributors delivered 150% more volume in 2023 but earned at least 50% less compared with 2019.** Apixaban serves as an example that highlights the key challenge with the current distributor funding model, which fails to consider that the cost of distributing generics is the same as the cost of distributing brand name products.

Despite the numerous market changes (e.g., growth in specialty drug use, trend toward use of generics and biosimilars) and subsequent adaptations by distributors in recent years, the funding model governing distributor operations has remained unchanged for at least 15 years. Only four provinces and territories have specific wholesaler distribution fee agreements, and in most other regions, distribution fees are paid by pharmacies out of their pharmacy markups. Pharmacy markups are additional amounts added to the cost of a drug to cover overhead costs, distribution charges, and profit. Across Canada, these markups have not changed for at least five years. **Since funding for distribution is tied to the listed drug price, distributors have been receiving the same amount for supplying a drug, regardless of whether the delivery distance is 10 kilometres or 1,000 kilometres.**

Despite the lower development costs for generic products compared with branded drugs, the processes and costs required for their distribution remain the same.

Table 1. Total cost and volume for brand and generic apixaban in 2019 and 2023

	2019		2023	
	Brand	Generic	Brand	Generic
Cost per prescription	$82	-	$113	$27
Total volume claimed	4,307,600	-	311,200	6,646,900

[*] Data derived from IQVIA Canada's CompuScript offering, October 2024. © IQVIA Canada or its affiliates. All rights reserved. Total volume was rounded to the nearest thousand.

[#] Data derived from IQVIA Canada's deltaPA offering, November 2024. © IQVIA Canada or its affiliates. All rights reserved.

In contrast, the Australian government established an arrangement with distributors in 2005 to recognize the additional costs faced by providing the full range of necessary medicines to all pharmacies across the country.[30] This Community Service Obligation (CSO) serves as another funding pool on top of markups that incorporates a distributor's share of the volume of medicines dispensed. In 2020, the markup framework was also revised to include a necessary floor, ensuring that medicines priced below a certain threshold are reimbursed at a minimum value.[31] Canada faces similar yet more extensive geographical challenges to Australia, which impact the sustainability of pharmaceutical distribution and may thus benefit from a similar modification.

In the United States, pharmaceutical distributors operate in a fee-for-service model, in which they are compensated based on fixed fees for specific services they provide, rather than earning a margin based on the list price of drugs.[32] By decoupling compensation from drug prices, the fee-for-service model encourages distributors to focus on improving the efficiency and reliability of their distribution services, which may lead to better inventory management and reduced costs for the overall supply chain.

Price compression

Due to stagnation in the funding framework, the distribution model in Canada is facing sustainability challenges from the downward pressure on drug prices. Recent changes by the pan-Canadian Pharmaceutical Alliance (pCPA) have already reduced the funding distributors can receive for transporting generic drugs.[26] Anticipated changes by the Patented Medicine Prices Review Board (PMPRB) are expected to do the same for brand name products. The PMPRB, an independent quasi-judicial body under Health Canada, ensures that prices of patented medicines sold in Canada are not excessive. Meanwhile, the pCPA, an alliance of federal, provincial, and territorial governments, conducts joint purchasing negotiations for brand and generic drugs to achieve greater value for publicly funded drug programs.

In July 2022, the PMPRB amended its regulations, increasing the number of comparator countries for price benchmarking from 7 to 11 (PMPRB11).[33] The PMPRB11 schedule effectively lowered the ceiling price of patented drugs by removing two higher priced jurisdictions (United States and Switzerland) and adding six lower cost ones (Australia, Belgium, Japan, the Netherlands, Norway, and Spain). PMPRB's proposed changes were estimated to result in additional reductions to distribution funding by more than $20 million per year.[34]

Increasing regulatory burden

Given the nature of the industry, distributors face an escalating burden of regulatory compliance and increased oversight. The volume and complexity of regulations, frequent updates and changes to these regulations, along with increased requirements for documentation and heightened scrutiny during inspection and compliance audits, grows yearly. New and emerging regulatory and legislative developments complicate operations and are a barrier to growth for smaller companies:

- Health Canada's plan to address health product shortages (2024 to 2028) includes proposed amendments to the *Food and Drug Regulations* that would require distributors to report significant increases in demand for drugs that are critical and vulnerable to shortage, among other changes that would significantly increase distributors' administrative burden.
- Health Canada has proposed amendments to the *Food and Drug Regulations* to strengthen post-market oversight, leading distributors to comply with more stringent monitoring and reporting requirements.[35]
- National, universal, single-payer pharmacare, as described in Bill C-64, focuses primarily on drug affordability without fully addressing the physical accessibility of these medications. This legislation compounds the issue of price compression, and with its focus on a national formulary and bulk purchasing, it may have unintended consequences for the pharmaceutical supply chain and access to medications.
- Emphasis on sustainability within the pharmaceutical supply chain is growing.[36] Distributors are now expected to meet higher environmental standards, which can involve significant investments in green technologies and practices. In fact, 80% of the participating distributors publicly report commitments to environmental, social, and governance principles across their business strategies.
- **This stringent regulatory framework not only hinders market entry for new distributors but also poses ongoing challenges for existing ones.** Despite the increasing cost of regulatory compliance, drug prices continue to decrease. This creates a challenging business environment for distributors, with the cumulative impact of increased costs and reduced revenue estimated to exceed $100 million annually.[21]

Although Health Canada is proposing updates through initiatives such as the *Controlled Substances Regulations* and the *Forward Regulatory Plan: 2024-2026*[37,38], these measures have not significantly reduced regulatory complexity or compliance requirements. A pressing need remains to protect patient safety and strike a balance that prioritizes financial sustainability and operational efficiency within the industry. Addressing this regulatory burden is key for the continued success and sustainability of the industry in Canada.

Industry contraction and essential innovation

The population of Canadians aged 85 and older is the fastest-growing age group, with most reporting annual interactions with the healthcare system.[39,40] Additionally, more than 25% of Canadian adults over the age of 65 take at least 10 medications per day[41], and this age group was projected to represent a quarter of the population by 2035.[42] These statistics underscore the evolving demographics of the Canadian population, increasingly more of whom require a prescription medication. Reflecting this trend, the number of retail pharmacies in Canada has increased by nearly 40% in the past 15 years.[2,43]

At the same time, market shifts have led to an increased use of specialty drugs, requiring distributors to invest in costly infrastructure to increase the efficiency and capacity of cold chain management. However, these investments are challenged by funding reductions imposed by recent changes, such as the ongoing trend among provinces and territories to transition patients from originator biologics to biosimilars. These changes result in reduced funding for distributors. Similarly, the pricing of generic drugs has continually faced downward pressure throughout the past decade. Since generic drugs represent the majority of medications physically moving through the supply chain, distributors are now supplying a greater volume of products with lower financial return – or even potentially at a loss.

In part due to these market changes, the pharmaceutical distribution industry has experienced an overall contraction. The **number of primary wholesalers has halved in the past decade, and the number of distribution centres has decreased from approximately 50 to 30^ during the same period, requiring medications to travel greater distances.** In addition, uncontrollable market dynamics are impacting the sustainability of distribution services. As business operating costs soar to unprecedented levels, distribution funding is dwindling as a result of the market dynamics outlined earlier in this section. This combination of factors threatens the sustainability of a sector crucial to many Canadians – the very individuals these price reduction efforts aim to support.

Despite facing challenges related to rising costs and funding constraints, distributors remain committed to supporting the healthcare system. They work to maintain a stable supply chain, optimize inventory management, and enhance distribution networks. By collaborating with manufacturers, payers, and healthcare facilities, they strive to improve patient access to essential medications while navigating financial pressures.

Even with the close association between operability of the pharmaceutical supply chain and drug prices, CAPDM and its members strongly support the affordability of drugs.[21] However, the Canadian model may benefit from the implementation of a more dynamic framework that addresses the evolving needs of the healthcare system and ensures that the right drugs go to the right place at the right time.

^ Based on CAPDM membership; total number in the industry may be higher

Conclusion

This report illustrates the importance of pharmaceutical distributors to patients and the wider Canadian healthcare system, while also underscoring the challenges of sustaining these services within the existing funding model. Distributors play a key role as conduits though which medicines travel from manufacturers to patients while maintaining a safe, secure, and highly efficient supply chain. Canadian distributors face the unique challenge of serving geographically dispersed communities in the second-largest country by land area, which is also characterized by a harsh and highly variable climate. Despite these complications, distributors have persistently demonstrated their ability to maintain continuity in the supply chain. This is a testament to their expertise, adaptability, and commitment to meeting critical healthcare needs, in part due to their ongoing investments in physical and digital infrastructure.

Even amid significant market changes, the funding model for distributors has remained unchanged for more than a decade. Consequently, the sustainability of distribution services is currently being tested by the combined effects of decreasing drug prices and increasing operational costs. Efforts to reduce drug prices overlook the fact that access to these medications may be compromised, as distribution funding is closely tied to listed drug prices. Thus, drug price reduction policies threaten the viability of a sector essential to many Canadians – the very individuals these efforts are intended to help.

Looking ahead, it is imperative to modernize the current distribution framework to reflect the evolving landscape of pharmaceutical distribution. Embracing innovation and exploring potential reforms to distribution funding should be considered to ensure a continuous and stable supply of medicines into the future.

Disclaimer

The Canadian Association for Pharmacy Distribution Management (CAPDM) commissioned IQVIA Solutions Canada Inc. (IQVIA Canada), a global leader in health data and analytics, to examine the value of pharmaceutical distributors in Canada. IQVIA Canada's analysis was based on proprietary data and information of IQVIA Canada, and on data, information, instruction, and input from CAPDM and its members. As such, CAPDM shall be fully and solely responsible to third parties, to the complete exoneration of IQVIA Canada, for the content of this report, and for any statements, findings, conclusions, views, and opinions contained and expressed herein, which are not necessarily those of IQVIA Canada or any of its affiliated entities. Moreover, IQVIA Canada shall have no liability to any reader or recipient of this report for their receipt of, use of, or reliance on the data, information, or other contents of this report.

Methodology

The analysis utilized data from CAPDM members, IQVIA's internal databases, a survey of pharmacies, and a secondary literature search. Internal data from a panel of CAPDM members were provided via a data capture form received through a secure file transfer protocol (SFTP). The panel included a diverse mix of 11 small, medium, and large distributors in Canada. Results were reported in aggregate as long as a minimum of three distributors from the panel contributed data. Data were also derived from IQVIA Canada's Territorial Sales Analysis, Canadian Drugstore and Hospital Purchases Audit, and CompuScript offerings to examine the following markets: COVID-19 vaccines (based on IQVIA's uniform system of classification [USC]: 27400), narcotics (based on USC 3: 02200), and originator biologics and biosimilars (based on a tracked market definition). IQVIA Canada's deltaPA and PharmaFocus offerings were also used for this report. A survey was performed with a random panel of pharmacies, with equal representation from urban and rural communities.

Glossary

B2B: Business-to-Business

CAGR: Compound Annual Growth Rate

CAPDM: Canadian Association for Pharmacy Distribution Management

CDH: Canadian Drugstore and Hospital Purchases

CSO: Community Service Obligation

DC: Distribution Centre

FDR: Food and Drug Regulations

GDP: Good Distribution Practices

GMP: Good Manufacturing Practices

IT: Information Technology

MAR: Monthly Activity Report

pCPA: pan-Canadian Pharmaceutical Alliance

PMPRB: Patented Medicine Prices Review Board

RFID: Radio Frequency Identification

SDPCs: Self-Distributing Pharmacy Chains

SFTP: Secure File Transfer Protocol

SKU: Stock Keeping Unit

TSA: Territorial Sales Analysis

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