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The role of distributors in the US health care industry

2025 report


















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Executive summary

Pharmaceutical distributors serve a critical role as a driving force of patient access to medicines in the US pharmaceutical industry, handling 96% of all pharmaceutical sales.[1] The value that distributors provide to the health care industry is much more than the movement of product. Distributors manage more than 135 million annual orders[2] with increasing levels of complexity, including shifting product portfolios with strict handling requirements, an evolving regulatory environment introducing uncertainty, and an increasingly diverse set of customers that are addressing patient needs for increasingly specialized medicines.

Distributors aggregate products from thousands of geographically dispersed manufacturers and provide accurate, timely, and in many cases, daily shipments to more than 450,000 dispensation points.[3] Through core distribution services, the industry supports patient access to needed medicines while upholding supply chain speed and integrity.

Core distribution services remain essential to the pharmaceutical industry fulfilling its mission of connecting patients to critically needed medicines. These services alone deliver up to $78 billion in value for the industry and do not reflect the entire spectrum of services offered. While the future role of distributors may look somewhat different as companies adapt to market-driven and regulatory-driven shifts, distributor investments driving innovation, such as cold chain, enhance their impact to the health care industry—and importantly, patients.

A distributor is more than just a mover of pharmaceuticals across the supply chain. These strategic partners support product handling, inventory positioning, financial transactions, and supply chain integrity to allow manufacturers to focus on drug development and production. They also enable pharmacists and providers to provide elevated levels of care to their patients without the burden of ordering or logistics coordination across many manufacturers.

Introduction

Since the *Role of distributors in the US health care industry* report was published in 2019, change has served as a dominant theme. In this time, several acute changes, such as natural disasters and a global pandemic, have disrupted many industries, but arguably none more than the pharmaceutical supply chain. Stakeholders were tasked with developing, producing, commercializing, funding, distributing, and administering lifesaving vaccines and therapies at record speed in difficult conditions. The inner workings of the pharmaceutical supply chain were illuminated for the public to see, and stakeholders delivered on the promise of the industry—to provide access to critically needed medications.

However, the change did not stop at the pandemic. In a country with an aging population and rising levels of chronic diseases, manufacturers are developing highly complex treatments, such as cell and gene therapies, for rare health conditions. Not only are the products changing, but so are the points of dispensation. Patients are receiving their medicines in myriad environments, driven in part by the shifting product portfolio toward specialty and next-generation therapies and their unique handling and administration requirements.

Beyond market-driven change, the pharmaceutical industry is facing an evolving regulatory environment. Laws, executive orders, and regulations proposed and considered today have introduced the near certainty of change; the challenge is determining how and when things may change.

As the pharmaceutical industry has continued to adapt, distributors have successfully navigated a range of external forces and demonstrated their critical role and value to the health care industry. With their agility and ability to drive industry collaboration and investments in innovation, they are well-positioned to support the industry now and into the future.

CHAPTER 1:

Ecosystem overview

Key takeaways

1. The US pharmaceutical industry makes up a small percentage of total health care spending but has a significant impact on patients.
2. The US pharmaceutical industry comprises a complex web of interactions between different stakeholders. Some stakeholders take on direct handling and ownership of the product throughout the supply chain, some play a more behind-the-scenes role, and some—like distributors—do both.
3. Past and recent events like the COVID-19 pandemic, natural disasters, and ongoing regulatory uncertainty have forced a large amount of change to the industry.
4. The ecosystem of products and stakeholders has changed significantly since 2019 and has driven targeted investments in evolving distribution capabilities that help drive safe and timely patient access to medicines—like cold chain shipping and last-mile delivery.

Pharmaceutical role in health care

The US pharmaceutical industry plays a critical role in the broader health care industry. The pharmaceutical industry serves most of the US population, with roughly 50% taking prescription medicines at least once in the past month[4]—underscoring the need for consistent, timely, and safe access to these medicines. The industry has achieved consistent growth as its impact continues to expand, reaching $677 billion in distributor prescription net sales in 2024.[5] This is driven in part by an aging patient population and increases in chronic illnesses that drive ongoing demand, especially for specialty medicines[6] and blockbuster medicines (such as those in the GLP-1 category).

While pharmaceuticals are a large and growing industry, the expenditures related to medicines are low when observing the greater health care industry. Using estimates provided by the Centers for Medicare & Medicaid Services (CMS), pharmaceuticals account for less than 10% of overall health care spending,[7] while other estimates range as high as 14%.[8] Despite its relatively low share of overall health care spending, pharmaceuticals make a valuable impact on the overall health care industry. Studies have indicated that the use of pharmaceuticals, when managed by pharmacists, can lead to reductions in overall health care costs with an estimated ROI range of $1.29 to $18.50 per dollar spent on medicines and pharmacy services.[9] Treating and managing patient illnesses with pharmaceuticals can help reduce costlier health care interventions in the future, highlighting the importance of this industry in managing population health and managing overall health care expenditures.

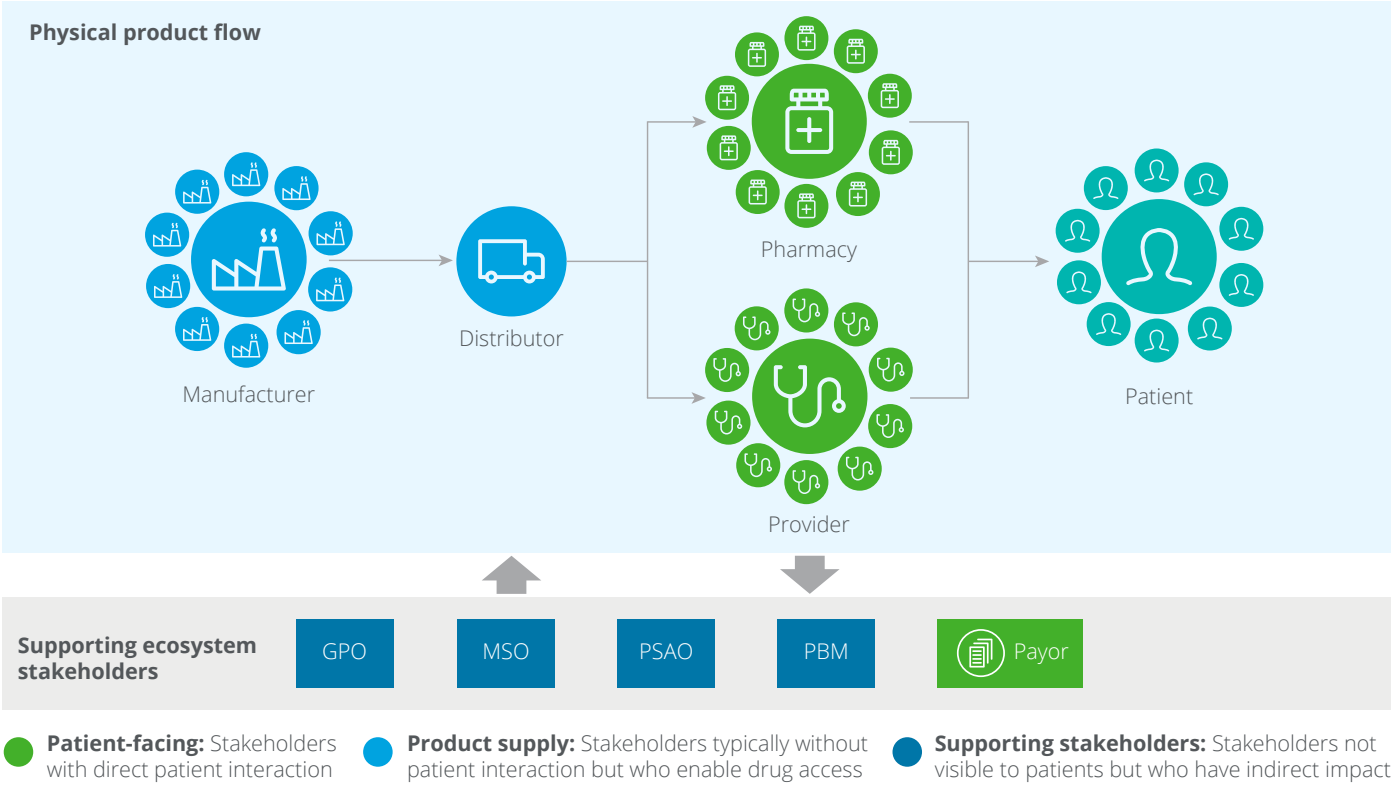
The pharmaceutical industry has been the focus of much public attention in recent years given high-profile advocacy for reduced drug pricing and improved supply chain finance transparency. Meanwhile, public officials are seeking to address several of these issues through regulatory channels. The Inflation Reduction Act (IRA) was signed into law in August 2022 and the Most-Favored-Nation Executive Order was issued in May 2025. These federal policy actions, and other challenges, and their specific impact on the distribution industry, will be examined later in chapter 1 and explored in further detail in chapter 3.

While much attention has been focused on the affordability of pharmaceuticals, the industry plays a critical role in providing patient access to medicines that prevent much more costly medical interventions. By avoiding a more serious, and costly, intervention in the future, the industry can help improve patient outcomes and reduce overall health care costs.

Pharmaceutical industry key stakeholders and roles

The US pharmaceutical industry comprises a complex web of interaction between many different stakeholders. Some stakeholders help move product through the supply chain while others support the industry without direct product handling. Figure 1 is a simplified illustration of the key stakeholders in the industry and their role in either the physical product flow or as supporting stakeholders of the transactions and information.

Figure 1: Pharmaceutical industry stakeholder map (simplified)



Note: This graphic has been intentionally simplified and is not meant to show all possible physical product flows

Product supply stakeholders: Stakeholders typically without direct patient interaction that enable drug access through manufacturing, shipping, and/or product handling.

- **Manufacturer:** Researches, develops, and launches a diverse portfolio of innovative and established therapies, enabling reliable access to medicines; maintaining continuity of supply; and upholding high standards of safety, quality, and compliance within a dynamic, highly regulated global environment.
- **Distributor:** Purchases pharmaceuticals from manufacturers and supplies them to pharmacies, hospitals, and other health care channels, driving timely, efficient, and secure delivery through robust warehousing and transportation practices, while maintaining compliance with regulations and supporting supply chain integrity and taking on financial risk of product ownership and inventory.

Patient-facing stakeholders: Stakeholders with direct patient interaction, typically involved in dispensing drugs, administering care, and/or facilitating the patient payment process.

- **Patient:** Serves as end customer of the supply chain, with all key stakeholders existing to facilitate their access to important pharmaceuticals.
- **Pharmacy:** Dispenses pharmaceuticals to patients across a range of modalities—including retail, mail order, specialty, and digital platforms—and often supports the patient journey through assistance and education programs.
- **Provider:** Health care professionals who determine care strategy, prescribe medicines, and administer care to patients.

- **Payor:** Provides risk coverage for members by collecting payments from individuals, employers, or government programs; funds are used to reimburse or cover the costs of prescribed health care services, medications, and treatments in accordance with plan terms and application regulations.

Supporting stakeholders: Stakeholders typically not visible to patients but who have an indirect impact on the pharmaceutical supply chain. These entities typically play a role in coordinating contracts, negotiating prices, managing claims, and supporting downstream dispensation sites.

- **Group purchasing organization (GPO):** Aggregates the purchasing power of multiple health care providers (hospitals, clinics, pharmacies) to negotiate better prices and terms with drug manufacturers and distributors.
- **Pharmacy benefit manager (PBM):** Manages prescription drug benefits on behalf of health insurers, employers, and government programs.
- **Pharmacy services administration organization (PSAO):** Partners with pharmacies to streamline administrative operations, provide business and compliance support, and negotiate contracts with PBMs and payors, helping pharmacies optimize reimbursement and maintain access to prescription drug networks.
- **Management services offering (MSO):** Provides administrative and management support services to health care providers, including pharmacies and physician practices.

Past and recent events shaping the US pharmaceutical industry

Since the last *Role of distributors in the US health care industry* report was published in 2019, several notable events impacted the pharmaceutical industry. These recent events brought significant attention to the industry, and in many cases, influenced both change and uncertainty.

COVID-19 pandemic

Given the public health implications of the pandemic, the US pharmaceutical industry was thrust into the global spotlight. The pandemic not only brought the industry's role into the forefront, it also put unprecedented pressure on the pharmaceutical supply chain to rapidly deliver novel medications at scale while maintaining safety and security. The industry met this challenge head-on, investing heavily in cold chain infrastructure to meet vaccine storage and handling requirements. The coordinated response between the government and industry stakeholders elevated the importance of pharmaceutical supply chain resilience—and reinforced expectations that stakeholders work together to provide high levels of service to deliver critical medicines to the right place and at the right time.

Drug shortages

While the pharmaceutical industry was largely praised for its COVID-19 pandemic response, the persistence of drug shortages has remained a challenge confronting the industry and many of its key stakeholders. The number of active drug shortages reached an all-time high (323 shortages) in the first quarter of 2024.[10] The prevalence of drug shortages continues to present a challenge to patient access; more than 40% of active drug shortages began in 2022 or earlier,[11] which points to a challenge in being able to resolve persisting shortages. The number of generic drug shortages is more than double that of branded drug shortages, which is partially attributed to the greater number of generic drugs available on the market.[12] Drug shortages add administrative and operational burdens to an industry designed to maximize patient access to medicines but operating in a supply-constrained environment. While many stakeholders play an important role in mitigating the impact of shortages, distributors specifically help the industry in five ways:[13]

1. Building relationships with a diverse range of manufacturing partners
2. Leveraging data and predictive analytics to help manage supply and demand
3. Sourcing alternative medicines
4. Implementing allocation programs
5. Leveraging public private partnerships

Evolving regulatory environment

Current and proposed legislation and regulations are also driving a significant amount of change and uncertainty in the industry; six areas are highlighted in this section.

1. Drug Supply Chain Security Act (DSCSA)

Description: DSCSA was enacted in 2013 and requires interoperable and electronic product traceability at the package (item) level, aiming to enable tracing and verification capabilities for prescription drugs as they are distributed throughout the US supply chain. The intent of this law is to protect patients from stolen, counterfeit, or harmful medicines that may have been compromised in quality.[14]

Impact on industry: Stakeholders have invested heavily in capabilities to remain compliant with DSCSA requirements, with the expected intent of enhancing supply chain security and upholding high-quality standards that will support product integrity and support patient health and safety.

2. Inflation Reduction Act (IRA)

Description: The IRA, enacted in August 2022, pursues reforms to the Medicare program allowing for price negotiations on high-cost drugs, with some of the key provisions having only recently gone into effect. As part of this law:

- Federal regulators can negotiate directly with manufacturers on prescription drug prices for Medicare Part D and Part B;
- There are inflationary rebate provisions for all drugs covered by Medicare Part B and Part D that are tied to the Consumer Price Index for All Urban Consumers (CPI-U); manufacturers that raise their prices faster than the rate of inflation will be required to pay an inflationary rebate to Medicare; and
- The various provisions (e.g., negotiations, inflationary rebates, Part D design) are intended to work collectively to reduce out-of-pocket spending for Medicare beneficiaries.[15]

Impact on industry: Drug pricing has been renegotiated for 120 drugs since April 2023 because of the Inflation Reduction Act's Medicare Prescription Drug Inflation Rebate Program.[16] These price reductions could have margin implications for several stakeholders across the industry, including manufacturers and distributors.

3. Most-Favored-Nation Executive Order

Description: An executive order issued in May 2025 titled, "Delivering Most-Favored-Nation Prescription Drug Pricing to American Patients," intends to set a cap on US drug prices so that they are no greater than international prices.

Impact on industry: If enacted, this executive order could have significant implications on the industry as drug prices would become reference-based depending on prices of the same drugs in other countries. This downward pricing pressure is likely to impact margins of many stakeholders in the industry, with implications on the industry's ability to continue significant investment into drug discovery and commercialization.

4. State legislation

Description: Public scrutiny toward "middlemen" has increased attention on stakeholders' roles within the industry.[17] This scrutiny may threaten to alter the business models of several stakeholders in the industry, and the increased public attention has influenced state-level legislation. For example, in April 2025, Arkansas signed legislation that banned PBMs from owning pharmacies as the practice has been deemed anti-competitive; other states have implemented PBM reforms to varying degrees.[18] Meanwhile, Connecticut has also passed legislation establishing a prescription drug cost transparency program, requiring manufacturers, PBMs, payors, and other stakeholders to disclose and report notably high price increases and new drugs with a high price point.[19]

Impact on industry: State-level legislation targeting the role of "middlemen" in the industry is threatening to disrupt current business models and the interactions between industry stakeholders. These state-level legislative proposals largely target PBM ownership of pharmacies and pursue greater pricing transparency, which is likely to have a "ripple effect" across the industry.

5. 340B program reform

Description: The 340B Drug Pricing Program was enacted in 1992 to help stakeholders serving uninsured and lower-income patients maximize their resources by mandating drug manufacturers provide discounts to covered entities. This program has faced scrutiny in recent years for several potential challenges.

Impact on industry: Senate Health, Education, Labor, and Pensions Committee Chairman Bill Cassidy (R-LA) released an April 2025 report following an investigation into how covered entities use the 340B program. The report proposed several changes focused on additional reporting and transparency requirements.

6. Tariffs

Description: The administration has suggested potential tariffs on pharmaceuticals in the US.[20] At the time of publication, tariff policies affecting the industry remain fluid and may continue to evolve.

Impact on industry: As an example, if a 25% tariff was enacted, the impact to the pharmaceutical industry has been estimated at $51 billion annually.[21] Beyond the near-term pricing impacts, the longer-term effects may manifest in supply chain reconfigurations as stakeholders optimize their sourcing, manufacturing, and distribution strategies to remain competitive amid geopolitical constraints. For example, manufacturers may choose to source raw materials from more domestic suppliers, increasing the demand for domestic logistics services to transport products between supplier and manufacturer, rather than global logistics services moving products internationally. This example may be more realistic for branded drugs than for generics where pricing pressure may prohibit this type of adjustment.

Evolution of the pharmaceutical product landscape

While responding to the recent events impacting the pharmaceutical industry, stakeholders across the ecosystem have also adapted to an evolving product landscape. To understand how the product landscape has shifted, the definitions of the various drug types should first be established.

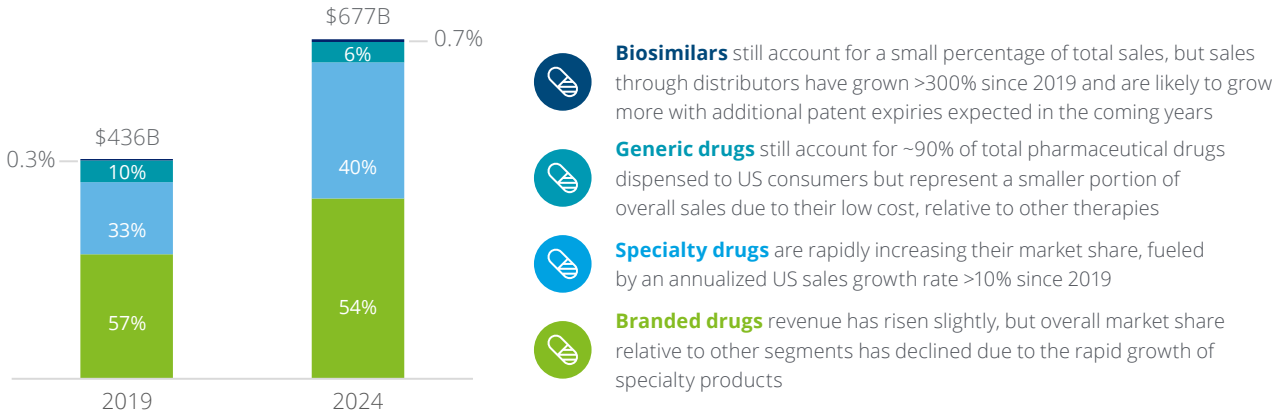
Definition of drug types

Four primary drug types will be referenced throughout the report, with specialty comprising a few specific sub-segments:

- **Branded:** Pharmaceuticals manufactured by a company that holds exclusive rights granted by a patent to produce that drug.
- **Specialty:** High-complexity medications for chronic or rare conditions affecting a small portion of the population; this includes both branded and generic drugs (depending on patent status) as well as next-generation therapies such as gene therapies, cell therapies, and other advanced biologics.
  - **Next-generation therapies (Next-gen):** Includes gene, cell, and RNA-based therapies that target diseases at the molecular or genetic level; often personalized and designed to address the underlying cause of complex or rare conditions.
  - **Personalized medicines:** Tailored treatment to the individual characteristics of each patient.
- **Generics:** Pharmaceuticals that can be produced by several companies after the exclusive patent rights granted to the original manufacturer have expired.
- **Biosimilars:** Highly similar, though not identical, to a reference biologic whose patent has expired, and meets the same FDA safety and efficacy standards as the original drug.

There has been an evolution of the product mix across the four primary drug types, as depicted in figure 2.

Figure 2: Distributor revenue by drug type[22]



Branded drugs account for the largest share of pharmaceutical industry revenue. While overall revenue has risen since 2019, branded pharmaceuticals' total market share has declined.[23] One reason is the growth of specialty drugs. Specialty comprises the fastest-growing drug type with an annualized sales growth rate in the US of more than 10% since 2019.[24] The balance of pharmaceutical revenue is increasingly shifting toward specialty pharmaceuticals as new therapies emerge for highly complex treatments. Generic drugs, while accounting for 90% of total pharmaceutical drug volume dispensed,[25] represents a much smaller proportion of revenue due to lower unit pricing. Biosimilars, despite posting growth of more than 300% since 2019, still account for a relatively small percentage of the overall pharmaceutical market.[26]

The growth of pharmaceuticals increases the distribution requirements for the industry, driven by its special handling considerations. Many of these drugs require stringent temperature controls, secure handling, patient support, and enhanced regulatory compliance requirements. Specialty distributors and pharmacies have proliferated to manage these complex requirements.

One class of pharmaceuticals has notably driven demand for cold chain—GLP-1 (glucagon-like peptide-1). The rising weight loss indication for these products has helped drive its prevalence in recent years. More than 2 million obesity prescriptions were filled for GLP-1 drugs in December 2024, up 400% from 2023.[27] That growth is expected to continue as GLP-1 sales are projected

to reach $126 billion by 2029, representing a 30% CAGR.[28] The rising use of GLP-1 drugs has likely been driven by its demonstrated effectiveness for weight loss, expanded FDA approvals for obesity, increased drug awareness driven by traditional and social media, and a cultural shift toward treating obesity as a medical condition.[29] The large and growing market for GLP-1 drugs serves as a recent example of popular chronic disease medications, which are creating opportunities for different patient access models, payment models, and distribution models to emerge. We will explore the distribution implications of the rise of these pharmaceuticals in more detail in chapter 3.

Next-generation therapies, a subset of specialty pharmaceuticals, have even greater distribution requirements. These therapies often involve cryogenic shipping, which consumes more energy and comes at a higher cost than other forms of cold chain logistics. Specialized couriers and rigorous oversight are often required, and, for patient-derived products (where the patient provides a sample to serve as a raw material for the finished product), there is a bidirectional supply chain to transport raw materials from the patient to the manufacturer and return the finished therapy to the clinical site, requiring chain-of-identity and custody protocols throughout.

Evolution of pharmaceutical ecosystem stakeholders

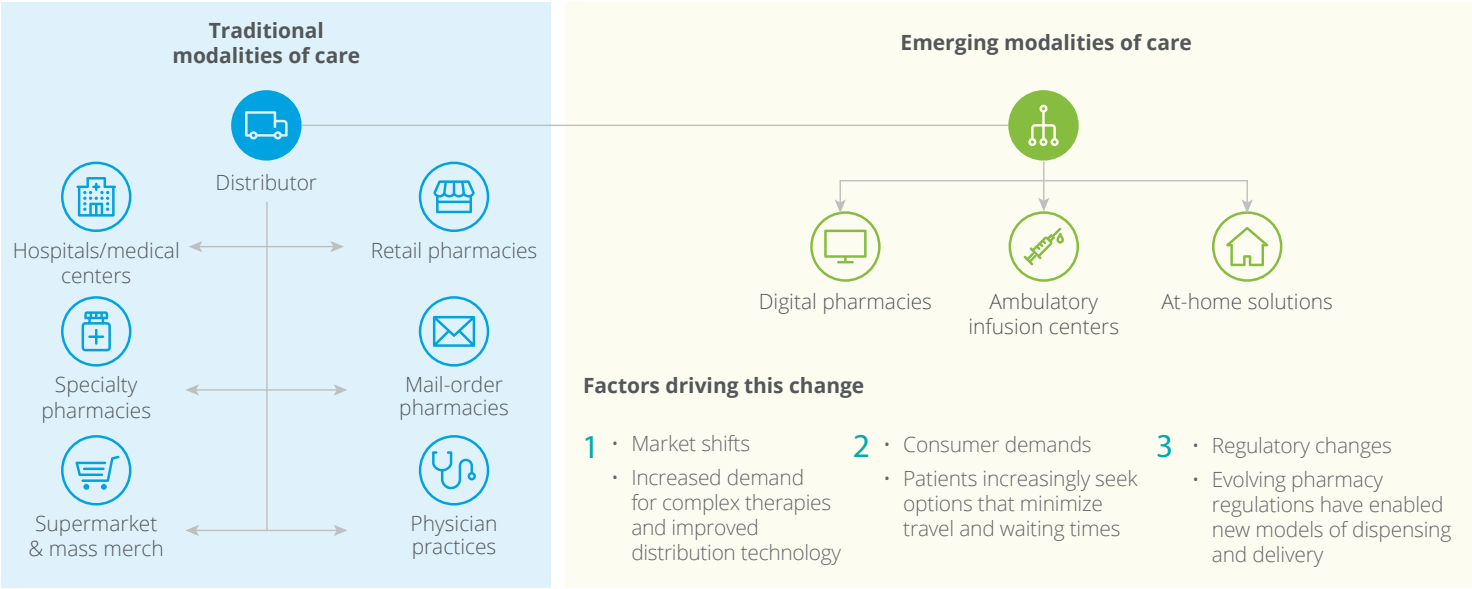
Since 2019, blending roles and shifting modalities of care have prompted pharmaceutical stakeholders to adapt their businesses.

Stakeholders are integrating their roles to gain greater control over the patient journey, improve care coordination, enhance data access, and create seamless, integrated health care experiences—reshaping the pharmaceutical industry and competitive landscape. For example:

- Payors and PBMs have become more integrated.
- Multiple stakeholders have sought out integration with primary care providers.
- Manufacturers have built or partnered with digital pharmacies.

Further, complex therapies and a drive to enhance the patient experience are causing drug administration and dispensing to be carried out in a diverse range of care modalities. Figure 3 illustrates some of the emerging modalities of care relative to more traditional methods.

Figure 3: Traditional vs. emerging modalities of care



The shift to diverse modalities of care has required pharmaceutical supply chain stakeholders to adapt to new service models and puts a greater emphasis on accessing a more complex downstream ecosystem. While emerging modalities of care are a notable recent trend, there has also been a considerable shift in the capabilities and requirements within traditional modalities of care. The continued rise of specialty and next-gen therapies has required additional storage, handling, and distribution considerations to meet unique requirements.

CHAPTER 2:

Evolving role of distributors

Key takeaways

1. The overall value of core distribution services offered by distributors has grown since 2019 and is estimated to be up to $78 billion annually.
2. Pharmaceutical distributors are responsible for the timely, safe, and efficient delivery of medicines and health care products that are often critical to the livelihood of patients.
3. The role of core distribution has remained consistent since 2019, and these services remain highly valuable to the industry (though often misunderstood).
4. The role of distributors has evolved, driven by a greater demand for cold chain shipping, disruptions to downstream pharmacies, and an increasingly complex network of care modalities and dispensation points.

Role of distributors in 2025

The role of distributors is fundamentally defined by the core distribution services the industry offers to the pharmaceutical supply chain. In this report, core distribution services are defined as:

> *Any service involving transporting pharmaceuticals between nodes in the supply chain; holding and managing inventory levels, and assuming the financial ownership and supply chain integrity of goods received until final delivery.*

The foundation of these services is largely unchanged since 2019, as core distribution services remain critical to the efficient and effective operations of the industry. Core distribution services encompass four elements, including supply chain efficiency, inventory management, financial risk management, and supply chain integrity. Despite the criticality and importance of the products that pharmaceutical distributors handle, they earn a relatively lower-margin percentage compared to distributors of other industries.[30] These core distribution services do not include the value-added services offered by distributors that fall beyond the definition of "core distribution services" from above; these additional services will be explored in more detail later in chapter 2.

Element 1: Supply chain efficiency

Distributor supply networks are both centralized and efficient, providing timely and reliable delivery of products to sites of care. Distributors receive shipments of pharmaceuticals from over 1,400 geographically dispersed manufacturers[31] and package the products into consolidated shipments destined for specific downstream pharmacy or provider orders. The distributor serves as a point of aggregation for the industry, enabling products from multiple manufacturers to be combined into single shipments for downstream customers—eliminating the need for every pharmacy or provider to have to order and receive products from each manufacturer separately. This aggregation point simplifies the outbound logistics for manufacturers who do not need to ship directly to the hundreds of thousands of dispensation points in the pharmaceutical industry. Inbound logistics are simplified for pharmacies and providers who do not need to receive separate shipments from each manufacturer and can instead receive a single bundled shipment.

Additionally, distributors' positioning between manufacturers and downstream customers allows them to react quickly to drug shortages and recalls, helping improve response time to fluctuations in demand or supply chain events. Distributors can work to improve the efficiency of the pharmaceutical supply chain by leveraging their upstream and downstream relationships and data visibility.

Element 2: Inventory management

The warehousing and logistics capacity and capabilities offered by distributors benefit the industry by optimizing inventory management throughout the network. Distributors, on average, maintain 22 days' sales of inventory on hand, translating into $52 billion of pharmaceutical products. Distributors leverage advanced

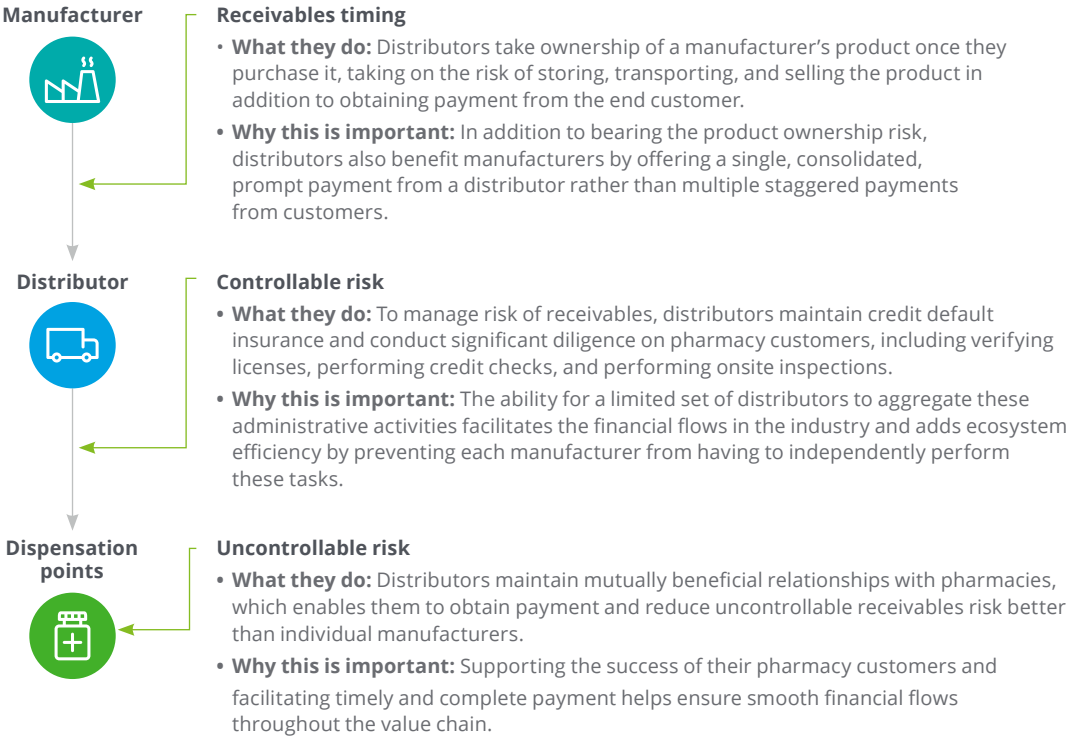
analytics to maintain optimal stock levels, minimize the risk of shortages, and lower overall storage costs. While distributors may have the scale to manage large amounts of inventory, not all industry stakeholders can store significant amounts of product. Many downstream customers, such as smaller pharmacies and providers, do not have the storage space, cold chain technologies, inventory management capabilities, or working capital to hold large quantities of pharmaceuticals on hand. By holding inventory on behalf of their downstream customers, distributors enable their partners to free up valuable working capital that can be used for other critical operational investments. The risk for distributors continues to rise with the increasing cost of specialty pharmaceuticals.

Additionally, distributors support their customers' inventory management by providing shipments as frequently as daily for more than 80% of customers.[32] These daily consolidated shipments allow pharmacies and providers to hold onto smaller quantities of product and follow a more "just-in-time" fulfillment model, enabling these stakeholders to use their real estate to focus on patient care rather than holding inventory.

Element 3: Financial risk management

The immediate interpretation of "core distribution services" is often focused on supply chain efficiency and inventory management. Although these elements are core to the aggregation benefits offered by distributors, the financial risk management of core distribution services is often misunderstood and undervalued. Distributors support the financial flows of payment that enable upstream manufacturers and downstream pharmacies and providers to operate their businesses and secure prompt and reliable payment. Distributors, positioned centrally within the supply chain, can leverage their relationships to facilitate the payments necessary for industry operations. The financial risk management element comprises three parts: (1) receivables timing, (2) controllable risk, and (3) uncontrollable risk. Figure 4 highlights this often-overlooked benefit provided by distributors to the industry.

Figure 4: Financial risk management



The financial risk management benefit that distributors provide to the ecosystem has increased in recent years with the shifting product mix within the industry. As the prevalence of specialty and next-generation pharmaceuticals continue to rise, the financial risk associated with these higher-cost therapies is significantly greater than in years past. Additionally, the evolving modalities of care downstream (e.g., rise of ambulatory infusion centers) mean that distributors should assess and mitigate the financial risk of new customers with potentially different business models and financial profiles.

Element 4: Supply chain integrity

The 2019 report focused core distribution services on the first three elements of supply chain efficiency, inventory management, and financial risk management. One element referenced, but not uniquely highlighted, is supply chain integrity. The evolution of regulatory requirements, strong market growth, and prevalence of high-cost pharmaceutical products have all made enhanced supply chain integrity a priority for the overall industry, but especially for distributors. For these reasons, a fourth element around supply chain integrity is being presented.

Distributors play a critical role in ensuring patient safety by upholding the integrity of the supply chain. Due to their unique position in the pharmaceutical industry and close collaboration with both upstream and downstream partners, distributors collect and track product data, which are analyzed to ensure compliance, monitor product conditions, and report issues throughout the supply chain. Additionally, distributor tracking systems allow for the rapid identification and removal of products from the supply chain (e.g., in the case of product recalls), improving compliance and reducing patient risk.

While distributors have long maintained a focus on supply chain integrity, regulatory requirements taking effect in 2025 have accelerated and enhanced the role distributors play in this area. The DSCSA established a national system for tracing prescription drugs through the US supply chain to enhance patient safety and combat counterfeit, stolen, contaminated, or otherwise harmful drugs. Distributors are adapting to meet these regulatory standards by their compliance with the following requirements:

- **Serialization:** Ensuring that all prescription drug packages and cases are marked with a unique product identifier (2D barcode)
- **Electronic data exchange:** Transitioning to electronic, interoperable systems for sharing transaction data (transaction information, history, and statement) with supply chain partners
- **Verification systems:** Establishing processes to verify, investigate, and quarantine suspect or illegitimate products within 24 hours
- **Record retention:** Maintaining transaction records for at least six years
- **Recall and notification systems:** Enhancing systems to rapidly notify and remove recalled or dangerous drugs from the supply chain

Evolution of distributors since 2019

While the elements of core distribution services have remained consistent and critical to a safe and reliable pharmaceutical industry, the role of distributors has evolved considerably over the past five years.

Increased cold chain capabilities

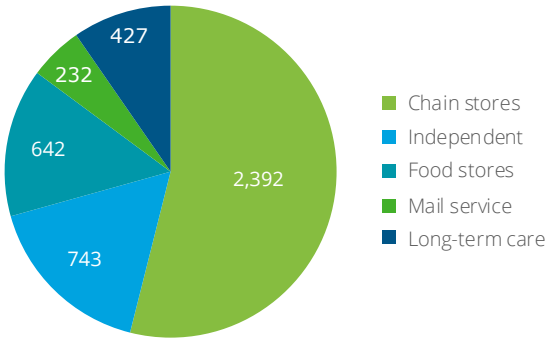
Distributors have made significant investments in their cold chain infrastructure due to the growing demand for specialty products. It is not surprising to see the US cold chain market growing in tandem with the rise in specialty products; the value of the US pharmaceutical cold chain market is estimated at $236 billion in 2025 based on a 5% CAGR.[33] Many new drugs are requiring cold chain shipping, accelerating the growth for these capabilities in recent years and into the future. Nearly half of the 292 drugs approved between 2018–2023 required cold chain storage and 6% of those required frozen storage.[34] To support this growth, cold chain spending was projected to reach 24% of biopharmaceutical logistics spending by 2024, up from 18% in 2020.[35] Beyond the investments required to establish and scale cold chain capabilities, distributors also bear more risk through their handling of these products as a single dose of a cold chain drug on average costs 22 times more than a small molecule drug.[36]

Pharmacy channel shifts

Another example of distributor evolution since 2019 is the adaptation to shifts in the pharmacy channel. Figure 5 illustrates the number of prescriptions dispensed by various pharmacy channel segments, noting that hospitals, clinics, and digital pharmacies are not included in this view.

Figure 5: Pharmacy prescriptions dispensed by segment

Prescriptions dispensed by channel* (in millions)[37]



* Digital pharmacies are excluded from this view.

The number of prescriptions dispensed at chain stores (e.g., CVS, Walgreens) increased 3% since 2019 despite the total number of retail stores falling 5.6% between 2023 and 2024.[38] The majority of the revenue generated by chain pharmacies comes from dispensing prescriptions, but lower reimbursement rates for prescription drugs is adversely impacting the profitability of many stores, contributing to the rising number of store closures across the country.[39] Despite the financial struggles, these chain stores still account for the majority of prescriptions dispensed—and are a critical part of the distributor's downstream fulfillment network—though the most growth lies in other pharmacy segments.

The pharmacy segments that saw the greatest increase in prescriptions dispensed since 2019 are food stores and mail service. Growth in these segments underscores a patient's desire for convenience. Food stores offer patients the opportunity to pick up their prescriptions while they do their grocery shopping, enabling a one-stop shop for both their nutrition and health needs. Patients may not mind waiting for their prescriptions to be filled if they are able to complete their grocery shopping in the meantime. Mail service takes convenience a step further and ships the products directly to the patient's door. This service requires a unique element that the other segments do not require—last-mile distribution. Distributors fulfilling orders to food stores, for example, can send shipments to the retailer's central warehouse or directly to the stores, where a patient then arrives to pick up the product. In mail service, the product is sent to the patient's address, adding complexity and risk to the supply chain. (One growth area not referenced in figure 5 is digital pharmacies, though these will be discussed in detail in chapter 3.)

Independent pharmacy: Shrinking footprint and expanding role

Independent pharmacies saw a modest amount of growth in the number of prescriptions dispensed while facing notable numbers of store closures. The number of independent pharmacies in the US has fallen 13% since 2019.[40] Independent pharmacies continue to face financial pressure to stay viable in a competitive pharmacy market with a rapidly evolving regulatory environment.

Independent pharmacies are unique from other pharmacy segments in that they often serve as the only pharmacy in rural and under-resourced areas, ensuring essential access to care for those patients. Roughly one-third of independent pharmacies serve towns with a population of fewer than 10,000 people.[41] Not only do their physical brick-and-mortar locations offer valuable accessibility, but the role of the pharmacist—especially at independent pharmacies—has expanded to that of a medical advisor in addition to a dispenser.

Pharmacists are supplementing the services offered by primary care providers in several domains, such as prevention and wellness, advising on minor acute illnesses, mental health, and chronic condition management.[42] Another potential driving force is necessity: more than 170 counties in the US lack an in-county critical access hospital, and the rate of rural hospital closures has accelerated over the past 10 years.[43] As pharmacists spend more time on patient interaction and medical guidance, there is less time to spend managing the business. This is where distributors come in.

Distributors offer many value-added services to pharmacists beyond product delivery, such as inventory management and rebate support, which helps independent pharmacies run their business and spend more time serving patients. While the number of independent pharmacies may be declining, their role in their local communities is more important than ever—and distributors have played a key part in offering services that help support their viability.

Increasing complexity in modalities of care

As specialty pharmaceuticals continue to grow, the complexity of managing the downstream modalities of care increases for distributors. The branded and generic drugs that dominated the traditional pharmaceutical supply chain in previous decades served a set of customers with fairly homogenous needs. The shifting pharmaceutical product portfolio has changed the modalities of care, as discussed in chapter 1, and created a network of customers with distinct needs. Serving a more diverse downstream market increases the complexity of managing customer relationships. For example, an oncology practice administering a high-cost oncology drug that requires cold chain shipping and specifically trained

staff has a different set of needs than a supermarket pharmacy servicing mostly branded and generic pharmaceuticals for the general population. Economies of scale through the aggregation of medicines from multiple manufacturers and dispensing to downstream customers is one of the value drivers offered by distributors. Evolving customer needs make these economies of scale more challenging to achieve, as customers need to be managed and addressed on a more personal level than ever before.

Beyond the challenges of managing the changing demands of the specialty market and its downstream customers, downstream market fragmentation makes it increasingly challenging and energy intensive to maintain temperature-controlled environments, a significant consideration for specialty products. As the downstream networks continue to increase in complexity, it becomes increasingly important to ensure product tracking and traceability, increasing the level of investment and oversight from product-handling stakeholders—especially distributors.

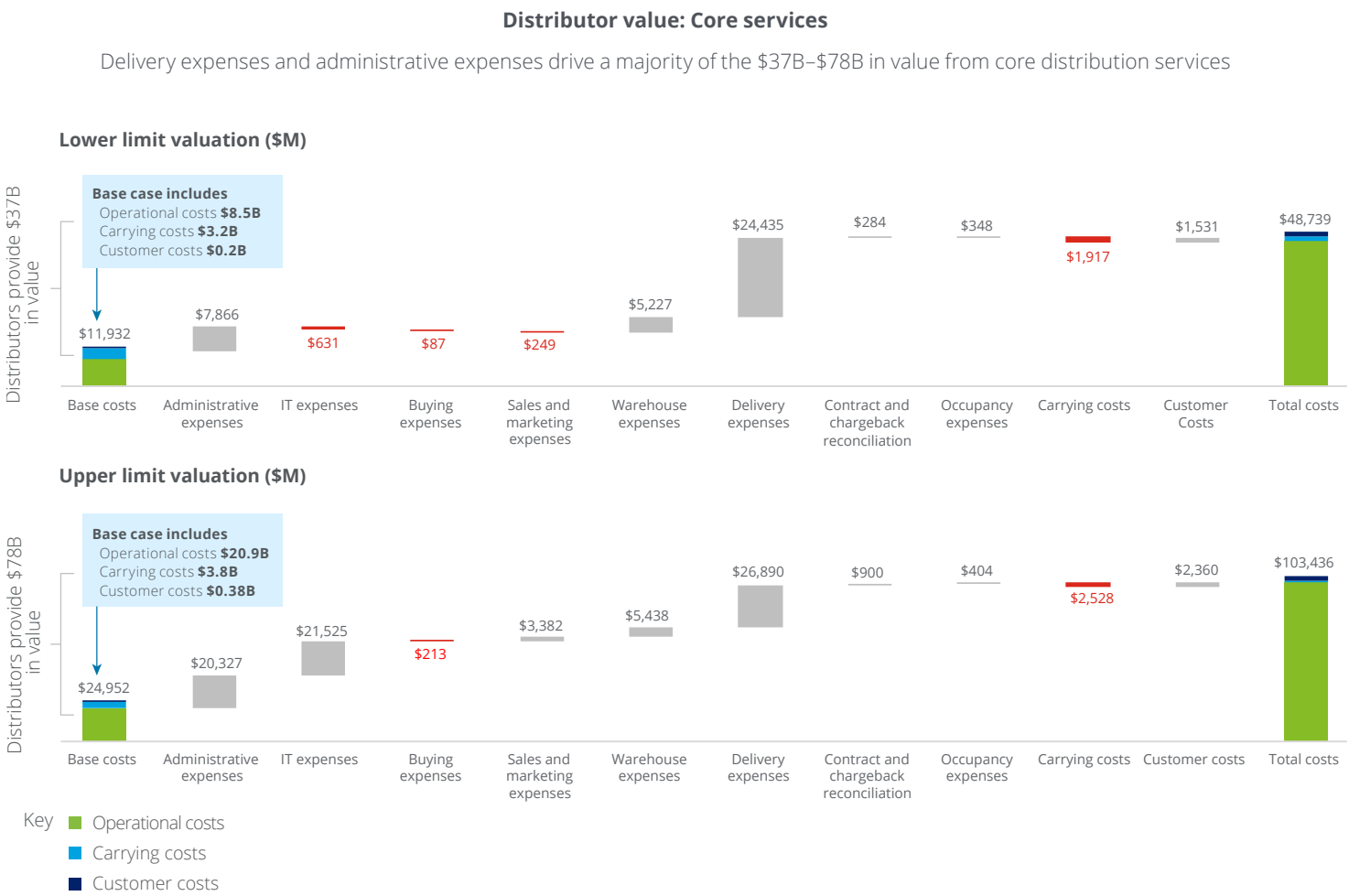
Quantifying the value of core distribution services

In the 2019 *Role of distributors in the US health care industry* report, Deloitte conducted a detailed analysis to quantify the value of pharmaceutical core distribution services to the health care industry. The financial model allocated costs incurred by distributors as reported by the *HDA Factbook* to establish a base case, then calculated the cost for manufacturers and downstream customers to achieve the same level of service in a replacement case. Ten cost categories were calculated in the core distribution services model, of which eight were linked to the *HDA Factbook*. This report leverages the same financial model construct for consistency and applicability of year-over-year value growth, with one noted addition—cold chain warehousing.

The value of distributors' core distribution services today is calculated as the difference in operating expenses—administrative, warehouse, delivery, sales and marketing, IT, occupancy, buying, contracts, and chargebacks reconciliation—between the current state of distribution (manufacturer to distributor to downstream customer) and the replacement case (manufacturer to downstream customer). Analyzed in 2019 and reevaluated for 2025, these cost categories reflect the three pillars of core distribution services: supply chain efficiency, inventory management, and financial risk management. The newly added pillar of supply chain integrity is not included; distributors' support for supply chain integrity is incremental to the values discussed below and evident in the significant investments distributors have made in DSCSA compliance efforts and everyday operational investments in driving supply chain safety. IQVIA has estimated that the benefits of improved supply chain integrity and compliance could be worth up to $40 billion, activated by DSCSA and other collaborations between distributors and industry.[44] This value would be derived from (1) addressing counterfeiting and adulterated products, (2) eliminating duplicate rebates, co-pay benefits misuse, and chargebacks abuse, and (3) inefficient supply chains.[45]

The previous report estimated that distributors' core distribution services impact to the industry was up to $53 billion, and an updated analysis in 2022 revealed a value of up to $63 billion.[46] Figure 6 highlights the changing value of core distribution services between the 2019 report and today, which now estimates that value to be up to $78 billion, reflecting growth of 49% over that time frame.

Figure 6: Distributor core distribution services value



These 10 cost categories encompass three pillars of core distribution services—supply chain efficiency, inventory management, and financial risk management. A short description of each of the 10 cost categories is provided for context:

1. **Administrative expenses:** Order processing, invoice distribution and payment processing, suspicious order monitoring, and bad debt expenses
2. **Warehouse expenses:** Pick, pack, and ship expenses in addition to expenses related to packaging materials and returns processing
3. **Delivery expenses:** Expenses incurred when moving products from distribution centers to providers and, when applicable, returns
4. **Sales and marketing expenses:** Account management and other related sales and marketing expenses
5. **Information technology (IT) expenses:** Expenses related to order management and chargeback systems, IT setup, and EDI reporting
6. **Occupancy expenses:** Expenses covering the costs of warehouse operations (now inclusive of cold chain warehousing)
7. **Buying expenses:** Processing costs of received orders
8. **Contract and chargeback reconciliation expenses:** Customer membership eligibility and chargeback processing expenses
9. **Carrying costs:** Expenses incurred to hold inventory
10. **Customer costs:** Personnel expenses incurred by pharmacy and provider customers to place orders

Several key inputs to the financial model drove most of the changing value of core distribution services.

Key driver: Number of distribution centers

The input that drove the greatest increase to the overall value of core distribution services was the number of distribution centers operated by the industry. An increasing number of distribution centers highlights the growing role distributors play in warehousing and distribution—and how integral these facilities are to efficient operations across the entire industry. Some factors that may be contributing to the increasing footprint are the rising demand for pharmaceutical products, growing cold chain storage needs, the growth of blockbuster drugs such as GLP-1s, and the shifting modalities of care requiring proximity to customers and unique product storage and handling capabilities. This impact is embedded within the increases to several categories, including warehouse expenses, delivery expenses, administrative expenses, IT expenses, and others.

Key driver: Number of shipping points

The number of shipping points serviced per distribution center saw a notable rise since 2019. This increase reinforces the distributor's role in managing complex delivery networks and ensuring efficient distribution to hundreds of thousands of customer dispensation points. The shifting modalities of care—including specialty clinics, urgent care centers, telehealth hubs, and online pharmacies—has diversified distribution channels and increased the complexity of distributor-managed delivery networks. This impact is seen most in the IT expenses category: an increased number of ship-to-points and greater electronic data exchange setup requirements would mean that without distributors, the amount of system setup and maintenance costs would rise dramatically. Thousands of manufacturers would need to be directly connected to an increasing number of customer shipping points.

Key driver: Cold chain packaging and next-day-air shipment

Growth in the inputs of air shipment and cold chain packaging is driven by the rising demand for temperature-sensitive products and rapid delivery. Rising cold chain packaging costs and air shipment costs put pressure on distributor operating models in the current state, but if manufacturers had to manage direct shipments to all downstream customers, the impact of these rising inputs would be magnified multifold. This impact can be seen most in the delivery expenses category.

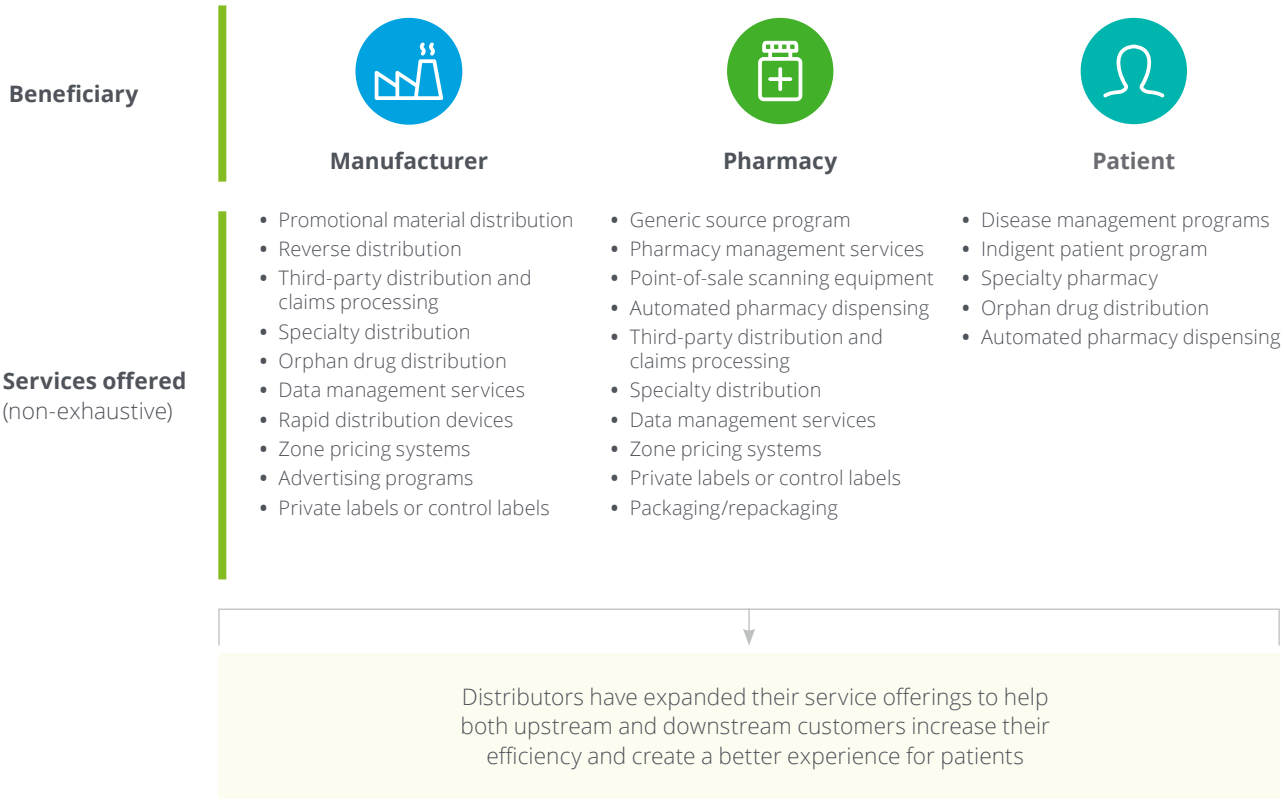
Key driver: Employee salaries

Employee salaries across key personnel working for distributors have increased roughly 20% due to inflation and additional growth in compensation.[47] Beyond inflation, companies faced difficulty in finding and retaining employees coming out of the COVID-19 pandemic, with roughly 74% of companies citing a tight labor market as a key reason for increasing employee pay.[48] Rising employee costs for pharmaceutical distributors would be multiplied if manufacturers had to replace the labor responsible for performing key activities taken on by distributors, reflected in the administrative expenses category.

Additional value not included: Value-added services

Beyond core distribution services, distributors offer a range of value-added services, such as Risk Evaluation and Mitigation Strategies (REMS) program support, to help their upstream and downstream partners manage different aspects of their businesses. To remain consistent with the quantification approach of the 2019 financial model, these services have been excluded from the value stated earlier but should be recognized as contributing incremental (albeit presently unquantified) value to the industry. There are a wide number of value-added services offered by distributors, which evolve based on industry needs. Figure 7 illustrates a few examples of leading value-added services impacting upstream partners, downstream partners, and patients. Note that this list is not exhaustive of all value-added services offered and reflects the services listed in the HDA Factbook (with more than 60% of distributors offering the service).

Figure 7: Select value-added services provided by distributors[49]



CHAPTER 3:

Trends impacting the future of distributors

Key takeaways

1. New distribution models offer alternatives to the current distribution business model and may require distributors to adapt their service offerings to meet evolving products requirements and patient preferences.
2. Continued growth of specialty pharmaceuticals and biologics may increase operational complexities for distributors and demand further investment in cold chain shipping capacity.
3. The rapidly evolving regulatory landscape and increased public scrutiny of the pharmaceutical industry creates uncertainty to distributors and other stakeholders, which could present significant opportunities and/or disruption to existing business models.

Emerging distribution models

Several distribution models have emerged as alternatives to the traditional distribution business model. Distributors may be required to adapt their service offerings to meet evolving product distribution requirements and patient preferences for convenience.

Emerging distribution model: Direct-to-consumer

Direct-to-consumer (DTC) distribution models are more prevalent in the pharmaceutical industry, in part due to the rise of cash-pay models for specific medications. These models pose an alternative to traditional distribution, but many past and current DTC models have been met with challenges and, contrary to common understanding, do not always exclude distributors.

What is a DTC model?

A DTC model enables the direct relationship between consumers and manufacturers as orders are placed directly with the manufacturer and product arrives at the patient's doorstep. In these models, patients can opt for coverage through their insurance plans for select medications as with the traditional distribution model, while for some medications in DTC models, the products are only available through self-pay (cash payments). To date, these models have largely focused on specific product categories (e.g., GLP-1) rather than a broader portfolio of products.

Do DTC models remove the remaining industry stakeholders?

The term direct-to-consumer can be misleading when representing the current distribution models made popular in recent years by LillyDirect® and PfizerforAll™. Contrary to the implication that the product goes directly to the consumer from the manufacturer, there are still important roles for other stakeholders to play in these models.

For example:

- **Pharmacies** (often digital pharmacies, explored in chapter 3) are involved to provide critical pharmacy services that manufacturers are often not able to provide.
- **Payors** offer coverage for select DTC medications (others can only be self-pay).
- **Providers** (often via telehealth) write prescriptions for the medicines required to address the patient's condition.
- **Distributors** are involved in the traditional capacity of drug acquisition and distribution, though in some models (especially self-pay) the traditional role of distributors is disrupted, and product flows through the supply chain via third-party logistics (3PL) services (which may still be provided by distributors or other 3PL partners), with ownership being maintained by the manufacturer and digital pharmacy.

What benefits are DTC models attempting to achieve?

Organizations pursuing DTC models are generally seeking to take advantage of:

- Expanded patient access by enhancing convenience and accessibility for patients and providing direct engagement and education;
- More streamlined access to downstream patient and pharmacy data;
- Increased brand recognition for drugs ordered directly through manufacturers; and
- Improved consumer experience by delivering drug to patients' doors without requiring visits to pharmacies or hospitals.

To what extent do DTC models exclude distributors?

Direct-to-consumer models take many forms and do not always go around distributors. Regardless of who is delivering the product, the act of distribution is still required to get medicine from the manufacturer to patients. Some alternate models use direct distribution to control the supply chain and retain value, though many revert to the traditional supply chain due, in part, to the following factors that they prefer distributors take on:

- Credit checks and credit risk
- Payment collection from fragmented downstream customer base
- Customer setup and account management
- Special logistics requirements (e.g., drop-shipping)
- Business-to-business vs. business-to-consumer support model differences
- The high level of required technology infrastructure

Emerging distribution model: Digital pharmacies

The growth of digital pharmacies is reshaping patient access and expectations, requiring distributors to adapt to new fulfillment models and digital integration.

What is a digital pharmacy?

A digital pharmacy is an online platform or service enabling patients to order, manage, and receive prescription medications through digital channels rather than visiting a physical pharmacy. Digital pharmacy businesses operate a type of direct-to-consumer model combining telehealth consultations with online prescription fulfillment, sourcing medications through traditional supply chains or direct manufacturer relationships, and delivering products directly to patients—often through self-pay (cash models).

How big is this market?

The largest digital pharmacies include Amazon, with an annual pharmacy revenue estimated at $2 billion,[50] Hims & Hers with an annual pharmacy revenue of $1.5 billion,[51] and several others such as Ro and Noom.

How do digital pharmacies impact distributors?

Many acquire products through distributors and rely on them for their traditional role in the supply chain (e.g., product acquisition and logistics) as distributor purchasing power and scale allow them to sell these products to digital pharmacies for a lower price than they may be able to acquire. Some, however, are serving as key partners in emerging DTC models that exclude distributors. In these models, the digital pharmacy purchases the products directly from the manufacturer and ships them to customers via 3PL services.

Emerging distribution model: Personalized medicine

Personalized medicine is a growing segment of specialty pharmaceuticals within the next-generation therapies category, adding increased complexity to distributor operations and supply chains with its unique manufacturing and distribution requirements.

What is personalized medicine?

Personalized medicine is "an emerging practice of medicine that uses an individual's genetic profile to guide decisions made in regard to the prevention, diagnosis, and treatment of disease. Knowledge of a patient's genetic profile can help doctors select the proper medication or therapy and administer it using the proper dose or regimen."[52]

How big is this market?

The US personalized medicine market size is estimated at $50 billion with a projected CAGR of 17% from 2025 to 2034.[53] Additionally, personalized medicines accounted for 34% of new drugs receiving FDA approval in 2022, a notable jump from 25% in 2019.[54]

How does personalized medicine impact distributors?

The growth of personalized medicine presents an opportunity for distributors as they are currently deeply embedded within the supply chain and have deep distribution expertise. As personalized medicines continue to become more common in the health care industry, to take advantage of these opportunities, distributors will need to adapt their supply chains to more advanced cold chain shipping and product tracking capabilities and may need to explore partnerships with other stakeholders both within and beyond the industry to meet the needs of this rapidly evolving segment.

Personalized medicine also presents a challenge for the traditional distribution model, including:

- Loss of scale advantages due to the low-volume, high-cost nature of these therapies;
- Closer collaboration required between care providers and manufacturers;
- Bidirectional product flow (patient to manufacturer and back to patient);
- Extreme temperature control requirements; and
- High risk due to the expensive nature of the therapies.

Evolving portfolio complexity

In chapter 1, the role of the evolving product portfolio was explored as a trend impacting the pharmaceutical industry. In this chapter, the evolution of the product portfolio is discussed specifically regarding its influence on the future role of distributors.

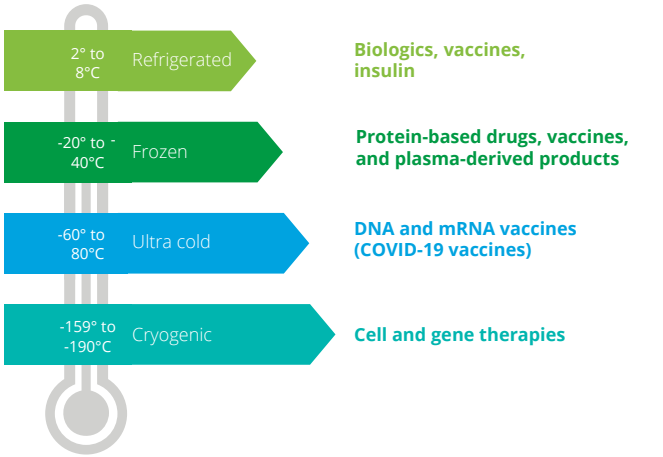
Specialty pharmaceuticals

Specialty pharmaceuticals have remained a key and growing part of the pharmaceutical product portfolio. Total sales of specialty pharmaceuticals were estimated to be $417 billion in 2024 with an average CAGR of 12% since 2020[55] and account for roughly 50% of all pharmaceutical sales in the US.[56] Estimates indicate that growth is likely to continue, with the global specialty pharmaceutical market expected to see a 10-year CAGR from 2023 to 2033 of 36.5%; North America leads the market, capturing a 54% share in 2023.[57] Specialty pharmaceuticals often have several distribution requirements that must be maintained, including:

- **Strict temperature control:** Products often must be maintained at 2°C to 8°C or even colder for frozen products.
- **Storage requirements:** Some products have environmental control requirements beyond temperature, such as humidity or light.
- **Handling procedures:** Some products require personnel trained on the unique requirements of cold chain in addition to the implementation of strict quality control measures.
- **Financial risk:** The higher average cost of specialty products increases the financial risk if there is an excursion, theft, damage, or other product issue.

Figure 8 highlights the types of cold chain that have emerged as product storage and shipping requirements have evolved with the growth of specialty pharmaceuticals.

Figure 8: Types of cold chain



The continued rise of specialty pharmaceuticals will likely require distributors to accelerate investments in cold chain and specialty support capabilities, further elevating their role from providers of pick, pack, and ship services to strategic collaborators in the pharmaceutical industry.

Generics

Generics comprise a vast majority of pharmaceutical volume but represent a much smaller relative share of sales due to their lower average unit price. The US generics market is expected to reach $232 billion by 2034 with a 5.2% CAGR,[58] driven by an aging population, the prevalence of chronic diseases, persisting shortages of some brand-name drugs, and patent expiration. Generics account for a significant share of the volume of medicines in the pharmaceutical market, so a rising generics market can increase the volumes that flow through distributors, prompting the need for additional capacity and logistics optimization.

Biosimilars

Biosimilars represent a small but growing share of the pharmaceutical market. Sales of biosimilars are expected to reach $129 billion by 2027.[59] Molecules currently facing biosimilar competition had a total of $38 billion of invoice spending, and biosimilars that are currently being developed or are approved but have not yet launched total an additional $96 billion in invoice spending.[60] Growth of biosimilars is likely to further accelerate the need for cold chain capabilities discussed earlier in the specialty pharmaceuticals section.

Evolving regulatory requirements

This section examines the impact of the evolving regulatory landscape on the future role of distributors. Some of these regulatory changes outlined in chapter 1 are likely to have a direct (first order) impact on distributors, while others may have an indirect (second order) impact or an even more distant (third order) impact on distributors.

Drug Supply Chain Security Act (DSCSA)

Likely impact category: Direct (first order)

The implementation of DSCSA is rolling out in the latter half of 2025 and into 2026. Since most of the effort and investments required to support compliance with these requirements have been completed, the future impact of DSCSA to distributors is likely collaborating with upstream and downstream partners to support a smooth transition and address any issues that emerge. There may be short-term effects related to operational efficiency as orders may be delayed or stopped due to insufficient compliance, but these are not expected to be widely disruptive to the industry based on the past decade of diligent preparation by stakeholders across the industry.

Inflation Reduction Act (IRA)

Likely impact category: Indirect (second order)

The IRA may have an impact on distributors in several ways. First, government negotiated or capped prices could reduce the reimbursement rates for drugs, which in turn compresses margins

across the industry, distributors potentially included. Second, distributors may need to renegotiate contracts with manufacturers and payors to account for new pricing structures dictated by the IRA. Third, distributors may need to invest in system and business processes to track and report pricing data.

Most-Favored-Nation Executive Order

Likely impact category: Indirect (second order)

The Most-Favored-Nation Executive Order may place downward pressure on drug pricing, thereby reducing margins across the industry, potentially including distributors. Additionally, section 4 of the executive order may present a challenge to the traditional distribution model where it reads "To the extent consistent with law, the Secretary of Health and Human Services (Secretary) shall facilitate direct-to-consumer purchasing programs for pharmaceutical manufacturers that sell their products to American patients at the most-favored-nation price,"[61] though the intent and impact of the statement are yet to be realized.

State legislation

Likely impact category: Indirect (second order)

The various initiatives being explored and enacted across several states with the intent to provide greater transparency to drug pricing is likely to have some impact to distributors, though it may be more indirect. State-level price transparency laws and Prescription Drug Affordability Boards (PDABs) are working to review and lower the cost of prescription drugs. Beyond the impact driven by the actions of these entities, distributors may be indirectly affected through PSAO services that negotiate contracts with PBMs on behalf of independent pharmacies; disruption to the PBM business model will affect the pricing negotiations with the independent pharmacies that distributors support through the PSAO services.

340B program reform

Likely impact category: Indirect (second order)

Proposed reform to the 340B program may have an impact on distributors. First, stricter reporting processes and restrictions could be imposed on the 340B program to improve transparency to where savings are generated, which may drive more operational complexity for distributors. Additionally, changes to the program could limit the number of contract pharmacies and covered entities, potentially affecting a distributor's customer relationships. Finally, ongoing legal and regulatory debates may drive uncertainty in business planning and contracting, potentially having an impact on distributors.

Tariffs

Likely impact category: Distant (third order)

Proposed tariffs on pharmaceuticals may affect distributors in several ways. First, tariffs on active pharmaceutical ingredients (APIs) and finished pharmaceuticals could increase costs, which could have significant impacts for the industry that is already facing scrutiny on drug pricing. Second, tariffs could affect supply chains, potentially leading to drug shortages and market instability, and some manufacturers may exit the market altogether if it is not profitable. Finally, distributors may face increased compliance burdens and the need to diversify sourcing strategies if tariffs are imposed.

CHAPTER 4:

Future role of distributors

Key takeaways

1. Distributors can leverage their access to supply chain and market data to provide actionable insights and thought leadership to their customers, strengthening their role as trusted thought partners to manufacturers, providers, and other stakeholders.
2. Distributors can expand their impact and deliver greater value to patients by forming alliances with organizations inside and outside the health care sector—such as telehealth, wellness, and advanced manufacturing.
3. Distributors can improve access to high-cost specialty therapies by offering patient assistance programs and flexible payment options, reducing financial barriers for patients.
4. Distributors can harness agentic and Generative AI to optimize supply chains, enhance compliance, improve engagement, manage risk, integrate data, and drive innovation in value-added services.

Growing AI capabilities

Technology advances have provided agentic and Generative AI capabilities to the marketplace, which present an opportunity for distributors to enhance their capabilities. Many distributors are already embracing AI capabilities and determining how to advance their digital maturity to drive incremental impact.

What is Generative AI (GenAI)?

"Generative AI is a subset of artificial intelligence in which machines create new content in the form of text, code, voice, images, videos, processes, and even the 3D structure of proteins … Generative AI can help in incremental digitization and basic productivity use cases (e.g., more effective text-based channels). But its grander potential is in the higher order opportunities, such as new services or business models that were previously uneconomical."[62]

What are some core capabilities of GenAI?

- **Intelligent search:** Use of the semantic context of queries to provide more accurate and relevant results to improve search algorithms.
- **Summarization:** Extraction of requested or valuable information from data, and presentation in a concise format.
- **Generation:** Creation of new original content across different media types (e.g., text, audio, picture).

What is agentic AI?

"Autonomous Generative AI agents, referred to as 'agentic AI,' are software solutions that can complete complex tasks and meet objectives with little or no human supervision. Agentic AI is different from today's chatbots and co-pilots, which themselves are often called 'agents.' Agentic AI has the potential to make knowledge workers more productive and to automate multistep processes across business functions."[63]

What are some core capabilities of agentic AI?

- **Reason** to determine intent and definition of success
- **Plan** steps to be taken
- **Act** autonomously by applying skills
- **Evolve** by iterating thinking

How can GenAI and agentic AI enhance the impact of distributors as they continue to advance their digital maturity?

Use case 1: *Supply chain optimization*

- GenAI
  - Demand forecasting: Analyze historical sales, epidemiological data, and external factors (flu season trends, for example) to generate more accurate demand forecasts.
  - Scenario planning: Simulate scenarios (supply disruptions, for example) to test supply chain resilience.
- Agentic AI
  - Autonomous inventory management: Deploy agents that monitor real-time inventory levels, autonomously reorder stock, and optimize warehouse operations to achieve strategic key performance indicators (KPIs).
  - Dynamic routing: Deploy agents that adjust delivery routes in real time based on traffic, weather, or shifting customer needs.

Use case 2: *Customer engagement*

- GenAI
  - Personalized communications: Tailor communications for customers to reflect deep knowledge of the relationship and their unique considerations and preferences (for example, product updates or recall notices).
  - Knowledge management: Summarize and present medical research, product information, and customer intelligence for customer service teams to be best equipped to treat customers with deep market and customer insight.
- Agentic AI
  - Virtual assistants: Handle order inquiries, resolve issues, and provide proactive support to customers.
  - Automated onboarding: Guide new partners through onboarding, documentation, and compliance processes.

Additional use cases

- Regulatory compliance and documentation
- Risk management and fraud detection
- Data integration and insights
- Innovation in value-added services

How might distributors benefit from utilizing GenAI and agentic AI capabilities?

Distributors can harness GenAI and agentic AI to optimize supply chains, enhance compliance, improve engagement, manage risk, integrate data, and drive innovation in value-added services. Adopting these AI capabilities allows distributors to operate more efficiently and effectively. Improvements in operational performance support the industry's role in providing core distribution services and additional value-added services to ecosystem partners.

Distributors as thought partners

Distributors sit at the nexus of the value chain and have visibility to many transactions throughout the entire process. This perspective enables them to capture significant amounts of data and provide insights to other value chain stakeholders. Their unique vantage point and insights establish them as valuable and credible thought partners to their upstream and downstream partners. Stakeholder partners continue to seek out this information and insight, so this future role of distributors is a continued growth opportunity with the increasing amounts of data generated across the industry.

What data do distributors have access to that other stakeholders may find valuable?

- **Inventory and stock data:** Current inventory levels across distribution centers, stock-out and back-order information, product expiration dates and lot numbers, and turnover rates for specific drugs.
- **Customer and market insights:** Pharmacy and provider purchasing patterns, geographic distribution of demand, and customer segmentation (retail vs. hospital, independent vs. chain pharmacies).
- **Other types of data:** May include order and sales data, compliance and regulatory data, pricing and contract data, and logistics and distribution data.

Where may distributors be best positioned to serve as thought partners?

- **Supply chain optimization**
  - **Demand forecasting:** Using historical sales, seasonality, and external factors (e.g., flu season), distributors can help partners better predict demand, which can lead to reduced stock-outs and optimized inventory levels.
  - **Inventory management:** Insights into order and consumption patterns can help inform optimal reorder points, safety stock levels, and inventory turnover rates for both upstream (e.g., manufacturers) and downstream (e.g., pharmacies, providers) partners, helping them to reduce carrying costs and improve service levels.
  - **Logistics optimization:** Analyzing delivery routes, timing, and logistics performance can help distributors recommend ways to reduce transportation costs and improve delivery reliability.
  - **Risk management:** Visibility into the end-to-end value chain enables distributors to provide early identification of supply chain risks that allows for proactive mitigation strategies.
- **Benchmarking and performance**
  - **Peer benchmarking:** Accessing data across an extensive set of manufacturers, distributors can provide benchmarks on KPIs such as order fill rates, inventory turns, days of supply, and delivery accuracy.
  - **Best practice identification:** Analyzing manufacturer data to segment manufacturers can help isolate what top-performing partners do differently, which enables distributors to determine industry best practices.
  - **Performance scorecards:** Real-time data can be customized and organized into scorecards to help partners track their performance against industry averages or best-in-class peers.
- **Other domains of thought partnership:** Distributors may be able to offer thought partnership in additional areas including market access and product launch, regulatory compliance, pricing and contract optimization, and patient access and adherence.

Distributors pursuing strategic partnerships

Distributors can enhance their value to the overall industry by pursuing strategic partnerships to develop new offerings.

What are some leading partnerships that could help distributors enhance their value to the industry?

Partnership 1: Wellness

Distributors collaborate with wellness brands and services to offer pharmaceuticals and wellness products as a full health care bundle for patients' holistic needs.

- Why distributors? Many distributors already handle over-the-counter (OTC) medications, supplements, and health products. Their reach into pharmacies, clinics, and grocery stores enables them to efficiently distribute wellness products and services.
- Why now? A growing focus on preventive health and self-care from consumers and the White House is driving demand for wellness products. Wellness is increasingly linked to digital health platforms (e.g., Noom), where distributors can play a role in fulfillment.

Partnership 2: Grocery home delivery

Distributors partner with grocery chains that already offer last-mile distribution services for home delivery to bundle groceries and pharmaceuticals into one shipment.

- Why distributors? Their logistics networks and cold chain capabilities can efficiently serve grocery stores with health, wellness, and pharmacy products, and their ability to bundle pharmacy and grocery deliveries for a holistic consumer health offering supports a more holistic consumer health experience.
- Why now? Online grocery shopping and delivery have surged in recent years, creating new supply chain needs—and grocers are expanding pharmacy and wellness offerings, seeking integrated supply solutions.

Other strategic partnerships

- Telehealth: Partner with a telehealth company to provide an integrated end-to-end service for customers.
- Advanced manufacturing and compounding: Invest in or partner with companies using cell and gene therapy manufacturing or personalized medicine compounding—offering distributed, on-demand production and local fulfillment—in alignment with approvals from the FDA.
- On-demand distributed manufacturing hubs: Establish a network of micro-manufacturing or compounding hubs (potentially using 3D printing or modular cleanrooms) near major health care centers for rapid, local production of specialty and personalized medicines.
- Integrated real-world evidence networks: Create a network aggregating anonymized data from pharmacies, providers, and patients to generate real-world evidence for manufacturers, regulators, and payers.

By forging partnerships with nontraditional stakeholders, distributors can leverage their highly embedded infrastructure, strong data access, and logistics capabilities to build a coordinated ecosystem of stakeholders that improves patient access.

Next-generation therapies access

In the current environment, patients face challenges accessing next-generation therapies, and distributors are potentially well-positioned to help solve that problem.

Distributors today are faced with the commoditization of their pick, pack, and ship capabilities as the movement of traditional pharmaceuticals is generally faced with low margins. Because of this market pressure, distributors are increasing their focus on specialty markets; higher growth is possible in emerging therapies areas where greater infrastructure investment and operating conditions are required. Finally, because of their scale, many distributors have access to significant amounts of capital, used to operate their businesses as efficiently as possible. This indicates distributors may be looking for an opportunity to further drive value for the industry and may have the capital to invest in the right opportunity.

The current health care system in the US is more focused on patients on an annual basis rather than a longitudinal basis like other countries with national health insurance. This practice typically limits the ability for patients to pay for long-term therapies over a long period of time. Additionally, patients requiring specialty therapies are required to pay large sums of money up front—often thousands of dollars or more for a single dose, though the out-of-pocket cost is less due to a complex web of financial benefits.

There may be a role for distributors to play in helping support patient access to these medicines. Two areas distributors could provide benefits include:

- **Patient assistance programs:** Distributors can facilitate or administer programs in partnership with manufacturers, foundations, or payors to pool resources that help cover copays, coinsurance, or even the full cost for uninsured or underinsured patients.
- **Installment or deferred payment plans:** Distributors facilitate the connection between providers and patients to allow patients the option to pay for therapies over time, rather than up front (low-interest payment plans or “buy now, pay later”).

For distributors, this engagement may increase therapy uptake and throughput, driving higher distribution volumes and strengthening relationships with manufacturers and providers. It may also attract more customers, increase market presence, and generate income through interest or service fees. These programs could help reduce bad debt for providers, who might otherwise be unable to stock expensive therapies. For patients, distributors’ increased role may help reduce or eliminate financial barriers, enabling access to life-changing therapies.

Conclusion

Distributors in the US health care industry play a role that is both critical and evolving. As highlighted throughout this report, distributors are not merely logistics providers; they are strategic partners that ensure the efficient, safe, and timely delivery of pharmaceuticals. Their core distribution services—supply chain efficiency, inventory management, financial risk management, and supply chain integrity—are foundational to the health care industry, supporting patient safety and access to critical medicines.

In recent years, distributors have demonstrated remarkable agility in response to unprecedented challenges, such as natural disasters and the pandemic, and evolving regulatory landscapes. Their investments in cold chain infrastructure and adaptation to shifts in where patients are accessing medicines underscore their commitment to meeting the growing demands of specialty pharmaceuticals and next-generation therapies. These efforts have not only reinforced their value but have also positioned them as indispensable players in the health care supply chain.

Looking ahead, distributors are poised to harness emerging technologies, such as GenAI and agentic AI, to further optimize supply chains, enhance compliance, and improve customer engagement. These technologies offer the potential to transform distributors into even more proactive and insightful partners, capable of providing actionable data and thought leadership to manufacturers, providers, and other stakeholders. Moreover, distributors can explore strategic partnerships beyond traditional boundaries, collaborating with wellness brands, telehealth providers, and advanced manufacturing entities. These alliances can expand their impact, offering integrated solutions that address the holistic needs of patients and health care providers alike.

As the health care landscape continues to evolve, the role of distributors remains critical. They will likely play a pivotal role in navigating the complexities of new distribution models, while maintaining their core mission of ensuring patient access to critical medicines. Their ability to adapt, innovate, and collaborate will drive continued relevance and value in the ever-changing health care industry. As trusted partners, distributors remain at the forefront of efforts to enhance patient care and improve health outcomes, solidifying their role as integral components of the health care industry today and into the future.

APPENDIX:

Methodology

Evaluation of financial model

Assumption	Value	Explanation	Sources
Number of DCs	104-112	Total was calculated based on publicly available reports from industry leading distributors and adjusted +/- 4 DCs to account for uncertainty	CardinalHealth McKesson Cencora
FTE salaries	Varies based on position	2025 values are based on Deloitte data from 2019 and adjusted for inflation	Economic Policy Institute
Number of manufacturers	113 – 752	Low includes large-cap and mid-cap manufacturers (>$5B). The high range extends to include small cap	CompaniesMarketCap
Time spent on order processing	4-5 min	Utilizes Deloitte SMA assumptions to determine high and low range	Deloitte SMA
% of packages requiring cold chain packaging	9%	Estimated based on cold chain SKU data from HDA	HDA Factbook 96th Edition
Big 3 distributor WACC	5.25% – 8.33%	Calculated based on publicly available reports from "Big 3" distributors	CardinalHealth McKesson Cencora
Next day air avg cost	$23.23	UPS 10K average revenue per air shipment	2024 UPS 10K
Parcel avg cost	$10.98	UPS 10K average revenue per ground shipment	2024 UPS 10K
Material packaging costs	$10.67 – $15.75	Estimated based on Uline packaging material costs and industry trend data from IQVIA	Uline IQVIA: Pharma's Frozen Assets
Number of controlled substance manufacturers	578	Derived based on DEA registration	DEA Diversion Control Division: Controlled Substances Registrants

Assumptions mapped to cost categories

Variable	Administrative expenses	Information technology expenses	Buying expenses	Sales and marketing expenses	Warehouse expenses	Delivery expenses	Contact and chargeback reconciliation	Occupancy expenses	Carrying costs	Customer costs
Number of DCs	●	●			●	●	●	●		●
FTE salaries	●			●	●		●			●
Number of manufacturers		●		●			●			
Time spent on order processing	●									
% of packages requiring cold chain packaging					●					
Big 3 distributor WACC									●	
Next-day air average cost						●				
Parcel avg cost						●				
Material packaging costs					●					
Number of controlled substance manufacturers	●									

APPENDIX:

Glossary

Term	Definition
340B program	A program enacted in 1992 to help stakeholders serving uninsured and lower-income patients maximize their resources by mandating drug manufacturers provide discounts to covered entities.
Biosimilar	Highly similar, though not identical, to a reference biologic whose patent has expired and meets the same FDA safety and efficacy standards as the original drug.
Cold chain	A temperature-controlled supply chain used to preserve and transport pharmaceuticals that require specific temperature conditions.
Direct-to-consumer (DTC)	A model enabling the direct relationship between consumers and manufacturers as orders are placed directly with the manufacturer and product arrives at the patient's doorstep.
Distributor	Purchases pharmaceuticals from manufacturers and supplies them to pharmacies, hospitals, and other health care channels, driving timely, efficient, and secure delivery through robust warehousing and transportation practices.
Drug Supply Chain Security Act (DSCSA)	Legislation enacted in 2013 that pursues interoperable and electronic product traceability at the package level, aiming to track prescription drugs as they are distributed throughout the US supply chain.
Electronic data interchange (EDI)	Transitioning to electronic, interoperable systems for sharing transaction data (transaction information, history, and statement) with supply chain partners.
Generic drug	Pharmaceuticals that can be produced by several companies after the exclusive patent rights granted to the original manufacturer have expired.
Group purchasing organization (GPO)	Aggregates the purchasing power of multiple health care providers (hospitals, clinics, pharmacies) to negotiate better prices and terms with drug manufacturers and distributors.
Health care provider (HCP)	Health care professionals who determine care strategy, prescribe medicines, and administer care to patients.
Industry	Unless otherwise specified (e.g., health care industry), this refers to the pharmaceutical industry inclusive of the stakeholders outlined in chapter 1.
Manufacturer	Researches, develops, and launches a diverse portfolio of innovative and established therapies, enabling reliable access to medicines; maintaining continuity of supply; and upholding high standards of safety, quality, and compliance.
Management services organization (MSO)	Provides administrative and management support services to health care providers, including pharmacies and physician practices.

Term	Definition
Next-generation therapy	Includes gene, cell, and RNA-based therapies that target diseases at the molecular or genetic level, often personalized and designed to address the underlying cause of complex or rare conditions.
Patient	Serves as the end customer of the supply chain, with all key stakeholders existing to facilitate their access to important pharmaceuticals.
Pharmacy	Dispenses pharmaceuticals to patients across a range of modalities—including retail, mail order, specialty, and digital platforms—and often supports the patient journey through assistance and education programs.
Pharmacy benefit manager (PBM)	Manages prescription drug benefits on behalf of health insurers, employers, and government programs.
Payor	Provides risk coverage for members by collecting payments from individuals, employers, or government programs, with funds used to reimburse or cover the costs of prescribed health care services, medications, and treatments.
Provider	Health care professionals who determine care strategy, prescribe medicines, and administer care to patients.
Serialization	Ensuring that all prescription drug packages and cases are marked with a unique product identifier (2D barcode).
Specialty pharmacy	A pharmacy that dispenses high-cost, high-complexity, or high-touch medications for patients with complex or chronic conditions, often requiring special handling or administration.
Specialty pharmaceutical	High-complexity medications for chronic or rare conditions affecting a small portion of the population, including branded and generic drugs, as well as next-generation therapies.

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Endnotes

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