

The Healthcare Supply Chain Top 25 for 2017

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Analyst(s): Stephen Meyer, Eric O'Daffer, Anita Vila-Parrish, Mark Atwood, Lisa Callinan

The Healthcare Supply Chain Top 25 recognizes organizations that show leadership in using supply chain to improve human life at sustainable costs. Supply chain leaders in healthcare can identify improvement opportunities from the traits of these providers, manufacturers, distributors and retailers.

Key Findings

- For the second year in a row, Intermountain Healthcare earned the top spot in our annual ranking of supply chain leaders in healthcare.
- Mayo Foundation, Cardinal Health and McKesson were joined in this year's top five by Johnson & Johnson.
- The Top 25 saw three new entrants: Stryker, Texas Health Resources and Scripps Health. GSK rejoined the ranking after a one-year absence.
- The future of healthcare hasn't become any clearer since our last ranking, requiring organizations that can quickly react to trends and are resilient to disruption. Organizations like this are increasingly using advanced analytics and exploring the value that digital technology might bring.

Recommendations

Supply chain leaders in healthcare and life sciences can learn from the latest trends and innovative practices of the top industry supply chains:

- Establish true end-to-end supply chain visibility and control by partnering with the other key players in delivering patient care and using technology solutions that give insight to demand, supply and inventory.
- Build out analytics capability by hiring data-savvy people and ensuring your systems provide the right data to make timely choices and gain new insights. Find ways to use data science and algorithms to automate decision making.
- Pursue a digital supply chain strategy by simultaneously investigating what new capabilities technology can bring to your supply chain and aligning your supply chain operating model to deliver through new digital channels and connections.

- Complement the pursuit of supply chain innovation with a well-resourced approach to efficiency improvements that will lower your operating costs and need for working capital.

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Analysis

Now in its ninth year, the Gartner Healthcare Supply Chain Top 25 continues its primary mission to recognize supply chain leaders in the companies and organizations that together ensure patients receive timely, high-quality and affordable healthcare.

The past 12 months have seen a lot of turmoil on many fronts. Many large questions regarding the future of healthcare remain unresolved and likely will remain that way for at least the near term. A new administration in the U.S., the U.K.'s continued progress down the path to its exit from the European Union and unrest in Spain have injected uncertainty into the supply chain strategies. In the U.S., the inability of legislators to overhaul the current healthcare system and the severe weather impacting California, Florida and Caribbean have added to that uncertainty. As supply chain leaders evaluate their supply and logistics network, questions of resiliency and responsiveness must be addressed, and that is further complicated by not knowing what they need to be resilient and responsive to.

Despite the uncertainty, supply chain leaders still have to lead. In fact, it is in uncertain times when true leadership is required. While supply chain excellence remains a vital capability of participants in the delivery of care to patients, supply chains leaders that can react quickly to opportunity and disruption are poised to take advantage of those that can't.

The importance of supply chain leadership has manifested itself in a very literal way in 2017. A number of supply chains — representing all segments of the healthcare value chain — made changes at the top of their organizations that resulted in radical shifts in strategy. In many cases, these shifts, instead of focusing on the outside-in strategies that are imperative for moving healthcare collectively forward, instead seem to be very myopic and siloed. Rather than building the visibility, responsiveness and collaboration required to create a path to the future, many supply chain leaders are content to drive incremental improvements in the cost, inventory and service and ignoring the larger opportunities and threats that face their organizations.

On a more positive note, there is still much to be impressed by in the varied landscape of healthcare supply chains. Gartner celebrates the organizations that have embraced the value that supply chain leadership brings and recognize them through our annual ranking. We hope our ranking is thought-provoking and spurs conversations that debate the meaning of supply chain leadership.

Along with our Top 25 this year, we're proud to announce the creation of four new awards that leverage the "wisdom of the crowd" that our peer vote brings to the process. But before we get to the ranking and the new awards, let's review some of the attributes that defined supply chain leadership this year.

Concepts That Define Supply Chain Leadership in Healthcare

Every year, Gartner supply chain analysts who cover healthcare discuss the trends they see in the industry. Inevitably, some are new and some have already been discussed in previous years. While there is a certain amount of pressure to be provocative and leading-edge when discussing trends, the reality is that many impactful trends are established, and as a result, fairly well-known and well-discussed.

While these trends may hold no surprises, they are an important reminder of what the best supply chains are thinking about, and either a reinforcement that your supply chain is on the right path, or a signal that you should reevaluate your priorities.

A Passion to Connect the End-to-End Supply Chain

Supply chain's role in healthcare is evolving from simply pursuing lower supply chain costs and improved service on an individual company basis. Now, collaboration and visibility are key. Partners across the healthcare value chain work together to lower procedure costs while improving outcomes. Providers work to understand and connect all the patient costs from preadmission to post-discharge care (see "Hierarchy of Healthcare Supply Chain Metrics for Integrated Delivery Networks Version 2.0"). Leading manufacturers build supply chain teams tasked with working directly with their customers. And distributors/wholesalers that have long provided the supply chain link between the suppliers and IDNs leverage their position to improve visibility and information flow.

Yet much work remains to be done. Clinical trial and operational supply chains in many cases remain as separate and stand-alone as they have always been, perhaps even more so. Technology, promising better visibility and connection across the end-to-end supply chain, all the way to the patient, still has yet to deliver on its full potential.

But supply chain leaders continue to pursue collaborative innovation that will one day give the industry the same visibility to supply, demand and the inputs to successful outcomes that will make healthcare more responsive, timely and cost-effective.

An Analytical Mindset

Leaders increasingly use advanced analytics to derive more value from the proliferation of operational data and to provide a view of supply chain in line with total cost and patient outcomes. One such example is Mercy's development of the Unified Analytics Platform in perioperative services. Systems that have long remained in silos were integrated to enable better decision making. By sharing data initially in 24 care pathways across product cost and total procedure costs, Mercy changed behaviors through near-real-time data synchronization (see "Healthcare Supply Chain Innovators 2016: Global Patient Care and Supply Chain Analytics Win the Day"). Pfizer continues to invest in its SAP platform, standardizing reporting and master data management, to ensure its more than 30,000 supply chain personnel have access to the right information to make timely decisions.

Access to real-time data and advanced analytics will be at the center of this transformation to revenue enabler. Gartner's 2016 CSCO survey shows that 85% of IDN respondents rank investment

in supply chain analytics as a "top or medium priority" (see "The Patient-Driven Supply Chain of the Future Relies on Alignment With a Real-Time Health System").¹

Along with the improved availability of data, leading supply chain organizations ensure that their people have the right skill set to take advantage of the new information. Larger organizations are hiring data scientists, while companies of all sizes are hiring people that are data-savvy and are comfortable using data analysis to make decisions.

Leadership is critical in analytics. The organizations that chose not to develop this competency will find their decision making impaired as they are confronted with more and more data yet unable to quickly make decisions based on it.

An Understanding of Digital

Across healthcare, there is a growing interest in digital, but many organizations still lack the foundational supply chain maturity to capitalize on it. The Internet of Things (IoT) is already core to many industrial, high-tech and healthcare supply chains. In the 2017 Gartner CEO and Senior Business Executive Survey, 46% of respondents from supply-chain-intensive industries say IoT will be transformational or the driver of major change (see "2017 CEO Survey: What CEOs' Emphasis on Growth and Digital Business Means for Chief Supply Chain Officers").²

Complicating the situation are the many different ways digital technology impacts the supply chain, in addition to the impact that digital technology has on the products used to deliver patient care. Digital can improve core supply foundations (like using 3D printing in a manufacturing or an electronic health record [EHR] in a hospital). It can be used to provide better connectivity and data sharing between partners in the end-to-end healthcare supply chain. And it can be used to support digital products, like information from health monitors, requiring an infrastructure to manage "virtual" supply and demand alongside that of physical products. Technology is still evolving and, as a result, the promise of digital technology has yet to be realized. As a result, there is still plenty of skepticism on the impact digital technology will have on the operation of supply chains in the industry.

Despite the uncertainty, leaders are funding initiatives to explore the value that digital might bring to their supply chains. Companies like Johnson & Johnson and CVS are establishing innovation centers to evaluate the potential of new technologies and partnering with the operational side of the business to determine how to best leverage digital technologies to improve efficiencies, capabilities and service.

A Relentless Drive Toward Greater Efficiency

Despite the wide variation in profitability between the different players in the healthcare supply chain, seemingly no organization is satisfied with its current cost or inventory position. The pursuit of greater efficiencies in cost and inventory is nearly universal. The pressure to fund other business activities (like product development or corporate acquisitions) or improve profitability places pressure on supply chains to free up working capital and reduce the costs to operate the supply chain.

Efficiency remains an imperative in the face of changing reimbursement models that require better alignment to patient outcomes. Leading healthcare organizations and life science companies can reduce costs year after year through a focus on continuous improvement that targets the elimination of waste in the supply chain. They do this by optimizing manufacturing and purchasing lot sizes, improving inventory management, streamlining logistics networks and increasing asset utilization. For example, inventory management transformation at Cleveland Clinic is an enterprisewide supply chain initiative undertaken in partnership with Cardinal Health. The goal is to provide visibility of inventory from manufacturer to point of use, focusing on managing product expiry and inventory levels. This is accomplished by implementing a common set of practices and processes supported by a single inventory system interfaced with clinical systems such as electronic medical records (EMR) (see "Healthcare Supply Chainnovator Finalists 2017: Pharmaceutical Advances at Advocate and Inventory Optimization at Cleveland Clinic").

While every supply chain organization strives to improve asset utilization, leaders in healthcare differentiate themselves by simultaneously driving higher efficiencies, improving service and pursuing innovation.

What's Next?

While it's unlikely that we see resolution to the many forces that are making the future of healthcare so uncertain, supply chain leaders will have to continue to strengthen their fundamentals while simultaneously building agility. If you can't predict the future, the best strategy is to build the ability to react as quickly as possible.

Now, on to our 2017 ranking.

Table 1. The Healthcare Supply Chain Top 25 for 2017

2017 Ranking	Company Name	Three-Year Weighted ROA (2014 to 2016) ¹	One-Year, End-of-Year Inventory Turns (2016) ²	Bond Rating ³	Watson Health 15 Top Health Systems Study ⁴	Peer Opinion ⁵ (89 voters)	Gartner Opinion ⁵ (20 voters)	Composite Score ^{6A,6B}
1	Intermountain Healthcare			AA+	Top Quintile	994	298	8.88
2	Mayo Foundation			AA	15 Top	850	304	8.52
3	Cardinal Health	3.7%	10.9			1161	272	8.10
4	McKesson	6.0%	12.3			820	252	7.26
5	Johnson & Johnson	11.8%	2.7			1228	259	7.00
6	Mercy			AA-	15 Top	519	251	6.68
7	CVS Health	5.8%	10.1			698	241	6.62
8	Cleveland Clinic			AA-	3rd Quintile	732	250	6.29
9	Owens & Minor	3.6%	9.3			668	222	6.10
10	AmerisourceBergen	2.2%	13.3			537	184	5.70
11	Walgreens Boots Alliance	5.8%	9.8			514	199	5.70
12	Medtronic	3.6%	2.8			760	230	5.15
13	Ochsner Health System			A-	Top Quintile	397	204	5.12
14	BD	4.6%	3.8			630	234	5.12
15	Banner Health			AA-	2nd Quintile	331	207	5.07
16	Advocate Health Care			AA+	Top Quintile	325	123	4.64
17	Pfizer	4.5%	1.8			515	214	4.25
18	Henry Schein	8.2%	5.1			235	177	4.03

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19	Duke University Health System			AA	2nd Quintile	329	117	3.89
20	Novartis	8.3%	2.8			502	128	3.77
21	GSK	7.0%	1.8			588	123	3.67
22	Abbott	5.7%	3.7			687	62	3.60
23	Stryker	7.3%	1.9			551	105	3.43
24	Texas Health Resources			AA	Top Quintile	220	30	3.24
25	Scripps Health			AA	15 Top	72	44	3.19

Notes:

¹ **ROA:** $((2016 \text{ net income} / 2016 \text{ total assets}) * 50\%) + ((2015 \text{ net income} / 2015 \text{ total assets}) * 30\%) + ((2014 \text{ net income} / 2014 \text{ total assets}) * 20\%)$

² **Inventory Turns:** 2016 cost of goods sold / 2016 inventory

³ **Bond Rating:** All ratings were mapped to the Standard & Poor's (S&P) rating system using an industry-standard mapping system

⁴ **Watson Health 15 Top Health Systems Study:** Based on score in Watson Health's 2017 15 Top Health Systems Study

⁵ **Peer Opinion and Gartner Opinion:** Based on each group's forced-rank ordering of performance to Gartner's Healthcare Supply Chain Capabilities Model

^{6A} **Composite Score, Health Systems:** $(\text{peer opinion} * 35\%) + (\text{Gartner opinion} * 35\%) + (\text{bond rating} * 15\%) + (\text{Watson health score} * 15\%)$

^{6B} **Composite Score, Manufacturers, Distributors, Retailers:** $(\text{peer opinion} * 30\%) + (\text{Gartner opinion} * 30\%) + (\text{ROA} * 20\%) + (\text{inventory turns} * 20\%)$

2016 data used where available. Where unavailable, latest available full-year data used.

All raw data normalized to a 10-point scale prior to composite calculation.

Source: Gartner (November 2017)

Inside the Numbers

The Top Five

The organizations that make up the top five of our rankings this year are all well known, both as supply chain leaders as well as fixtures in the U.S. healthcare system. Four of the companies were also ranked in the top five last year, with Johnson & Johnson returning to this elite group for the first time since 2010. Consistency is a hallmark of this group; including this year, Cardinal, Intermountain Healthcare and Mayo Foundation have been in the top five for six consecutive rankings.

Intermountain Healthcare

Intermountain Healthcare retains the top spot on our ranking for the second year. Strength in its bond rating and top quintile performance in its quality of care score along with the top peer vote for a Health System helped drive its performance.

Intermountain Healthcare has a history of using supply chain strategically to support its corporate mission. New developments from the leadership team led by new CEO, Dr. Marc Harrison, continue to demonstrate the relationship of supply chain to Intermountain Healthcare's mission of "Helping People Live the Healthiest Lives Possible." Supply chain is part of the Shared Support Services foundation that helps connect its change from a regional/geographic structure of care to one based on two segments: a Community Care group focused on wellness and primary care and a Specialty Care Group focused on inpatient and specialty care.

Intermountain Healthcare's supply chain work in connecting across the continuum of care is substantial. It won Gartner's 2017 Supply Chainnovator award for its one-of-a-kind, 40,000 square foot homecare supply chain distribution center (see "Healthcare Supply Chainnovators 2017: Intermountain Wins for Investment in the Home Healthcare Supply Chain"). The organization also developed and commercialized several new supply-chain-centric ventures through its group purchasing organization, Intalere, its clinical decision support tool company Emperic Health, and its investment in the specialty pharmacy development platform for IDNs, Excelera.

Intermountain Healthcare also shows continued leadership in its supplier collaboration efforts. Bridging beyond collaboration platforms, Intermountain Healthcare gave awards to suppliers in well-thought-out categories such as Collaboration, "CQO: Cost, Quality and Outcomes, corporate social responsibility (CSR) and supply chain excellence. One of the winners, Johnson & Johnson Medical Device division, won in the supply chain excellence category for its suture SKU and inventory reduction efforts, increasing inventory turns by 25% while reducing 30% of the total SKUs.

Lastly, Intermountain Healthcare's performance in 2017 demonstrated the importance of a deep and capable talent pool as it went until October without a formal leader of the supply chain organization. Despite this, Intermountain Healthcare continued advancing its supply chain initiatives without losing momentum.

Mayo Foundation

After dropping to No. 3 last year, Mayo Foundation returns to the No. 2 spot in the 2017 ranking. The improvement was driven by its Watson Health score (recognized as a 15 Top system) and the highest Gartner opinion scores among healthcare providers. Mayo Foundation's commitment to supply chain excellence is shown in its ranking trajectory where it began at No. 25 in 2009 and has held a top 5 ranking since 2011.

Mayo Foundation realizes that strong foundational capabilities are a necessity, and has worked to bolster its fundamentals primarily through expanding the capabilities and reach of its Upper Midwest Consolidated Services Center (UMCSC). While the service center has been in use for nearly 10 years, Mayo Foundation has made strides to increase its use beyond its own health

system. Mayo Foundation's role as the provider of sourcing and contracting for the UMCSC continues to expand, and membership has grown to over 60 hospitals in the region.

Its leadership in strategic sourcing is accelerated by a focus on innovation that is enabled by new technological capabilities and processes. Mayo Foundation believes that improved data and analytics will play a critical role in this transformation to an enterprise-level supply chain organization. Its innovative approaches to sourcing, as well as supplier relationships through its program, Reveal, provide additional value far beyond its own organization. As of the fall of 2016, over \$100 million in savings was documented on \$2.4 billion in spend, and 13 innovation projects were implemented.

Mayo Foundation's supply chain also realizes the importance of internal partnerships as a means to drive greater successes. The organization's partnership with the Clinical Practice group is an excellent example of this, as supply chain personnel are now embedded into to all technology and supply committees.

Cardinal Health

Cardinal Health moved down one spot to No. 3 in this year's ranking. With nine straight years in the top five, Cardinal Health continues to show strength despite slightly lower peer and analyst opinion scores as well as lower return on assets. Even with this headwind, Cardinal Health still has the highest Gartner analyst opinion score of any manufacturer, distributor or retail pharmacy.

While Cardinal Health's pharmaceutical wholesale business faces significant downward pressure on its generic drug pricing, the balance of the business is on the move to expand its capabilities. Cardinal Health continues a strategic shift in supply chain toward the patient in services offered to the patient in nonacute settings and toward more vertical integration of manufacturing in its medical products segment.

The biggest announcement this year is the acquisition of Medtronic's \$2.3 billion revenue hospital supply business. On top of the recent Cordis acquisition, this acquisition further solidifies Cardinal Health's base of self-manufactured products in its portfolio and blurs the line between distributor and manufacturer on this \$13 billion segment of the business. End-to-end efficiencies are difficult to achieve, but Cardinal Health owns significant market share for distribution and now for several more manufacturing segments for IDNs.

Cardinal Health is also expanding toward the patient as it absorbs acquisitions it made in the past few years. The progress to cover more of the care continuum, as measured by its growth and profitability, received a mention in its latest quarterly earnings report. The acquisition of AssuraMed and its Edgepark medical products for homecare is one to watch as Cardinal brings new solutions in supply chain that extend reach to patients for its IDN customers. Likewise, patient-facing acquisitions like Navihealth and Sonexus Health are maturing in helping providers and patients navigate increasingly complex care and reimbursement models.

Lastly, Cardinal Health showed industry leadership in 2017 through the release of a comprehensive healthcare supply chain survey of 400+ healthcare providers' stakeholders from clinical, financial

and supply chain disciplines. This survey helped elevate supply chain and the value that can be derived through excellence on service, patient safety and total cost to serve.

McKesson

McKesson continues its dedication to developing a strong supply chain, moving up one spot from No. 5 in 2016 to No. 4 in 2017. Its already strong inventory performance increased by over half a turn to 12.3, the second highest among the Top 25. External recognition such as being named the No. 1 Most Admired Company in the Healthcare Wholesale Industry undoubtedly contributed to an increase in its peer ranking this year. Rounding a strong performance in the quantitative metrics was the highest increase in return on assets among the Top 25, at +2.6%.

Long known for its distribution expertise, McKesson is demonstrating its dedication to solving healthcare problems by providing solutions that leverage its scale, with a goal of driving efficiency and quality.

McKesson continues to invest in its technology-driven capabilities where the patient is the focus, despite spinning off the majority of its Technology Solutions group to Change Healthcare early this year. McKesson retained control of solutions that help providers and pharmacies manage the information flow both internally and with partners across healthcare.

McKesson is also building out its pharmacy systems portfolio (McKesson Pharmacy Systems) to include enhancements that improve medication adherence and delivery services while optimizing the workflow for pharmacies through activities like medication synchronization.

McKesson continues to show a dedication to innovation and partnerships this year. The Walmart and ClarusONE partnerships are focused on the sourcing expertise of McKesson in the generics market. The technology business merged with Change Healthcare, a revenue cycle and analytics firm offering a broad set of solution areas for payers, providers and consumers.

Johnson & Johnson

Johnson & Johnson made a leap into the top 5 this year, up three spots year-over-year, paralleling a big jump in the Global Supply Chain Top 25 this year (see "The Gartner Supply Chain Top 25 for 2017"). While its inventory turns were flat year-over-year, it received positive momentum from the other three score categories. Of note is its peer opinion score, which was the highest of all organizations evaluated this year and its ROA, highest of all manufacturers in the Top 25.

Johnson & Johnson continues to impress with its execution. While Johnson & Johnson has never struggled developing its supply chain strategy, the challenge in recent years has been in implementing that strategy due to its varied business units, global footprint and matrixed organization. However, Johnson & Johnson has proven in the last two years that it can successfully propagate supply chain strategy across the supply chains of its three distinct business units: Janssen (pharmaceuticals), MD&D (medical device), and consumer.

Central to Johnson & Johnson's strategy are its North Stars that align its diverse supply chains into initiatives around customer centricity, product portfolio management and manufacturing innovation. These strategic touchpoints are an acknowledgment of where Johnson & Johnson feels its expertise intersects with the demands that healthcare will place on manufacturers in the future.

Johnson & Johnson's commitment to a customer-first focus is the I2C program, Immersion, Innovation, and Connection. The program, which was recognized as a Healthcare Chainnovator finalist in 2017, was started at Janssen to drive supply chain innovation by understanding the customer experience and looking for areas of improvement. One of the most impressive aspects of the program is the infrastructure that Johnson & Johnson has created to share innovations, ensuring that best practices are propagated as far as possible.

Throughout Johnson & Johnson's strategy is a theme of sustainability and conservation, reflecting its credo which states "We are responsible to the communities in which we live and work and to the world community as well." It is accomplishing this by not only prioritizing environment, health, and safety initiatives, but also through its manufacturing transformation where it seeks new ways to improve the resource efficiency of its operations.

Retailers

Retail pharmacies have a unique role in the healthcare value chain in that it has interactions with patients for nonhealthcare reasons. It also tends to have more interactions with patients than the other players in the healthcare value chain as consumers take advantage of its non-healthcare retail offerings. These factors put these companies in a powerful position: it can influence patient behavior outside the doctor's office or hospital. CVS Health, for example, is encouraging healthier shopping choices by moving candy displays away from the register and discontinuing sunscreens with SPF less than 15.³

All three major U.S. retail pharmacies now have clinics where customers can get basic healthcare like vaccinations, screenings and physicals. This is blurring the lines between retailer and provider, and these companies are hoping the convenience that its proximity to patients and the fact that it can be "one stop shopping" for groceries, medicines and healthcare make them the obvious choice for patients.

CVS Health

CVS Health again turned in solid performance across all our measures, holding steady at the No. 7 spot overall for the second straight year, and once again the highest-scoring retailer. It scored well in both the financial measures and the opinion scores; its return in assets (ROA) was down slightly from 6.0% in 2016 to 5.8% this year, but its inventory turns increased slightly to 10.1.

CVS Health continues its drive to be more than just a retail pharmacy. It understands its unique role in the healthcare spectrum of companies, and leverages its frequent interaction with customers as a way to influence population health. From store layouts, to product selection to the establishment of in-house clinics, CVS Health is promoting an environment of health and wellness.

In 2017, CVS Health continued its focus on corporate social responsibility (CSR). Along with sustainability and population health goals, recent advancements have been on the supplier management front. The company achieved its goal of spending over \$1 billion with diverse suppliers. Because of this, it was recognized by the Billion Dollar Roundtable, a top-level corporate advocacy organization that promotes supply-chain diversity excellence.

CVS Health is active in implementing digital initiatives and has been recognized for excellence and leadership in information technology. It is using this know-how and combining it with its patient focus, and developing innovative ways to reduce time and costs, to directly improve the health of its customers. Two examples include the launch of CVS Express, a digital solution offering consumers a new level of curbside pick-up, and CVS Pay, an end-to-end mobile payment solution.

The company also remains highly collaborative across the extended value chain, particularly with insurance companies to help reduce costs for its customers. Most recently, these partnerships have included alliances with Cigna, Anthem and OptumRx. Taking this approach to its extreme, at the time of going to press, CVS Health is said to be in discussions to purchase Aetna Health. While we can't predict the eventual outcome, this marriage, should it go through, would significantly advance CVS Health's transformation from retailer into a true healthcare company.

Walgreens Boots Alliance

Walgreens Boots Alliance remains at No. 11, right where it ranked last year. ROA was down a bit from 6.2% in 2016 to 5.8% this year, but remains the highest of all retail pharmacies in the study.

The Walgreens Boots Alliance has once again in 2017 been focused on building up its well-developed foundational supply chain capabilities. Projects this year included a companywide inventory initiative to segment its massive 160 million store/item combinations. The initiative has led to improvements in availability of products and a reduction in overall inventory position. Another significant project was optimization of its distribution network, which was chainwide and led to substantial improvements in both cost and store service levels.

Due to antitrust concerns, the company scaled back on its attempt to buy Rite Aid pharmacy outright and, instead, in September reached an agreement to purchase less than half of the Rite Aid stores. The company expects the transactions to be complete in the spring of 2018.

Finally, the Walgreens Boots Alliance continues to invest in digital technologies to help it more effectively connect to the patient/customer. One recent example includes Pharmacy Chat, which replicates the traditional one-to-one interaction with a pharmacist, through a mobile application seven days a week, 24-hours a day. Another is a new capability launched in conjunction with WebMD, known as Relief Advisor, which allows customers to fill out answers to some queries, and the engine serves up recommended products targeted to its exact needs.

Distributors and Wholesalers

Distributors and wholesalers historically have played a key role in managing the physical logistics required of pairing hundreds of suppliers with the thousands of locations of health systems. This is reflected in the highest average score across all of the industry segments we evaluate.

While the supply chain capabilities of both ends of the healthcare supply chain have continued to mature, rather than standing pat, distributors and wholesalers have added to its service offerings. Services like business consulting for manufacturers and health systems and data and analytics solutions broaden offerings beyond traditional distribution and logistics. Some distributors, notably Cardinal Health, have added so much nondistribution capability that it can realistically be considered a device manufacturer with third-party distribution capabilities.

Owens & Minor

Owens & Minor dropped three spots to No. 9 in our ranking this year with declining peer and analyst opinion offsetting slight improvements in ROA and inventory turns. A perennial presence in the top 10, Owens & Minor is one to watch as it makes some leadership changes and refocuses on growth strategies beyond acute care distribution.

Owens & Minor states its vision as "connecting the world of medical products to the point of care by simplifying supply chain." Like many of its IDN customers, Owens & Minor has made a leadership change with new or realigned people in every senior role in 2016. This change is driving a refocus on solidifying its acute distribution footprint while enhancing capabilities in three core areas of growth — nonacute points of care, physician preference (medical devices primarily) logistics and services, and unlocking value from supply chain data and analytics. Putting action behind the strategy in May 2017, Owens & Minor purchased the direct-to-patient medical products distributor, Byram Healthcare, which should add \$450 million in revenue.

Owens & Minor has a long history of collaboration, and that extended into 2017 with expanding central distribution and services agreements and continuing of embedded, outsourced relationships with IDNs. At the same time, Owens & Minor has streamlined services and capabilities across its 40+ owned distribution centers in the U.S. Owens & Minor's willingness to look to academia and other industry supply chain expertise led to the creation of the Customer Service Academy, leveraging local college resources and the National Retail Federation of Customer Service to help educate its internal team on how to rethink front line service. Owens & Minor was also recognized as a Gartner Healthcare Chainnovator finalist in 2017 for its collaboration with Medical Tracking Solutions to establish multitenant forward-stocking locations for medical device customers (see "Healthcare Supply Chainnovator Manufacturers, Distributors and Retailers Finalists 2017: Owens & Minor and Johnson & Johnson").

AmerisourceBergen

AmerisourceBergen fell one spot coming in at No. 10 this year. AmerisourceBergen's ROA improved to 2.2% in 2017 from 0.6% in 2016 and it maintained the best inventory turns in the Top 25 (13.3). AmerisourceBergen also benefited from improved peer recognition compared to last year.

In addition to extending its relationship with Walgreens Boots Alliance last year, AmerisourceBergen announced a new five-year extension pharmaceutical supply agreement with Express Scripts. The company also made public a new organizational structure to better align with its portfolio while accelerating decision-making processes. This will bring better alignment to its varied customer base, a response to the diversity of the industry segments it supports. It has also implemented a continuous improvement project to streamline ordering and fulfillment processes.

AmerisourceBergen continues to leverage technology for the benefit of its customers. It has improved its digital inventory management solution for customers, Cubixx, with better temperature control and RFID inventory tracking. The company has also built technology solutions to help customers with ordering and inventory management, as well as to assist patients with using the products it purchase.

Henry Schein

Henry Schein's ranking improved by four spots from 2016 to No. 18, thanks to improved inventory turns (up 0.1 to 5.1) and analyst opinion. Schein also had the highest three-year average ROA of any distributor at 8.2%. The distributor of medical, dental and veterinary supplies has strong foundational capabilities that it leverages for its customers, stocking 180,000 products from 3,000 suppliers. It has same-day shipment capabilities via its distribution network in 32 countries.

Visibility has been a focus area as Henry Schein improves its supply chain capability. Henry Schein is building control towers with key logistics partners and improving its visibility on reverse logistics. While Henry Schein builds out these new capabilities, it is also squarely focused on continuing to improve its core strengths in purchasing and inventory management.

Henry Schein, like many distributors, isn't content with being the connection between manufacturers and providers. In recent years, it has built out its services for both providers and patients. As many of its provider clients are smaller and fragmented, Henry Schein provides business solution services through programs like "Rely on Us," which offers comprehensive solutions for dental customers including practice analysis, social media usage, and guidance on improving staff productivity and retention. Henry Schein also supports patients through traditional means, like finance offerings, as well as community outreach to work directly with patients.

Manufacturers

Manufacturers in 2017 continued to balance the need for progress on two key fronts: operational efficiency and the evaluation and implementation of process and technology innovation. Nearly every manufacturer still has goals to improve the cost position of its supply chain, as well as reduce its inventory levels. This is independent of a company's supply chain maturity, and is in response to the limited resources companies have compared to the investment opportunities available, which include product pipelines, corporate acquisitions, and demonstrating profitability to shareholders.

Supply chain innovation, however, is not omnipresent at manufacturers. Very often, innovation is limited to product technology, which certainly has an impact to supply chains as new products often require new manufacturing and logistics capabilities. Supply chain leaders, however, pursue

innovation for the supply chain itself, leveraging technology to improve visibility, agility and integration with external partners.

Medtronic

Medtronic, at No. 12, is up one spot from 2016. This is in part due to improved inventory turns, which increased from 2.6 to 2.8. Medtronic continues its focus on integration of the supply chain at a global level and alignment of the supply chain strategy with corporate objectives, linking together all decision makers and processes with clear roles, responsibilities and predicted outcomes.

The company has numerous foundational projects in progress to strengthen and mature its supply chain function such as its focus on agility and speed, sales, inventory and operations planning (SIOP) excellence and attracting top talent. The supply chain team have been leading on change management due to the successful integration of Covidien and completion of the harmonization of planning systems and process. This will again be challenged with the recent announcement that the company is selling a large portion of its hospital supply business to focus on higher-tech products fueling investment in faster growing technologies.

The sale of its medical supplies business, acquired during the Covidien acquisition, to Cardinal Health is a way for Medtronic to focus on its core medical device business and use the proceeds to pay down a portion of its debt.

Medtronic is considered a leader on collaboration and patient focus and has created a supply chain advisory board with key customers focused on mutual value creation. Medtronic continues to take its cues on customer engagement from its CEO, who has created an environment where working directly with customers has become part of company culture.

BD

BD was up two spots to No. 14 this year, thanks to the highest turns among manufacturers in the Top 25 and highest analyst opinion score of all device manufacturers. BD, another consistent presence in our ranking, has announced a significant acquisition, the device manufacturer C. R. Bard, this year. After the success with the CareFusion acquisition, BD will put its integration playbook to good use as it brings C. R. Bard's supply chain under its control.

Long known for its foundational capabilities, BD has also made a strong push in the last few years to be a collaborative partner in the broader healthcare supply chain. Notably, BD is part of the consortium of companies and organizations that have launched the Global Pandemic Supply Chain program, which leverages a centralized, web-based information platform to coordinate supply and demand from multiple sources during a crisis. BD has also partnered with Henry Schein and UPS to pilot the use of unmanned aerial vehicles to deliver medical products in remote locations.

BD has proven to be an able partner with health systems, its primary customer group. BD has continued its proactive customer collaboration strategy demonstrated by its SKU reduction program with Christus Health, highlighted at Gartner's supply chain executive conference in 2015. BD has recently partnered with Memorial Herman to implement automated inventory tracking and ordering

via its Pyxis solution. Along with improved visibility that led to greater efficiency, the solution provides use data to the IDN that can be used to improve outcomes.

Pfizer

In this year's ranking, Pfizer is up one spot to No. 17, in part due to a big jump in inventory turns (from 1.3 to 1.8). Analyst opinion was also up, offsetting the impact of lower ROA and peer opinion. While we don't use revenue growth for determining the Top 25, it's important to note that Pfizer's three-year average revenue growth has finally swung to positive territory, hopefully indicating some of the loss of exclusivity challenges are behind it.

Pfizer has diverse ongoing initiatives in the supply chain IT space driving further standardization that have a clear direction and a message about the importance end-to-end digital networks have for its future success. For a number of years, Pfizer has focused on integrating its numerous recent acquisitions, with a primary goal of establishing a consistent system of record across its diverse business. By standardizing its ERP platform, Pfizer will also standardize supply chain processes and reporting across nearly the entire business, including planning, manufacturing and logistics functions. Pfizer's end goal with its significant investment in SAP and the processes, data, and reporting is an understanding of cost (and therefore profitability) at the item level.

Quality, internal collaboration and risk management continue to be core foundational capabilities for Pfizer. Complementing these skills is an embrace of agility that Pfizer believes will allow it to respond quickly to both threats and opportunities.

Novartis

Novartis' ranking was down three spots to No. 20, due to pressure from declining ROA and mixed opinion poll scores.

Novartis is a consistent leader in product innovation, focusing its three core divisions (pharma, Sandoz and the eye care division Alcon) on targeted medicines and areas of unmet needs. Novartis CEO Joseph Jimenez has been bullish, stating that the company is primed for its next growth phase with a strong pipeline. To support this, Novartis' supply chain will rely on its leading foundational supply chain capabilities to continue to have success.

Novartis has been a forerunner in developing strategic partnerships and alliances, whether to advance its digital agenda or collaborations such as that with IBM Watson Health on outcomes-based health in advanced breast cancer.

Novartis has focused on developing and standardizing core supply chain capabilities with the creation of Novartis Business Services and a further segmentation of business units, pharma and oncology, to improve execution and speed. The company has a strong reputation for its focus on patients and changing the way it engages with healthcare professionals by ramping up use of digital technologies.

GSK

This year, GSK rejoined the Top 25; up six spots to No. 21. The return was primarily on the basis of improved opinion scores (both peer and analyst) despite some headwind on both financial metrics.

A new CEO for GSK has resulted in a new set of clear objectives for its supply chain. With the leadership change also comes consolidation for GSK's Global Manufacturing and Supply Organization, with purchasing, quality and safety now part of the larger organization. Its strategy has also been further simplified, now focusing on performance, trust and innovation.

Building on previous transformation initiatives, much of GSK's current activity is focused on patient centricity across the end-to-end supply chain, leveraging both internal and external collaboration across its global footprint. A good example of this is GSK's novel approach to clinical trial management for a new COPD treatment. In this study, GSK worked with a group of healthcare providers to create natural environments for patients yet still delivering the products and collecting the data necessary for the successful completion of the trial.⁴

GSK's collaboration with Kuehne + Nagel is another example of the importance and trust it places in partners. The program, which was Gartner's 2017 Healthcare Chainnovator winner, has a scale and scope not previously seen in the industry (see "Healthcare Supply Chainnovators 2017: Partnership at an Impressive Scale for GSK"). Requiring impressive levels of transparency on both sides, GSK has simultaneously acknowledged that a partner can execute logistics better than it can, and made a long-term commitment to joint execution of a key business process.

Abbott

Up three spots to No. 22 this year, Abbott is a diverse healthcare company with divisions that cover medical devices, pharmaceuticals and nutrition. A model of consistency and supply chain leadership, Abbott has made our Top 25 every year of its existence. Abbott's 2017 score was bolstered by its impressive inventory turns improvement from 3.4 to 3.7.

Foundationally, Abbott has a strong procurement focus, and continues to drive standardization and centralization to leverage the company's scale. It is also leveraging the supply chain as it increases its global footprint, primarily into China and India. While R&D is leading the expansion, the supply chain will be called upon to build out its logistics as Abbott builds brand awareness and market penetration. On the innovation front, Abbott has created an IoT solution that allows diabetes patients to monitor its glucose levels without fingersticks.

Abbott's acquisition of St. Jude Medical will undoubtedly turn its supply chain focus inward. The \$5.6 billion acquisition is significantly larger than its existing \$2.4 billion medical device business unit. How the two organizations combine will have ramifications on how it performs in future rankings.

Stryker

2017 is Stryker's first appearance in the Top 25. It rose eight spots to No. 23 in the ranking, thanks to improved ROA and higher opinion scores from both peers and Gartner analysts. Stryker is

another organization focused on the benefits of an integrated supply chain, having completed an organization redesign that merged supply chain operations, integrated business planning and the inventory COE under the same reporting structure.

Stryker is also looking beyond its own four walls for innovation, deploying a highly collaborative approach with customers to find mutual benefit in driving out waste and aligning patient needs with the most beneficial solutions. An example of this is how Stryker is looking to explore the potential to leverage e-commerce solutions in different ways. First, it looks to use e-commerce to fill gaps in the supply chain caused by shifts in where care is delivered. Second, it's taking a leadership role as its customers explore e-commerce solutions as new source channels. Underpinning this will be a companywide single instance of SAP, which is a project underway that will centralize inventory planning and strategy on a global basis.

Stryker has also embraced supply chain education, establishing an academy to ensure a consistent understanding of the fundamentals across its entire organization. It has recently extended that commitment to teaching by establishing centers of excellence in key functional areas to propagate consistent processes and share practices.

Healthcare Providers

Health systems continue their rapid pace of advancement in supply chain, building out solid foundational capabilities while leveraging analytic capabilities to help quantify the key factors required for effective and affordable patient outcomes. This year, they focused on bringing hospital pharmacies under supply chain control and the continuing rise of consolidated service centers, as supply chains continue to expand their influence.

Mercy

Mercy drops two spots to No. 6 this year, but continues to show progress in many areas of its supply chain development. A 15 Top performance in the Watson Health ranking along with solid bond, peer and analyst voting keeps Mercy high on our list and the third-highest-ranking health system.

Mercy has been working diligently for several years on bringing its operational know how beyond the walls of its own IDN through its supply chain services arm, ROi. 2017 can best be categorized as a break-through year on that front as it signed a partnership with TPC (Texas Purchasing Coalition) and acquired Orlando Health's regional group purchasing organization, Healthcare Purchasing Alliance. At the same time, Mercy built a 100,000 square foot custom procedure tray manufacturing facility for its own needs and to service the needs of other IDNs.

Mercy is strong on clinical alignment and analytics through the development of the Unified Analytics Platform (UAP) and has been generous in sharing its knowledge. Logistically, Mercy has served its acute care facilities utilizing the capabilities of its own consolidated services center (CSC), and this year branched into enhanced service from its CSC to nonacute locations, reporting 30% savings from operational and standardization efficiencies.

Cleveland Clinic

Cleveland Clinic jumped another two spots this year landing at the No. 8 ranked organization. Despite a drop in Watson Health scores, Cleveland Clinic benefited from an increase in peer and analyst scores.

Cleveland Clinic continues to move toward its vision which is "striving to be the global leader in healthcare supply chain through collaboration and innovation." It is leading the way in creating innovative supply chain analytics capabilities that have necessitated partnerships from Epic and Cardinal Health to develop. The results of new capabilities are not solely to reduce cost, though this did occur; the mission was to free up clinicians to focus on patient care. Analytic tools are also being used to facilitate clinical and operational decision making.

Cleveland Clinic was a finalist for this year's Healthcare Chainnovator award for its inventory management program. The project coupled improved tracking, through Kanban, bar codes and RFID, with comprehensive analytics that improved ordering and inventory. As a result, Cleveland Clinic clinical staff spent less time on inventory management, expired inventory was reduced and inventory levels were optimized.

Ochsner Health System

Ochsner Health System moves up the ranking two spots to No. 13 after its debut last year. Fighting the headwinds of its bond rating, improving Watson Health ranking into the top quintile, and stronger peer and analyst votes helped Ochsner Health System move up.

Ochsner Health System's supply chain continues to show enhanced capabilities year over year. It moved into the second phase of two commercialization efforts — one around sourcing in its S3P offering and another in the fully operational Ochsner Center for Molecular Imaging designed to mitigate risk and lower costs in the supply chain for radioisotopes. These efforts, along with Ochsner Health System's development of its own end-to-end accredited specialty pharmacy, shows an ability to get pioneering and innovative things done in supply chain.

Ochsner Health System also developed an innovative Orthopedic Transformation Initiative leveraging its work aligning to Comprehensive Care for Joint replacement (CJR) initiative, partnering with a technology company and a manufacturer to decrease surgery times and lower costs substantially.

On top of these newer developments, Ochsner Health System continues to be a leader in managing the span of control across all areas of spend, including purchased services and pharmaceuticals. Supported by sustained leadership in supply chain leadership and continued investment in supply chain finance and analytics, we look for continued capability development at Ochsner Health System.

Banner Health

Banner Health, dropped to No. 15, due primarily to a lower Watson Health score. The drop was partially offset by better opinion scores from both peers and analysts.

Banner Health's executive team recognizes supply chain as a key enabler to accomplishing its 2020 vision. It is now in the final phase of this vision, called "Lead It," and this is where the supply chain continues to demonstrate its ability to execute. Banner Health's supply chain is characterized by vertical integration, taking internal ownership of key functions, as well as embracing leadership, and educating the rest of the organization on the importance of a strong supply chain.

Banner Health's ability to integrate acquisitions, focus on standard platforms and drive cost savings is impressive. The supply chain organization has created tools that support working with clinicians to communicate and identify savings opportunities across the system. It continues to invest in capabilities that reduce cost and improve quality, creating greater transparency of all costs, and allowing it to focus on true end-to-end supply chain improvements.

To improve outcomes, Banner Health has established a cross-functional team that has oversight of all new products or technology. This team is responsible for evaluating the proposed change across eight dimensions, including value, patient experience and risk.

Advocate Health Care

Advocate Health Care moves up three spots this year to No. 16 after slipping backward a bit in 2016's ranking. Improved Watson Health scores along with better peer and analyst recognition pushed Advocate Health Care back up the ranking.

Advocate Health Care was recognized this year as a Gartner's Supply Chain Innovator Finalist for building on its Owens & Minor CSC partnership to optimize a portion of the pharmaceutical supply chain improving service and lowering costs in the process for the outpatient and clinical pharmacy (see "Healthcare Supply Chain Innovator Finalists 2017: Pharmaceutical Advances at Advocate and Inventory Optimization at Cleveland Clinic"). Sustained leadership in supply chain enables Advocate Health Care to develop long-term relationships, and its view on the collaborative partnership continuum has moved from theoretical to practical. Clearly defining the stages of Advocate Health Care supplier relationship levels with clear examples from companies that are transactional, collaborative, strategic and integrated gives Advocate Health Care a platform for the next phase of supplier-provider value chain development.

Advocate Health Care continues to demonstrate advancement in its historically strong clinical alignment in supply chain as well. A large initiative in listening to surgeons, setting specifications and streamlining the spinal implant supply chain made progress in 2017. An innovative equipment planning procurement project helped standardize and manage availability of capital equipment used in the delivery of care.

Duke University Health System

In its third year in our rankings, Duke University Health System moved up to No. 19 this year. While Duke University Health System's Watson Health score decreased slightly, the increase in overall ranking is due to continued strong bond ratings and an increase in analyst rankings.

Technology is a recurring theme in Duke University Health System's supply chain. It has continued to strengthen its foundational capabilities by leveraging point-of-use technology to automate its ordering process. Duke University Health System has worked hard to establish accurate master data management, and realizes the benefits of this by reporting that gives insight into the costs of patient outcomes.

Five years into the organization's Care Redesign initiative, the supply chain organization continues to focus on developing capabilities that create greater alignment with the care delivered by clinical staff. These capabilities have benefited from Duke University Health System's investment in the implementation of electronic health records (EHR), which has armed the organization with data that can be analyzed to identify clinical variation and ultimately improve the quality of care.

Duke University Health System has prioritized internal collaboration as well. The supply chain is working with clinicians to lower costs through combinations of negotiated price reductions, utilization improvements and product selection.

Texas Health Resources

Texas Health Resources debuts on the ranking this year at No. 24 on a top quintile Watson Health ranking along with a solid bond rating and peer ranking. After 15 years of sustained supply chain leadership, Texas Health Resources showed strong talent management and succession planning with the appointment of an internal candidate to take the lead role. Talent development is a challenge at health systems historically and this, along with Texas Health Resources' national leadership, historically helped nudge it onto the ranking.

Texas Health Resources has been an innovator in many areas over the years. Choosing mostly to partner and orchestrate with partners rather than build from scratch, it has innovated in several areas. On the delivery end, it is a leader in the management of the nonacute supply chain along with the help of a national distributor. On the inventory and service side, it has a technology platform with a compelling cost and service offering for its clinics. As its health system grew, necessity dictated a new approach to value analysis and its innovative online value analysis process was developed. The streamlined decision process improved the number of sites/people that provided input and accelerates the time to a decision on products and services.

Scripps Health

Scripps Health has shown a steady rise in the rankings breaking into the No. 25 spot this year. With continued strong Watson Health scores and bond rating, Scripps Health's rise benefited from an increase in analyst opinion score this year.

Scripps Health has embarked on a journey under its leadership team to become a clinically aligned supply chain by aligning with Scripps Health's Value by Design initiative. The results of the efforts have created partnerships with clinical staff through the use of innovative summits that bring stakeholders together to solve problems that are at the nexus of cost, quality and outcomes.

Scripps Health has also invested in value analysis, streamlining a process once composed of 27 separate committees, and standardization of physician preference items.⁵ Other innovations include

a pilot called AirStrip ONE that uses mobile technology to connect patients and physicians inside and outside the hospital. It has also launched a program with Cigna to lower the cost of healthcare to employers by improved coordination of services.

New Awards

We are presenting four new awards with this year's Healthcare Supply Chain Top 25:

- Top Health System based on Manufacturer peer vote ("Best Health System")
- Top Manufacturer based on Health System peer vote ("Best Manufacturer")
- Top Health System not in the Top 25 based on Manufacturer peer vote ("Honorable Mention — Health System")
- Top Manufacturer not in the Top 25 based on Health System peer vote ("Honorable Mention — Manufacturer")

The inaugural winners of our awards are listed in Table 1.

Table 2. 2017 People's Choice Awards

Award	Winner
Best Health System	Intermountain Healthcare
Best Manufacturer	Johnson & Johnson
Honorable Mention — Health System	BJC HealthCare
Honorable Mention — Manufacturer	Boston Scientific

Source: Gartner (November 2017)

We're excited to recognize these organizations based on the opinion of their partners in the healthcare value chain. While the multidimensional methodology we use to evaluate companies in the Healthcare Top 25 gives a broad-based assessment of the leadership strength of supply chains, the perception of your immediate customer or supplier is a critical factor. To be truly successful, supply chains must translate their leadership into value for their customers and suppliers. In creating these awards, we want to recognize the supply chains that are held in the highest regard by their partners in the supply chain.

These awards isolate the peer opinion component of our scoring. For the Manufacturer awards, only the votes of peers from health systems are used, and for the Health System awards, only the votes of manufacturers are used.

The two "Best" awards are the manufacturer and health system that received the most total points from the peer voters as described above. The two "Honorable Mention" awards are the

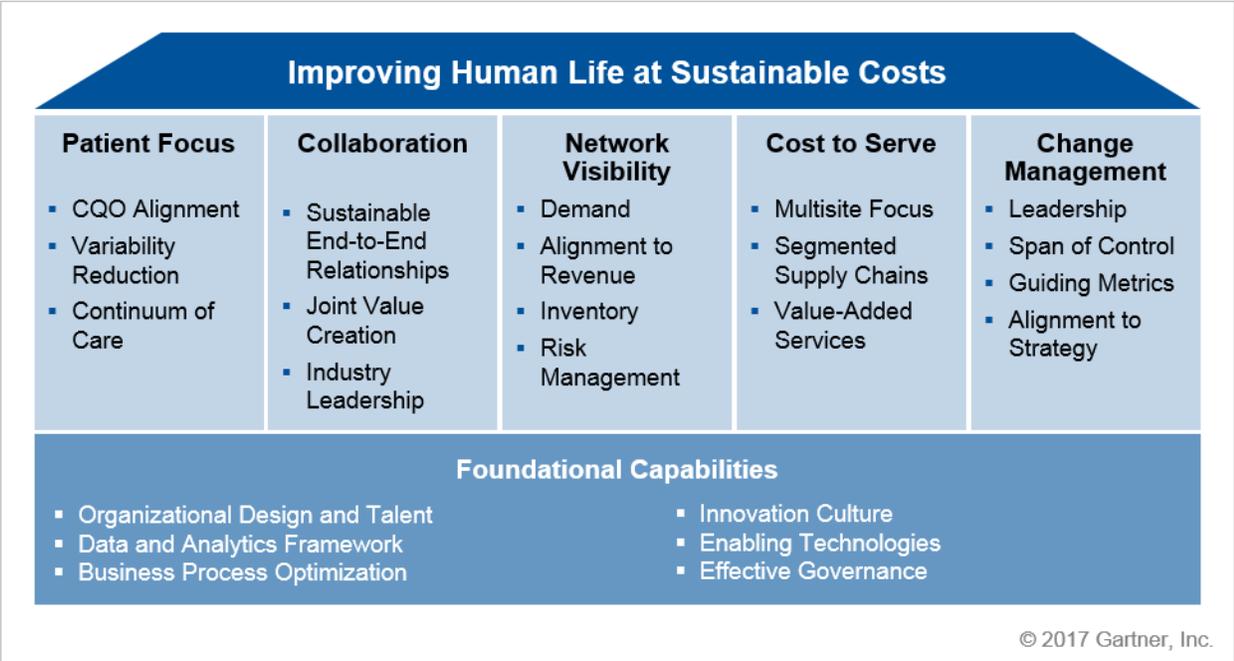
manufacturer and health system that received the most total points that didn't make the Healthcare Supply Chain Top 25 ranking.

The Healthcare Supply Chain Top 25 Methodology

Consistent with our Global Supply Chain Top 25 research methodologies, the Healthcare Supply Chain Top 25 ranking is derived from two main analyses: quantitative measures and opinion. Quantitative measures provide a view into how companies have performed in the past, and establish proxy connections between financial health, performance and supply chain excellence. The opinion component offers a qualitative assessment of value chain leadership and demonstrated supply chain performance — crucial characteristics of our Top 25. These two components are combined into a total composite score.

The centerpiece of our Healthcare Supply Chain Top 25 methodology is the Healthcare Value Chain Capabilities model. It is used to guide both peer and analyst voters as they consider companies to select for the Healthcare Supply Chain Top 25. The model highlights activities in the healthcare value chain that help improve human life, driven by the core set of capabilities depicted in Figure 1.

Figure 1. Healthcare Value Chain Capabilities Model



Source: Gartner (November 2017)

We have used a Capabilities model as the core of our assessment for the Top 25 since the ranking was introduced in 2009 (see "Healthcare Supply Chain Top 25 Capabilities Model: Improving Human Life at Sustainable Costs").

Organizations receiving the most recognition combine strong foundational capabilities with targeted progress in all the areas we outlined above. Although success in execution requires more than

developing supply chain capabilities contained in our model, the industry recognizes that the path to improving human lives can benefit from the principles captured in our model. Wherever a company sits in the value chain, this model can be used to frame and set parameters to supply chain strategic goals.

Health systems have vastly different operating models compared to publicly traded manufacturers, distributors and pharmacies. Access to common, public financial data is not easily captured; therefore, we utilized different assessment methodologies for these two major segments of the healthcare value chain.

Manufacturers, Distributors and Pharmacies

Inclusion Criteria

The first step in our Top 25 methodology is to identify a population of companies to include in the analysis. Consistent with prior years, we derived our 2017 master list of 99 manufacturers, distributors/wholesalers and retail pharmacies from a combination of external sources. This includes companies from previous rankings and Standard Industrial Classification (SIC) codes aligned to the healthcare industry.

Compared to the methodology of our global cross-industry Supply Chain Top 25, the revenue threshold required for inclusion in the Healthcare Top 25 is lower, at \$1.5 billion annually. The intention of the lower revenue requirement is to ensure that we cast as wide a net as possible and have a robust population of companies to evaluate. However, one factor remained constant between the two rankings: companies must publish audited financial results and, in the case of the Healthcare Top 25, results specific to a healthcare business. Notably, this excludes some conglomerates with divisions in non-healthcare industries from this ranking.

Additionally, companies must generate at least 50% of their revenue from healthcare-related activities, and, because of the focus on U.S. health systems, their North American business must be at least 25% of total revenue.

Quantitative Measures

The second step in our methodology is to determine the quantitative measures to utilize in our analysis. Consistent with prior years, we utilized ROA and inventory turns for operating and supply chain effectiveness, respectively. Publicly available, audited financial data was collected for each company for the years 2014 through 2016. This data is used to calculate a three-year weighted average for ROA and a 2016 end-of-year measure of inventory turns.

The primary source for all publicly available financial data is S&P's Capital IQ (CapIQ) database. In some instances, CapIQ financial reports may include standardizations to ensure consistent reporting methodology across companies.

Relative Weighting

The third step in our methodology is to determine the weighting applied to the quantitative measures versus the opinion score. We strongly believe that the collective wisdom of the healthcare crowd points the way to supply chain excellence and successful trading partner collaboration. We also believe that repeated, bidirectional and genuine collaboration between trading partners is a crucial ingredient to achieving value in healthcare. So, consistent with last year's methodology, we applied a 40% weighting to the quantitative measures and a 60% weighting to the opinion score.

Health Systems

The methodology used to select and rank the 72 health systems this year has remained the same.

As in the past eight years, we partnered with Watson Health (formerly Truven Health Analytics) for key components of our methodology. Watson Health has collected quantifiable public data in nine key areas of patient care for the last 24 years.⁶ The results are published in its annual 15 Top Health Systems report on patient care, which is part of its 100 Top Hospitals program. A health system's patient care is calculated as a percentile score based on publicly available data across nine measurements of patient care performance. These include mortality, complications, patient safety, core measures, 30-day patient readmits, 30-day mortality, average length of stay (ALOS), expense, operating profit margin and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS).

We use Watson Health's data for two components of the process:

- Selecting a meaningful group of health systems to include in our ranking
- Determining a quantifiable proxy for health systems' quality of care

We value our partnership with Watson Health, and our ranking wouldn't be as meaningful without its willingness to share its data.

Inclusion Criteria

In selecting the health systems to include, our goal was to align the size of the health systems with that of the manufacturers, distributors and retailers (which must have \$1.5 billion in annual revenue or greater, so we have the same revenue requirement for them). Additionally, we include only those companies in the top 60% of the Watson Health's 15 Top Health System study. We openly discussed this methodology with key executives from health systems, and the majority of these executives supported the link between supply chain leadership and the quality of patient care reported in the 15 Top Health Systems Study.

Quantitative Measures

As mentioned above, we used the percentile score from the 15 Top Health Systems Study to develop a force-ranked score for the quality of patient care for each health system to be used in our quantitative analysis.

While we use the actual Watson Health's quantitative assessment for our ranking purposes, we only show the tier of performance for each health system in our final report.

The four tiers are:

- 15 Top Award Winners
- Top Quintile (top 20% excluding 15 Top Award Winners)
- Second Quintile (61% to 80% performance)
- Third Quintile (41% to 60% performance)

We continue to focus on the more complex health systems while setting a minimum level of quality of care (as signified by performance in the 15 Top Health Systems Study) that must be met to be included in our ranking.

The second quantifiable metric used to assess health systems is bond rating. As we did in previous rankings, we use bond rating as a proxy for operational efficiency of health systems. Although bond rating is not the ideal gauge of operational efficiency, it does reflect the financial discipline and management effectiveness of a health system. We used ratings from Standard & Poor's (S&P), Moody's and Fitch to develop an aggregate bond-rating composite score. For consistency, we mapped bond ratings from all services to the S&P scale, which is reflected in Table 1.

Relative Weighting

The last step in our health system ranking methodology is to balance the quantitative measures and opinion scores. To maintain consistency with the methodology used in past years, we applied a 30% weighting to the quantitative measures (15% for Watson Health score and 15% for Bond Rating) and a 70% weighting (35% for peers and 35% for Gartner analysts) to the opinion score. This choice of this methodology demonstrates our belief that the wisdom of the collective healthcare crowd gives the best overall assessment.

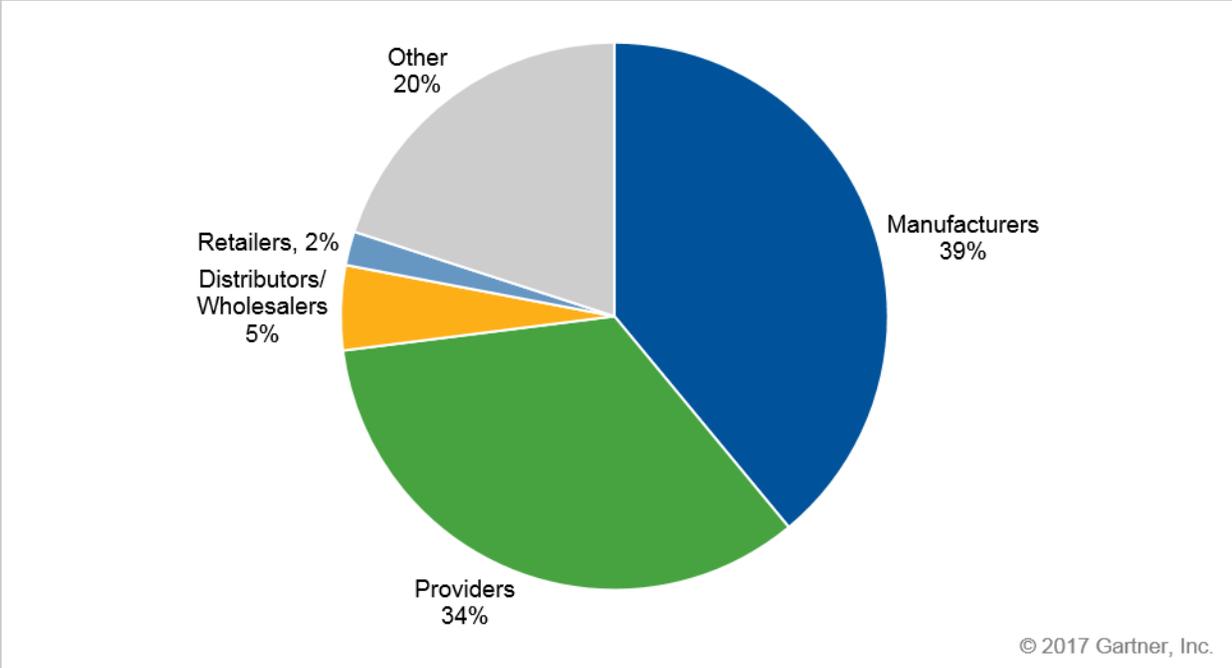
Opinion Component

Opinions are gathered from two groups: Gartner analysts who have significant interaction with the healthcare industry and professionals who have direct experience with the organizations being ranked. Any supply chain leader from a manufacturer, distributor, retail pharmacy or health system is eligible to vote. However, only one vote is accepted per company.

This year, we received peer votes from 89 supply chain leaders. Voters came from the most senior levels of supply chain at organizations across the healthcare value chain (see Figures 2 through 4).

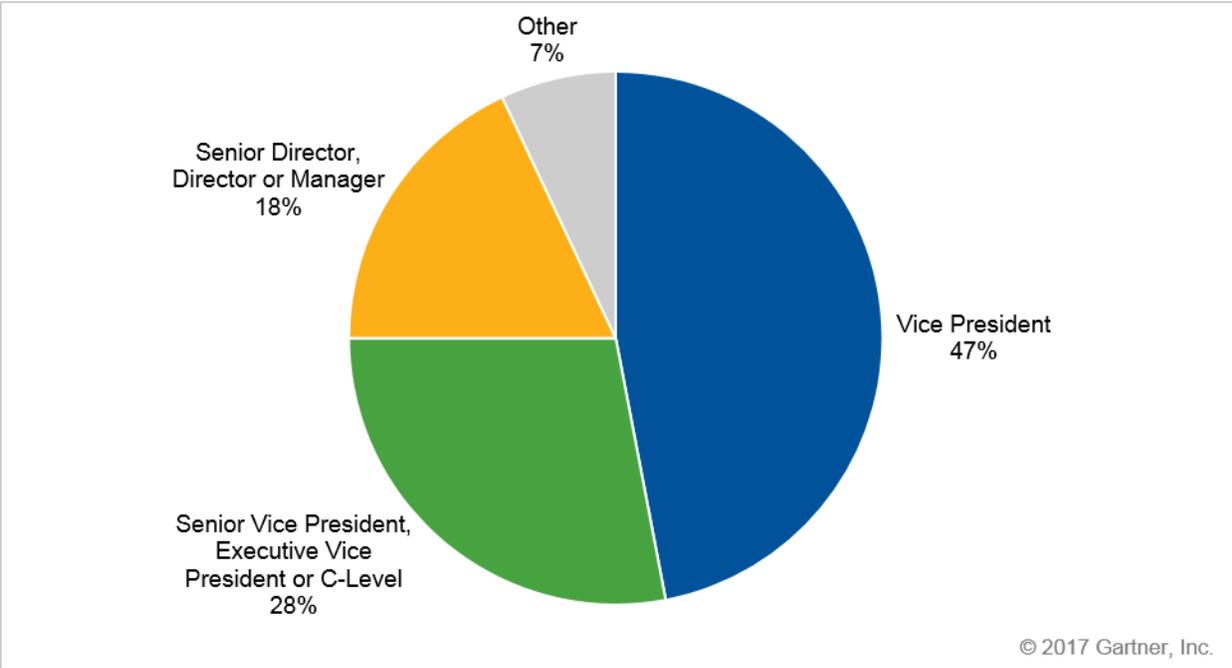
Twenty Gartner analysts representing various industry and functional specialties cast analyst opinion votes as well. These analysts drew on their primary research field and work with healthcare value chain companies when casting their vote.

Figure 2. Peer Opinion Panel Composition: Value Chain Segment



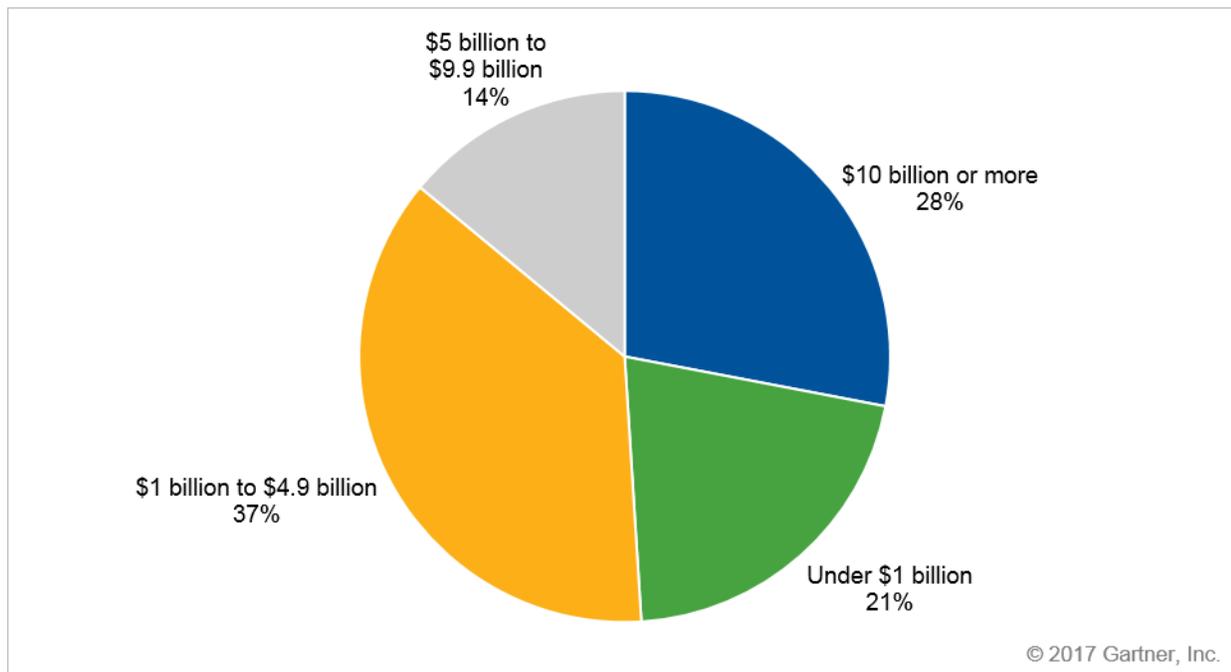
Source: Gartner (November 2017)

Figure 3. Peer Opinion Panel Composition: Role



Source: Gartner (November 2017)

Figure 4. Peer Opinion Panel Composition: Revenue



Source: Gartner (November 2017)

Polling Procedure

Peer panel polling was conducted during September 2017 via a web-based, structured voting process. Voters were taken through a four-page system to identify their final selection of leaders.

The breakdown of the four-page system:

- The first page provided instructions and a description of our Healthcare Supply Chain Top 25 capabilities model. Specifically, they were asked to consider the following:
 - Which organizations are developing and implementing strategies to support improving human health at sustainable costs?
 - Which organizations are building and implementing supply chain capabilities in the areas depicted on our healthcare supply chain top 25 capabilities model?
- The second page solicited demographic information from voters.
- The third page provided panelists with a complete list of the organizations to be considered. We asked them to choose 25 to 50 that, in their opinion, most closely achieved the ideal of value in healthcare.
- After the subset of leaders was chosen, the panelists were then asked to force-rank the companies from No. 1 to No. 25.

Individual votes were tallied across the entire panel, with 25 points earned for a No. 1 ranking, 24 points for a No. 2 ranking and so on. The analyst panel and the peer panel used the exact same polling procedure.

By definition, each person's expertise is deep in some areas and limited in others. Despite that, voters weren't expected to conduct external research to place their votes. The polling system is designed to accommodate differences in knowledge. It relies on what author James Surowiecki calls the "wisdom of crowds" to provide the mechanism that taps into each person's core kernel of knowledge and aggregates it into a larger whole.

Composite Score

All of the information — the quantitative measures and opinion votes — is normalized to a 10-point scale and then aggregated into a total composite score. The composite scores are then sorted in descending order and the organizations with the 25 highest scores make our final ranking.

Looking Ahead

We're encouraged by the continued progress we've seen from supply chains across the entire healthcare spectrum this year. Leaders clearly understand the need to balance improving day-to-day operations with investments that will keep their supply chains competitive in the future.

In 2018, seek out willing partners, leverage digital technology, and obsess over your customers to find new ways to make your supply chain an essential part of the future of healthcare.

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Healthcare Supply Chainnovators 2017: Partnership at an Impressive Scale for GSK"

"Healthcare Supply Chainnovators 2017: Intermountain Wins for Investment in the Home Healthcare Supply Chain"

"Healthcare Supply Chainnovator Finalists 2017: Pharmaceutical Advances at Advocate and Inventory Optimization at Cleveland Clinic"

"Healthcare Supply Chainnovator Manufacturers, Distributors and Retailers Finalists 2017: Owens & Minor and Johnson & Johnson"

"Life Sciences Industry Outlook 2017: Tumultuous Times Require an Agile Supply Chain"

"Assess and Improve an IDN Supply Chain Response Using the Patient-Driven Value Network Maturity Model"

"Healthcare Supply Chain Top 25 Capabilities Model: Improving Human Life at Sustainable Costs"

Evidence

¹ E Gartner's 2016 CSCO Study: Results presented are based on a Gartner study conducted find out and understand the business priorities of supply chain leaders, what drives their supply chain strategies, improvement goals, effective practices, and organizational design. The research was conducted using a mixed methodology of both online and CATI during November 2015 through December 2015 among 261 respondents in North America, Western Europe and Asia/Pacific. Eighty-nine percent of respondents came from organizations with \$1 billion or more in annual revenue. Respondents came from the following industries: CPG (11%), retail (14%), chemical (8%), industrial (22%), high tech (20%), life sciences (17%) and healthcare (8%). The survey was developed collaboratively by a team of Gartner analysts who follow supply chain and was reviewed, tested and administered by Gartner's Research Data and Analytics team.

² F Based on data findings from the 2017 Gartner CEO and Senior Business Executive Survey. The original survey was largely collected by telephone interview, and also online, from 388 large-company CEOs and other C-level business executives between September 2016 and December 2016. Findings in this report are based on the responses of the 141 participants in supply-chain-intensive industries.

³ "Report: CVS Is Hiding the Candy in Push for Better Health," RetailDive, 29 June 2017. <https://www.retaildive.com/news/report-cvs-is-hiding-the-candy-in-push-for-better-health/446158/>

⁴ "Collaboration: Unlocking a New Approach to Clinical Trials," GSK, 31 August 2016.

⁵ D "Scripps Physician Leader Receives National Supply Chain Award," Scripps Health, 19 October 2017.

⁶ B "100 Top Hospitals," Truven Health Analytics.

GARTNER HEADQUARTERS**Corporate Headquarters**

56 Top Gallant Road
Stamford, CT 06902-7700
USA
+1 203 964 0096

Regional Headquarters

AUSTRALIA
BRAZIL
JAPAN
UNITED KINGDOM

For a complete list of worldwide locations,
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