



Executive Summary

As hospitals and health systems struggle to manage growing patient access demands, rising drug costs, increased regulatory oversight and outcomes-based reimbursement programs, a strategy that continues to attract interest is the consolidation and centralization of services lines. Traditionally viewed as a significant cost center for health systems, pharmacies experience substantial pressure to contribute to cost cutting mandates while not sacrificing service levels or compromising medication availability.

Forward-thinking organizations are addressing these challenges by centralizing pharmacy operations offsite at consolidated service centers (CSCs).

Swisslog Healthcare, in collaboration with Visante, Inc., sought to explore this trend of medication supply chain consolidation and distribution through a survey of pharmacy leaders in July 2018.

Defining Consolidated Service Center

Consolidated service centers enable health systems to automate and centrally manage inventory and associated management processes for all supply chain and ancillary support services. This cost-disruptive model facilitates reduction of supply chain complexity to streamline operations and drive standardization. CSCs may support centralization of one or multiple service lines, however, the following report focuses exclusively on pharmacy services.

The study showed adoption of pharmacy CSCs by health systems of all sizes, with the most interest coming from 2-5 hospital networks. Improved inventory management and streamlined procurement processes were identified as the top drivers of implementation and consideration of a CSC, with formulary standardization challenges further supporting the need for change. Cabinet replenishment and sterile compounding were the operations most commonly implemented, with mail order being a notable future consideration. When queried about automation within a CSC, respondents identified a high level of adoption to ensure safe dispensing, with the majority having adopted carousel or robotic storage systems as well as pharmacy analytics solutions. The business case for this distribution model can be achieved in less than two years and is driven by multiple factors, including minimizing waste and reducing inventory overhead.



Research Methodologies

Data Collection

The data summarized in this report was collected in 2018 via an online survey distributed by Visante, Inc., over a one-month period. Visante is a team of medication management consulting experts serving healthcare providers, pharmaceutical and technology industry organizations, as well as managed care and government organizations. Swisslog Healthcare sponsored this survey, but distribution was controlled by Visante. The objective of this survey was to evaluate the market state as it relates to hospital medication supply chain distribution and more specifically, consolidated service centers.



Audience

The survey was distributed to health system pharmacy leaders, garnering responses from 31 unique health systems in the United States, 74% of which were not-for-profit organizations.

The majority of respondents held leadership positions, with 81% of respondents holding Pharmacy Director or Pharmacy Executive/Chief Pharmacy Officer titles.

Initial qualification questions determined the current pharmacy distribution model for the respondent's health system.

- a) Distributing from a CSC
- b) Considering a CSC
- c) No Plans for a CSC

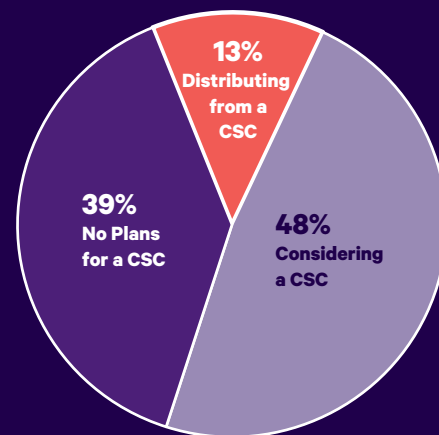


Figure 1: Consolidated Service Center Adoption

Respondents were driven to a specific set of questions, based on this segmentation. Respondents identifying themselves as being from a standalone facility did not qualify to complete the survey and they are not represented in any of the data contained in this report.



Analysis

Anatomy of Self-Distributing Health Systems

The research revealed that health systems of all sizes are moving toward a consolidated distribution model for pharmacy operations. Even the smallest Integrated Delivery Networks (IDNs) are finding value from moving to a CSC. Implementation of CSCs was evenly distributed across each segment, however, for those respondents still in the consideration stage, there was a notable spike in interest from systems with 2-5 hospitals. It could be said that with greater size comes a greater level of complexity and therefore a need to streamline operations, however, many mega IDNs have more national coverage, limiting their ability to centralize. In addition to health system size, there are additional factors, such as state regulations about the transport of drugs as well as geographic dispersion, that impact the feasibility of a CSC. This research did not explore these variables.

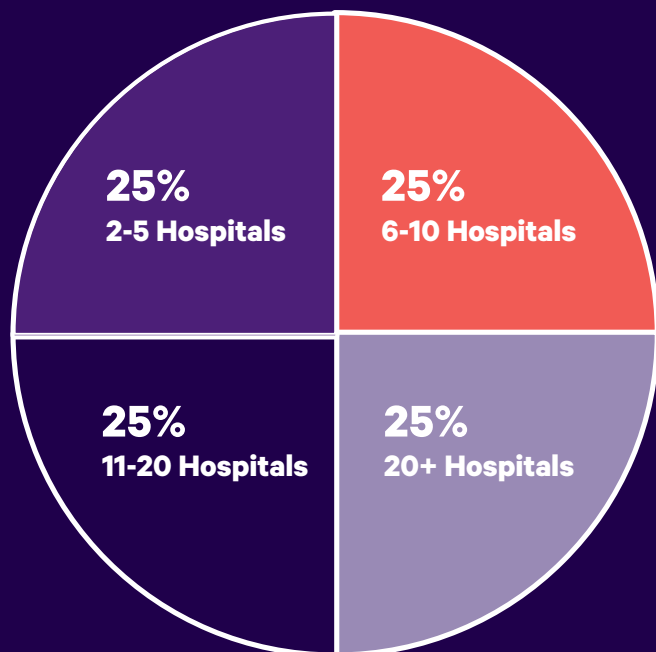


Figure 2: Distributing From A CSC – Respondents By Hospital Count

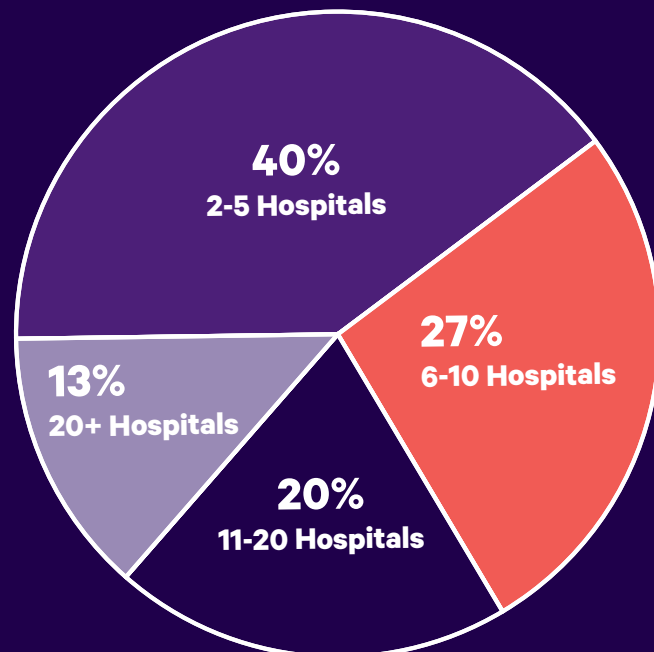


Figure 3: Considering A CSC – Respondents By Hospital Count

Consideration Factors for Implementing a Consolidated Service Center

To better understand drivers for centralizing pharmacy distribution, respondents were asked to select and rate decision factors for implementing or considering implementation of a CSC, with choices of: Not Important, Somewhat Unimportant, Not Considered/Neutral, Somewhat Important and Very Important. In Figure 4, see the list of factors as well as how respondents ranked what was considered «Very Important.»

Those who are still in the consideration stage ranked formulary standardization significantly lower than IDNs who have already implemented a CSC. This may indicate that health systems are underestimating the need and/or opportunity to reduce drug SKUs within the system. Standardization has a direct impact on two other key factors: reducing inventory waste and reducing inventory overhead. Organizations can also negotiate better pricing by ordering higher volumes of fewer items. In a 2016 presentation to Association for Resource and Materials Management (AHRMM) members, Janet Zarndt, Pharm.D., Division Director of Pharmacy, HCA Mountain Division reported that when developing their regional CSC, they, «Realized SKU reduction from 6,800 line items purchased to 1,400 items.»¹

Respondents distributing from a CSC rated labor reduction as notably less impactful than is anticipated by consideration stage respondents. Many hospital and health system pharmacies are consistently being asked to do more with less, so it is not unexpected that IDNs would not have a large excess of FTEs to cut, especially given the new jobs created within a distribution center. Similarly, those distributing from a CSC rated drug shortage management as less important than those considering the model. With so many external variables to contend with, health systems should be conservative when attributing any future savings to improved drug shortage management.

Factors	Distributing from a CSC	Considering a CSC
Procurement savings and efficiencies	75%	80%
Driving formulary standardization	75%	20%
Reducing inventory waste	100%	60%
Reducing inventory overhead	75%	60%
Improved visibility and control	50%	27%
Automating manual processes	50%	33%
Labor reduction or re-allocation to patient-facing activities	25%	47%
Proactive drug shortage management	50%	67%
Enhancing drug safety through automated and standardized dispensing process	50%	20%

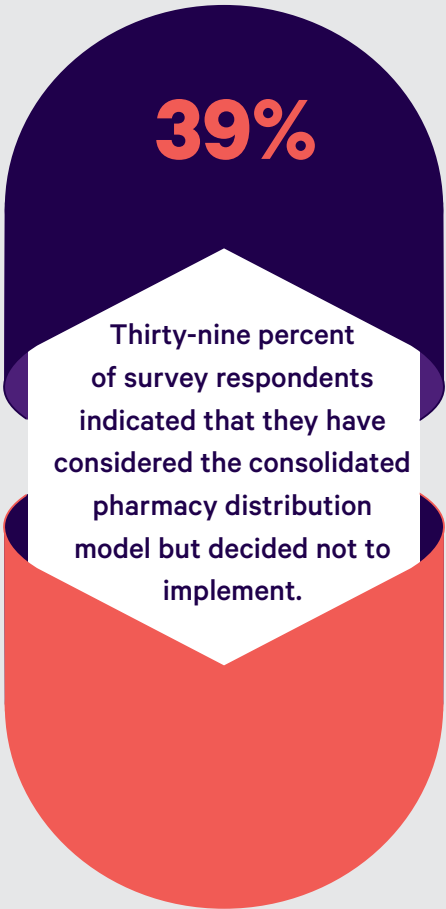
Figure 4: Factors Rated “Very Important” For Implementing A CSC

SOURCE

- 1 — Zarndt, Janet, Pharm.D., Division Director of Pharmacy, HCA Mountain Division. “HCA Pharmacy Centralized Distribution,” Presentation at the Rocky Mountain Chapter of AHRMM on June 16, 2016.



Maintaining Traditional Distribution Channels



While the 2-5 hospital segment indicated interest in the CSC model, they also make up 58% of the group who specified that they have considered, but decided not to implement a CSC. Based on this data, further monitoring of the consideration stage group may reveal that the smaller IDNs are less likely to move forward with their CSC plans.

Sixty-seven percent of these respondents indicated that their current distribution model meets their needs, suggesting smaller networks are easier to manage through traditional channels.

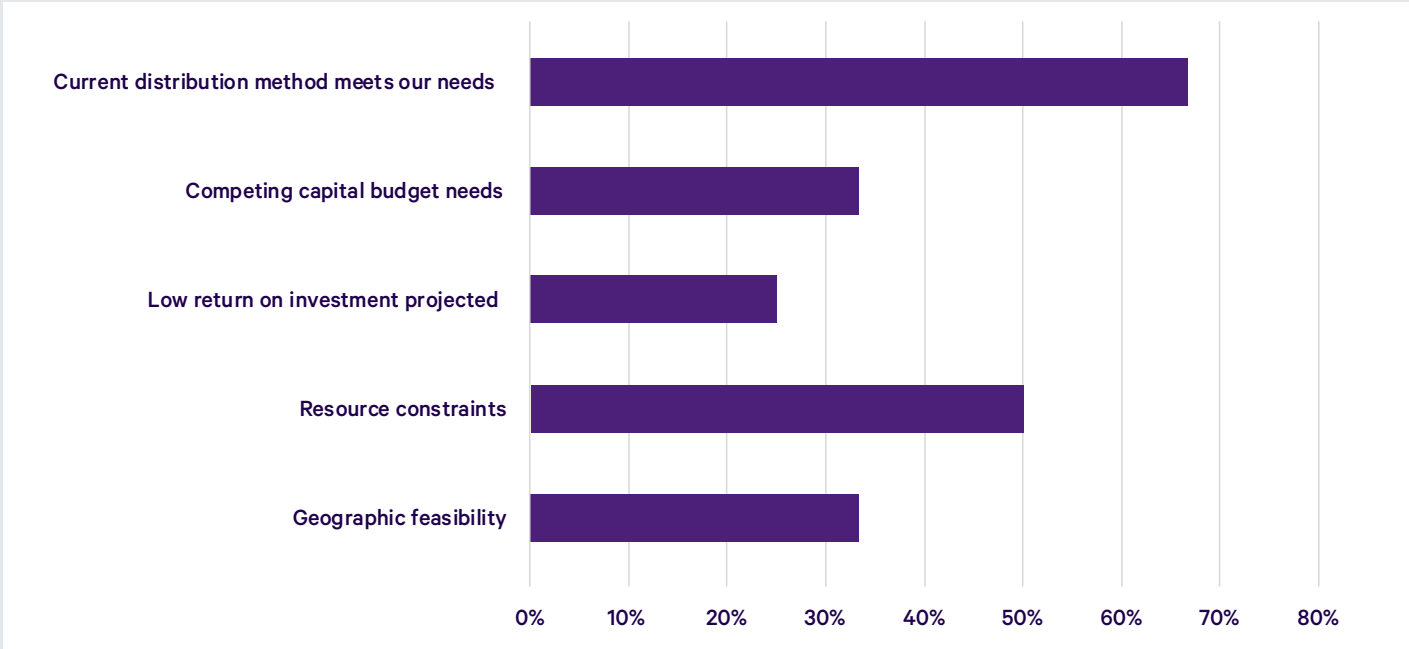


Figure 5: Reasons For Not Implementing A CSC



Service Line Selection and Implementation

When starting to think about creating a consolidated service center, the biggest questions often surround the issue of what to centralize at the CSC and what to keep decentralized at individual facilities. While cabinet replenishment is a common service for IDNs to provide from a CSC, most health systems contain a mix of centralized, point of care and hybrid medication distribution models, so cart-fill activities can also have a place in CSC operations. However, as shown in Figure 6 below, it remains a minority activity within a CSC. This may be due to the additional challenges that patient-specific dispensing has in a consolidated model, including changing patient prescriptions that result in excessive returns and potential waste.

«It’s generating \$2-3 Million annually in our hospital CSC, and about \$5 Million annually in our retail mail order.»

- Respondent utilizing a consolidated service center

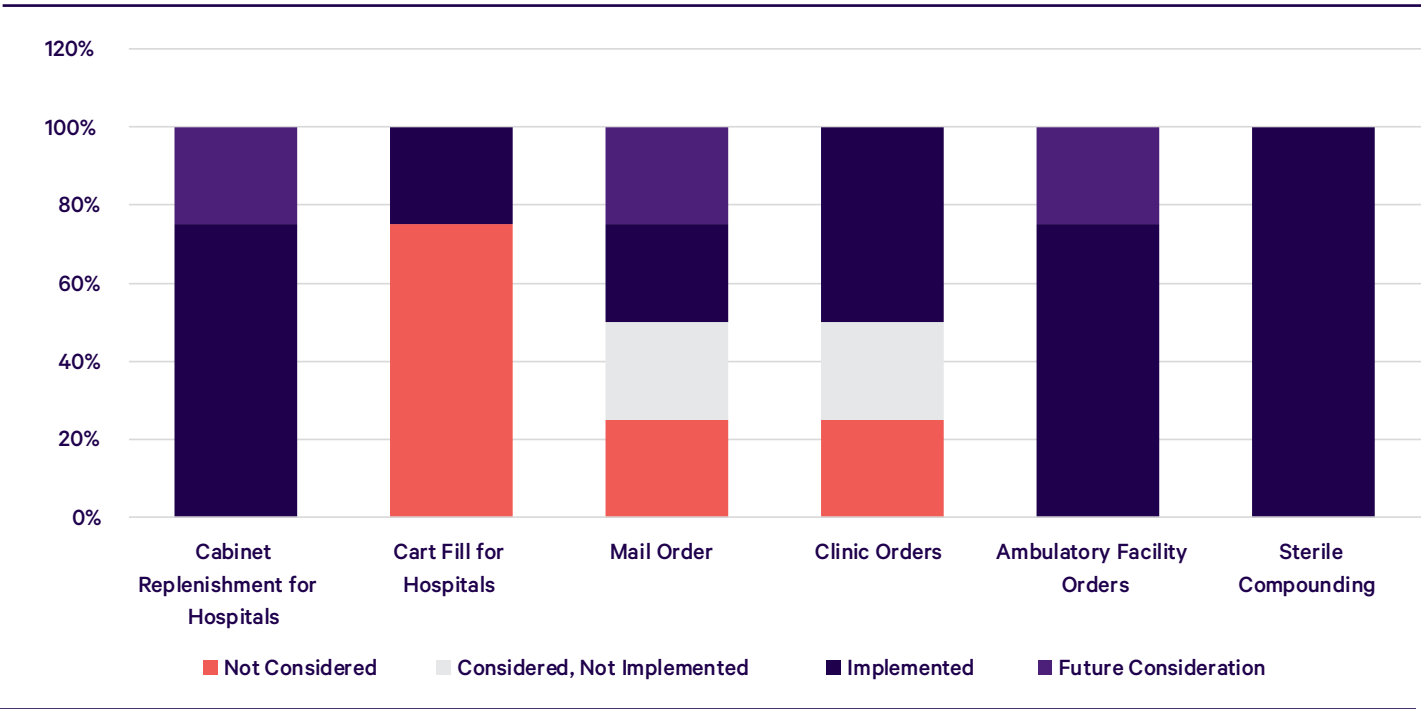


Figure 6: Service Selection And Implementation - Distributing From A CSC

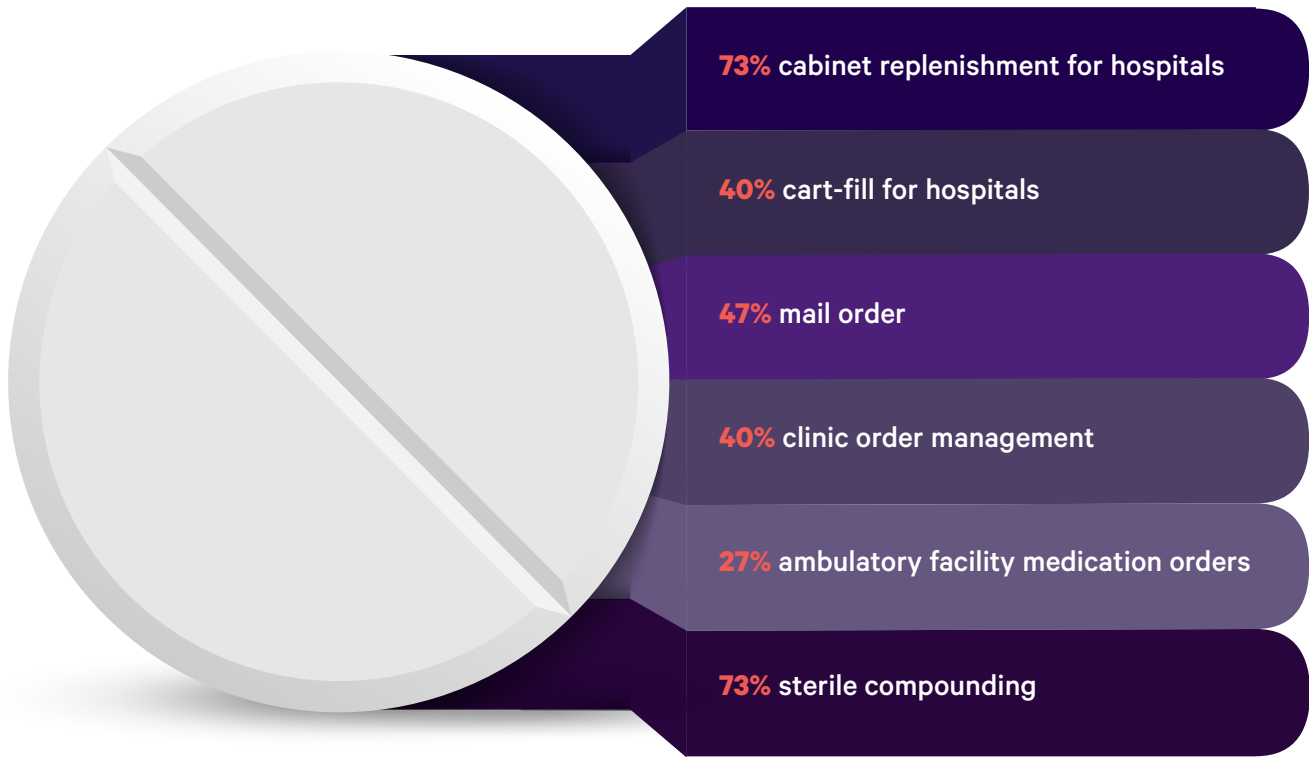


Sterile compounding operations can be found in the distributions centers of all respondents utilizing a CSC model. Although there is heavy regulatory oversight and risk, this is an area of increasing focus for health systems. As a method for proactively managing drug shortages, such as the small-volume saline bag shortage following Hurricane Maria in 2017, Cleveland Clinic plans to build a 503B-compliant compounding facility that would

allow it to sell drugs to other hospitals.² Under the 2013 Drug Quality and Security Act (DQSA), 503B outsourcing manufacturers, which produce large batches of drugs that are not linked to a patient-specific prescription, are subject to FDA oversight and inspection. Given the high implementation rate within the CSC model, it appears that the business case and medication availability gains are strong enough to justify the added risk.

Evaluating Service Lines for Potential Consolidated Service Centers

Responses from health systems in the consideration stage were overall consistent with their CSC peers, with support for acute care settings taking priority over clinic or ambulatory facility services. Plans include:



SOURCE

2 — Kacik, A. (2018, July 31). Providers ramp up preparation for drug shortages. Retrieved October 21, 2018, from <http://www.modernhealthcare.com/article/20180731/TRANSFORMATION02/180739978>.



The Role of Automation in Consolidated Service Centers

Supporting the number of medications and volume of order lines for an entire health system leaves little room for manual processes. To fully realize the benefits of a consolidated inventory, such as sharing/transferring drugs between facilities, an inventory management solution is critical. As seen in Figure 7, 75% of existing CSCs are utilizing inventory management software and the remaining 25% are considering adding it to their operations.

Also shown in Figure 7, 100% of IDNs distributing from a CSC are employing carousels/robotic storage and pharmacy analytics. Based on qualitative responses, the pharmacy analytics solutions appear to be a blend of vendor software and internal business intelligence projects.

In general, there is a higher level of automation implemented by these health systems than is being planned by respondents still in the consideration stage. There are two exceptions, with an increase in plans for inventory management software (87%) and packaging and dispensing robots (40%). The higher adoption of packaging and dispensing robots is consistent with their reported plans to support cart-fill from a CSC (also 40%).

«25% of existing CSCs would have invested in more storage/picking automation from the start.»

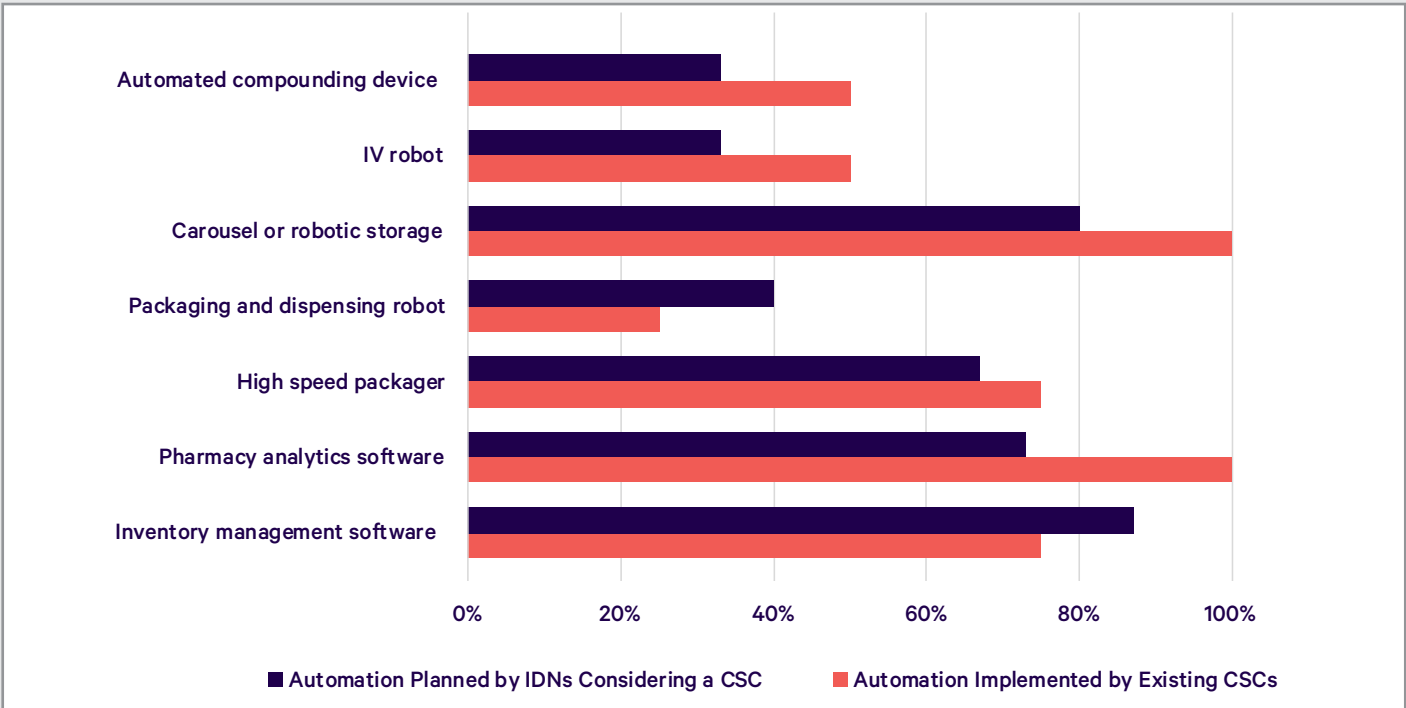


Figure 7: Automating Consolidated Service Centers



The Business Case for Consolidated Service Centers

Establishing an attractive business case is top of mind for those considering consolidated pharmacy distribution. One of the biggest factors impacting the timeline for a return on investment is the cost of a facility. If Pharmacy is joining an existing CSC established by Supply Chain, the request for capital is significantly less, accelerating the ROI. Similarly, if Pharmacy and Supply Chain are working together to propose a CSC, the infrastructure investment and delivery costs can be shared.

As seen in Figure 8, health systems are experiencing a return on investment for a CSC significantly faster than anticipated. Seventy-five percent of systems distributing from a CSC reported experiencing an ROI in less than 12 months. Also compelling, 73% of IDNs in the consideration stage anticipate an ROI in less than two years.

«As the system evaluates the potential investment in a consolidated service center, we are working closely with our Supply Chain colleagues in an effort to put a more compelling ROI together.»

- Respondent considering implementing a CSC

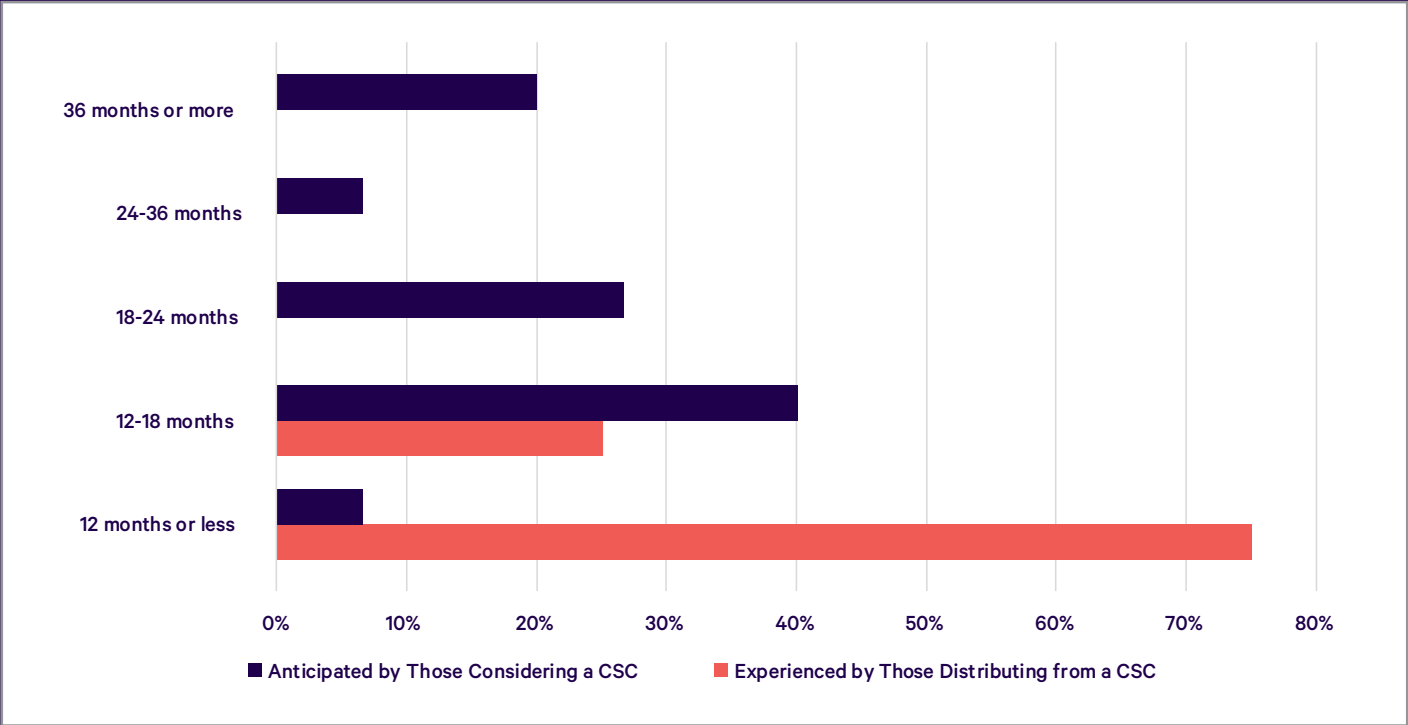


Figure 8: Return On Investment



A number of factors contribute to the business case for a pharmacy consolidated service center. As seen in Figure 9, actual savings surpass what is anticipated by health systems still considering a CSC. The most impactful changes for IDNs distributing from a CSC include inventory overhead reduction (23%), spend reduction from streamlined procurement (20%) and drug price reduction via aggregated purchasing (20%).

Health systems still considering a CSC should take note of which factors they may be over estimating in their pro forma. Based on the research, these include labor reduction and cost avoidance via Adverse Drug Event (ADE) reduction.

«[We saved] \$2.7M in the last 12 months. The savings amount aligned nicely with our projections. The largest driver of savings was inventory reduction and strategic purchasing.»

- Matt Parker, Manager, Consolidated Pharmacy Services, Greenville Health System

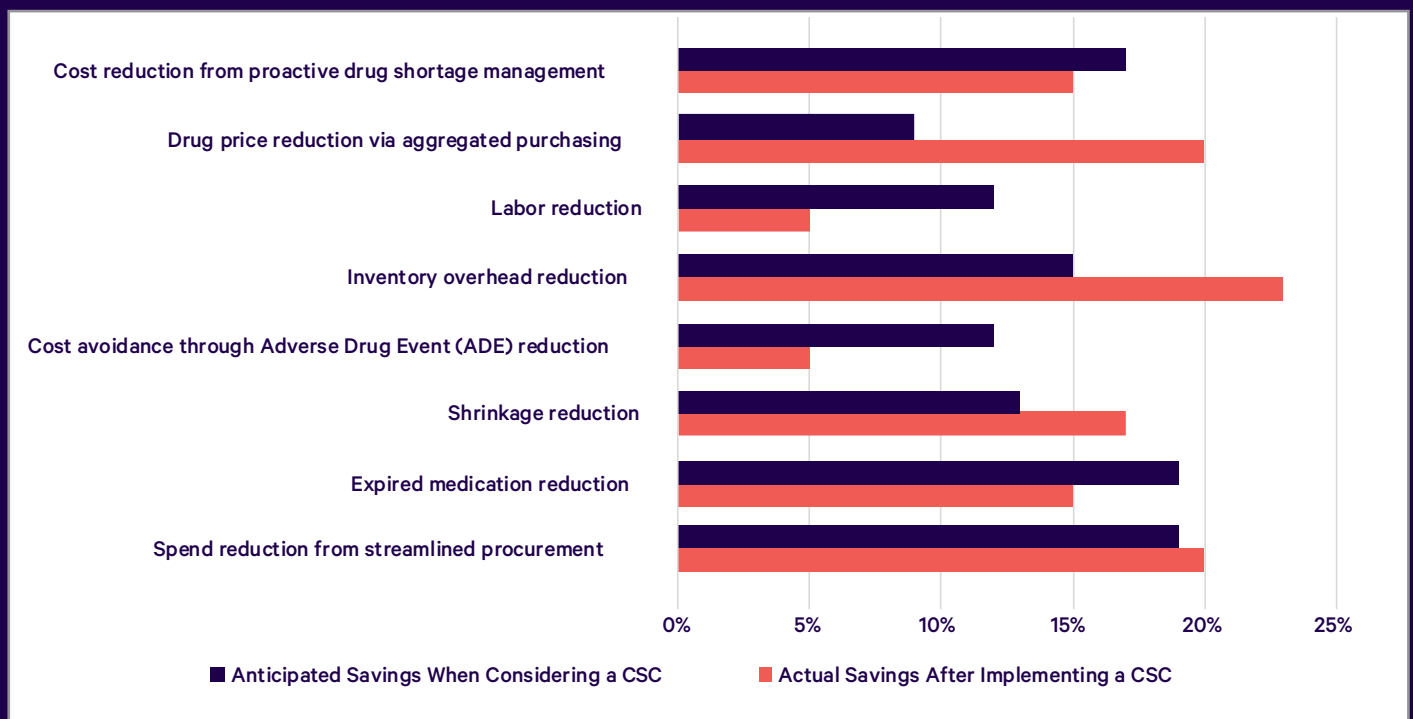


Figure 9: Savings From Consolidated Service Centers



Implementing the CSC Model

While many health systems have demonstrated a positive ROI for the consolidated service center model, there remain concerns for respondents considering transitioning to a CSC. When asked about their primary concerns with consolidating medication distribution, respondents noted service to/change management for the individual facilities as well as capital approval/return. A sampling of reported concerns include:

- “Lack of responsiveness to the needs of the individual facilities.”
- “We will need to come through with financial savings developed in the proforma. We also plan a 503b operation which is complex and a slow ramp up.”
- Capital approval for the automation solutions.”
- “ROI without IV production.”
- “Lack of physically seeing the inventory.”
- “Culture change with DOP’s, logistics to deliver product.”
- “Board of Pharmacy regulations.”
- “Coordinating process and schedules with each hospital within our system.”
- “Designing our operations properly for our short-term and long-term goals. Getting products to the correct facility in a timely fashion.”
- “Cost of the center.”
- “Initial capital outlay, ROI.”

A large, stylized maze graphic in the background, with the letters 'CSC' in the center.

CSC



Advice for Health Systems Considering a Consolidated Service Center

Health system pharmacies with established consolidated service centers identified a few key changes they would have made now that they implemented a centralized model.

These include:

- 50% would start with a larger facility
- 25% would invest in more storage/picking automation
- 25% would have chosen a different geographic location

Respondents also volunteered the following advice:

- “Be sure you don’t undersize the facility. Make sure you lock down distribution channels of the facilities you serve so they MUST get product through the CSC.”
- “Spend the time and money needed to create the correct IT infrastructure to support the CSC operation.”
- “Identify methodology for 340B compliance with multiple sites.”
- “Develop and adhere to strict SOPs on hospital side for receipt and distribution of product.”



Conclusions

Survey responses from pharmacy leadership indicate that health system pharmacies of all sizes are finding consolidated service centers to be an efficient, cost-disruptive model for medication distribution. While adoption is relatively low today, **48% of health system pharmacies are currently considering transitioning to a CSC model.**

There are a number of reasons for these results, including:

- Consolidated service centers leverage economies of scale to optimize inventory management, reducing overhead and minimizing waste.
- Streamlined procurement and formulary standardization drive elimination of redundancy and reduced variation.
- Most IDNs realize or anticipate a return on their investment within two years of implementation.



Responses show a primary focus on supporting acute care sites through cabinet replenishment and sterile compounding from a CSC, however, there is also interest in servicing clinics and other ambulatory facilities. These activities are supported by a high degree of automation, with the greatest adoption seen with carousel/robotic storage, pharmacy analytics and inventory management software.

While the business case for a pharmacy CSC has been proven, there remain some concerns for respondents still in the consideration stage. These are primarily surrounding the ability to provide consistent service to the individual facilities as well as attain approval for the capital investment. These IDNs can learn from experienced peers and work with vendor partners to develop a comprehensive business case and project plan that minimizes the pain of change while taking advantage of health system scale.





Research Limitations

The primary limitations of this research are related to audience access. There is no known record of how many health systems are self-distributing or operating from a consolidated service center, making it difficult to appropriately target this group. The distribution of this survey was limited to those health system pharmacy leaders within the contact database of Visante, Inc. Responses were limited to those who self-selected to participate. This self-selection may have been driven from a predisposition to an interest in consolidated distribution.

In addition to respondent variables, the survey questions were drafted by Swisslog Healthcare. While the intention was to objectively assess the state of the market as it relates to consolidated pharmacy distribution, there was a possibility for vendor bias.

Swisslog Healthcare

At Swisslog Healthcare, we strive to lead change for better care. At the core of this vision is a focus on improving workflows and reducing the time clinicians spend doing repetitive tasks—enabling more time to care for patients and residents. Our solutions and services extend across the continuum of care, including transport, medication and supply chain management for long-term care facilities, consolidated service centers, hospitals and health systems.





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