

OPERATIONAL COMMAND CENTERS 2018

AN UNDERUTILIZED APPROACH TO IMPROVING EFFICIENCY AND OUTCOMES

AKLAS Performance Report | **December 2018**



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EXECUTIVE INSIGHTS



OPERATIONAL COMMAND CENTERS 2018

AN UNDERUTILIZED APPROACH TO IMPROVING EFFICIENCY AND OUTCOMES

Should You Invest in Building Command Center? Of those who have a fully deployed command center and are measuring ROI, report positive financial outcomes.

While the term "command center" may conjure up images of NASA's mission control or a highly sophisticated military operation, command centers also have a place in healthcare. Though few US hospitals or health systems are currently live with a command center, healthcare organizations have recently begun to reimagine this centralized approach to operations. The early consensus? Command centers can drive significant outcomes—including improved efficiency, increased revenue, and enhanced patient safety and satisfaction. Given these reported benefits, your organization may be wondering:

- What is a command center, and what technology/departments are typically involved?
- What specific outcomes are being achieved?
- How do the vendors differ in their approach to command centers and in their contributions to customer success?
- What best practices would organizations with live command centers recommend to their peers?

To answer these questions, KLAS asked command center vendors to point us toward their most innovative and forward-thinking customers. We then randomly interviewed three or four customers for each (24 organizations in total) to gather insights into this underutilized operational approach.

What Is an Operational Command Center?



Foundational Technology Approaches

Different vendors build their customers' centralized operations on different technology foundations. Which approach best fits your organization?



Command Centers Drive Substantial Operational and Financial Gains

Organizations that have implemented an operational command center report achieving five main types of operational and financial outcomes.

96%

Improved Patient Flow:

Improved efficiency in placing, transferring, or diverting patients. **Ouick dissemination of** critical information, enabling smoother patient transportation and improved bedcapacity management.

78%

Financial Gains:

Financial gains through increased patient retention and referrals and fewer unseen patients. Lower costs due to reduced length of stay and staffing inefficiency.

74%

65%

Improved Patient Experience:

Reduced wait times. More streamlined (and therefore improved) care. Higher patient satisfaction.

Improved Staff Experience:

Improved communication, collaboration between teams (e.g., between EVS and bed management) and aligned goals. For some, visibility into staffscheduling inefficiencies enables implementation of acuity-based staffing.

61%

Actionable & Transparent Data:

Transparent view of and quick access to aggregated data, leading to specific, actionable insights. For some, ability to use real-time and/or predictive analytics.

Level of Vendor w Contribution 20 High Vendor Contribution, Fewer Outcomes 18 16 Note: Examples of 14 reported vendor relationship factors (such as guidance and expertise) and technology factors Change Healthcare⁺ (such as real-time and predictive analytics). 8 Cerner 🔴 6 Central Logic 4 + Counts for Change Lower Vendor Contribution 2 chart are based on Fewer Outcomes feedback from two live customers. (The 0third customer KLAS 0 1 2 3 4 5 implementing and thus could not speak Average Number of Customer Reported Outcomes (n=23)

to contributions

Vendor Involvement Key to Achieving Outcomes: TeleTracking, Care Logistics, & GE Healthcare Stand Apart

Organizations that receive strong vendor guidance are more likely to achieve positive outcomes. TeleTracking customers note that guidance from the vendor's high-caliber personnel is particularly helpful in producing financial improvements, especially reduced length of stay and improved revenue. Care Logistics—whose customers report particularly strong improvements in data transparency-emphasizes that good technology, while important, is secondary to building solid processes, good governance, and relationships among stakeholders. Excelling at change management, GE Healthcare provides detailed project management and works with involved departments to define roles and gain buy-in. Key outcomes reported by customers include improved patient flow.

The EMR vendors in this report have not engaged as deeply. **Cerner** in particular does not provide the level of guidance needed. Customers note gaps in analytics-related outcomes, specifically with accuracy and reporting. Epic's involvement tends to be reactive, and some customers report lacking financial outcomes.

Central Logic and Change Healthcare have not consistently demonstrated a strong ability to partner with or guide their customers, resulting in gaps in financial outcomes and analytics outcomes, respectively.

What Outcomes Have Been Validated? high to low based on average number of custon

0	1+ customer validation No customer validation	TeleTracking	Care Logistics	GE Healthcare	Central Logic	Epic	Cerner	Change Healthcare ⁺
Patient Flow	Increased Bed Capacity Improved Patient Flow Improved Patient Diversion Improved Patient Transfer Improved Operational Efficiencies	****	****	***	。 、 、 、 、 、 、 、 、	> > > > >	0 7 7 7 7 7 7	**** ****
Financial	Decreased Length of Stay Increased Revenue Decreased Expenses	1 1 1	~	1 1 1	○ ✔ ○	○ ✓ ✓	>	0 * *
Patient Experience	Improved Patient Care Increased Patient Satisfaction Reduced Wait Times	×,	¥.	> >	√ √	¥,	×,	✓ ✓ ○
Staff Experience	Improved Team Communication Increased Clinician Satisfaction Improved Staffing Gains	· · · ·	> >	✓○○	√ ✓	· · · ·	> >	✓✓
Actionable Data	Improved Data Transparency Improved Data Aggregation Improved Alerting Automation Predictive Analytics	✓ ○ ○✓	1111	> > >	****	> > >	> 0 0 >	0 0 0 •

Note: Customer organizations may achieve additional outcomes outside of those validated by the interviewed sample.

 † Counts for Change Healthcare in this chart are based on feedback from two live customers. (The third customer KLAS interviewed is still implementing and thus could not speak to outcomes.)

Reported Outcomes vs. Vendor Contributions

High Vendor Contribution

TeleTracking

Lower Vendor Contribution.

9

8

More Outcom

GE Healthcare

Care Logistics 🔵

Epic 🔵

6

Technology Contributions Weaker from Cerner and Central Logic

Having good technology is important, but having a vendor who helps you fully leverage or implement that technology increases your chances of success. Interviewed Cerner customers that have been live for a year or more don't feel they have received much help beyond getting the system live and have yet to see significant efforts around data transparency, data aggregation, or predictive analytics. Similarly, Central Logic customers feel their vendor's main technology contribution has been providing software. Some report efforts from Central Logic to improve data transparency. More help with integration is needed.

Customer-Reported Areas of Vendor Strength



Note: Vendors may offer capabilities outside of those charted here. This chart shows the areas highlighted by interviewed customers as particular strengths

Though reporting and real-time data are significant gaps across the industry, **Care Logistics**, **GE Healthcare**, and **TeleTracking** have leveraged strong partnerships with customers to see initial success in these areas. However, reporting was not mentioned as a strength by all interviewed customers of any one vendor, and this is the next piece customers need to optimize outcomes and further improve ROIs.

GE Healthcare and TeleTracking Most Consistent in Providing Real-Time Data and Predictive Analytics



Note: Vendors may offer additional analytics use cases outside of those validated by interviewed customers.

"Other" includes ADT system, asset tracking, nurse call system, other hospital departments (disease control, environmental services, imaging, maternity, neurology, oncology, PACU), patient phone calls, remote patient monitoring, and telemetry monitoring. The level of access organizations have to real-time data and predictive analytics significantly impacts the type of outcomes they achieve as well as how often they achieve them. While some organizations have seen some success, all interviewed organizations report a desire for more real-time data and predictive analytics. Even **Cerner** and **Epic**, who have built out some of these pieces, are required to integrate with third-party systems in many cases (e.g., RTLS hardware).

GE Healthcare's Wall of Analytics includes predictive and real-time data that customers describe as a unique way to see and understand the data. The accessibility of this data as well as its actionable nature contribute to GE Healthcare customers' higher-than-average number of outcomes. TeleTracking has a good analytics platform and some of the strongest software solutions in the industry for providing real-time visibility, and customers' outcome levels are the highest in this report. Change Healthcare stands out for providing real-time data. Their command center customers are tied into many of Change Healthcare's other technologies (e.g., scheduling and patient flow solutions) that provide good data visibility. However, these customers report the fewest predictive analytics use cases.

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KLAS data and reports represent the combined opinions of actual people from healthcare organizations regarding how their vendors, products, and/or services perform against their organization's objectives and expectations. KLAS findings are a unique compilation of candid opinions and are real measurements representing the feedback of interviewed individuals. The findings presented are not meant to be conclusive data for an entire client base. Significant variables—including a respondent's role within their organization as well as the organization's type (rural, teaching, specialty, etc.), size, objectives, depth/breadth of software use, software version, and system infrastructure/network—impact participants' opinions and preclude an exact apples-to-apples vendor/product comparison or a finely tuned statistical analysis.

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Note

The findings presented are not meant to be conclusive data for an entire client base. Performance scores may change significantly when additional healthcare organizations are interviewed, especially when the existing sample size is smaller, as in an emerging market with a small number of live clients.



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VENDOR INSIGHTS & BEST PRACTICES



ABOUT THIS REPORT

Each year, KLAS interviews thousands of healthcare professionals about the products and services their organizations use. These interviews are conducted using a **standard quantitative evaluation**, and the scores and commentary collected are shared online in real time so that other providers and IT professionals can benefit from their peers' experiences.

To supplement the data gathered with this standard evaluation, KLAS also creates various **supplemental evaluations** that target a subset of KLAS' overall sampling and delve deeper into the most pressing questions facing healthcare technology today.

The data in this report comes from the latter evaluation type only and was collected over the last 12 months; the number of unique responding organizations for each vendor is given in the chart below.

Note that as operational command centers are an emerging market, vendor sample sizes are very small.

Figure 1		Supplemental Evaluations	Estimated Approximate Customer Base
	Care Logistics	4	15–25
	Central Logic	3	15–25
	Cerner	3	6
	Change Healthcare	3†	3–5
	Epic	4	6
	GE Healthcare	3	3
	TeleTracking	4	100+

Note: Some organizations may have rated more than one vendor.

†One of Change Healthcare's interviewed customers is not yet fully live with their command center.

Care Logistics

Care Logistics has been helping healthcare organizations build command centers for almost a decade. Their customers are typically small to midsize organizations with one or two facilities; the average bed size of customers interviewed for this report is just over 400. Care Logistics is a smaller vendor, and customers say this makes them better able than some other vendors to adjust to customers' unique needs; one customer pointed out that Care Logistics doesn't have a *"heavy weight on their back like Epic or GE."* Care Logistics is unique for their hub-and-spoke model, in which there is bidirectional communication and coordination between a care coordinator within the command center (the hub) and various care coordinators located on the floors (the spokes).

Customers describe Care Logistics as a partner, highlighting the vendor's disciplined methodology and exceptional support during implementations. They say Care Logistics is adaptive to their needs, offering hands-on, tailored guidance centered on change management and process optimization. Compared to other vendors' customer bases, Care Logistics customers report the broadest variety of outcomes, including, for one COO, *"an ROI of many millions of dollars because of staffing efficiency and other costs."* Customers note that the vendor's enterprise logistics software gives them realtime, in-depth transparency into their data. One customer said that while the solution doesn't really have predictive capabilities, organizations can use the data to manually predict things.

Where Are Outcomes Being Experienced?

 1- No 	⊢ customer validation o customer validation	Care Logistics
Patient Flow	Increased Bed Capacity Improved Patient Flow Improved Patient Diversion Improved Patient Transfer Improved Operational Efficiencies	****
Financial	Decreased Length of Stay Increased Revenue Decreased Expenses	· · · ·
Patient Experience	Improved Patient Care Increased Patient Satisfaction Reduced Wait Times	· · ·
Staff Experience	Improved Team Communication Increased Clinician Satisfaction Improved Staffing Gains	• • •
Actionable Data	Improved Data Transparency Improved Data Aggregation Improved Alerting Automation Predictive Analytics	1 1 1

Additional Insights on Outcomes

Interviewed customers report success with reduced length of stay, predictive analytics, and OR tracking and look for additional advancements in these areas. They have not seen improved discharge planning or tracking of patients at arrival and would like to achieve these outcomes. "Care Logistics' software forced our organization to identify, target, and eliminate our biggest barriers. We have seen a decrease in our length of stay by nearly a day with Care Logistics' software, and we have seen an ROI of many millions of dollars because of staffing efficiency and other costs. No one here thought it was possible before.... We service more patients and lose less money due to the length of stay." —COO

"We want more predictive analytics from Care Logistics. They have the perfect platform for OR tracking. but they shouldn't start at the inpatient area. They should start tracking when the patient arrives.... I know that things are on the horizon, but Care Logistics needs to move a little faster. The OR tracking is a real miss. Care Logistics is working on things, but they are focused on the length of stay.... I do feel that they have everything in place to knock things out. We have great systems, so it shouldn't be hard for Care Logistics to do what we need them to do.... We were originally supposed to decrease our length of stay to a few days. However, our length of stay hasn't changed very much. It has decreased a little, but we haven't gotten down to the next level that we need to reach. That is for a slew of reasons. I can't put the blame on Care Logistics. We have to deal with the doctors' preferences, patients, charity cases, and people with social discharge issues. Decreasing the length of stay will be an everlasting project... . I love Care Logistics, but the discharge-planning role hasn't proved to be effective. The vendor told us that they would take away certain responsibilities. For the amount that we pay them, we would have expected them to do those things." —Director

"Care Logistics' software is foundational to the services they provide. It allows our management to ... develop our process based on data we get from the system. Care Logistics didn't just give us software and then leave us alone; they held our hand through the process. They spent a lot of time with us onsite.... They helped us develop and reinforce our processes in different areas of our organization, and they answered questions. Care Logistics' software isn't a one-size-fits-all solution. If we want a board to look different, we can call an engineer at Care Logistics and have it redesigned within a day or two. The vendor was heavily involved in the layout and design. We have a coach from the vendor, we receive quarterly performance reviews, and we get status-update calls. The vendor doesn't just communicate with our senior management; they sometimes report directly to the IT department and other normal workers. We see Care Logistics' people working with nurse managers to improve the efficiency of a unit or helping the organization with strategy." —Director

Bottom Line on Real-Time and Predictive Analytics

Reported Analytics Capabilities

Strong real-time analytics for foundational areas and processes such as ED, EVS, imaging, patient flow, orders, staffing, telemetry, transfers, and transport services

Predictive analytics for discharge planning, ED admissions, length of stay, and staffing

Opportunities for Analytics Improvement

Strengthened predictive-analytics capabilities; predictive analytics a bit of a manual process Integration with the EMR Improved long-term scheduling capabilities Broad and deep customer adoption of reported capabilities

Central Logic

The Central Logic customers interviewed for this research each use their command center to centralize operations across six or more facilities, and with an average bed size of over 3,000, Central Logic customers are some of the largest organizations in this research. While these customers report many successes, it is important to note that Central Logic does not offer a full patient flow solution. The vendor has focused their development resources over the last few years primarily on their transfer center software, on which their approach to command centers is based. Early in 2018, Central Logic and Change Healthcare announced plans to integrate Central Logic's transfer center solution with Change Healthcare's capacity management suite.

Customers do not generally view Central Logic as a partner in guiding and implementing a command center but rather as a software company whose technology enables healthcare organizations to build a command center themselves. Even though they don't receive guidance for building or optimizing the command center, Central Logic customers are satisfied with their experience and have been able to achieve positive outcomes. They get good insights from the transfer center software's reporting and good support for the product. The majority of outcomes reported by Central Logic customers relate to improvements in patient flow.

Where Are Outcomes Being Experienced?

1+No	- customer validation o customer validation	Central Logic
Patient Flow	Increased Bed Capacity Improved Patient Flow Improved Patient Diversion Improved Patient Transfer Improved Operational Efficiencies	। । । ।
Financial	Decreased Length of Stay Increased Revenue Decreased Expenses	○ ✓ ○
Patient Experience	Improved Patient Care Increased Patient Satisfaction Reduced Wait Times	✓ ○ ✓
Staff Experience	Improved Team Communication Increased Clinician Satisfaction Improved Staffing Gains	✓✓
Actionable Data	Improved Data Transparency Improved Data Aggregation Improved Alerting Automation Predictive Analytics	· · · · ·

Additional Insights on Outcomes

Interviewed customers would like to have script-driven calls and to see improved ADT integration feeds and improved integration with paging systems.

"We have been able to keep our staffing low in the medical call center because Central Logic's software has been effective in terms of transferring and diverting patients.... We use data from Central Logic's system to do analytics on who is referring and sending to our organization.... The system has been very effective with helping us develop and maintain our strategy, which is to ensure we are the place that people send patients to... ... We have ROI in terms of efficiency. We do have integration with our ADT system." —Lead Systems Analyst

"Central Logic has been a contributor in terms of providing the software. There was a partnership around the physician-scheduling tool that Central Logic was planning to develop with us, but that didn't materialize. So they have really just provided software." —Lead Systems Analyst

"Transfer Center has made us faster and more efficient in how we take our calls, so each nurse takes a larger volume of calls. We are able to gather data more quickly to make reports and look at our business model. We can see what is really happening. We have the data to see that Transfer Center was worth the money." —Director

Bottom Line on Real-Time and Predictive Analytics

Reported Analytics Capabilities

One customer reported the use of predictive analytics (for surgery volumes and end times)

Customers like reporting capabilities and delivered insights

Opportunities for Analytics Improvement

Integration with additional systems, including bed-management, scheduling, and asset-management solutions

More real-time analytics

Cerner

Interviewed Cerner customers include organizations centralizing both small and large numbers of facilities, and on average, Cerner customers have been live with their command centers for a shorter time than other customer bases in this report. Cerner uses their EMR as the technology foundation for their customers' command centers, leveraging components of the EMR to pull, aggregate, and visualize data. Supporting modules are brought in to complement the EMR's capabilities.

Customers report good relationships in terms of software support but would like additional guidance, training (especially on reports), and expertise related to command center optimization. One provider did mention that Cerner was willing to have monthly web calls with them. Cerner customers report fewer outcomes than customers of many other vendors. They say they do not yet receive everything from Cerner that they would like—multiple customers feel the patient flow software is missing custom, easy-to-read reports that would help them achieve desired outcomes more easily. Two interviewed organizations mention achieving significant gains in communication efficiency, though they feel their analytics outcomes could improve.

Where Are Outcomes Being Experienced?

O No	o customer validation	Cerner
3	Increased Bed Capacity	0
Ê	Improved Patient Flow	
ť	Improved Patient Diversion	
atie	Improved Patient Transfer	
a.	Improved Operational Efficiencies	 Image: A second s
a	Decreased Length of Stay	 Image: A second s
anc	Increased Revenue	 Image: A second s
Ē	Decreased Expenses	0
nce it	Improved Patient Care	1
tie rie	Increased Patient Satisfaction	1 N
Expe	Reduced Wait Times	1
nce	Improved Team Communication	1
taff erie	Increased Clinician Satisfaction	0
Expe	Improved Staffing Gains	 Image: A second s
e	Improved Data Transparency	 Image: A second s
nab ita	Improved Data Aggregation	0
Da 19	Improved Alerting Automation	0
Ă	Predictive Analytics	<u> </u>

Additional Insights on Outcomes

Interviewed customers report improved discharge tracking and facility maps and look for additional advancements in these areas. They have not seen improved accuracy of EVS dispatch/coordination or enhanced reporting and would like to achieve these outcomes. "We don't have data for the dollar amounts yet. Just having the big picture all in one place has been huge for us. Anyone can log in and get straightforward communication because we are doing all of our transitions in one place. That has been where we have seen the best return on our investment. There is a lot of data in the system, so we have a lot of opportunities to look over the data and review it to make improvements. We have been able to change our scheduling patterns when our shifts start to better fit our needs. We are working with our environmental services team so that they can more quickly clean beds, and our next step is to do more with scheduling for our bed-turnover needs." —Clinical Nurse Manager

"We want a better definition of our metrics. It is overwhelming to run a report from our system because we have to run it on legal papers and filter it out. Cerner doesn't have custom reports for predesigned metrics; the reports are just expansions of what we want. It is good that the software provides the metrics, but it becomes a challenge when we don't want to run reports for those metrics. It is frustrating to find out that the system can monitor certain things after months of using it." —Manager

"Cerner has done a great job of partnering with us and helping with our growth. They give us a bit of extra attention; we use their products and try them out before they are put into production. We are passionate about Cerner's products. Cerner's software has definitely been integral to our command center. We couldn't do anything without it." —Nurse Manager

Bottom Line on Real-Time and Predictive Analytics

Reported Analytics Capabilities

Real-time analytics for bed management, transport services, EMR, and scheduling

Some predictive capability around surgery volumes, admissions, patient tracking, and discharge

Opportunities for Analytics Improvement

Further development of predictive analytics

Broader aggregation of outside data sources, including ED and enterprise scheduling data Improved guidance and more training on analytics capabilities

Change Healthcare

At the time of this research, Change Healthcare has two live command center customers in the United States, with one additional organization working to implement their command center. All three were interviewed for this research, and the number of facilities being centralized for these organizations ranges from one or two to over six. Change Healthcare uses their patient flow software and/or a nurse staffing software as the technology foundation for their customers' command centers.

Customer feedback regarding Change Healthcare's partnering is mixed. One customer stated that the delivered patient flow software does not match what they were shown in the demo. A customer also reported experiencing some initial challenges getting Capacity Planner fully integrated with the command center; this customer feels they are still unable to use the data in a meaningful way. Another customer reported that Change Healthcare helped their organization integrate the system with their EMR. Despite the struggles, customers have seen positive outcomes but to a lesser degree than other vendors' customers.

Where Are Outcomes Being Experienced?

 1+ No 	- customer validation o customer validation	Change Healthcare†
3	Increased Bed Capacity	 Image: A second s
Ê	Improved Patient Flow	
t	Improved Patient Diversion	 Image: A second s
atie	Improved Patient Transfer	
ä	Improved Operational Efficiencies	 Image: A second s
ial	Decreased Length of Stay	0
and	Increased Revenue	
Ë	Decreased Expenses	 Image: A second s
nce	Improved Patient Care	1
tie	Increased Patient Satisfaction	V
Expe	Reduced Wait Times	0
nce	Improved Team Communication	1
taff	Increased Clinician Satisfaction	Ō
Expe	Improved Staffing Gains	 Image: A second s
٥	Improved Data Transparency	0
ta b	Improved Data Aggregation	0
Dat	Improved Alerting Automation	0
Act	Predictive Analytics	
		•

[†] Counts for Change Healthcare in this chart are based on feedback from two live customers. (The third customer KLAS interviewed is still implementing and thus could not speak to outcomes.)

Additional Insights on Outcomes

Interviewed customers have seen success with better customer retention, improved patient diversion, and better integration and look for additional advancements in these areas. "One of the main purposes of our command center is to facilitate bringing patients into our health system. We have a number that other facilities call to get a bed at our large hospitals. We provide information and facilitate the transfer or direct admission of patients. We are looking at demand capacity planning and how to improve throughput. We want to reduce the number of patients that we turn away."—Director

"How much Change Healthcare has contributed to our success has yet to be determined. They haven't helped us with much, but we have their predictive analytics software. We asked Change Healthcare's leaders to see whether they could integrate data in a way that is meaningful for gaining traction, but they haven't been able to do that. We have done the integration and many other things on our own." —Director

"Change Healthcare is absolutely driving the strategy and development. They have been a really good partner for optimizing our use of McKesson Performance Visibility. We are using that measurement just as a bed board to show where patients are. We don't use the automation or different icons that are available. But Change Healthcare has helped us build integration with our EMR; the integration used to be nonexistent." —Vice President

Bottom Line on Real-Time and Predictive Analytics

Reported Analytics Capabilities

Customers taking advantage of patient flow, bed management, and case management

Customers optimistic about predictive analytics; very little KLAS validation of this capability being used Broad but not deep ability to access real-time data

Opportunities for Analytics Improvement

Solid real-time analytics capabilities leading to deeper adoption Predictive analytics (after real-time analytics are solid)

Epic

Most of the Epic customers interviewed for this research have built command centers to centralize operations across six or more facilities (the one exception has three to five facilities). Epic's command center offering is built around the Epic EMR and supplemented as needed with additional modules. Epic customers report strong aggregation of data from various Epic systems and say that the data provides good transparency into organizational operations. Customers say Epic has a relationship-focused approach that includes on-site guidance and support for the patient flow solution, though not for running a command center.

Epic's command center offering is currently underdeveloped, though one customer reported that Epic has been asking for feedback and strategizing with them to make the transfer center software and command center functionality better. Epic customers report a lower number of outcomes than their peers who use other vendors. Those who have achieved positive outcomes—the most common of which are improved patient transfer and improved team communication—credit the fact that everything is on one platform and thus is fully centralized and integrated.

Where Are Outcomes Being Experienced?

✓ 1+ ○ No	- customer validation o customer validation	Epic
Patient Flow	Increased Bed Capacity Improved Patient Flow Improved Patient Diversion Improved Patient Transfer Improved Operational Efficiencies	> > > > >
Financial	Decreased Length of Stay Increased Revenue Decreased Expenses	○ ✓ ✓
Patient Experience	Improved Patient Care Increased Patient Satisfaction Reduced Wait Times	<i></i>
Staff Experience	Improved Team Communication Increased Clinician Satisfaction Improved Staffing Gains	· · ·
Actionable Data	Improved Data Transparency Improved Data Aggregation Improved Alerting Automation Predictive Analytics	✓ ✓ ○ ✓

Additional Insights on Outcomes

Interviewed customers have seen success with reduced bed-turnaround times, improved operational efficiencies, and reduced wait times and look for additional advancements in these areas. "It would be nice if our command center allowed us to look at the flow of our system and the length of stay related to our various services. We want to help patients move through the system and increase our operational efficiency. We aren't where we want to be yet, although we have the tools we need. In Epic's transfer-center module, there is an area where our command-center nurses can take calls, log calls, and stamp them with dates. However, there is no clear way to see that information from the bed-management and patient flow systems." —Senior Medical Director

"We have increased our patient-retention rate by about 30%, and we just recently switched over to using Epic's module for the transfer center, so we are just starting to realize returns. One of the biggest outcomes has been the reduction in patient wait time. Our step-down unit tends to be a bottleneck area. In the past, probably 40% of patients were waiting more than an hour to be moved to a clean bed, and now, 70% of patients are moved in less than one hour once they have a clean and ready bed assigned. That is impacting patients coming in from the ED and from the transfer center. Instead of having each team working independently, the command center has oversight of every team that deals with patients and patient flow. In one day, we shifted four hours of transport time to support EVS." —Executive Director of Nursing Logistics

"Epic has helped us by providing us with integration between all of the modules [and] with visibility into where our bottlenecks are.... We had a visit from Epic's Grand Central team, and the team members really helped us take an intensive look into our processes and how we were using the tool. They then provided us with feedback on how we could improve, and that was beneficial." —Executive Director of Nursing

Bottom Line on Real-Time and Predictive Analytics

Reported Analytics Capabilities

Real-time analytics in foundational areas such as bed management, ED, EMR, transfer center, and transport services

Opportunities for Analytics Improvement

Improved analytics in transfer module

Expansion of real-time analytics to other areas, such as enterprise scheduling Interest in predictive analytics is high, but validated adoption is currently limited

GE Healthcare

Interviewed organizations using GE Healthcare to help with their command center are centralizing operations for one to five facilities. GE Healthcare is different from other vendors in this research in that their approach to command centers is not centered on a specific technology solution but rather on aggregating data from customers' existing solutions and improving processes. GE Healthcare's Wall of Analytics was mentioned by multiple customers as a unique way in which the vendor enables customers to see and understand their data. GE Healthcare doesn't have patient-flow or patient-transfer software, but they have the ability to pull data from various solutions their customers already use and then add that data to their analytics. GE Healthcare customers are able to leverage their vendor's expertise and guidance to bring together data from disparate sources and improve their processes.

GE Healthcare's command center customers report high satisfaction, saying that the vendor partnered with them and guided them as they implemented and optimized their command centers. Customers feel that GE Healthcare is best suited for organizations with complex command center needs and that the vendor is expensive but worth the cost. All interviewed customers report outcomes related to patient flow, with one mentioning that they decreased their bed turnaround time by over 20%.

Where Are Outcomes Being Experienced?

 No 	o customer validation	GE Healthcare
3	Increased Bed Capacity	 Image: A second s
Ê	Improved Patient Flow	
ŧ	Improved Patient Diversion	0
atie	Improved Patient Transfer	
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e	Improved Data Transparency	 Image: A second s
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Da	Improved Alerting Automation	0
Ac	Predictive Analytics	_

Additional Insights on Outcomes

Some interviewed customers have been able to reduce their length of stay and look for additional advancements in this area. One customer has not achieved reduced length of stay. An area in which customers did not initially expect to achieve outcomes but in which they would now like help from GE Healthcare is in being able to track clinical conditions, medications, and equipment. "The functionality of our command center didn't exist. Our command center isn't just a transfer center or bed-placement center; it provides us with capacity management. We use tools from other industries, like simulation modeling and predictive analytics, and we apply the principles to healthcare. This is a fundamental change to how we think about capacity in our institution.... We wanted to improve our ED onboarding time, our ability to accept patients from referring hospitals, and the flow through our operating rooms. We also wanted to reduce our OR holds and case cancellations. We have accomplished those goals. Most of the turnover for beds here happens in the general medicine department, and we now operate those beds at about 96% occupancy. The increased utilization of the beds has been remarkable; we increased the capacity of our institution by over a dozen beds without actually adding those beds because we maximized our bed space." —Chief Administrative Officer

"GE has been helpful overall. We have had a good relationship with them so far. They have been very helpful at putting in the Wall of Analytics to make things transparent, actionable, and easy to understand.... GE provides software and works with us to evolve our project... . Their system just pulls data from existing sources." —Chief Medical Transfer Officer

"We would advise potential GE customers to focus on problems they want to solve by using a centralized approach. GE's command center is a significant investment because it requires a lot of IT and engineering labor. Their project management is also expensive. Organizations should have a good solution in mind for problems they are trying to solve. Working with GE is definitely very helpful, but their solutions aren't cheap. We are fortunate to have a very positive ROI with our transfers." —Chief Medical Transfer Officer

Bottom Line on Real-Time and Predictive Analytics

Reported Analytics Capabilities

Early broad adoption of predictive-analytics capabilities, especially for housekeeping and staffing

Strong data aggregation and real-time analytics

Opportunities for Analytics Improvement

Strengthened integration of transfer-center data and emergency-response data

TeleTracking

TeleTracking has been helping healthcare organizations implement command centers for well over a decade, longer than any other vendor. They also have a substantially larger number of command center customers than the other vendors in this report and are described as an excellent partner, helping organizations centralize both small and large numbers of facilities. TeleTracking offers customers a full suite of patient flow software, and some customers also incorporate TeleTracking's RTLS software into their command centers.

Customers report that TeleTracking works with them to implement and then optimize their software, resulting in strong positive outcomes across a broad variety of areas, including better bed-capacity management and decreased length of stay. One customer mentioned that TeleTracking continually looks for areas of customers' command centers that have not yet been optimized. One provider hoped for better dashboards and usability in the next version of the platform. TeleTracking's robust analytics platform delivers predictive and real-time data, and customers say they benefit from the fact that TeleTracking listens to them, seeks to work with them as partners, and delivers timely support. One customer reported that they would like to see better dashboards and usability in the next version.

Where Are Outcomes Being Experienced?

1+	customer validation	
O No	customer validation	TeleTracking
3	Increased Bed Capacity	 Image: A second s
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ţ	Improved Patient Diversion	 Image: A second s
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ta b	Improved Data Aggregation	0
Da	Improved Alerting Automation	0
Ac	Predictive Analytics	

Additional Insights on Outcomes

Interviewed customers have achieved improved patient discharge, staff management, and bed-capacity management and look for additional advancements in these areas. "We went live with TeleTracking a couple of years ago. We have decreased our length of stay and have saved millions of dollars.... We have seen an improvement in our budget, so our ROI has been related to our ability to do things in a more cost-effective way. The command center brings in leadership huddles every day; we talk about activities of the day and week and plan. We talk about resources, human capital, equipment, or services. ... We are no longer siloed; everyone uses one tool.... The command center has vastly changed how we communicate." —Manager

"The biggest thing that TeleTracking does is listen to us. We have done a lot of things that other people have never done. We call TeleTracking and tell them what we want to happen. They have worked with us to figure out how to do customized requests. We have been able to remove delays when moving patients. TeleTracking is more than willing to try new things." —Director

"We built a centralized logistic center to start utilizing beds across our system. Instead of always sending patients into tertiary care, we are moving patients through at a quicker rate. We have seen about a 60% increase in the number of patients coming to our facilities from outside organizations in the past five years. Each patient brings in a few thousand dollars for our bottom line, so having more patients has had a huge impact on our organization. Being able to view all of the beds available to us has made a huge difference." —Director

Bottom Line on Real-Time and Predictive Analytics

Reported Analytics Capabilities

Broad, deep adoption of predictive analytics Reports of using other tools alongside TeleTracking's Strong, real-time integration with multiple EMRs.

Opportunities for Analytics Improvement

Improved integration with staffing and scheduling Improved reporting for RTLS

Best Practices for Implementing a Command Center

Provider organizations who are considering implementing a command center can put themselves on the path to success by using the following best practices recommended by currently live operational command centers achieving positive outcomes.



Do Pre-Assessments

Do a pre-assessment to identify the problems to be solved, the expected outcomes, and how to achieve them (recommended by more than half of respondents). Examine costs, identify needed data integration, and find a centralized location with enough space to accommodate the people who will be working in the command center.



Establish Governance

Establish governance by creating a leadership committee that includes key stakeholders from all necessary departments, including clinical leadership. The following key stakeholders are reported to be of particular value: case managers, utilization review nurses, and physician champions.



Audit Workflows

Conduct an audit of organizational workflows to obtain a comprehensive understanding of the current workflows and how they might be impacted by a command center. Workflows may need to be adjusted once the command center's processes, tools, and systems are put in place.



Set Up Technology Foundation

Define all your data-integration needs. Set up software that supports workflows and helps harness aggregated, real-time data to drive outcomes.



Implement Strong People Operations

Ensure command center has needed expertise. Engage leadership and develop strong trainers. Provide post-launch support.

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This material is copyrighted. Any organization gaining unauthorized access to this report will be liable to compensate KLAS for the full retail price. Please see the KLAS DATA USE POLICY for information regarding use of this report. © 2018 KLAS Enterprises, LLC. All Rights Reserved. "It may be a bit of a cliché, but organizations need to start with their why. They need to think about why they want a command center and what they want to do with it. **They**

need to know what they are going to gain with a centralized model.

see so many healthcare organizations doing things because they sound cool or because some other organization is doing them." —Director

"Unfortunately, we took away our clinical leaders and assistant nurse managers during our implementation and changed them to care coordinators. Those people didn't have risk-management backgrounds, and we had no clinical leads for our new nurses. That was one of the problems with our implementation. **It** *is important to have clinical leads, case managers, and discharge planners in each unit.*" —Director of Clinical Informatics

"I wouldn't go live with a command center without operating procedures firmly

set. Those need to be laid out, and everyone needs to be signed off on what will happen. A lot of hospitals struggle because they haven't thought about how their operating procedures will go once they have information." —VP

"Unless an organization is already using the proper tools, the organization needs to start with a good, firm foundation to be successful. A lot of people want to set up a cheap model to see whether it is effective before spending more money later. If the model is built properly from the beginning with the right tools, there will be fewer problems moving forward. We did that and became more effective." —IT Director

"There are a lot of hurdles with implementing a command center. The process is complicated, and a lot of teamwork is needed internally. The vendor side is easy because there is just a lot of data gathering. **Change** is easier on the outside than the inside." —Medical Director



CUSTOMER INTERVIEW DETAILS



Questions Asked in Supplemental Evaluation

What outcomes, including ROI, have you been able to achieve with your command center?

What outcomes, including ROI, did you hope for but have not been able to achieve with your command center?

What types of real-time and predictive data are you incorporating to drive the operations of your command center?

Has your vendor been able to help you aggregate different types of data from multiple EMRs and/or other IT solutions?

How has your vendor contributed (or not contributed) to your success?

What advice would you give other organizations just starting with a command center?

Additional comments

What outcomes, including ROI, have you been able to achieve with your command center?

Care Logistics

The biggest outcome we have achieved by using a command center was decreasing our length of stay. That was our biggest focus. We also observe patients to get them the correct patient status.

Our length of stay was the big push for us to use a command center. We had a lot of initial success with it. The big focus is on throughput. Part of what Care Logistics does is work on the beginning of the discharge planning and throughput. They try to organize all of the information on orders, transportation, and housekeeping, and they put everything in one area. Everything flows through the command center. We also use Care Logistics for staffing modeling. We staff and attach our nurses to patients through Care Logistics' solution, which helps us get some good information. We can do a lot of correlation data mining to look at things.

The command center is a physical location. We have a room where our transportation lead does the ordering, and we also have nursing administrators located in the areas. Those admins are our eyes and see everything that happens. We use the Care Logistics solution for a few different sources. During our go-live, we had that solution and some other things. We have the hub, which directly transfers the admissions for all patients who come to the ED or OR. Everything comes through the hub. It places patients in the beds. Our leader can see where everyone is on the screen. The hub is kind of like air traffic control. In the hub, we have nurses and order organizers. Those people take care of and do the orders for all of the diagnostics and some of the low-impact services. We also do transportation in the hub, and our care team and order organizers are placed there as well.

The Care Logistics solution automates a lot of things for us. When a patient is discharged, it automatically flags housekeeping to come clean the room. If a patient is going to get an order, it automatically flags transportation to pick the patient up. There are a lot of efficiencies that come with the solution. Care Logistics also has visual-management boards. In the hub, we have all of the information. Every unit has a central hub, and we have screens that show all patients, their alerts, their expected discharge dates, and everything else that goes with visual management.

Length of stay is our lagging indicator, but our total time for discharge is flagged in the command center. Our housekeeping turnaround time has reduced dramatically. We had been averaging about 100 minutes from the moment a patient left the room to the moment it was clean, but now we are down to about 60 minutes. Our turnaround time for transportation is about 35–40 minutes. We saw quite a few efficiencies in the solution. Care Logistics doesn't just provide the system; they come on-site and do a lot of exercises as well. They helped us with some work and helped us overcome some hurdles. They changed our staffing model.

We were trying to smooth out our patient flow with Care Logistics. Over the course of several months, we had 47 days where we could not accept any more patients because we didn't have any beds available. The organization felt like it could never divert patients, but when we didn't have available beds, we had no choice but to divert. We were trying to figure out how our patient flow could be the best that it could be. As we compared our length-of-stay data to the Medicare geometric mean, we knew that we were better with some DRGs and worse with others. We wanted to improve the length of stay. We have had issues with direct admissions from our physician practices, with not getting the patient in the right bed, and with physicians not giving timely orders so that care could begin immediately. Also, the length of stay for our observation unit used

to be 25–26 hours, and we wanted it to be below 24. We thought Care Logistics could help us with those problems. I sometimes wonder how many days we would have had to divert patients had it not been for Care Logistics' platform and process.

We were taking a look at how to do our CMI with Care Logistics. Some of the activity around Care Logistics has to do with documentation because we are trying to get real-time information, so patients have to be admitted with an anticipated DRG. That is what drives the length-of-stay clock that is displayed in the system. We had to teach our physicians a little bit about making sure that we had a working DRG right from the get-to, and then some documentation education was provided thereafter.

In our ED, we had the problem of patients leaving without being seen. We decreased the percentage of unseen patients after we started working with Care Logistics. The fact that we were able to move people out of the ED and into a bed much faster really helped. We made some process changes as a result of implementing the Care Logistics software. Before we had Care Logistics' software, no one really knew where the available beds were and how the beds were staffed; nothing was really transparent. But now, with all the display panels that are all over the hospital, the ED can tell right away that there are beds available within the unit where the patient needs to go. The transparency is just unbelievable. We can now move people out of the ED who are getting admitted so that the next round of patients can see get into the ED.

Care Logistics' software forced our organization to identify, target, and eliminate our biggest barriers. We have seen a decrease in our length of stay by nearly a day with Care Logistics' software, and we have seen an ROI of many millions of dollars because of staffing efficiency and other costs. No one here thought it was possible before; we have a very large volume of patients coming through our emergency department, and that is a big deal considering that patients' satisfaction is tied to how much time they spend in the ED prior to receiving care. If we can't satisfy patients as they come in the door, we lose market share. We then lose the trust of the physicians who are referring people to our hospital. We have reduced the wait time for patients in the ED using Care Logistics' software, and we have reduced the people in beds around ED nurse stations. We are starting to see upticks in ED visits. We have increased patient satisfaction, safety, and care quality, and we have also improved the flow of the patient cycle from admission to discharge. That means we service more patients and lose less money due to the length of stay.

Care Logistics' software has helped us improve our communication. We had issues with our departments being isolated, but we have used the software to centralize our data collection and our design process. We haven't used Care Logistics' software long enough to see a change in HCAP scores, but we have seen other changes.

We have seen the efficiency of our organization improve since we started using Care Logistics' software. The command-center process begins by placing a patient in a bed with our bed manager; the bed manager looks at a board that is also seen by our order organizer. The order organizer looks at charts and schedules for tests that need to be completed before a patient can move through the diagnosis cycle. The patients can then be sent to surgery or discharged. The order organizer sits next to the transport supervisor who sends patients to care managers after the test is complete. The care managers coordinate with doctors or physician's assistants to read tests and advance care decisions more quickly. We use our command center to keep everything on a tight schedule. Everything within the process is interconnected, and it works like a well-oiled machine. We can see the process in real time, or we can pull data from the software to verify our efficiency.

Part of our Care Logistics software package allows us to pinpoint nursing ratios every few hours. The tool lets nurse managers dial in exactly how many nurses are needed each shift based on our census. We have been doing that on paper for years, but the system now allows us to look at our entire facility and balance the schedule. It prevents bed hiding or shift bundling.

Central Logic

With the Central Logic system, beds turn over more quickly. The system's documentation and workflow are easier for users to follow. We have created drop-down menus and automatic feeds. Recently, we enabled an HL7 interface from our ADT system to our transfer-service database. Now, when a patient arrives, the system automatically creates a time stamp. Our nurses used to have to manually create time stamps for patients' arrival times. It took time to do that, and that may have forced nurses to go into overtime to ensure that it was done. Insurance fees are also automatically calculated when a patient is registered. Those kinds of automatic functions have helped increase efficiency.

Because the software works so well and is so user friendly, we can shorten the amount of time that people are entering data. We can also fine tune what information people are gathering to get a more consistent approach with all of our coordinators. How we use the software is up to us. We are able to expand on anything that we want to do to save time or improve our charting and documentation. The system is good at capturing the data, and it can change as our culture changes while we build a functional transfer center. Every state runs things differently, and we are able to shift things in the system to function for each state.

Transfer Center cuts down the time things take significantly. We can get the data more quickly on our calls, and we can have our staff members moving more quickly. We are more productive and are able to focus more on customer support in our approach. I would never want to run a call center without this software.

We have agents who not only take calls for actual patient transfers but track other calls. We track physician-to-physician consults and some nurse-to-nurse calls through Central Logic. That has made a fairly big impact on our center. We have been able to keep our staffing low in the medical call center because Central Logic's software has been effective in terms of transferring and diverting patients.

We have been able to do a lot of analytics with the hospitals that send to our organization. We use data from Central Logic's system to do analytics on who is referring and sending to our organization; then we can target those areas for more outreach or go to EDs where we aren't seeing as many referrals. The system has been very effective with helping us develop and maintain our strategy, which is to ensure we are the place that people send patients to.

We have ROI in terms of efficiency. We can track when beds are available, and we send patients only to where there is an available bed. We have also had success tracking the time that pages are sent out or that communication is made with different physicians. We can more quickly skip through physicians who aren't going to take a patient so that we can get to the final destination more quickly.

We do have integration with our ADT system, and that is nice. So the patient is booked or preregistered at our organization, and the information is automatically available in Central Logic's system. That helps prevent manual reentry of data, and that prevents confusion about insurance information down the road. So that integration has been very helpful.

Cerner

We can't identify any dollar amounts for an ROI at this point, but we have decreased our use of agency and improved our inpatient proof. We have also attempted to make an impact on early dismissal times for patients. We can't compare historical data, though. We are much faster at processing patients now, and that time improved because we started using our command center. We implemented processes and added accountability for our processes by using Cerner's technology.

One impetus for having our command center in one building was that we were having communication issues. In the past, we were relying on the dispatch team to get information and feed it to the patient flow team. That team didn't have the doctor on the phone, so they would have to validate the information. Now we have all of the team members on the conference call at the same time. There is the sending provider, the receiving provider, the people at the bedside, and the EMS dispatch, including the truck or helicopter crew. It is so helpful to clarify the order in real time with the sender and the receiver because sometimes the sender and receiver are not really talking the same language or listening to each other. By having everyone on the phone, we save 35 minutes. It used to take 35 minutes from when the call came in to when the patient flow people found out about a patient. Now we are all on the call within 30 seconds of the call being made.

We are a referral area, so frequently the sending doctor is from an outside organization. We accept patients from a wide area. The sending physicians get on the phone with us, and they have to stay on the phone until all of the information is received and until we have created what we need to in the system. That is all done in under five minutes. In the past, the sender and receiver would contact the EMS dispatch people, who would take all the information. However, the sender and receiver would not always be on the phone at the same time or give the same information. Then we had to wait for demographics to come, and once they came, the providers would validate them. Then the EMS dispatch people would fax the information to the patient flow people once everything was together in a packet. It took about 35 minutes before the patient flow people even knew about a patient who was coming in. In the meantime, the patients, their families, and their doctors had to wait.

We could have probably mandated that people contact each other on the phone, and that could have made us more efficient without us having to be centrally located. However, we know that distance impedes the success of communication. When we were faxing things and waiting for somebody to get them, that didn't work very well. We never had the same alignment around goals as we have now that people are working side by side in the same building. We have seen a significant difference now that we are able to be face to face and have a huddle with everyone involved. If there is a blizzard outside and we only have two crews and two ambulances serving the area, we can discuss our priority to pick up people outside of the 911 calls. When things change, we can communicate with each other, and that is helping.

We used to have the daily problem of a transfer patient being put in the wrong bed because the information shared over the phone was not accurate. Because we are now able to ask questions through our command center, we have eliminated that issue. Patients are in the right bed when they get here. In the past, those mistakes were happening because there wasn't anyone in the discussion that had the clinical knowledge to ask the right questions so that the patient would get the right level of care. In the past, patients were being put in the wrong units, but now, we have zero instances of that happening.

The EMS people have a metric now that they didn't have before. When we started to look at the appointment time and the arrival time, the EMS team was getting to an appointment within four hours a little less than half of the time. They now get to an appointment in about one hour nearly 90% of the time. The EMS people have a million regulatory requirements to meet, and their times also depend on whether the nurses are ready when the crew comes to pick the patient up. We are still looking into why the paperwork isn't ready, why the doctor didn't sign off, or why the patient isn't ready when the EMS crew shows up.

We don't have data for the dollar amounts yet. Just having the big picture all in one place has been huge for us. Anyone can log in and get straightforward communication because we are doing all of our transitions in one place. That has been where we have seen the best return on our investment. We previously had a lot of phone calls and notes to try to figure out things like whether we had enough beds for everyone coming in. The same work can be done with a quick overview in the system because everyone is using it.

There is a lot of data in the system, so we have a lot of opportunities to look over the data and review it to make improvements. We had a homegrown transport queue where we could put in requests. People would mark when they took a job and completed it, but we had to have an IT analyst to get the monthly data out of that system. We have used the data from our new system to learn what our peaks and valleys are. We have been able to change our scheduling patterns when our shifts start to better fit our needs. We are working with our environmental services team so that they can more quickly clean beds, and our next step is to do more with scheduling for our bed-turnover needs.

Change Healthcare

One of the main purposes of our command center is to facilitate bringing patients into our health system. We have a number that other facilities call to get a bed at our large hospitals. My staff members find the best bed for the patient and find an admitting doctor for the patient. We provide information and facilitate the transfer or direct admission of patients. We also do all the bed control for our health system. We assign beds to patients admitted through the ER or OR.

We initially thought that Change Healthcare's product was going to help us with managing overtime pay, but we fixed those issues before we even got the system set up. We are looking at how it is going to help us with other things. We are looking at demand capacity planning and how to improve throughput. We want to reduce the number of patients that we turn away.

We are strictly an operational budget. We don't track the ROI or income that we see from the command center. The command center is seen as a front door of the hospital. It isn't seen as a revenue-generating operation. When we get a budget for operational costs, we don't see any metrics or data on the command center.

The biggest achievement of the hub has been our ability to get patients in and our ability to create processes and protocols. Our market is very competitive. The hub gives us the ability to create protocols around certain diagnoses, and that helps us bring in patients more quickly. We have capacity challenges at some of our medical centers, and the hub helps us create capacity based on demand. The hub takes beds out of the situation. When it comes to transfers, we aren't a yesman system like other systems are. We vet every single patient for clinical appropriateness. We determine what level of care patients need, what kind of care they need, and where the request came from. We work with referring facilities to help families understand what transfers may cost. Families need to be preauthorized by their insurance if a transfer isn't for a high level of care.

The center isn't up and running yet, so we don't have any outcome data. The project is in the planning stages. It will mainly support our main hospital and act as the transfer center and flow center, and it will coordinate the ancillary departments. The center will also have a virtual-hospital component. It will be staffed by a nurse practitioner, a physician assistant, or a physician who will triage for different areas. We also hope to prevent skilled nursing facilities from sending patients as a first-pass review before they put them in ambulances and send them to our ER. We want to avoid unnecessary readmissions and unnecessary ED utilization. That component will slightly differentiate us from other standard transfer centers. We are driving for a number of metrics, such as reducing wait times and dispatching EVS more efficiently once they are part of the command center.

We are trying to drive the right utilization at the right space; we want to ensure patients don't come to our ER if they don't need to. We don't get additional dollars by having a busier ER. We are trying to improve those metrics. We also have some volume issues, especially with our main hospital. We hope the command center will help ensure patients don't come too early if they are waiting for a procedure that is done only at the main hospital. We will have a better handle on that when we are completely in the command center. We will have visibility with everybody's bed-control software, and that will be helpful.

Epic

We recently changed the name of our command center because there was some confusion between the functions of a couple of hubs. As a command center, we have stopped commanding people to do things and have started doing only capacity management.

Our hospital's vision was to involve all the departments that impact patient flow, and we partnered with Epic very early on to build out our dashboards. We wanted to include people from areas like patient entry, inpatient transportation, environmental services, and bed management. We wanted our nursing-resource pool to be able to divert nurses to specific units to open additional beds or to help with staffing shortages to make sure that beds remain open.

We have an ED navigator located within the command center. The ED navigator's role is to balance the load between two of our facilities. Different procedures and services are performed at each facility. We try to load balance so that we don't send all of the ambulances to one facility. The ED navigator listens to all the ambulance calls in our area. When the ambulances request a location, the ED navigator will select a location for the ambulances based on different facilities' future bed availability and current ED status. We also have an ambulance company in the command center with us. They do a lot of our discharges in the inpatient environment and for our skilled nursing facilities.

Before we implemented the dashboards, there wasn't a common source of information that everyone could look at to get a picture of the entire hospital. The departments were functioning really well on their own, but we felt that their view of our hospital's operations was somewhat siloed. So we put all the departments in one room, and they were able to communicate about specific patient scenarios, gain situational awareness on what was happening throughout the hospital, and learn how all hospital operations were impacting their own departments. We created a dashboard in the EMR to provide better situational awareness for the departments. Those dashboards show things like our current capacity, the number of medicine beds and surgery beds, and the number of people in the ED who don't have an assigned bed. We have over a dozen dashboards, and they provide a lot of information. The room that we sit in has very large monitors that provide a view of the current state of the hospital. Every day, we discuss whether we need to change how we are transporting patients, whether we should call in additional staff, and other things like that. The important part is that those conversations are with an entire group, not with just one department.

One of the key pieces of our command center is that the transfer center is combined with the patient-placement and staffing pieces. We have increased our patient-retention rate by about 30%, and we just recently switched over to using Epic's module for the transfer center, so we are just starting to realize returns.

One of the biggest outcomes has been the reduction in patient wait time. We have been focusing on unit-to-unit transfers to increase bed capacity. Our step-down unit tends to be a bottleneck area. In the past, probably 40% of patients were waiting more than an hour to be moved to a clean bed, and now, 70% of patients are moved in less than one hour once they have a clean and ready bed assigned. That is impacting patients coming in from the ED and from the transfer center.

We are looking at bed turnover time and EVS. We really want to have beds clean and ready before we need them. When patients leave, we want their beds to be clean and ready within an hour. Right now, they are clean within three hours, and that is related to the availability of EVS resources. The data has helped us realize that. We are able to see when beds go dirty and when our largest volume is hitting, and then we can better match our EVS resources to that volume. We just don't have enough EVS resources, which I think is a challenge for everybody.

Since we brought all of the teams together, the EVS and transport teams specifically, we are now looking at transport downtime so that when the transporters have idol time, we can shift them to support the EVS team. The transporters strip rooms and move equipment, so we are better able to get things done. Instead of having each team working independently, the command center has oversight of every team that deals with patients and patient flow. In one day, we shifted four hours of transport time to support EVS.

The biggest outcome for us from using our command center was insourcing our transfer-center functions. Our external hospital transfer center was run by another vendor until recently, and we didn't have a way to insource it. We already used our Epic EMR, so the transfer center had to come up with a new module for the transfer-center functionality. We were trying to bring in the transfer center and combine it with bed placement and patient movement with data and analytics. We now have a fully internal transfer-center component, and we are integrating our bed placement as part of our care management.

Everything in our command center is centrally coordinated. One of the key operational things we can do is to create a case for patient transfer requests in our Epic EMR. That helps physicians because they can see the cases in real time behind the scenes, and our nurses and paramedics can take down the information. That is much more helpful than having an external vendor control the data.

Some of the data from our command center can be a bit difficult to interpret because it was previously outsourced to an external company. We have seen decreased time on our wait list because of the increased operational efficiency from people outside our hospital. We also have improved bed-assignment times, and we have decreased the time between when beds are cold and patients can be placed. We have improved our physician satisfaction, and we can better monitor and understand our actual capacity at any given time. We don't have specific numbers for our outcomes yet, but we are trying to get the level of detail to prove that we have an ROI for our command center because it was obviously an expensive undertaking. However, we have issues getting data and reports from our Epic EMR that make sense. We had to have our data people dig into the data and develop the reports for us because we are a data-intensive facility. We want to understand all of our transfers, and we want all the appropriate fields.

If an external hospital requests that a patient come here for a service, but we don't have a bed for that patient, then the patient can be accepted to another department like the ED that has available beds. That person may eventually be accepted into our internal medicine department, but it is sometimes challenging to find out which department initially accepted the patient. We try to determine which physicians get which calls so that we can understand the impact of internal physician lines. We also want to understand which hospitals are calling with what requests and how often they call in a given week or month. We didn't have that information before. It is very helpful for resource utilization, and it gives us cleaner data.

It is amazing how many departments are still siloed and how many departments make decisions that they don't understand. For example, we have a partnership with an EVS group, but because of budget cuts, the staff was weaning to a point that the partnership became unsustainable. It was great for the EVS group because they were able to cut their budget, but there were other consequences. Patient flow became so backed up that it actually ended up affecting the OR. The OR had to shut down whenever patients were here because they did not have any rooms to move patients into. If we didn't know what the EVS group was doing, then they would have continued to have very few staff members. We worked with the EVS group and helped them understand the overall implications of their staffing on patient flow throughout the hospital, and they made their staffing more robust as a result. Once we have all the departments involved in the hub, the EVS group will be a key player. An EVS group isn't a player that automatically comes to mind when people think of patient flow, but the EVS group can cripple us.

The transportation team is a key player when it comes to patient flow, though many people wouldn't automatically think that. The transportation team is very autonomous. They have their own tools that alert them when a patient needs to be moved. When the transportation people are short-staffed, they just assume that things will take a little longer. They don't understand that the delays in transporting patients have ripple effects that reach the far corners of the hospital. Until we have the actual command center up and running, I will continue to touch base with various groups that are causing interruptions in patient flow. The transportation group is one of the groups that I meet with regularly.

I would wholeheartedly recommend the command center model. It is amazing what happens when departments are able to work together with a concerted effort. The same is true for when departments realize how processes overlap and how one decision can affect the whole. We have seen early successes even though our model is limited. I can't wait until the command center fully goes live. I really think we will be able to see significant changes once that happens.

GE Healthcare

The background work for our command center was enormous; it involved years of planning for processes, system changes, and simulation models. It wasn't a typical implementation. This is a sophisticated system with real-time data from multiple data sources. The system provides several people here with information for managing patient flow. The functionality of our command center didn't exist. Our command center isn't just a transfer center or bed-placement center; it provides

us with capacity management. We use tools from other industries like simulation modeling and predictive analytics, and we apply the principles to healthcare. This is a fundamental change to how we think about capacity in our institution.

We wanted to improve on a number of metrics here. We wanted to improve our ED onboarding time, our ability to accept patients from referring hospitals, and the flow through our operating rooms. We also wanted to reduce our OR holds and case cancellations. We have accomplished those goals. Most of the turnover for beds here happens in the general medicine department, and we now operate those beds at about 96% occupancy. The increased utilization of the beds has been remarkable; we increased the capacity of our institution by over a dozen beds without actually adding those beds because we maximized our bed space.

We were doing alright with patient transfers, but our command center has made the process quicker and more seamless. We can now accept more patients than before. The collocation of people has really helped us to quickly dispatch transport teams in emergency situations. We can quickly move patients between hospitals because everyone sits together and can hear when critical situations are occurring. We used to take a series of phone calls because all the people in our command center were spread out around the institution, and that took time. We eliminated a lot of that time by bringing everyone together.

The command center has three parts. The first part is patient flow and building capacity. The second is looking at member events and safety. The third is looking at extending into home support. We are pretty much finished with the first part and are well into the second part. Our ROI was really built on capacity. Through the flow and initiatives we have done, we have realized savings somewhere in the order of 35 beds.

The days that people shouldn't be in beds are the biggest piece, but we have also managed to decrease bed turnaround time by around 25%. We have increased imaging capacity specifically around ultrasound scans, and I think we have about a 40% reduction in ultrasound round times.

Our primary goal in working with GE was to get a certain number of patients transferred to one of our partner facilities. We are an academic medical center, and we serve a lot of rural hospitals in our area. We don't want to decline new patients. One of our goals was to have a certain number of patients at our partner facilities and have the same number of patients transferred to our academic hospital. We exceeded that goal, and we generated a lot of revenue.

TeleTracking

We have been able to move patients through our system more quickly. We know where all the empty beds are and which beds will become open soon. The software helps us figure those things out, and we can be very efficient with that information. We have been able to decrease the amount of time that patients have to wait. Before we had a command center, our hospitals did things on their own. They didn't know what their bed status would be during the day. We can now predict that status, and we can tell doctors or clinicians whether there will be available beds. Patients used to just go to the ER because there weren't beds available, and that created problems.

Some of our hospitals have taken in more patients recently than they have in the past, and that means more money for us; that is significant these days. We can now tell people not to open new units in order to cut costs. We can open observation units instead of regular units because patients in observations have to wait longer. We can take data from TeleTracking's software and use it to

make financial sense of new units. We save a significant amount of money by building telehealth units instead of observation units; there is a huge price difference in equipment alone. We have more inpatient and physician satisfaction. Our physicians only have to call a single number to get patients in to our facilities, and we only require a few pieces of information. Our doctors are happier and our staff is happier because we don't have long waiting lists for patients. Our people are critical thinkers and have the skill to know what patients need.

We track data the same way in every hospital; the hospitals all use indicators for each month. We track several indicators on the admissions side and several on the discharge side. If we can't discharge patients quickly, we can't get more patients in. Even if we work with data for admissions, we hit a roadblock when we can't discharge patients. We focus on discharging so that we can get our patients moving faster, and that helps patients who are waiting. We have done a lot of work on when doctors write orders, how long it takes patients to leave, and any remaining roadblocks. We have projects going on at different hospitals related to getting patients home safely and quickly. Each hospital is different, so we work with case management, nurses, and leadership teams to determine what will help get patients out the door at each unique location. We want a short time frame, and we are getting close to meeting our goals at some of our sites.

We have a tertiary care center for our region in our healthcare system, but we can't get out of our own way to accept patients through transfers because we are always at capacity. We built a centralized logistic center to start utilizing beds across our system. Instead of always sending patients into tertiary care, we are moving patients through at a quicker rate. We have seen about a 60% increase in the number of patients coming to our facilities from outside organizations in the past five years. Each patient brings in a few thousand dollars for our bottom line, so having more patients has had a huge impact on our organization. Being able to view all of the beds available to us has made a huge difference.

One of the goals when we started our transfer center was to take full advantage of our community hospitals. When we accept a transfer now, we accept it to our tertiary care center before we work through which facility would be most appropriate for a patient. We are accepting transfers to our community hospitals from outlying facilities, and we are filling up our community hospitals. The hospitals have the expertise to care for the patients, and we aren't taking up beds in our tertiary care center that are needed for patients who can only go there.

By having centralized bed control, we are responsible for placing every patient that comes into our facilities. They can come in through the ER, the PACU, or direct transfers. We make a decision based on where the patients should go to try to get them in the right beds at the right time on the first try. That has saved us from moving patients or transferring them later. We have seen our length of stay come down by over a day.

We have achieved several outcomes. We have decreased our ready-to-move times in the ED by 30 minutes for each admission. We see roughly 2,000 admissions each year, so that adds up to about 60,000 minutes. To me, that is a big improvement. We have also decreased our length of stay by about 25%.

With TeleTracking, I have optimized our scheduling of emergency physicians. We have decreased the left-without-being-seen rate from 4.5% to 1.5%. That is about 3,000 patients per year. TeleTracking plays a key role in that. With these changes, we are taking care of a lot of patients that otherwise wouldn't have been taken care of.

We have used TeleTracking to put some of our patients in other hospitals; some patients just don't need to be at our particular hospital. That has been beneficial for us.

We went live with TeleTracking a couple of years ago. We have decreased our length of stay and have saved millions of dollars.

We have seen an improvement in our budget, so our ROI has been related to our ability to do things in a more cost-effective way. The command center brings in leadership huddles every day; we talk about activities of the day and week and plan. We talk about resources, human capital, equipment, or services. Labor is usually the biggest cost, so we talk about how to improve technology so that it costs less in labor. We are no longer siloed; everyone uses one tool. There is one place to go to find the information. The command center has vastly changed how we communicate.

At any given time, we can see our census in every unit at each of our campuses. I can see how many discharges are pending and how many have already happened. We now have a 24-hour prediction function that shows everything on the boards. We can see blocked beds. We can see how many are clean and dirty. We can see which beds are being actively cleaned. For patient flow, we have to know what we can count on so that we don't get backed up in the ED or OR.

What outcomes, including ROI, did you hope for but have not been able to achieve with your command center?

Care Logistics

Working with Care Logistics has been awesome. They are one of the best vendors we have ever worked with. They have a good implementation team and a good development team, and their IT team is also excellent.

We want more predictive analytics from Care Logistics. They have the perfect platform for OR tracking. but they shouldn't start at the inpatient area. They should start tracking when the patient arrives. They need to go through the full breadth of the process. I know that things are on the horizon, but Care Logistics needs to move a little faster. The OR tracking is a real miss. Care Logistics is working on things, but they are focused on the length of stay. That is their calling card at this point. I do feel that they have everything in place to knock things out. We have great systems, so it shouldn't be hard for Care Logistics to do what we need them to do.

We were originally supposed to decrease our length of stay to a few days. However, our length of stay hasn't changed very much. It has decreased a little, but we haven't gotten down to the next level that we need to reach. That is for a slew of reasons. I can't put the blame on Care Logistics. We have to deal with the doctors' preferences, patients, charity cases, and people with social discharge issues. Decreasing the length of stay will be an everlasting project.

I love Care Logistics, but the discharge-planning role hasn't proved to be effective. The vendor told us that they would take away certain responsibilities. For the amount that we pay them, we would have expected them to do those things. Maybe we got in the game too early, but we are struggling right now.

We are making progress in the observation area with Care Logistics. We have decreased the length of stay in that area, but we haven't gotten it down to 24 hours, which is where we want to be. We are just not as consistent as we would like to be. We have improved, but we aren't able to hold the gains. The data has a few too many peaks and valleys for my level of acceptance; I want the data to be more consistent and smoother. We have the data and are now drilling down to see what specific issues are keeping us from being consistently below that 24-hour mark for our observation patients.

Care Logistics has delivered everything they promised with their command center. If we miss out on outcomes, it is because of how our people use it and not the system itself. Organizations need to build a command center and operations center, and they need to put the right people in place to execute those systems; otherwise they will miss out on all the software has to offer.

Central Logic

We would really like to have an ADT interface that goes in the other way; we would love for our agents to be able to just get a phone call from someone who wants to book a patient. Then that information can be in the system for the patient's registration. We haven't been able to get that to work yet.

We are really interested in script-driven calls. Let's say someone calls in and has a patient who is having a cardiac event. There would be an agent in the call center who would put in the initial diagnosis and then receive a script guiding that person through particular questions. We

have talked to Central Logic about this, and other vendors we have talked to don't have that functionality either. But that is something we have wanted for a long time. We would also like to have better integration with our paging system. Right now, Central Logic has a limited setup that doesn't integrate. We want to page directly from Central Logic's tool instead of just paging from our outside system and then putting time stamps on the pages in Central Logic's tool.

Cerner

We want a better definition of our metrics. It is overwhelming to run a report from our system because we have to run it on legal papers and filter it out. Cerner doesn't have custom reports for predesigned metrics; the reports are just expansions of what we want. It is good that the software provides the metrics, but it becomes a challenge when we don't want to run reports for those metrics. It is frustrating to find out that the system can monitor certain things after months of using it.

We want Cerner to improve our maps within CareAware. That is doable, but we don't have quick links. It takes a while to load those links, so an improvement to our maps would be nice. It would be nice if the solution directed us to the location of all our dials and terms. That isn't easily accessible for us.

We are implementing a capacity-management piece that will help us gain further efficiency on discharge. A big gap for everyone is the discrepancy between when a patient left the bed compared to when that patient was taken out of the registration system. We pick up 1,000 patients a month with our EMS team, and we want to know immediately when the team picks up a patient. That would prompt the work around the discharge. That means there are 1000 beds a month that are being vacated before we know about it. That is the next big thing we are working on.

One thing we want to work on is making sure that the crew is dispatched on time. Then if a nurse has an 11:00 a.m. appointment, she or he knows that the crew is really going to be there at 11:00 a.m. It is also nice for the EVS people to know when the beds are vacant so that they can get their jobs done earlier. We can get people out sooner in the day, and we can move EVS tasks to earlier in the day so that the EVS people aren't overwhelmed at 5 p.m. We have not seen any improvements yet.

Our executive team has made the decision that the teams will stay together because the win has been so significant. We looked at all the quality indicators, but we don't have a specific ROI on anything yet. We didn't spend a lot of money on collocating. We just purchased furniture, and that was it.

There are a lot of things that we want to do to improve the system, starting with our own operations. We only have one patient placement coordinator, and our logistics center isn't operating 24/7. We just do reports and get other data right now. We recently added another person to work on patient flow.

We underestimated the impact and size of the go-live. Everyone was affected. We only had Cerner's team to help us during the week of the go-live, but it would have been helpful to have them for two or three weeks while the people in charge were overwhelmed with calls. My office became the call center for all the capacity management issues, and that was pretty painful.

The partnership with EVS is a good thing. Cerner presented how it would be to have a logistics center for our EVS lead and patient placement coordinator in one location. That will be helpful

because the EVS lead will hear about things right away. We currently have to call the EVS lead and tell that person what is going on or what needs to be prioritized. Our EVS leads have tasks to do and aren't in front of the capacity management tool. We need to have more integration with EVS and invite them in for our group huddles. We want people to be on the same page when it comes to what we need, but we aren't quite there yet.

We have goals around how long it takes us from decision to admission to assign a bed to a patient and how long it takes to get the patient in that bed. We really want to meet our metrics all the time, but we aren't quite there yet. We only have one transport team, and the team follows a firstcome, first-served process. Sometimes we don't meet our metrics because our transporters are already busy doing things like diagnostic transports. Our organization needs to decide whether we want to prioritize patient flow more than diagnostics with the transport team.

There are a lot of little enhancements that appear easy to make but involve processes that the bedside nurses do. The nurses have to contribute to make those changes happen, so the changes are a little more challenging to make than checking a box to make the system do something.

Change Healthcare

Change Healthcare's product is kind of a predictive analytics tool. We have been working on better integration of the software, but not many people across our health system are using it. We plan to integrate it so that people at different levels can see how many patients are coming in and how many need to be discharged. With that information, we will be able to increase capacity and take in more patients. Our goal is to reduce patient diversions, and we plan to do that by integrating the software with what we are doing.

Most of the hospitals in our system provide the same types of service. We aren't good at using beds in our system. For example, a physician may call to request a certain hospital for a cardiac patient, but that hospital may not have any cardiac beds available. That hospital will still want to own that cardiac patient because they see the patient as a referral. That is the biggest gap we are dealing with, and we are working really hard to fix it.

We will have a better idea of when patients are leaving our system to go to a competitor's system. We should have better control over that when we can see everybody's bed system through McKesson Performance Visibility in one area. We will substantially reduce the amount of leakage out of our system.

Epic

We have certainly had big successes with hard, tangible numbers, but a lot of our successes haven't been tangible, quantifiable things. One success is that we have created a very different situational awareness within our institution. Additionally, there is more collaboration and communication among the departments than ever before. We have seen great improvements in bed-cleaning time. Because there is a different sense of urgency in the command center, we are able to improve the patient flow. Our transport time has started to shorten. The amount of time a patient spends in the ED before getting a bed has also started to shorten. We have certainly seen quantifiable changes, but really, the change has been just having a much broader appreciation of what is going on and of how each department plays a role in specific scenarios. That has really helped us.

We changed the reporting structure. In the past, the teams were reporting to different leaders, and all the teams were kind of doing their own thing. Now the teams all report through one director.

We were hopeful that we would have minimal wait times with our command center, but the number of calls we receive has grown a lot because we have become a health system. We have an increased number of referrals, so we are limited by our capacity. We can't build beds fast enough at our medical center to take in all the patients who are requesting services.

It would be nice if our command center allowed us to look at the flow of our system and the length of stay related to our various services. We want to help patients move through the system and increase our operational efficiency. We aren't where we want to be yet, although we have the tools we need. In Epic's transfer-center module, there is an area where our command-center nurses can take calls, log calls, and stamp them with dates. However, there is no clear way to see that information from the bed-management and patient flow systems. The transfer-center module is more robust than our other modules.

We are in the process of fully going live with the command center. Before we started working on the command center, we knew that our processes were not efficient enough to keep up with our census. The command center is meant to improve efficiency. Everyone works together. Every department is aware of how their work impacts different departments. We want to work cohesively, not in a vacuum. We have to have small successes. We have to move forward in a big way in order to stay afloat on a day-to-day basis.

GE Healthcare

We have successfully achieved a lot of our goals, but there is still room for improvement. Adding this command center has opened our eyes to a host of other things we can accomplish with clinical work. Our clinicians talk to us about clinical conditions they can help with by identifying or treating them. We are considering doing equipment tracking and medication tracking, and we can do more work with our health system's patient placement. We can bring many things into the command center.

One outcome is to look at the deteriorating patients. That has an ROI regarding achieving ICU bed capacity. We have achieved all the outcomes of our command center's first phase. We haven't achieved our outcome with the beds, but we plan to achieve in about 18 months.

We have been trying to improve our inpatient length-of-stay numbers and our boarding patients in the ED. That number has stayed fairly flat.

We have had increased demand for ED boarding since implementing our command center. Our primary driver for implementing a command center was to care for transfer patients in our partner facilities or to decrease our decline rate, but the unintended consequence of that effort was that the ED boarding time increased. The command center hasn't had a negative impact on the ED, though; it has done a good job prioritizing patients for the right beds. Our overall demand has been increasing steadily, especially in the ED and inpatient facilities.

TeleTracking

The piece we work on constantly with our command center is the availability of beds. Our little hospital uses on-call staff because it has a lot of open beds but can't afford to have staff just hanging around. Our bigger hospitals are often full of patients, and it can be frustrating because

patients may not be able to move when they are ready because there aren't any beds. We always want to have beds available, but there are a lot of factors involved in making that happen. That is why we track available beds as an indicator.

One goal we still struggle with is getting patients discharged before noon. If patients are scheduled for discharge, we want to get them out and back with their families before noon instead of having another day go by. We have made some progress with that by working with the case managers and nursing units. We have worked on how we assign and move patients through our system, but we aren't where we want to be yet. We are getting more of our patients out before noon. We continue to work with our partners, and we have a group that focuses on operational excellence. That group tries to work on the processes and shave off some time to get people out more quickly.

TeleTracking has been great with us. One thing I would like to see is not related to TeleTracking; we haven't been able to get the hospital to adopt the system.

TeleTracking tells us when we can do our discharges minus one day. That helps us tee up our discharges earlier. I see that as a huge benefit going forward.

In terms of planning for surgeries and other things, we are still not sure where we need to be. But that is on the hospital, not TeleTracking. The technology is ahead of what we can do in the hospital.

We are still not at Medicare rates, so we are working on that. We have made improvements. A little more than two-thirds of our payer mix is Medicare and Medicaid.

Some dashboards still required manual interventions, so TeleTracking came in and gave us realtime data that we needed. We did get away from having so much manual intervention. We used to have to manually go in and update the data four times per day. It was difficult to keep the data current. We can create over 300 reports to send to various leaders so that they can see how they are doing in specific areas and better manage their flow processes.

What types of real-time and predictive data are you incorporating to drive the operations of your command center?

Care Logistics

The good thing about Care Logistics' product is that it has real-time dashboards that include our environmental department and turnaround time on bed cleaning. They have a transport model, and they incorporate the service area of our imaging department so that we can see turnaround times on patients' orders. We get a lot of good real-time information from patient flows that we can capture and track in the command center. We can capture nurse productivity and care-team productivity, and we use Care Logistics' tool for logistics. We implemented a new tool for a real-time view of how long patients stay in our facilities. Our care coordinators on the floors can access the data, and we have interfaces with other systems to make predictions.

We somewhat have the ability to do predictive work in the Care Logistics solution. We have the anticipated and pending discharges. While Care Logistics doesn't really do predictive analytics, they are helping us use our systems to predict in the command center. We are using the system to go in the day before and mark something as anticipated so that we can start predicting and knowing what we will need in the next 24–36 hours. We are using the whole system, and all of the individuals improve the system so that the hub can predict. We have expected discharge dates that we put in based on the geometric length of stay. The length of stay is just what we expect it to be. We manually figure out our predictions. Care Logistics pulls in some things, such as alerts, and they are good about working with us to pull in what we need. The solution automatically pulls in alerts and targets things, so people can work to correct things if necessary.

We only start our process in the Care Logistics solution once patients are admitted upstairs. We don't see the ED patients until the admission orders are written.

We do staffing data. We know exactly how many patients we have and how many nurses we have by floor, so we know our rations automatically with the discharge information. We do some predictive planning based on our manual predictions of nursing needs. We do a lot of things through the Care Logistics solution. We have our six-week schedule, and we do that through a different system. On the day before scheduling, Care Logistics pulls the information from our scheduling system to their system so that we can update things. The Care Logistics solution doesn't schedule in advance. We schedule things the day of.

We use the hub for all of the imaging modalities and also for cardiac and cath procedures, respiratory services, EEG tests, and neurology diagnostics.

We have the physicians and the attending physicians put together the DRGs for admitted patients because then the software can use that information to calculate an expected length of stay for each patient. Then that predicted length of stay is visible on the dashboards for everybody. The system counts down days at first, and then once the time gets down to the last 24 hours, the system starts counting hours until discharge. The time puts pressure on everybody to get important things done as quickly as possible. If a physician assigns a patient to a different DRG while the patient is in the hospital, the system will recalculate the length of stay and readjust the time on the clock. The physicians kind of freak out if the countdown goes into negative numbers, and they start making up excuses as to why they couldn't meet the deadline. When that happens, we just look at the physicians' documentation to see whether their excuses are legitimate. The system is pretty accurate, and the coders can verify its calculations. The ED accounts for about 62% of our admissions flow; that is a big portion of the predictive analytics for length of stay.

The hub has become the heart and soul of everything that goes on with inpatients and observation patients. We now have all transfer patients from area hospitals flow through the hub. We have to get some initial information. We don't accept any transfers without a three- or fourway call happening at the time that somebody wants to transfer a patient to us. Those calls allow everybody to be on the same page, and the calls give the nurses who manage the beds enough information to appropriately place patients when necessary.

Part of the transport-data project included centralizing our transport pool and then assigning the resources to move the patients throughout the hospital. The same thing happens for environmental services and for discharging patients. All of the data flows through the system so that we know the anticipated discharge time and the actual discharge time. Once a patient is actually discharged, that is the signal to go clean that patient's room.

We moved all our central telemetry techs down to the hub space so that other nurses would be available in the room if the telemetry techs all had to step out for some reason. Now there will always be a nurse who can monitor things. Moving the telemetry techs into the hub has been a huge advantage for us.

We are incorporating real-time data from our EMR into our Care Logistics system. We aren't using predictive data from the EMR yet, except where we get our ratios and discharge predictions from that data. We can also see whether our CMI is on target.

We incorporate real-time data from our ED into our command center. We have screens that show how many patients are pending. The system predicts whether someone will be admitted or whether that person will stay on in observation. We see real-time data, but there are some predictive elements. Bed managers need to know how many isolation patients they have in order to make correct decisions. If they make the wrong bed-placement choices, it can be problematic; we may have to move patients several times.

We use real-time data to track how long it takes to complete test appointments. The software shows us where tests are in the process; that data feed gives us information about how long it took to transport patients so that we can predict our staffing ratios during certain times of the day.

Central Logic

We recently enabled an HL7 interface that takes the task of documenting patients' arrival time from nurses. Now, when a patient arrives, the system automatically creates a time stamp to document the arrival time.

We can always pull data in real time with the reports that are generated. We can look into any medical system we want to. We can look at where patients go or what the referral patterns are. We can export the data to our financial people, and they can look at our volumes versus our finances to see where we are at or where our business is going. We can get a quick look at where we are. We can set up the reports to run regularly, and we can quickly pull data when we get requests. The system is very user friendly in getting all of the data, and it has made our group the data hub for our organization.

We would also love Central Logic's system to integrate with our system for bed board management. We would love automatic updates when beds are requested and available. We are working with Central Logic on that.

Our physician scheduling is a separate system. We currently don't use Central Logic at all for that.

We don't have any asset-management connection with Central Logic. I don't know what we would use that for, but we don't have anything integrated right now.

Cerner

Some of our still screens have filtered lists to show a dashboard with all our active and pending discharge orders. That is taken straight from the EMR to help with predictive workflows and movements. We can potentially see 60 patients who are going to be discharged, and the system tells us when we may need additional ED help or transport. It also tells us how many admission beds will be available after the discharges.

It is difficult to monitor our bed management and patient flow. We troubleshoot the problems using CareAware; we can see who has completed which jobs and when the jobs were done. We use historical monthly data to drive overall change to our processes.

We don't have an ED dashboard right now, but we keep FirstNet available all the time. We don't monitor ED metrics.

We don't currently have transfer-center software, but that is on our wish list.

We have RTLS and tracking, but we are waiting on some feedback and follow-up on those. We are starting to do RTLS staff tracking, and our system has some capabilities for that, but we haven't really discussed it with our vendor. We stumbled across our contract and took it to our corporate leaders, but they were confused about it. They said they would look into it, and that is frustrating because we are building an Excel database for something that already exists in the system. We aren't currently using RTLS with Cerner's system, but we have badges and the call system. We track assets with an entirely different system than our capacity-management system. We use RTLS tags for our equipment, but we will start using those with our staff because it will show us locations and will integrate with our nurse call system. When patients hit the call light and nurses show up, the badges should automatically cancel the call light.

We just started our predictive-disease department, so we are trying to incorporate data in real time, but we have no guidance for creating the best workflow or any recommended metrics. Cerner hasn't helped us train our department leaders to run those numbers; everything is self-taught.

We are incorporating patient scheduling data into our real-time data collection by looking at our OR, cath lab, oncology, and maternity schedules. Radiation is pretty much its own department.

We use scheduling as a predictive tool for surgical volume, direct admissions, clinic patients, and other things.

We answer all patient calls in our department, and we look at trending response times and call volume. We also use an algorithm for calls to collect predictive and real-time data. We had to build the department with an FTE. We use a predictive model to look at the time of day we get calls and the types of calls.

We don't get real-time data from our ED system. We have real-time information of who is in their beds and who has what score on the emergency severity index, but there is no predictive tool that

sits above everything to tell us that we are at the tipping point. It is up to a human being to realize that. I have had vendors come to show us demos. They claim that they can tell us where our bottlenecks will be, but all I saw were a lot of promises.

We do not have real-time data from the enterprise scheduling systems, other than the incoming patients that we see on our transfer list. We are looking at how to bring the scheduling data in. I have no real-time access to that data right now, but people in the organization do have access to that data. We have no predictive tools for the scheduling data. Real-time patient-scheduling data is not a part of our process yet.

We have the transport component under capacity management. We did a pilot with one of our departments so that we could see real-time information around transports from that department. We don't have a centralized transport team at our organization. I am pushing to get one. RTLS tools cost lots of money, and a centralized transport team would cost less and could serve the same purpose as an RTLS tool.

We incorporate predictive data in our center. We know our surgery volumes and our end times. There are more opportunities that we could take advantage of when looking ahead. The system is efficient and is working as designed, but we need to have the right people working in it, like the nurse managers. We need people looking ahead and doing reports. Our routines should be running like clockwork.

Change Healthcare

We refined our plan. We need to work with the nurse managers and have unit-level ownership. We want to start tracking the patients going in and out of each unit. The application tells our staff members how many patients are coming in, and it shows how many patients we should have left that day. If a unit gets behind, our staff members can figure out what the delays are. The system helps them be more involved with patient flow and case management. My team is more involved with taking advantage of beds that open up.

Change Healthcare's system is the only system we have that has the potential to be predictive. That was a big part of our attraction to it. It has predictive analytics because it has a lot of historical analysis. Some reports are harder than others to get out of the system, but we have another system that can get us the historical and real-time data and the patient-flow metrics. What makes Change Healthcare's system valuable is its ability to predict things because we can't use it to place the patients in beds. It isn't built for that. It is more for the analytics side, and it helps us understand what happened and what is going to happen. We can put processes in place to react to upcoming needs. We get that data from the system, but we aren't doing much with it yet.

We don't pull patient monitor data into our command center, but we are making plans to centralize telemetry monitoring within the same clinical footprint.

We are planning to include remote patient monitoring in our command center. We hire people and assign them to sit in the room with high-risk patients, and they can call for the nurse if the patient starts moving. We are looking at a vendor called Avasure that remotely monitors patients. We could have one of their people remotely watch 12 patients instead of 1.

The biggest metric we track is how much time elapses between a transfer patient being accepted and the patient being assigned a bed. We don't track physician callback rates. Doctors see transferred patients as their referral base. We have employed physicians and community physicians in our system, so we don't have big issues with not getting calls. We get plenty of

calls. Our issue is around how quickly we accept a transfer patient and give that patient a bed. Our market is very competitive. Our feeder hospitals are not regional, small hospitals that can't manage certain patient care.

We are always monitoring and seeing where we are versus our expectations. We have not moved into the predictive side and have not purchased the predictive analytics module from Change Healthcare, whether staffing or volume. We need to get our basic, core system more up to speed. That is on our road map.

We use real-time data within the EMR, the ED, and transport services to measure times, such as the time between discharge and getting a patient in a bed or why EVS is taking too long. We are always monitoring those things on a real-time basis. That is where we are right now. That isn't a great place to be, but at least we have things set up now. A lot of things are already in our command center, such as reports, graphs, floor plans, and icons. So we know where to focus our efforts.

Epic

Our dashboards are actually integrated into the EMR. All of the data is in real time because it is pulled from the EMR. There are a couple data points that are from the previous day, but for the most part, the dashboards display things in real time. Our hospital-capacity data updates every couple of minutes.

Predictive analytics is certainly very high on our radar. We have done certain things with the dashboard to try to get a view of what the next couple of days will look like. We have a data point that shows the number of surgical cases that are already booked for the next five days, but that isn't necessarily predictive analytics. We are taking the data we have and are projecting it forward so that we can adjust things and proceed with all our cases. For example, if we have 12 cardiothoracic cases next Thursday, we may need to move some of those cases to make sure that we have enough of the right beds. Whatever we can very confidently forecast, we do, but nothing at this point truly gives us predictive analytics or tells us when we will hit our next surge event. We are working on it. Epic is aware that predictive-analytics functionality is high on our list of things that we would like to see in the dashboards. Epic is working on models.

All the ED data we get is in real time. We know how many patients are waiting at our various ED locations and how long those patients have been waiting. We know how many patients are currently being seen, how many are waiting for a bed, how many have an assigned bed, and how long it takes patients to be discharged. We have a really good line of sight into our EDs. We are focused on the predictive-analytics side of things. We want to figure out how to tell when the ED is about to surge, and we want to figure out how we can better prepare for that.

Initially, we weren't using Epic's bed management system because it didn't have enough bandwidth for our size. We worked very closely with Epic to increase the capacity in the program to suit the size of our institution, and so we use that solution now. The one thing in the system that we don't use is the transfer module. That is because it doesn't quite meet our needs in terms of functionality. It isn't flexible enough to handle the complexity of our organization. We will eventually implement that module, though.

We don't currently do any scheduling in the command center. Our ambulatory care network is still very fractured. There are institution-owned ambulatory practices, closely affiliated but independent ambulatory practices, and independent private practices. We do not have an integrated scheduling system. Our two biggest ambulatory partners, which are independent of the hospital but are owned by the same health system, are on the same scheduling system; however, they still have decentralized scheduling. There are a lot of things that are decided at the local level, so while we would like to get into the ambulatory space more, our market would make it very challenging to centralize everything. We have done some work on the dashboards so that the ambulatory centers would have better situational awareness, but the dashboards aren't finalized yet. The dashboards would allow them to see things like how many same-day appointments are still available. The dashboards won't have any predictive-analytics functionality, but they would give people insight on what they could expect to happen with the ED volume if there are no available same-day appointments. We will likely move toward using the dashboards in the future.

We don't have RFID badges or anything like that. The topic of RFID technology comes up every year or two, especially because the cost of that technology continues to go down. We also discuss deterioration monitoring. We are a PeraHealth shop. We don't currently monitor patients' Rothman Index scores in the command center for a lot of reasons, but that is something that we would love to do in the future. We have a group of ICU-trained nurses that provide guidance to other areas of the hospital. Those nurses monitor PeraTrend, and the system sends them alerts on patients. We recently went live with a system that sends the alerts straight to nurses' phones.

We are working toward using the EMR for more predictive data.

For the ED, we are using a third-party system for predictive data. We are not using our ED system.

We have separate data coming from a system for staffing.

We pull real-time data into the command center, and that is one thing we really like about Epic's software. We can see our capacity and patient status in real time, and we can identify bottlenecks. Our internal data group is currently working on predictive analytics and modeling. We meet a couple times a day with environmental services, nurses, and physicians to see which units have incoming patients and how we need to prioritize things. We want to be able to predict what we will be doing in several hours, tomorrow, or next week.

The predictive model we use in-house was built by our own people; Epic didn't provide that out of the box. However, we did use some Epic functionality to create it.

We aren't using scheduling tools in real time. It is available, though, because we can see whether we log patients or whether they are scheduled. It is challenging knowing when a test or procedure might happen for a patient, and the data isn't very usable for physicians. We could use that data to alert patients about procedures, but that level of information isn't currently available with Epic's tool.

We get some predictive analytics from the hub every day, but the rest of the data is in real time. We kind of eyeball the predictive analytics in the early morning, but there are a lot of factors to consider with the real-time data. When we look at our average discharge time early in the morning, we know that not all of the discharges are in, and we don't yet know how many patients will go and how many will stay. So we take the measurement for average discharge time with a grain of salt. The data becomes more accurate as the day goes on. At the beginning of the day, we know how many people are coming in for surgery and how many people will be admitted. We have to guess at what the average discharge time will be. By noon, the data becomes more reliable. When I came in this morning, our status sheet projected that we would be short 35 beds. However, as the day went on and the data became more refined, the status sheet showed that we would only be short 8 beds. Then we start boarding in the PACU or in the ED. RTLS is not in the inpatient world. We use it for patients in a specialty center. In fact, one of our units recently got wired for RTLS, though that unit hasn't gone live with the system yet.

We get data projections on when patients are supposed to arrive in the PACU after a procedure. We also get data projections on current PACU patients. The data is broken down by phases. We know when a patient is out of the OR, is ready for visitors, and is ready for discharge. We need all that information because we follow patients as they progress through their recovery so that we know when they will need a bed. Our PACU is always overflowing, so we have to help get patients out of there. When the OR can't discharge the patient, everything slows down.

GE Healthcare

All of our data comes from our Epic EMR and whatever other systems are attached to it. The data is put into a server and redistributed so that we can see it in our command center's screens. None of our displays were built by Epic; they were all built by GE to show us the exact data we need. However, people still use our EMR on their desktops.

The patient flow data is all coming from our EMR except for our STERIS system, which is in our perioperative program. That is a patient-tracking system.

We don't have data from a transfer center being pulled in at this point. We have external provincial-wide software for critical care patients, and at this point, we can't link with it. We also have citywide software related to our emergency responders. We haven't been able to link with that either, but we are working on that link.

We are releasing a new tool related to scheduling. The scheduling we pull in is related to nursing on the units, and the tool will indicate units under pressure. But the tool isn't fully integrated. We are working on physician scheduling now, and we have a system that manages all the physician schedules.

We have tiles with predictive analytics from GE, one of which is a transfer-center tile. The tile shows each patient's progress with transfers, starting with the initial call. Our doctors can accept the transfer or keep it as a potential transfer if it is unclear whether the patient would show up. We find a bed once a patient is accepted, and then the system updates and sends for the patient in real-time on the dashboard. The dashboard lists where the patient is coming from and how long it will take.

We have 24-hour predictive demand for staffing and housekeeping, but that is the only thing with that demand.

We can see a snapshot of our capacity in our overall view of a hospital with GE's system. We can see the occupancy and pending admissions for each unit, and we can see who is in a bed. The demand for each unit is determined by the existing patients who need beds. The system predicts demand based on where it thinks patients will go and not because patients have records in our system. It lets our placement staff know which units will be hot spots.

Our patients used to be organized based on whether they were general surgery patients or oncology patients. We would also keep track of whether a patient needed a lift bed or needed isolation; our patient-placement people would just keep track of those things in their heads. Now we can use GE's tiles in our EMR system to filter patients by what they need. We would have known about those things earlier, but the features weren't transparent.

We are starting to pull in some inpatient diagnostic imaging and PICC lines to our dischargebarrier tile in GE's system, but we aren't pulling in sleep studies or advanced OR scheduling days to predict things.

We use GE's discharge-barrier tile, and we use the radiology information from the EMR to reprioritize work queues for patients who are being discharged the same day or the next day. We use the tile for radiology, pharmacy, CT scans, MRIs, ultrasounds, PICC lines, physical therapy, and occupational therapy.

We are planning on using GE's tile for sepsis. We will pull in some clinical information from that tile.

TeleTracking

We use data from TeleTracking's solution to run our command center. We work with our datawarehouse people to integrate our EMR with our TeleTracking software, our financial systems, and our ADT systems. We can see how much it costs us to keep a bed open for a couple hours or for a patient to wait in the ER for several hours. That project was our idea and not TeleTracking's idea.

We are predicting that the vendor will provide a flow for using our EMR and TeleTracking's software together.

It is a little harder to use predictive data from the ED because there are no pending discharges from that department. We can't set milestones, although we have asked for that and predictive data in future releases of TeleTracking's software. We use milestones to give us predictive data on our inpatient and observation sides.

RTLS reporting is probably the weakest part of TeleTracking's software. The reports for RTLS are terrible, and they have been terrible for a long time. The system can show us how much of something we have as long as it is tagged, but it doesn't tell us how much of that thing will go away or the expiration dates. It just provides numbers.

The only other system that feeds into TeleTracking's product is our ADT system, and that happens in real time. It tells us when patients are coming but haven't arrived yet.

A lot of the data that we pull comes from the TeleTracking system, but we do other things with our EMR that aren't driven as much by data. We use interfaces to do some things. Our ER doctors used to make the decision about whether to admit a patient and hand that off to the unit secretary. The unit secretary would request a bed in the system. Sometimes that was really quick, and sometimes there was a delay. We have many interfaces set up between our EMR and the TeleTracking system. We didn't want to change people's workflows, but we worked with TeleTracking to set up a button that the doctor can click when the doctor thinks a patient should be admitted. The system automatically makes a bed request, and we see the requests in our patient logistics center. It only takes a second to get to us. The system reaches in and grabs the information that we need.

If somebody is being watched under an infection control program, the data automatically goes from our EMR into the TeleTracking program. We see it before we ever make a bed placement because the information comes through an interface. As long as people document the information in the correct place, we can pull it out. We get some data from the EMR, but most of the data that we are tracking comes from the TeleTracking system.

We get some information from the ED about how long it takes to get patients to different points in our processes. We use the TeleTracking system to look at how long it takes to get a patient to a bed after the ED physician makes a disposition. We look at how things move through our ED and how long everything takes after we assign a bed.

We are looking at getting a new physician scheduling program that we can interface with the TeleTracking system. All of the information from the lab, pharmacy, and radiology departments comes in. The nurse units utilize that information all the time. We have set up key milestones that have to be completed before a patient can be discharged, and we look at those. We have a tracker that lets us know how close a patient is to being discharged, so we know when to do the discharge paperwork and education. We know how many patients are close to being discharged on each floor.

We use a combination of TeleTracking and Epic. We use them separately, but their systems communicate. Our Epic system is not nearly as functional as our TeleTracking system.

TeleTracking is a big part of what we do. To get buy-in from our whole system, we need data, and TeleTracking gives us real-time data and historical numbers that we use to drive changes. We have data across our entire tracking system and our boards.

We don't use TeleTracking for physician or patient scheduling, but we know what is coming in and going out. We can keep track of patients coming in for operations, and we can arrange beds. But that is all IP.

The ED puts in a bed request, and then we get an ADT feed from our EMR with the request. The TeleTracking system automatically creates a bed request, and everything is interfaced for us. All the information is extracted from the EMR, which is then populated, and that helps us assign patients to the right beds the first time.

We incorporate influenzas in the command center. We know how many influenzas we have inhouse, and we match our influenzas. We try to maximize our capacity. During the flu season, we are at about 115% capacity. So we need to be able to recognize influenzas and make maximum use of our bed capacity.

We have an electronic dashboard that speaks to the system in real time. If any issues come up, we have an alert system and somebody monitoring alerts 24/7.

I would like to interface a staffing system with our TeleTracking system so that I can get our realtime census and staffing joined at the hip.

Has your vendor been able to help you aggregate different types of data from multiple EMRs and/or other IT solutions?

Care Logistics

We incorporate a lot of different systems into our Care Logistics command center. We pull data from our EMR and scheduling system, which actually includes nurse scheduling, imaging scheduling, and OR scheduling.

All data is coming through Care Logistics. They can pull from our EMR, but they can't push out to that system. They can pull in anything through the HL7 interface, but pushing data out to other systems has been a struggle.

We mostly use data from our EMR right now.

Central Logic

We needed call recording, and Central Logic referred us to a company. That worked out really well for us, and the company provided reliable service. All of Central Logic's referrals have been good.

Central Logic has not helped us aggregate any data. We take all the data; we do everything. Basically, we get the data feed from Central Logic, and then we combine that data set with other data sets to report on. So all the data is provided by a single vendor.

Cerner

Cerner hasn't really helped us aggregate data from multiple EMRs. We don't get any feedback from Cerner about the data. The data isn't necessarily from Cerner, but they don't help. They aren't willing to tell us about other companies. We have to use a lot of middleware.

Our registration is a foreign registration, so we created interfaces for that, but that is a function of the EMR. There is not a separate solution that is providing us with any data, so I would say that Cerner isn't helping us aggregate different types of data from multiple EMRs.

We get our data from a single vendor.

Change Healthcare

Change Healthcare has been able to get the ADT feed from our EMR vendor and integrate it into their system. Change Healthcare hasn't offered to touch anything else. They have our data from the last two years for any patient moves, but they don't have anything related to scheduling.

Because we aren't connected through a hospital in another city or county, we might use our own EMR if the patient has a history with us. All our transfers are from one physician to another, so we rely on physician-to-physician conversation. We don't take just any patient when it comes to patient transfers. Only doctors can accept or admit a patient to our facility.

Change Healthcare has aggregated data from Cerner, and we are looking at ways to do the nurse staffing side. Crothall Healthcare gets pulled in for transportation.

Epic

For the most part, we are all on the same EMR. Our transfer center isn't currently on Epic's EMR, but we are able to incorporate the transfer center's data into our dashboards in Epic's EMR. We can see how many transfers are pending. We are operating entirely through the EMR. I would love to get data in and out of more systems. We have a good number of physicians who go back and forth, and we have a good number of patients who go back and forth. Having more integration would be very helpful.

I recently had a call about integrating data from our scheduling software into our EMR.

GE Healthcare

The ability to aggregate and display data from multiple EMRs is the specialty of a command center. When GE first came here, we had over a dozen different systems. We now have fewer systems because we use Epic's EMR. We still have to pull data from multiple modules, though. Our transition from having a dozen systems to having just a few was very smooth; we didn't even notice a difference with our analytics.

We have different modules in our EMR, so pulling data is always a challenge because our EMR vendor isn't always able to provide information for us. But we have other sources. We use a patient-tracking system in our perioperative program, and we pull data from that. GE works with the other vendors and pulls information in.

GE can aggregate data from different EMRs. We had multiple EMRs, and that was a barrier to getting a snapshot of our overall capacity. GE's solution helped us by providing a limited single view.

TeleTracking

We ask TeleTracking about people using their command center software. We ask for benchmarks for other clients with other systems. TeleTracking works with Cerner and Epic, so we want an idea of their benchmarks and best practices to avoid having to guess. We do see the national benchmarks, and we are pushing TeleTracking to produce other benchmarks because we need to know whether we are doing a good job. TeleTracking is starting to do that; they hired a person to produce benchmark documents. It was nice to see that.

TeleTracking has helped us work with our other vendor to make sure the times are being pulled in so that we can see the patient flow in the ORs. We also have our EMR data.

We don't use multiple EMRs. We just use an Epic EMR. Before Epic, we used a different system for the ED, but we had to switch when the hospital acquired the Epic EMR.

Right now, we are just using TeleTracking and Epic. But we are looking at a case management system to interface with the TeleTracking system.

How has your vendor contributed to your success (or not contributed)?

Care Logistics

We will definitely continue using Care Logistics' solution because having a department focused on care coordination and patient flow helps with our bottom line, and that helps us provide good patient care. Our length of stay is different now; Care Logistics' solution helped us understand patient status and helped us get patients in and out. No one used to really know those things, and we had problems understanding where patients were. Care Logistics has really good tools and real-time analytics.

Care Logistics did a lot of work and looked at our workflows. They updated our workflows and positions before the technical go-live, so we were set to go on the day that they flipped the switch. They were exceptionally involved.

The Care Logistics system is pretty cool. I came from another hospital that didn't have anything like this. Having the hub and the visual management of information has been fantastic. The automation has been really cool. I really enjoy that portion. For better or for worse, Care Logistics does work with us. They are on-site, and they help us. We tell them our issues, and they work with our groups and teach us about discharge planning. Care Logistics doesn't just hand us a piece of equipment and leave us high and dry. They are here, and they are a partner. The technology is really cool. Because Care Logistics is a smaller vendor, they are more fluid and open to new ideas. There hasn't been anything that we have mentioned to them that they didn't at least discuss with us.

We have worked with big vendors, and the one thing that Care Logistics has going for them is that they are still nimble. They aren't wearing a heavy weight on their back like Epic or GE. Care Logistics doesn't impose their model on customers; they are very fluid and are willing to adapt and change things. Organizations need someone with the know-how to help Care Logistics model what is needed at the hospital.

I don't think there is anything that Care Logistics hasn't contributed to. We have had a very good partnership with them, and they are a good company to work with. They are rooted in engineering, and I think they bring a lot of needed engineering discipline to healthcare. The biggest thing that Care Logistics has done is they have helped us get data out of our disparate systems, and they feed the data to us in real time. Also, they have given us a back-end reporting package. We originally had a hard time making the data useful, but I think Care Logistics' system has really helped us with that. The transparency of the information is also very beneficial and healthy for an organization.

We are still learning about everything that is available from a reporting perspective, and we have quarterly meetings with Care Logistics. Even though we turned the system on several months ago, we still have a quarterly performance review with the vendor. I know our team still needs to learn more about what information and reports are available to us. We haven't had enough time yet to go through everything that is available to us and to identify opportunities where we could improve. That has been a little bit of a surprise; I didn't realize how much capability the system would have. I have been in meetings now for some of our inpatient patient-flow reporting, and Care Logistics' solution is the source of truth.

Care Logistics' software is foundational to the services they provide. It allows our management to identify things to help our process. We can then develop our process based on data we get from the system. Care Logistics didn't just give us software and then leave us alone; they held our hand through the process. They spent a lot of time with us on-site, even though they have other clients. They helped us develop and reinforce our processes in different areas of our organization, and they answered questions. Care Logistics' software isn't a one-size-fits-all solution. If we want a board to look different, we can call an engineer at Care Logistics and have it redesigned within a day or two. The vendor was heavily involved in the layout and design. We have a coach from the vendor, we receive quarterly performance reviews, and we get status-update calls. The vendor doesn't just communicate with our senior management; they sometimes report directly to the IT department and other normal workers. We see Care Logistics' people working with nurse managers to improve the efficiency of a unit or helping the organization with strategy.

Central Logic

We have always had a great working relationship with Central Logic. Although Central Logic is growing and is reaching out, they are still owned by their founders. I think that has been huge. The founders have visited us to see how we are doing. I could call up any of the founders right now and get a response. Central Logic is responsive, and they aren't owned by a big corporation, and those things make a big difference in partnerships and relationships.

Central Logic listens, and they work with us. They help us learn, and they work to make their product better and to make it work for us. They teach us ways of using the product that enhance the work that our nurses do.

Transfer Center has made us faster and more efficient in how we take our calls, so each nurse takes a larger volume of calls. We are able to gather data more quickly to make reports and look at our business model. We have become a data center for our entire organization because of how much data we capture. We can look at financials or business development opportunities. We can look at risk management and resolve quality issues. We can see what is really happening. We have the data to see that Transfer Center was worth the money.

Central Logic has been a contributor in terms of providing the software. There was a partnership around the physician-scheduling tool that Central Logic was planning to develop with us, but that didn't materialize. So they have really just provided software.

Cerner

Implementing a command center was both our idea and Cerner's idea, but Cerner gave us suggestions during the process. We are a large organization with many hospitals, though, so we weren't doing this for an individual hospital. We had to take what was available, even if it didn't fit our workflow. We knew what the solution would be capable of in the future, so we built it based on small goals.

We do wish Cerner's system had better reporting, especially for some of the analytics we are doing. We have been trying to facilitate building new departments and hiring and training new people, so we haven't had adequate time to analyze our progress. Cerner and other vendors have offered to help, but it is hard to focus on that when we are buried in our own work.

We are trying to figure out how the command center works, and we don't know how well our department is helping, but things are going well. We can monitor things from the ED, and we have

definitely seen trends. Our department is one of the top departments in our organization; we are moving higher volumes of patients at lower time frames through the system, and we are still hoping to improve. We should be able to automate some of our transportation.

Cerner has done a great job of partnering with us and helping with our growth. They give us a bit of extra attention; we use their products and try them out before they are put into production. We are passionate about Cerner's products. We are always invited to events where Cerner shows off new products, and that is nice.

We can reach out to Cerner directly, but we are encouraged to reach out to our corporate level to contact Cerner, but sometimes our messages are communicated poorly, and sometimes our tickets are rerouted. It is nice to have a contact person who can give us directions.

Cerner's software has definitely been integral to our command center. We couldn't do anything without it. However, troubleshooting has been difficult because we have to jump through a lot of hoops with technicians and re-explain things. We sometimes find out that the technicians we work with don't know about clinical problems, and that is very frustrating. There are communication barriers with Cerner's support.

Cerner has contributed to our success with the capacity-management solution. Cerner has also helped with bed tracking, EVS, and transport triage. We are probably using the Cerner system in a different way than most places. We are leveraging some of the comment sections, and we are looking at building some unique drop-down options. We have a lot of small tasks that we want to change in the command center, and Cerner is looking to step in and help with those tasks. Cerner wants to help us figure out how to change the build so that it fits our needs. We are doing things differently than anybody else has done things. Cerner wants to help, and they want to be in this space. They are watching, waiting, learning, and being as supportive as they can be so that as we are more and more successful, they can replicate that success in other locations. Cerner wasn't involved in designing the architecture for our building or anything else like that.

Cerner has been very involved in helping us succeed. We had monthly web meetings, and we met more often at the beginning. We met every week before the go-live. Cerner has also done sit visits and logged our requests and issues.

There are some requests that are all-or-nothing requests that haven't been done yet, but Cerner has been assisting us. We struggled to get support from them with understanding the reports. We didn't have an in-person tutorial for the reports. Cerner gave us links and videos and told us that it didn't seem productive to give us an in-person session because some things wouldn't make sense yet. Now that we have been live for a few months, I understand what they mean. The online videos and tutorials are efficient after we have been learning the system for months.

Change Healthcare

How much Change Healthcare has contributed to our success has yet to be determined. They haven't helped us with much, but we have their predictive analytics software. We asked Change Healthcare's leaders to see whether they could integrate data in a way that is meaningful for gaining traction, but they haven't been able to do that. We have done the integration and many other things on our own.

The Change Healthcare system has given us visibility, but that has only happened in a couple of our hospitals. We don't have the system across all our hospitals, so there hasn't been a lot

of involvement. Change Healthcare is working with another vendor to try to help us do certain things. Change Healthcare has been a little more engaged the past few years. We are working with them.

Up until the last couple of years, I have been very disappointed with our relationship with Change Healthcare. We had a sales representative who was very kind but did not pay attention to us. The sales representative didn't push us to new levels or help us learn how to use the system better. We looked into other vendors' solutions and actually purchased a different software because we thought the other vendor would give us a better product. But in recent years, Change Healthcare has come back to the table.

Change Healthcare is absolutely driving the strategy and development. They have been a really good partner for optimizing our use of McKesson Performance Visibility. We are using that measurement just as a bed board to show where patients are. We don't use the automation or different icons that are available. But Change Healthcare has helped us build integration with our EMR; the integration used to be nonexistent. Change Healthcare has really helped us to get McKesson Performance Visibility to work more for us.

Change Healthcare created an extensive compilation of recommendations for improvement after they observed our hospital for a few days. They prioritized the list based on things we can do on our own and implement immediately, things that may require their help, and things that definitely require their help. Change Healthcare also connected us to some of their betterperforming facilities. They have been a good partner, especially over the last year. Before then, we didn't look to them, and they didn't look to us. But our relationship with them has improved. We were thinking about switching; that might have been the impetus for Change Healthcare to start helping more.

Epic

Epic is doing some strategizing with us. They have demonstrated a few things for us and have asked for our feedback. One of Epic's strengths is their inclination to seek feedback so that they can understand whether the things that they are creating are going to be useful to end users. If a development doesn't work for us or for the hospital workflow, we won't use that development. Epic has been really good about asking for feedback, and we have been able to share things with them that help them understand why it is critically important that we know and have access to certain things. They have been very responsive to our feedback.

Epic was fabulous throughout the implementation. They were on-site. We took a guess on what components we might need for the implementation and put several teams into one room; we definitely got some things right, but we definitely had some misses. Certain people needed a line of sight into different things. Epic was able to build additional components with us, and they made sure that we had all the data that our teams needed. Epic has been a fabulous partner.

Predictive-analytics functionality is by far the top thing that we wish were already developed. We wish that we would have implemented that functionality early on, and we wish we had pushed for that functionality to be delivered more quickly.

Epic has helped us by providing us with integration between all of the modules, with visibility into where our bottlenecks are, and with integration between the medical records for facilities across our region. All of our hospitals can see the documentation for the patients that they are trying to serve. That is the biggest success.

We had a visit from Epic's Grand Central team, and the team members really helped us take an intensive look into our processes and how we were using the tool. They then provided us with feedback on how we could improve, and that was beneficial.

Epic is a very large company with a lot of resources. They did a wonderful job at having multiple breakout sessions with us to understand our needs regarding the command center. We like the product because of its integration with our bed-placement workflow and our other software. The workflow is seamless, and we don't have to document in two systems. That is an immeasurable gain for operations.

We had a lot of buy-in with our adoption of Epic's solution. We met with Epic regularly for months to build it, and we would go back and forth to engineer the solution. They added things to their tool when we raised some concerns; Epic found our feedback very helpful. It was good seeing that level of engagement from Epic, and we know that Epic has showed the build they developed with us to other organizations.

The transfer-center module for Epic's system was the core piece that we built our command center around. We used it because we have been using Epic's EMR for several years, and we use their bedplacement piece. Our transfer center was managed by our care-management people, so it was a natural fit to combine it with bed placement. We didn't have software to enable us to do that, though. Other institutions had cobbled together their own software, but that software wasn't an official transfer-center module. That piece has been the core of our patient logistics. We use it for external hospital transfers and internal bed flow and placement.

We have a liaison from Epic. I don't know how much our crew is working to tweak the Epic system's format. It seems like the functionality in the system can be a little clunky, and some of the basic things we have asked for have not been possible. I would be hard pressed to discuss how Epic has contributed to our success.

GE Healthcare

GE did all the initial consulting work with us, and then they built the command center with us. Their Wall of Analytics is technically a GE product because they found all the data for the interfaces our IT team built. GE decided what data needed to be projected to meet our needs, and they built screens for that. This was truly a joint product between us and GE. They did all the very technical and complex work on the simulation model, and we use it on a regular basis to pose questions about outcomes. It gives us very accurate answers.

GE has certainly helped manage some of the process-improvement initiatives; they can really identify where the issues are. GE created a capacity framework for us and looked at what our needs would be if we continued our current growth. That led to looking at where we need to focus in terms of measuring, monitoring, and ensuring that the command center can provide oversight to changes. GE was very good in the change-management process. They certainly have expertise with pulling in disparate systems and mining data to pull in real time.

GE has been helpful overall. We have a good relationship with them so far. They have been very helpful at putting in the Wall of Analytics to make things transparent, actionable, and easy to understand. GE also helped us engineer the IT component of the solution because we didn't have the expertise for it. We tried to do similar things with our internal EMR team for the dashboard, but it didn't work. GE has also helped us with project management; they have a full-time project manager for our tiles and problems with the tiles. The piece that has been really helpful is having someone dedicated to this work who can pull in people to a central team and make things happen quickly.

We came up with different roles and redesigned some roles for day-to-day management with the help of GE and other GE clients. We do most of that internally, but GE helps with our big projects and our project development. They helped us define better roles, and they helped us define how we interact with the tiles in our system.

We use GE's Wall of Analytics in our space; it includes several large, high-definition monitors with software for arranging tiles. We don't use some tiles as much anymore, and we can arrange the tiles to be smaller or larger. The tiles are also available on desktops and mobile devices.

GE provides software and works with us to evolve our project. Our frontline teams and leaders can design tiles or solutions. We can customize the software, but we need IT feeds to pull data into the tiles from our IT department. That has been a big project for our IT department, and it has taken a lot of work. GE doesn't have a novel or original data solution. Their system just pulls data from existing sources. We have to build a separate workflow for the sepsis tile, and we have to change some things in the EMR.

When GE first came here, they did a quick discovery project. That was very helpful. They collected all our data and analyzed it to find patterns and different ways that people are admitted to the hospital. They helped streamline things. GE then created a digital simulation model of all the information they collected, and they ran the simulation to see the impact of moving particular services to different sites. We used that simulation quite a bit initially to figure out where to focus. GE has the analytics to quickly give us information, and that was very helpful at the beginning of our project.

TeleTracking

We can build dashboards in TeleTracking's system, but that is both a positive and negative thing. Our current dashboards are a bit old, although they work great. We do want to change some things with the dashboards, but changing those can be an involved process. The dashboards are hard to change because we have to ask TeleTracking to change them for us. The analytics platform can help us, but everything we do costs money.

TeleTracking's people have been wonderful. We can call them and tell them that we don't need to track certain things or that we want to track certain things, and they help us. We can call and ask for their help to write reports. Our IT department can take care of many things, but we are still working on the data we get from our many users. We want to make sure everyone gets the data they need to do their daily activities, and we want data that helps us meet or exceed our goals. We are working with our supply department because they want RTLS; we are creating reports to help them monitor their needs and any improvements we can make. TeleTracking's people have been very willing to help with that.

We haven't always been fans of TeleTracking's analytics side; the people are very good, but we don't like the platform. We hope their new platform will be more helpful. They have a custom-reporting solution, but it is very difficult to use unless we utilize it every day and get used to the report-building process. It isn't easy to learn. We have to pull up the manual every time we use the platform, and that means it is too hard to use.

TeleTracking has done gap analysis for us. We had their system, but we weren't using it to the best of its ability. We weren't using it how it should be used in a centralized command center. TeleTracking gave us many things that we needed to work on. We implemented those things with their help and got everything up and running for our patient logistics center and command center. After we worked through things, everything was working great. We decided we were ready to take things to the next level, so TeleTracking did another gap analysis for us. They came back with more recommendations for us to implement.

TeleTracking has worked with us by doing classes for our core members. They help us with some of the strategy in different areas that we really want to focus on. TeleTracking's resources are amazing. They are always here to help us anytime we need help. We can tell that they focus on the patients just like we do.

I talk to somebody from TeleTracking almost every day. I can talk to them about something we need or something we are doing. I can ask about how we are doing. Our client success manager is always available to help us look at our data if we can't understand what we are looking at or how we can set up additional data to help drive processes. TeleTracking is really good at collaborating with us.

The biggest thing that TeleTracking does is that they listen to us. We have done a lot of things that other people have never done. We call TeleTracking and tell them what we want to happen. They have worked with us to figure out how to do customized requests. We have been able to remove delays when moving patients. TeleTracking is more than willing to try new things.

TeleTracking is a good partner because they try to do new things for us. Things don't always work out the way we think they should, but we work through the problems with TeleTracking. That has really contributed to our success. They are more than willing to work with us on anything that we want to try out.

We work with TeleTracking pretty closely. We see them frequently because we do a lot of work with them developing models. TeleTracking has a great product. I have no idea what the cost is, but we get the data we need, and we can predict patient flow. The system is invaluable.

We have a variety of electronic tools in the command center, and the TeleTracking tool is one. It is specific to patient and bed tracking.

What advice would you give other organizations just starting with a command center?

Care Logistics

Having a care-coordination department and a tool for care coordination is excellent for any hospital. Unfortunately, we took away our clinical leaders and assistant nurse managers during our implementation and changed them to care coordinators. Those people didn't have risk-management backgrounds, and we had no clinical leads for our new nurses. That was one of the problems with our implementation. It is important to have clinical leads, case managers, and discharge planners in each unit.

With the command center, it takes a lot of time to look at our workflows. We have several standard operating procedures that have multiple pages, and Care Logistics helped us with those. Organizations need to go through and look at their workflows to ensure that they know what is affecting what. We have a council for workflow governance. If someone wants to change something, the whole council looks to see how that change might affect things. The council helps break down the silos. Organizations need to have all parties involved and working through the issues. Everyone works a little differently, so providers need to listen to the voices of all people. Creating a command center is a massive undertaking. The Care Logistics solution won't solve all problems, but it will make problems easier to see.

Based on our experience, I think it is important to change processes and workflows first and then have the software support those changes. That concept is the most attractive thing about working with Care Logistics. Their process is an 18-month project, but it all starts with process changes and things that don't have anything to do with what the software can and can't do. I have always been frustrated with healthcare IT vendors because they are driven by what their programmers think should happen instead of working on the workflows and providing software that supports the workflows. Working with Care Logistics was my first experience with having my complex workflow be supported by a software solution. I don't feel like our process is being driven by the software.

Our advice to an organization that is going to use Care Logistics' system is to have patience with it. People sometimes think they will see an instantaneous return on their investment, but they need to wait and work through the process design. They need to let the data guide their journey with the system. They can't expect to see those outcomes immediately, and they can't change course drastically if they don't immediately see results. Organizations need to stick with their plans and remember that the outcomes will happen in time.

Our advice to organizations that are starting to use Care Logistics' software is to be ready for all the information they will be getting. They might feel overwhelmed with the data, and they will have to relearn how to manage information in their organization in order to make it usable and to stick with the new processes. They need to validate their actual progress.

Central Logic

Unless an organization is already using the proper tools, the organization needs to start with a good, firm foundation to be successful. A lot of people want to set up a cheap model to see if it is effective before spending more money later. If the model is built properly from the beginning with the right tools, there will be less problems moving forward. We did that and became more effective. There isn't a better tool out there than Transfer Center paired with a call recording system.

Organizations should consider all the integration points they need ahead of time and ensure that the vendor will be able to support all those integration points. If an organization is planning to do something in a few years, it would be good to check with the vendor at the beginning of the project to ensure they can support everything. It is also good to be aware of how physician data will be updated and managed because that is somewhat of a manual process. Organizations should work out with their vendors how that information will be updated.

Cerner

We would recommend that organizations starting their command centers do a site visit. They should see a functional command center to decide what they want to get out of it and offer room for expansion. Organizations need to really assess the space they will utilize for accommodating multiple people; that is one of our challenges.

One person should not be doing everything for the command center. Organizations need multiple people playing multiple roles to provide more accountability. The goal is to work together. Organizations need to figure out how to budget for the command center and what the space will look like. That is too much for a single person to handle alone.

Providers should know their data-set sources and their workflows so that they can see where the pain points and opportunities are. Providers need to know who oversees which piece of work and whether certain pieces of work could be moved to the command center. If a piece is moved to the hub, providers need to know what they will gain in time, efficiency, safety, or customer experience. If providers don't know these things, then they don't know where to focus. They also can't look back at the end of a small test to see whether it is the right direction to take.

Sometimes, people go into these projects without having an area expert or without doing things in a methodical way. Providers need to have phased plans. They need to determine what the most important thing is and do that first. In some organizations, it might be important to synergize the work first because maybe they have to build things. For us, it was a blessing that we had a specific date that we had to move by.

If an organization knows that they have a tremendous OR schedule and service line that they can't support, then that is what they need to fix. If the OR is at 105% capacity some days and is empty other days, providers need to focus on that. In any case, providers need to know where their problems lie before they start a command center. They shouldn't go into that set up hoping to figure out where their problems are.

I would recommend having a group of people to answer questions for about three weeks after Cerner's team leaves so that the people running things don't get bombarded with calls.

We focused on what the staff members on our teams would need to know to submit requests or put in transfers or transport requests, but we didn't really teach people what it looks like on the other side. People can't help each other out and have to call our transfer center when there is a problem because they aren't trained on how everything works together. I would recommend doing a well-rounded training that allows people to correct their own mistakes.

Change Healthcare

It may be a bit of a cliché, but organizations need to start with their why. They need to think about why they want a command center and what they want to do with it. They need to know what

they are going to gain with a centralized model. I see so many healthcare organizations doing things because they sound cool or because some other organization is doing them. Our previous COO started our command center for those reasons, so we didn't really start by looking at what problems we would fix with a command center.

We are kind of backed into a corner with how we can use Change Healthcare's solution. We thought it looked really cool when we saw the demo. We have kind of evolved and had to fit what we want to do to the software. I would recommend that people start with their problems and search long and hard to find a solution. If Change Healthcare's products enable people to solve the problems that they already have, the products would be the ideal solutions to pursue.

One of the most impactful things we have done is involve the transfer-service people in the system build and workflow design. It has been very helpful to have those people on the team helped guide us when it came to figuring out what insurance was and wasn't in network. We have a great partnership with the physician who helps manage physicians' expectations with the system. That partnership has been very impactful. Our organization is big, and we have a lot of physicians. Each physician has a separate agenda, and it is really nice to have a physician who can tell us how our organization wants physicians to act on the phone and transfer nurses. That physician tells us what we need to do. Having impact is really about having great partnerships and, of course, having the software.

Whether looking at TeleTracking systems or McKesson Performance Visibility, I have looked at half a dozen or more command centers, and people keep things too narrow. More can be done with command centers; it isn't just a bed control on steroids. More utilization could be done to prevent unnecessary utilization. Johns Hopkins is on track with that, and they might be better now at facilitating between their hospitals. The best system I know of is a hospital in Florida that uses TeleTracking. We are trying to model after that hospital even though they use TeleTracking. The software is less important than the system's build. The key is to keep looking at facilities until a good one is found. There are enough facilities, and we can see which ones are doing well and which ones aren't. We have seen a lot that aren't doing well; they are spending a lot of money and getting nothing.

We are taking more of an academic approach. We aren't spending a lot of money on our command center. We are already looking at our command center as a first version so that we can learn what we can until we invest more in our second center. Right now, we are mainly focusing on one hospital, but we imagine that over the years the command center will absorb the other hospitals. From what we have seen, that is the best practice. Johns Hopkins didn't do that, and it was crazy that they spent so much money on their Wall of Analytics with only their main hospital. That was impressive, in a way, but they can do so much more.

Epic

It is important to have the right people in the room and the right information for those people to respond to. For us, facilitated huddles have been beneficial in driving the right conversations and in making sure that people don't make assumptions about other people's data. When people from different departments are pulled out of their departments and put in a room together, the organization has to be sensitive as they work to build and support a new team out of those people.

Having a command center is not a magic potion that solves all capacity problems. Organizations shouldn't invest millions of dollars to build a command center in the hopes that it will solve all

the capacity problems; that won't work. The command center is a tool, but it is a heavy lift. A command center builds bridges between people that need to work more closely together. The reward and return are there, but implementing a command center isn't like simply going out and buying a box of cereal.

A command center is a venue for addressing pain points and barriers that different groups struggle with on a daily basis. We are fortunate to have a really strong patient flow team and clinical-redesign team that are able to help us dive into specific situations and help us find more permanent, effective, and efficient solutions. The command center is great for identifying where issues are, but there needs to be a way to solve those issues in a standardized, sustainable way.

I think the biggest thing is to make sure that the command-center team includes everyone or at least the key people who touch patient flow, including people from bed management, nurse staffing, EVS, transport, and care coordination. The other thing is provider presence. We have a hospitalist of the day who oversees admissions, transfers, and discharges. That person sits with the command center people, so the communication between all of the teams is happening in real time.

We would suggest that organizations focus on choosing a product that works with their EMR; they should avoid using two different EMRs or systems that don't communicate because users will have to double document. That makes things unbelievably difficult. It is very helpful having a fully integrated system that provides clean reporting out of the box.

It is key that organizations think of the hub as a learning lab. The hub doesn't have to be perfect, so organizations shouldn't overthink things. They can just tweak the hub along the way. It is amazing how much information we have gained as we have gone through the process. It is important for organizations to remember that they will keep learning, growing, and changing.

It is important that everyone is at the same geographic location. No matter how much communication there is, when we are not right there looking people in the eyes, then they make knucklehead mistakes. When we are all together and are all looking at the same information, we are hopeful that we will get different results.

GE Healthcare

A command center can provide multiple functions. We advise people to come see our command center and then think carefully about what they want to accomplish. They need to think about their strategies for the command center.

The investment up front is probably the biggest aspect, and I wouldn't go live with a command center without operating procedures firmly set. Those need to be laid out, and everyone needs to be signed off on what will happen. A lot of hospitals struggle because they haven't thought about how their operating procedures will go once they have information. It is also important to walk the walk of the staff, so to speak, and to really understand the flow of what is happening. We all have an idea of how things are done, but everyone operates differently. It is important to really understand the issue that is getting resolved and to do a deep dive into that workflow and process both electronically and physically.

We would advise potential GE customers to focus on problems they want to solve by using a centralized approach. GE's command center is a significant investment because it requires a lot of IT and engineering labor. Their project management is also expensive. Organizations should

have a good solution in mind for problems they are trying to solve. Working with GE is definitely very helpful, but their solutions aren't cheap. We are fortunate to have a very positive ROI with our transfers.

GE's command center was the right solution for us, but we wouldn't need that complex of a solution just for bed visibility. We were trying to improve complex processes, so we needed a partner to help us. We would have gone with a different vendor if we just wanted to see bed capacity. There are fewer software options as the processes and problems become more complex. It makes sense for academic medical centers and large, multifacility organizations to partner with GE for their command center because there is a lot of bureaucracy, and they have complex problems. Community hospitals don't need the level of sophistication that GE's command center brings.

TeleTracking

The big thing we tell other organizations when they come to visit is to be judicious and careful with the functionality they want in their command centers. Something like NASA's space station can be overwhelming to employees who have to work with the screens eight hours each day. Organizations should make sure all the command-center people work together. Everyone should be working toward the same goal, which is to get patients through the system. The system gets bogged down when people are placed in random areas because there is room. Our command center here is quiet because people use the technology and try to stay off their phones. We have multiple groups that work together on patient outcomes, and that is how it should be. The groups don't need big screens on the wall; people just use their desktops.

People get intimidated when thinking about a centralized command center because of how big it will be or how expensive it will be. There is a lot that goes into it, but a good partner, like TeleTracking, can help an organization set up a command center that covers a lot of beds without being huge. Our command center wasn't extremely costly. Command centers don't have to be something that looks like NASA to work well. They can work on a much smaller scale to benefit the organization, and they can be set up without as many costs or bells and whistles. Bringing people together and centralizing things helps gather the knowledge to make a huge difference in patient flow.

Both our organization and TeleTracking have realized that there needs to be more of an emphasis on education. In healthcare, there is staff turnover, and we didn't think about that when implementing our command center. We now have an educator. We can't implement something and expect things to stay at the status quo in a changing environment like healthcare. We need an educator to make sure we are keeping everybody abreast of all the changes and new things that we are doing. TeleTracking has learned the same lesson from us and from other clients, but they could have done more for us in that area at the start.

My advice would depend on what an organization's goals are. TeleTracking can help single hospitals. But there is more to command centers than just developing a TeleTracking system. In terms of bed placement, I am not sure how hospitals would do without a product like the TeleTracking system for bed placement. And things get a lot more complicated when developing a command center.

There are a lot of hurdles with implementing a command center. The process is complicated, and a lot of teamwork is needed internally. The vendor side is easy because there is just a lot of data gathering. Change is easier on the outside than the inside.

The command center is all about communication. The hospital systems are so siloed, and everything within them is siloed. The case management system doesn't talk to the physician system, which doesn't talk to the nursing system. And the EVS system doesn't talk to the transport system. The command center has put eyes on the entire organization. The command center has a communication tool that speaks to everyone, and it has helped people to be accountable around strategic goals. It has helped everyone understand that everyone's work impacts everybody else's work. We are all in the same boat rowing in the same direction. When something happened at one of our clinics, we were able to talk to someone at the clinic and give that person direction. And we could watch that person on a security camera.

Additional comments

Care Logistics

We use Care Logistics' system to get a common picture of our hospital in just a few minutes. We can look at several different screens in our physical command center and know the exact status of our organization; we can see where we are busy, where we aren't busy, where we are assuming risk, where we have flow issues, and where we have opportunities for efficiency. We can pull data reports from the software to get a fine level of detail and understanding about the whole organization.

Central Logic

I would not go with another product, and I wouldn't want to deal with another vendor. I stay with Central Logic for their customer service, and Transfer Center never goes down. If there are ever any issues, we have a phone number that we can call to ask what is going on. The problems get fixed instantly. The responsiveness of Central Logic is amazing. They automatically work with us if we want to try something or if something isn't working. They create the software to make the system work for us. Pulling data and doing reports is very easy with the system. There are embedded programs that just pull the data for us and help us integrate and export all of the data.

Central Logic has executives that check in on us constantly to make sure we have everything we need. I can't say enough good things about the company. We are glad to have Central Logic as a partner.

Cerner

Our clinical operations team is separated into departments for bed control, transfers, staffing, transportation, nurse calls, safety attendants, and discharge calls. Our goal is to increase transparency among those departments. We have seen a culture change with proactive patient care in our facility since we started using our command center. We always know the beds our patients will be in, and we have used our command center to communicate that information. That helps us increase our productivity and efficiency.

The birth ID functionality in Cerner's CareAware software is great. It is really important that we have a facility-wide view of our occupancy capacity, especially from the command-center perspective. We can see what is available and respond quickly.

Using CareAware has improved our relationship with Cerner. We have built trust between our facility and the vendor. We used to encourage people to get into Cerner's Capacity Management solution when they didn't have beds so that we could improve their view. We would look at whether a lack of beds meant we had staffing issues or whether we were really out of space. We have been able to work with many teams, and that has really benefited our facility.

Cerner does keep their promises to our facility. Sometimes it takes some follow through on our part, but Cerner keeps us informed about anything new.

It takes a while to get someone at Cerner who knows how to help us when we call in. We can troubleshoot things ourselves, but we still sometimes need Cerner's help, and we have to go through several support people who need multiple explanations.

Cerner's CareAware software does drive tangible outcomes for us, but it takes a lot of filtering.

We hope our satisfaction with CareAware will increase next year. We often provide feedback and suggestions to Cerner, but it takes time to formulate those ideas. Things will be better in the future because Cerner is making a lot of enhancements.

Different teams are run by different people. I have a partner on the EMS side. I have the battalion chief manager over the dispatchers and a nurse leader for the helicopter team. There is a coordinator for the nurses who are out on the specialty-care trucks. There are battalion chiefs who have three or four platoons of crews that are out in the trucks.

All the supervisors are in the same building. There are teams that are not in the command center because we just don't have enough space yet. The nursing supervisors are located at the campuses. They obviously can't be off-site, but they report through me. The staffing clerks are also still located at the campuses. We don't have the depth of clerical support to be doing the 24/7 staffing-clerk role, but we are envisioning doing that.

We triage the EVS dispatch, but the EVS department has their own leadership and their own teams. Those teams are at the campuses. But the command center handles the triage of which bed needs to be cleaned next. The patient flow people go right into the job queue and change what bed needs to be cleaned next and what bed needs to be staffed. The EVS people take their priorities from the logistics team about what beds to go clean next instead of listening to the nurse standing in front of them and asking them to clean a different bed. We did away with that. Now, the bed triage comes through the central command center.

We had a blizzard so bad that the roads were shut down. The winds were so fierce that our EMS crews had to come off the road because they were in jeopardy. Having that information and knowing what we could and could not move was integral. Receiving that information and being able to talk about it at a command center is entirely different than getting the information over the phone.

The only change in our governance structure was that the locus of control moved from the executive leadership to the patient flow department. In the past, everyone was running around deciding how they were going to solve the problem. Now, people are standing back, and letting the patient flow department make all of the decisions. People are no longer asking 52 stupid questions that delay our decisions, and they aren't wasting time solving a problem that we solved four hours ago. One entity in the organization has to be the trusted source of truth. That is key.

We created a position for a director of patient flow and logistics. All the other teams are still run by their supervisors, but at the end of the day, the responsibility for making the process is smooth comes down to this director's team. It is all about trust and who is driving the bus.

My vision was to move to a command-center model. This was not a strategic goal of the executive leaders, but it was my intent. The emergency medical services team, our 911 dispatch team, our transport ambulance team, and our helicopter dispatch team were moved to one building. We have been able to develop energy for the command-center model over the last two years.

Our logistics center is evolving, and it is, in essence, a patient flow system. We use our Cerner EMR for capacity management. We have a patient flow coordinator and patient placement coordinator. Our EVS lead is also connected to our logistics center, but things aren't functioning the way we originally envisioned that they would.

Ideally, we have people for care management, EVS, patient placement, and transport in the logistics center. We focused on having someone moving all the care coordination information, transfers, admissions, and discharges, but we are moving away from that concept. We are remodeling how we have things set up. Instead of having one location for all those people, we can save money by having some people integrate with the others from their current locations. We won't have to spend a lot of money to relocate them all. We have one person at the logistics center who coordinates everything, and the other staff members are at their usual locations.

Change Healthcare

Our command center has a patient flow team as well as teams for EVS and case management. We have direct connections and access to the information from custodial services. Our bed software is also fully integrated with the EVS department, so we can see when a room has been cleaned after the patient has been discharged. My team electronically prioritizes which things should be cleaned, so we can assign people to clean anything that has a future patient assigned to it. The EVS staff members can align with our priorities and know which rooms to clean first. We don't need to be sitting beside our EVS team because we have an electronic connection with them.

We don't have any long-term care facilities. We have clinics that are in the same footprint as our contact center. The transfer center team has its own area and its own scope. We have some other people for other functions that share the same phone system and technologies. The centralized scheduling for imaging has its own department that is under the same footprint.

We have centralized clinical scheduling. We route the calls for our affiliated clinics to a pool of schedulers who manage the scheduling for the clinics. We also have a function where patients can dial a nurse, so anyone can call in and get advice on where to go or what to do. The nursing triage line also does a lot of physician referral work. As patients are discharged from the EDs or our hospital, we can connect them with specialists. We also give the patients the number for the nurse line if they don't have a primary care physician. We can get the insurance information from the patients and connect them to the best providers for them.

The staff members at the transfer center and on the nursing triage line report directly to me. Our diagnostic scheduling is a function of our revenue cycle partner, R1 RCM. Our clinical schedulers are under our health system's group. There is some benefit to having all the teams run by one person, but we definitely need different pools of people. We can't cross train that many people in different functions and have them be very good.

Change Healthcare didn't help us much with our command center or with change management. As we have gone through the go-live and have integrated our processes with Change Healthcare's product, we have felt like Change Healthcare has still been learning how to use their product. They aren't prescriptive and just let things fall where they fall.

Only a handful of Change Healthcare's customers are using the capacity planning product. It is a very immature product, and Change Healthcare is still trying to find the niche for it. They talk a lot about planning groups as the developers and technical people get going. We finally had a meeting with one of the leaders. The light came on for Change Healthcare when they realized that the planning groups weren't what we wanted. There was no good reason to do them. Change Healthcare doesn't steer the way the product is built very well. They don't know what to recommend to start out with or what people should use after becoming experts on the system. They give us a list of a million things that the system does and hope that we ask them about some of them. The capacity planning system is very minimally used in the United States. Change Healthcare has people with the product in a bunch of places like Canada or New Zealand. The software is complicated enough that it is going to be a tough sell, and it will be tough to get more customers on board. The results that Change Healthcare has been getting so far have been impressive.

Change Healthcare is making some progress. A lot of their progress comes down to how they introduce the product and integrate it into the daily work. Their resources are extremely busy and have many priorities.

I am very critical of the Cerner product, but it is integrated with the ED and inpatient systems. The inpatient beds and EVS are all on the same system, so there isn't an interface or lag. I can look at a hospital with just a few clicks or look at different hospitals to analyze things. We can do so much with the system without needing any other packages or upgrades by utilizing what we already have and by building more cutting-edge processes.

Reverse transfers are something we need to start doing. We want to be able to look at our capacity in outlying facilities. We will have our ED patients sign a form allowing us to transfer them to beds most appropriate for their care. The beds may be at different facilities than the ones they first go to. We can use that process to decompress our big hospitals by sending the lower-priority patients to smaller hospitals to utilize empty beds. Those reverse transfers are something most bed management systems can do already. It can be done at a contact center without anything too fancy to do it. We just have to create the processes to do it.

We have a very modified command center that works for our organization. We manage the transfers for each hospital with the exception of pregnant patients, psych patients, and trauma patients. The system has the reporting structure of a bed management system for the two facilities that we use it in. Everything else is done in collaboration with other facilities through their structure. We usually deal with nursing supervisors.

Epic

Our health system is always growing; however, the health system isn't cohesive. We sort of partnered with many community hospitals that were floundering. When we first started doing that, all we did is slap our brand on those hospitals and support them financially. We haven't reached the point where we can move our patients into those hospitals. We have a one-way transaction at the moment. When the community hospitals' patients get too sick, they are sent to us. We have patients who could be seen elsewhere and are taking up beds that sicker patients need, but we can't send the patients who are less sick to the community hospitals.

GE Healthcare

We became serious about creating a transfer system when we started partnering with a couple other organizations. Our goal was to create a transfer system for transferring patients to hospitals and to improve our throughput and bed availability. Our inpatient capacity constraints were causing strains on our system. We were looking for a solution to solve the problem with our transfers and to help us use space more effectively. We looked at several options, but we decided to partner with GE because we toured a facility using their solutions, and GE offered the best combination of a transfer center and hospital integration.

Our center includes our overall program for system integration, transfers, and capacity, and it includes the physical space and tiles we developed with GE for several different roles. We

redesigned how everyone works together, and we included a transfer center, but that group isn't collocated yet. There was a significant cost to moving that center.

We facilitate all the transfers for our hospitals. Each hospital has its own internal bed assignments and patient throughput, so we don't manage how they all design their beds or put patients through their systems. Our program manages transfers. GE helps us with the transfers and with the daily operations in our large inpatient units. They help us assign beds, manage direct admissions, and coordinate departments' capacity challenges.

TeleTracking

We use the TeleTracking system for all of our bed placement. We use it to run our transfer center and to arrange our transports to take patients home or take them to different facilities. Our command center is a centralized place for patient logistics.

We partner with TeleTracking a fair amount of time. We have done a lot of different projects, and TeleTracking can come up with solutions every time we ask for them.

TeleTracking's support has been great. I have nothing but good things to say. Every time there is an issue, or every time I want something, TeleTracking has addressed the situation.

Our command center was built out of a sense that we had built a new tower. It cost us millions of dollars. During the time, CMS reimbursements and other things were changing. Then we realized that we had all that money to pay off while getting less reimbursement money. So we had to figure out a more cost-effective way of doing business. That is why we got everything out of silos, which are what exist in most hospital systems.