Analytics in the operating room: A world of potential waiting to be unlocked

Having made significant investments in electronic medical record systems, hospitals of all sizes are hoping to see returns in cost savings and improved outcomes based on the data analysis capabilities EMR has promised to bring. However, at a recent discussion with more than 20 hospital executives and physicians which was sponsored by GE Healthcare at the Becker's 5th Annual CEO + CFO Roundtable on Nov. 8, 2016, whether using EMR systems or not, many organizations lack the necessary resources to interpret data and are still searching for ways to derive meaningful insights from the data they may already have at their fingertips.

The discussion focused primarily on data in the operating room, as ORs present a solid opportunity to employ data analytics. This belief is based on the results of a 2014 study which revealed that ORs account for about 35 percent of total hospital costs and 60 percent of revenues with utilization at roughly 70 percent.

This focus on the periop environment as a starting point for data capture was applauded by group members. "Anesthesia is a data-rich environment," stated a business development director of an academic medical center currently focused on driving performance. He said his current system of tracking anesthesia data on an iPad offers insight into opportunities for OR improvements.

Also, a participant from a larger academic medical center (AMC) stated his hospital is already reaping the benefits of real-time data in the OR setting. This AMC in Illinois has 30 ORs on one floor with a "command center" to keep track of the status of all patients before, during and after surgery.

"It's been amazingly helpful," said the executive vice president and COO of the Illinois AMC, noting the command center helps cut down on delays and makes communication easier. He did state, however, that the data collection system cost a few million dollars on top of the building to build out, hinting at the importance of staying on top of data analytics to see a solid return on investment.

Of course, not all hospitals or ambulatory surgery centers have the resources to implement a "command center", as many facilities are still using old-school methods to track data.

"There is still a large percentage [of hospitals] that are using pen and paper in the OR," said the chief development officer of an anesthesia management company. The company works in roughly 190 different hospital and ASC facilities. "[There's a] transition to IT but in some ways, it's slow-going. There [are] still alot of ORs with paper."

Hurdles of capitalizing on captured data

Whether hospitals are tracking data with paper or with EMR systems, discussion group participants indicated that the method of tracking wasn't as critical as the roadblocks to getting the most out of the data available.

"It's hard to get useful data out of an EMR. Hard to pull out data and hard to fund resources to manage data internally," stated

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"Anesthesia is a data-rich environment,"

- **Business development director of an academic medical center currently focused on driving performance**

Hospital data collection systems can cost +$1 million on top of the building costs, hinting at the importance of staying on top of data analytics to see a solid ROI.

+1Million

Many customers are not getting the most out of their current data analytics efforts. Once barriers to the analysis are unlocked, customers see the potential as tremendous.

Future of data is predictive analytics. Cited as key to driving OR efficiency, block scheduling and figuring out how to deploy resources.

the CEO of a smaller North Dakota hospital system. He felt that in its current state, data analysis takes too much manpower for a small facility.

The CEO of an independent hospital in New Mexico agreed, stating that his main problem is recruiting and retaining a quality data analyst who can inform action plans based on the available information. "Even bench" in terms of who is available to crunch the numbers and analyze the data.

While vendors like GE Healthcare that are focused on driving data analytics in the OR can't solve the "number cruncher" shortage, according to discussion participants there are things vendors can do to help a facility ensure data gets used. A vice president of an AMC focused on strategy stated she felt user interfaces for data tools must be easy and intuitive. "Make the experience akin to consumer tools," she said.

The COO of another large AMC agreed. "Vendors like GE need to develop out-of-the-box solutions that are simple to implement," he said. He stressed the use of intuitive dashboards to view data and creating apps that are as easy to use as smartphone apps. Other participants expressed wanting a vendor to partner with that could provide analysis and other solutions for them. One participant, the CEO of a surgical hospital in Nebraska, expressed a want for vendors to have some skin in the game when it comes to the success of data analytics. "Selling widgets without risk doesn't work," he said. "Some type of risk arrangement with vendors where both win is going to be the model."

Where can data analytics lead?

Although participants agreed that while currently most of them weren't getting the most out of their data analytics efforts, the potential for where the efforts can lead is tremendous. They saw great value in extending connectivity outside of the OR. "Data cannot just be focused on OR. It must be broader to support transition to bundled payments [outpatient bundles]," said a vice president of public payer strategy for a large southern healthcare system. She emphasized making sure to focus on how data translates to better outcomes and reduced cost in 90-day episodes.

This type of seamless connectivity from machine to machine and space to space is still an issue in the medical environment, according to a professor of anesthesiology and periop medicine at an academic research facility. "No good single solution exists that pulls it all together," he said.

Extending connectivity beyond the OR was also emphasized by the CEO of an anesthesiology professional association. He recommended using data analytics to manage the whole periop space across different surgical lines as a key to unlocking management and cost pressure opportunities. He reinforced that partnering with vendors like GE to extend the connectivity was essential.

And once this data connectivity across the hospital is established, where can it lead? According to the CEO of a healthcare consulting firm, hospitals need predictive analytics to succeed when it comes to effectively using data. He stated that predictive analytics was key to driving OR efficiency, block scheduling and figuring out how to deploy resources.

The focus on predictive analytics to drive outcomes was reinforced by the COO of the Illinois AMC currently seeing success with the use of their command center. He said that

Intelligent sensors and IT integration that help enhance productivity.
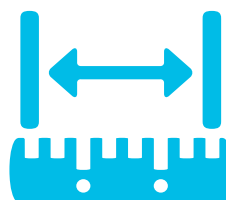
Data funneled into applications that help reveal insights.

Cloud-based analytics to help improve performance.

researchers at his facility have helped build an algorithm to help predict patients who might suffer from cardiac arrest in the next 24 hours and alert clinicians in advance.

GE Healthcare participants in the discussion relayed that they understood the participants' needs and hoped to lead the way in this new era of data with Carestation Insights, a solution that helps capture valuable data in the periop space and delivers ready-to-use visual analytics that can drive outcomes. Carestation Insights captures rich data from the anesthesia machine on a near breath-by-breath basis and stores this data in a GE Cloud. The data is then analyzed in the cloud using advanced algorithms and accessed by the customer via a web based dash board. The goal is to provide a tool for customers that requires minimal IT or human capital resources but reveals intuitive actions to improve outcomes.

Conclusion

The proliferation of EMR adoption in healthcare has enabled hospitals to access a growing volume of data, but now they seek guidance in using that data to drive real and measurable outcomes. Even hospitals that have the resources to create "command centers" to analyze data still struggle with the overall challenge of interpreting and transforming the data into real actionable insights. There are significant opportunities for medical manufacturers and EMR vendors to partner with health systems to deliver a real solution that allows facilities to understand and interpret the data they have and to extend this solution across all care areas.[1]

> Carestation Insights is GE Healthcare's solution that helps capture valuable data in the periop space and deliver ready-to-use visual analytics. It was designed to require minimal IT or human capital resources but reveal intuitive actions to improve outcomes.

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