Automated inventory management in the cardiac cath lab: The time is now

By Tamara Rosin

Eliminating waste is a principal goal for all hospitals and health systems. The Affordable Care Act spurred belt tightening among many healthcare organizations, prompting most to reduce waste while simultaneously improving the quality scores and financial metrics that impact reimbursement.

Managing the supply chain in the cardiac catheterization lab, which represents high-volume and high-value procedures, poses a significant opportunity for supporting triple aim initiatives around cost savings and quality improvement, but many organizations’ manual inventory management systems are preventing them from realizing such gains.

The need to improve inventory management solutions through automation and intelligence tools is clear amid the shift to value-based care. For many organizations, the cardiovascular suite has expanded to include other services that have traditionally been reserved to other departments, such as interventional radiology, electrophysiology, interventional neurovascular radiology and vascular and cardiac surgery. On top of this, it is becoming standard for the cath lab to perform increasingly complex procedures, such as transcatheter aortic valve replacement, renal denervation to treat drug-resistant hypertension or the implantation of cardiac assist devices.

“As more procedures move out of the operating room and into the cath lab, growing complexity will continue to fuel an increase in cath lab procedural volume and the need to carry a larger, more diverse inventory,” Ken Shastany, RN, MSN, a strategic solutions specialist with Dublin, Ohio-based Cardinal Health Inventory Management Solutions, said during a May 12 webinar sponsored by Cardinal Health and Becker’s Hospital Review.

Because cath labs contain high-dollar products, there is a growing imperative to find new ways to more effectively manage those items, including streamlining inventory, minimizing expired products and increasing charge capture. Mr. Shastany outlined key considerations for hospitals and health systems seeking to improve inventory management in the cath lab.

Changing the culture

Historically, clinicians rather than supply chain professionals have managed cath lab inventory. This was primarily intended to help maintain good relationships with physicians. However, physician preference items make up a significant portion of supply spend in the cath lab, meaning large purchasing decisions are often made to favor physician relationships over the need to drive financial improvement, according to Mr. Shastany.

This model may have worked in the past, but today’s cost pressures require a cultural change. Clinicians and supply chain professionals must work together to make purchases that enable the cath lab to lower costs while supporting patient safety initiatives at the same time.

To do this effectively, hospital leaders must remove five major barriers, Mr. Shastany explained.

1. Emotional stocking. “This is stocking products based on intuition rather than actual utilization based on clinical demand,” said Mr. Shastany. “Emotional stocking leads to overstocking driven by physician preferences and product variability.”

2. Manual processes. Nurses and techs report spending between 6 percent and 20 percent of their time searching for and gathering supplies, according to a 2010 Health Forum report. On top of that, labs without dedicated inventory management staff are tasked with inventory management. Overall, manual inventory management processes take clinicians’ time away from the patient, and human error — which is inevitable in any manual process — increases risk.

3. Charge capture inaccuracies. “This occurs when clinicians record product consumption manually, often by peeling off labels and placing them on ‘billing sheets,’ which make the charge capture a lower priority, thus opening the door to human error,” said Mr. Shastany.
4. **Expired, obsolete and recalled products.** Research shows between 10 percent and 15 percent of all hospital supplies expire before they are used. Cath labs could be wasting a significant amount of the supply budget on products that expire before they can be used. “Full visibility into your inventory can help you effectively and proactively track expired, obsolete and recalled products in your cath lab,” said Mr. Shastany. “Otherwise it can lead to patient safety issues, as well as unnecessary costs.”

5. **Consignment inventory.** This is the risk of carrying too much inventory and not stocking based on actual utilization. “The goal of effective inventory management isn’t to have the most of something you don’t need on your shelf, it’s really about having the proper amount of those items that match your actual usage, not your vendor’s hopes,” said Mr. Shastany. The strategy to avoid this dilemma is fact-based intelligence that right-sizes inventory.

**Automation and data analytics**

A growing number of health systems and their cath labs are finding supply chain automation and inventory management as effective solutions to the problems detailed above. Informed purchasing decisions empowered by data analytics enable systems to both cut costs and support quality improvement.

“The ideal solution must address the sheer scope and complexity of your supplies — and have the right inventory tool for the right inventory product,” said Mr. Shastany.

According to Mr. Shastany, demand signal systems such as 2-Bin Kanban or standalone inventory solutions such as barcoding are well-suited for low-value supplies, such as bandages or gauze. But when it comes to high-value items like physician preference items and implantables, solutions that use real-time data to track inventory levels and utilization are the most effective, such as radio-frequency identification technology cabinets and wands.

Cardinal Health offers RFID technology solutions designed around clinical workflows to drive operational excellence around the entire process of receiving, using and tracking supplies.

In an automated workflow, inventory management staff wave tagged items in front of a reader to register the tagged item into the system. Once the item is read, the unique ID on the RFID tag is linked to the product’s barcode information for the manufacturer, model, serial/lot and expiration date. Staff can then store the tagged items in a variety of Smart Cabinets with built-in readers that automatically count and record inventory every 30 minutes. Alternatively, the items can be stored on ordinary shelving, and materials staff can use a Smart Wand over the shelves periodically to “count” the inventory.

“Unlike a barcode reader, which must scan individual codes, our wand can count up to 75 separate tags simultaneously,” said Mr. Shastany.

The automated system conducts deep, granular analysis of the costs per case by physician, location and supplier to better inform future purchasing decisions. In addition, automation provides access to real-time data around on-hand inventory status and costs, age of inventory and predictive tools that identify which products are at risk of expiration in the future. As a result, inventory management teams will have better data to manage consignment, bulk purchases and rebate agreement compliance.

**A real-world success story: Florida Hospital Cardiovascular Institute**

Seven years ago, the Cardiovascular Institute at Florida Hospital in Orlando installed RFID inventory management in its cath lab suite in a pilot program when it opened the Ginsburg Tower, a 15-story cardiac tower that houses 440 patient beds.

The pilot’s goal was to achieve accurate and timely inventory data that would enable its electrophysiology lab to reduce its device and equipment inventory. The system ultimately reduced on-hand inventory and improved visibility — saving the hospital more than $150,000 over 90 days.

After the successful pilot in the EP lab, the RFID solution was then fully installed across the Ginsburg Tower. As a result of the integration, Florida Hospital is experiencing inventory optimization that has cut more than $5 million of expense to date, reduced billing errors and streamlined workflow for the front-end clinical staff.

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