



# NEXT-GENERATION HEALTHCARE INVENTORY MANAGEMENT

SAINT LUKE'S USES RFID TAGGING TO STREAMLINE INVENTORY MANAGEMENT, IMPROVE BILLING ACCURACY AND CUT COSTS



## SITUATION

**Saint Luke's Health System in Kansas City, Missouri, one of the premier heart care hospitals in the country, needed a next-generation inventory tracking and management system to enable them to continue providing the best care possible.**

In today's hospital environment, the number of procedures, medications and equipment a facility uses can seem almost limitless. Furthermore, cumbersome manual processes to manage the healthcare supply chain can affect budgets and impact delivery of care. Even though inventory management is of the utmost importance, most of the nurses and allied healthcare professionals involved in the process are not logistics professionals. Mindful of the challenge, Saint Luke's cardiovascular (CV) laboratory set out to find a system that would help better track supplies, monitor expiration dates of critical inventory, improve the proper billing of lab supplies and consumables, and reduce total on-hand inventory.

## SOLUTION

**Partnering with Cenbion Medical, RFID Global Solution, Coridian Technologies and Motorola Solutions, Saint Luke's implemented a completely integrated RFID-based inventory management system that combines RFID tags; Motorola RFID readers, RFID antennas and mobile computers; and Cenbion inventory management software.**

With this fully integrated system, compliance is automated and unobtrusive, allowing inventory to be actively tracked as it moves through doorways, hallways and other RFID-enabled portal locations. Through the implementation of this solution, the cardiovascular laboratory at Saint Luke's has everything it needs to increase efficiencies and improve operations.

## CUSTOMER PROFILE

### Company

- Saint Luke's Health System  
Kansas City, Missouri

### Solution

- Motorola
  - FX7400 RFID fixed readers
  - AN480 RFID antennas
  - MC70 mobile handheld computers
- Cenbion Medical inventory management software
- RFID Global Solution - Site design and installation services
- Coridian Technologies, Inc.
  - Tag supplier

### Benefits

- Automatic inventory tracking, from stockrooms to operating rooms to waste areas
- Improved inventory management helps prevent stock-outs, supply hoarding and inventory shrink
- Increased rates and accuracy of charge capture for supplies and equipment
- More accurate billing and ordering, leading to larger orders, bulk-discounts and bigger savings
- On-hand inventory reduction from a five to ten day supply (worth \$3.2M) to a two to three day supply (worth \$2.7M), a 15 percent reduction in total inventory value
- More efficient expiration date management and proactive removal of expired inventory

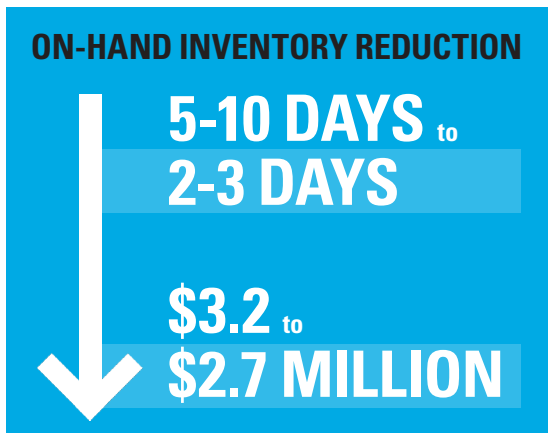
## CASE STUDY

SAINT LUKE'S HEALTH SYSTEM  
CARDIOVASCULAR LAB

## RESULT

**Saint Luke's has reduced on-hand inventory value significantly, representing a drop in inventory value from \$3.2 million to \$2.7 million. And that's just the beginning.**

The streamlined inventory management system allows Saint Luke's to purchase more supplies in bulk, which in turn results in bulk-purchasing discounts. Dave Strelow, director of Cardiovascular Lab Services at Saint Luke's, emphasizes just how large these savings can be. "Thanks to our new system, we were able to place a \$900,000 order of pacemakers and defibrillators. By knowing precisely what we needed and by placing a bulk order, we saved 12 percent of the total cost, equaling \$127,000 on that shipment alone," he says.



## MANAGING LOGISTICS WITHOUT LOGISTICS PERSONNEL

One of the biggest inventory management problems hospitals face is that many systems require nurses, technologists and other staff to manually scan barcodes and track items to ensure inventory is monitored accurately. Strelow explains the problems with this approach. "Hospitals don't have large logistics teams. In my department, I have one logistics person. Charges are captured by nurses and technologists, who need a seamless, user-friendly system that ensures accuracy without compromising their focus on patient care."

When inventory is not tracked properly, inefficiency and additional costs mount. Supplies get lost, shrinkage can go unchecked, stock-outs occur, critical equipment locations are uncertain, billing is inefficient since supplies are used without being associated to a patient's record, and on-hand inventory can balloon unnecessarily. All of this leads to inefficiency and additional costs.

## A COMPREHENSIVE, FULLY INTEGRATED SYSTEM

Before the new RFID-enabled inventory solution, Saint Luke's was using three separate systems for inventory, supply chain management and point of care usage monitoring. By implementing an integrated system—UHF RFID tags, RFID portals comprised of Motorola RFID readers and antennas, and Cenbion management software—Saint Luke's gained an integrated solution that provides complete coverage of its six-lab hospital floor and is delivering improvements in every key area.

## SEAMLESS, AUTOMATIC TRACKING WITH RFID PORTALS

Saint Luke's complete inventory management solution begins when inventory is received. Utilizing the Motorola MC70 mobile handheld computer, the barcode of new inventory is scanned and any item valued over \$5 is outfitted with an RFID tag, created using the Cenbion software. The tag contains a human readable number and barcode that matches the RFID tag ID value. The tag is also encoded with the item's lot and expiration date information. Additionally, the tag is associated with the full international article number (EAN) printed on the packaging and synchronized with Cenbion's management software.

To accurately track tagged items, automated RFID reading portals were designed by RFID Global Solution, who installed FX7400 RFID readers and AN480 antennas at thirty equipment and stockroom doorways and doorways of the six operating rooms in the Cardiovascular Laboratory. These portals allow the system to track the presence and movement of inventory without requiring staff to actively scan an item. When a tagged item passes through a portal, the readers and antennas wirelessly and automatically read the information and pass it to the Cenbion software, which records the tag number along with the time and location. This process helps pinpoint the location of every traceable item, from stockroom to operating rooms to the trash.



MC70 Mobile Computer



FX7400 RFID Reader



AN480 RFID antenna

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### TRACKING HIGH VALUE ASSETS AND MANAGING EXPIRED SUPPLIES

Inventory tracking is effective not only for smaller items that will be charged and billed to patients, but also for costly and crucial equipment. Strelow understands first-hand how important this kind of seamless, automatic tracking can be. "We had three defibrillators on a shelf in one of our labs," he says, "and these can range anywhere from \$14,000 to \$24,000 in value. At some point we realized only two were on the shelf. We immediately tracked the missing item with our RFID system, which showed that it had been moved to another lab. We found it right where the system said it should be, giving me the reassurance that our high-dollar items are being tracked. Being able to locate equipment seamlessly lets our staff do what they were trained to do, which is take care of patients."

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Dave Strelow, director of Cardiovascular Lab Services at Saint Luke's

In addition to high-value asset tracking, the RFID system also enables accurate and seamless expiration date tracking. With previous systems, staff needed to travel to every room and manually check expiration dates. Now, utilizing advanced software and the information stored in each item's RFID tag, staff workers automatically receive alerts regarding expired inventory. By tracking the item by its last location scan, they can travel to that specific stockroom and remove the item from the shelf.

### PROVIDING A BOOST TO CHARGE CAPTURE ACCURACY

Mobile handhelds are used again at the point of care. Nurses and other staff use them to first scan the barcode on each patient's wristband, then to scan the printed barcode (which is synced to the RFID tag) on each item used during a procedure. This ensures supplies and equipment used is tied to a specific patient and billing is up-to-date and accurate. Finally, after an item is used, it travels to a waste area, where additional Motorola RFID portals recognize and then deactivate the tag, confirming its use.

**"We're working to continue providing the best care possible without having to increase patient healthcare costs."**

Dave Strelow, director of Cardiovascular Lab Services at Saint Luke's

One of the system's key benefits is demonstrated when an RFID-tagged item enters the waste area without being properly tied to a patient. Administrators can use the precise tracking and monitoring of the item to detect if it has not yet been properly billed, trace its use and, in most cases, properly identify which patient and in which room it was used. By increasing charge capture accuracy, a hospital can see dramatic results. "For us, a minimal 0.1 percent improvement in this process would result in \$54,000 of additional savings. A 1 percent improvement would save us \$540,000. A 99 percent accurate charge capture process is a best practice for the industry. With RFID technology, we could reach 99.99 percent charge capture accuracy," Strelow says.

### RFID EXPERTISE KEY TO ACHIEVING 99% ACCURACY

Because this was a relatively new technology and a new application, Strelow brought in RFID Global Solutions to plan the deployment and perform the installation and training, due to their depth of expertise in large-scale RFID implementations. Their ability to optimize system performance is a critical success factor in ensuring the delivery of the accuracy level the hospital and nursing staff require in their billing systems.



### INVENTORY WITH RFID

RFID antennas driven by an RFID reader (hidden) surround equipment and stockroom doorways for automated inventory tracking.

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### THE SOFTWARE TO TIE EVERYTHING TOGETHER

Finally, Cenbion Medical's inventory management software delivers real-time information to improve processes from inventory management and asset location to patient billing and inventory ordering. "The software is really one of the key components of this solution," Strelow says. "It's incredibly robust, with tables that allow tracking by vendor, product, physician or charge code, and so much more key functionality." This system also ties into Saint Luke's hospital information system, provided by McKesson, streamlining the billing management process and enabling the hospital to leverage the information gathered through Cenbion's software in a variety of valuable ways.

By integrating this real-time inventory tracking with billing and purchasing functions, Saint Luke's has been able to reduce on-hand inventory value by 15 percent while simultaneously improving service levels for their patients and staff. The system has also enabled the hospital to better understand its purchasing needs, providing bulk-savings that, considering the high cost of supplies and equipment, can quickly add up.

Cenbion's inventory management software also includes a cutting-edge data capture engine, which interprets both RFID and barcode information. This creates a system that's both highly flexible today and future-ready for the technologies of tomorrow; one that uses the right process with the right cost and tracking technology for the right level of visibility.

### A BETTER WAY TO MANAGE INVENTORY

Strelow and Saint Luke's hospital have changed the way they manage inventory. Now they are experiencing the return on investment and efficiency benefits that come with the kind of integrated, automatic and cutting-edge system that Cenbion, Motorola and RFID Global Solution have delivered. "By realizing more efficient inventory management and reducing our cost to deliver better service levels," Strelow says, "we're working to continue providing the best care possible without having to increase patient healthcare costs."

After his experience with what an advanced and integrated UHF RFID system can deliver, Strelow has some advice for other hospitals considering a similar solution. "My challenge to these hospitals," he says, "would be to calculate the percentage of expenses that are used for the many aspects involved with inventory tracking, from lost time to availability and chargebacks. Then realize that a decrease of just a half of a percent is more than enough to cover the cost of this solution." By leveraging a dependable, cutting-edge solution from Cenbion, RFID Global Solution and Motorola, Saint Luke's has implemented a seamless UHF RFID system that streamlines inventory management and reduces total inventory value, helps manage expiration-date tracking, improves the capture of charges and provides a more thorough and useful understanding of its billing and supply needs.

And most importantly, it keeps their clinical staff and allied healthcare professionals focused on what matters most - their patients - and not on their supply chain.

For more information on how Motorola products can help you streamline inventory management, improve billing accuracy and cut costs, please visit us on the web at [www.motorolasolutions.com/healthcare](http://www.motorolasolutions.com/healthcare)

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