Sheba Medical Center Reports Cost Savings With RFID Cabinet Solution

The Israeli hospital is among the companies deploying a UHF RFID-based system from LogiTag to manage the locations and statuses of implants and other critical and high-cost medical devices, ensuring they aren't missing, ordered in excess

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Jun 23, 2019—Sheba Medical Center is among multiple hospitals using an RFID-based cabinet system to manage catheter labs and high-value medical supplies, ensuring that no device expires before it can be used and that products are available when needed. With the technology, the hospital has real-time data about what medical supplies are in stock or are accessed for procedures, and it has thereby created a consignment program selling supplier products to patients only as they are used. The RFID-enabled cabinets and software are provided by LogiTag Systems.

LogiTag reports that 90 percent of Israeli hospitals are using the technology. LogiTag's passive UHF RFID solution, which supports GS1 and unique device identification (UDI) requirements, allows staff members to remove necessary items, such as implants, from a locked cabinet and to automatically create a digital record of which items have been removed, and by whom. The system not only tracks what is in the cabinet in real time, but also detects which items are due to expire first. The data from the system provides hospitals with a way to ensure that nothing expires, goes missing or is over-stocked.

LogiTag, founded in 2004 in Netanya, Israel, offers RFID solutions for a variety of markets. The company recently completed a study which it says indicates that its Smart Cabinet automation technology reduces average catheter lab costs by approximately $229,600 annually, based on labor savings, a decrease in the loss or expiration of goods, and a 35 percent reduction of stock.

Sheba Medical Center, located in the Tel HaShomer neighborhood of Tel Aviv, is the largest hospital in Israel, with 1,700 beds. In fact, the facility was ranked by *Newsweek* this year as the 10th best hospital worldwide. It treats one million patients and conducts more than two million medical tests annually. The hospital has an expansive laboratory division in which it stores and uses high-value medical supplies, such as surgical implants.

Before using the solution provided by LogiTag in its cath lab suite, the hospital managed its inventory manually. That was a time-consuming process that resulted in inventory discrepancies, the hospital reports. "Sometimes, we had a shortage of popular sizes of implants or wires," says Hani Hag-Yihye, Sheba's senior nurse for Invasive Cardiology, "or, in other cases, an excess that caused us to waste money." Health-care providers were also challenged with ensuring products were used before they could expire.

Yet another challenge involved reconciling inventory against claims from suppliers, Hag-Yihye says. "The medical team invested

a great deal of effort and time in continuous communication with the suppliers," he recalls, "which included countless faxes and correspondences." Therefore, the hospital sought technology that would be user-friendly for employees and address the laboratory's inventory-management challenges.

"The smart cabinet technology, along with the management software, has allowed us to shift to 100 percent consignment," Hag-Yihye reports, "and has transformed all inventory management to one digital platform." Since the system was installed, he adds, the hospital has reduced the cost of excess inventory by between $2 and $3 million. Sheba has installed more than 60 Smart Cabinets in various departments, including electrophysiology, angiography, neurology, vascular, the cath lab and gastrologic.

The largest installation, however, has been in the Heart Treatment and Research Center, in which 30 cabinets are now in use to manage the location and status of all implants for Sheba's diagnostic, therapeutic and preventive cardiovascular units. These include intensive and intermediate cardiac care, catheterization, heart failure, electrophysiology, cardiac pacing, noninvasive cardiology, nuclear cardiology, cardiac imaging, cardiothoracic surgery, vascular surgery and cardiac rehabilitation. All implants are provided via consignment.

In general, explains Or Lomnitz, LogiTag's marketing director, cardiac catheter labs serve as some of the most complex environments in health care when it comes to managing inventory. The products are critical when needed and are high in value, but each comes with an expiration date. "Every hospital loses a lot of money in a year due to expired items," Lomnitz explains. Additionally, they tend to overstock products simply because they don't have an accurate inventory count.

Each cabinet comes with a built-in UHF RFID reader and eight antennas developed and manufactured by LogiTag. The cabinets also include a 13.56 MHz HF RFID access-control reader compliant with the ISO 15693 standard, for access by authorized staff members with badges. They are designed as modular units that can be built according to a hospital's particular needs. Each unit measures 38.2 inches in width, 80.7 inches in height and 25.6 inches in depth. The company also offers a tabletop Smart Cabinet for storing dental implants and eye lenses for clinics. In this case, the cabinets' measurements are 38.2 inches wide by 25.6 inches deep by 27.5 inches high.

The cabinets connect to the cloud via TCP\IP, Wi-Fi or a cellular connection. "Most of our installations rely on a cellular connection to the cloud," Lomnitz says "enabling fast integration to the hospital networks without the needing to involve the hospital's IT infrastructure teams in preparing TCP\IP sockets."

Typically, goods are tagged either by the supplier or at the hospital's distribution center. When products, such as stents or other

implants, are received at the lab, they can simply be placed on a cabinet shelf since the tags have already been applied and encoded. The built-in reader antenna captures each item's tag ID, then forwards that data to the LogiTag software, which identifies that object and any details related to it, including its manufacturer and expiration date.

LogiTag's Or Lomnitz

Nurses can access the cabinets by tapping their RFID badge near the front door reader. They can then use the touch screen to indicate which product they seek, and for which patient. The software manages that data and provides information regarding when inventory is used. It can also provide inventory optimization to identify when a hospital is ordering too much of a given product or needs to place an order. Simply identifying excess purchasing can save a hospital thousands of dollars yearly, Lomnitz says. "Because the products are very high-value," she states, "the cost of having them sitting on a shelf unused is also high."

In addition, the system is designed to reduce the incidence of lost inventory. For instance, if a health-care worker accesses the cabinet and removes a particular item, and if it is then never billed to a patient, an alert can be sent to management. This enables the loss to be addressed quickly, rather than at the end of the month when it might be noticed during a manual inventory count.

The system can also notify the supplier and the health-care staff if inventory is running low. The software will instruct nurses to use one product before another if the first will soon expire. The software performs cost and usage analyses, inventory optimization, and averaging seasonal usages, and can identify what are known as "dead items"—those that are not used frequently and thus create an unnecessary expense.

When it comes to replenishment, the software sends consumptions reports to all vendors that utilize the system on a daily basis, thereby giving them the ability to refill quickly. That enables hospitals such as Sheba Medical Center to keep products on-hand via a consignment program, thus reducing the expense of purchasing goods that they might not use.

The LogiPlatform cloud-based server software can be integrated with existing enterprise resource planning (ERP) systems, such as Lawson, McKesson, SAP and Meditech. The solution employs standard communications protocols, including HL7, XML files and other interface tools, to simplify communication. For that reason, Lomnitz says, the integration between LogiPlatform and the hospital's ERP and clinical software is accomplished without having to replace it or make dramatic changes. "It is an easy-to-use add-on," she states, "designed to provide a simple solution for managing inventory and report usage consumption in the operating room and clinical care areas."

Sheba Medical Center has found that the system works autonomously, according to Hag-Yihye, and that it has resolved several manual process-based challenges. "First," he says, "we moved to full, pay-per-use consignment. Second, we do not need to deal with the inventory levels—each vendor is managing his inventory by himself remotely." The hospital has reduced disputes with vendors regarding item consumption, he notes, adding, "and if we have a problem, we solve it immediately."

Finally, Hag-Yihye reports, the amount of waste related to discarding expiring items has dropped to zero. "In general," he says, "the system enabled me to deal more with my team, my patients and my medical work, and not to run after administrative tasks, logistics and supplier disputes."