

UMass Med Center Finds Big Savings Through Tagging

The hospital says it has trimmed thousands of dollars thanks to an RFID system that tracks its inventory of cardiac stents, balloons, pacemakers and other cardiac devices.

By Beth Bacheldor

Nov. 21, 2007—Using a hosted active RFID system, [UMass Memorial Medical Center](#), the principal teaching hospital for the [University of Massachusetts](#), says it has trimmed thousands of dollars and countless hours of labor associated with its multimillion dollar inventory of critical medical devices.

About six months ago, the Worcester-based hospital began employing a hosted RFID service from [WaveMark](#) known as WaveMark Clinical Inventory Management Solution (CIMS), to help track its inventory of medical devices—such as cardiac stents, balloons and pacemakers—used in its cardiac catheterization, electrophysiology and interventional radiology labs. The system leverages active 13.56 MHz tags; smart cabinets containing built-in RFID interrogators that read items on the shelves every 18 minutes; a point-of-service (POS) device incorporating RFID and bar-code scanners; and Web-based software to monitor, analyze and manage inventory. WaveMark, based in Boxborough, Mass., manages the system as a hosted service in a secure data center.

About five years ago, Kathryn Green, senior director for radiology services at UMass Memorial, began thinking about leveraging RFID to help reduce the hospital's inventory and maintenance costs. "I was very actively involved in the cath lab, in terms of working on cost-savings initiatives," Green recalls. "There are seven lab departments with lots of inventory, and we are always looking for ways to minimize inventory and keep track of inventory."

Until implementing RFID, the medical center had to manually count all the devices, record expiration dates, monitor restocking requirements and track the number of items used in each lab. Now, UMass Memorial has smart cabinets installed in its five cardiac cath suites—two in its electrophysiology suites and two in its radiology intervention suites—as well as one in a large stock room and another in a main corridor used for items requiring easy access on weekends.

UMass Memorial's supply coordinator affixes an active RFID tag to each device when it is received into inventory, and waves the tagged device by a POS interrogator that reads the tag, as well as a bar-coded label applied by the manufacturer before it shipped the device out. The tag and bar-code serial numbers are then married to create a single product entry in the WaveMark system.

"Tagging the products is a very simple process that takes far less time than it ever did for the supply coordinator to chase down inventory levels," Green says. When the supplies are placed into the smart cabinets, built-in RFID interrogators read the tag numbers and update the WaveMark system. The cabinets and POS interrogators are connected to the Internet and update the status of all tagged products three times per hour in the hosted WaveMark system.

Every time a device is pulled from a cabinet, the inventory level is updated. As the device is used in a patient, a doctor or nurse waves the item by a POS interrogator that reads the tag and, in turn, updates the WaveMark system with the date, time and location of usage. The reader then transmits the product data directly into the clinical system, which correlates that information with the patient.

According to Green, the system is providing UMass Memorial with tangible benefits. At any given time, the hospital can access a report from the WaveMark system to determine which room has used which particular items. "That helps us restock accordingly, so we can have just-in-time inventory," she says. "And in the age of reimbursement and making sure we are covering our costs, this gives us a foolproof way of making sure we are billing for all the devices used. We can print reports and make sure devices are being charged to correct patients." Moreover, Green adds, the system has helped the medical center trim its inventory, which consists of both consigned and hospital-owned equipment.

For the first three months of using the system, UMass Memorial did not adjust any inventory levels. Then, after analyzing reports generated by the WaveMark system, the hospital was able to cut the inventory of its high-dollar items (such as stents and balloons) by 9 percent. The system is also expected to help it take advantage of volume ordering. The majority of devices are consigned by suppliers and, therefore, purchased by the hospital only as they are used. But some suppliers offer discounts on items ordered in bulk and purchased outright. Every three months, for instance, UMass places a bulk order of implantable cardioverter-defibrillators (ICDs) and pacemakers.

"By better understanding what our utilization rates are, we can, if necessary, increase the order so we can get a better rate," Green says. But there are also inherent risks to bulk ordering, because if the hospital doesn't use up all the items purchased and some expire or become obsolete, it must then take the write-off. By closely tracking inventory levels of such items, the medical center can gain greater insight into item usage and make better decisions about the number of items it should order.

For those items UMass receives on consignment, the WaveMark system will help it reconcile orders and payments with its suppliers. Typically, at the end of the month or quarter, the vendors and hospital agree upon items used versus items returned (returned items are then replaced at no charge). By being able to track an item's life-cycle—when it was received; when it was used, discarded or returned; or if it is still sitting on the shelf—the hospital finds it much easier to reconcile orders with its suppliers.

RELATED_ARTICLES According to Green, WaveMark has helped the hospital reduce its stock of purchased and consigned items by providing detailed analysis, over time, of item usage. "It has helped us ensure that suppliers are keeping all expired products off the shelf," she adds.

Although UMass Memorial has not yet expanded RFID to other areas, Green says she believes the technology is well-suited for the surgical department. "Operating rooms can be black holes for products, because there is always so much happening and these are big rooms," she explains. "And you have to stock so much in each room so that you are always prepared for each procedure."

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