

**The facility expects to lower costs and improve patient care, thanks to a solution combining WaveMark's 13.56 MHz passive RFID system with Lumedx billing software.**

By Mary Catherine O'Connor

Dec. 3, 2008—[Florida Hospital](#), located in Orlando, Fla., is rolling out an RFID-assisted inventory-tracking and patient-care system that it believes will lower its inventory spending while also improving the lifecycle tracking of medical devices, as well as post-operative patient care.

The solution brought together two technology vendors: [WaveMark](#), a provider of an RFID-based tracking and inventory solution for medical devices, and [Lumedx](#), a supplier of software for tracking specific patient events and procedures in order to enable the accurate billing of cardiac patients. The two vendors created an interface between their respective technology platforms, and are now marketing the integrated solution to other hospitals as well.

Florida Hospital conducted an evaluation of the integrated system in its electrophysiology department, where various medical device implants—such as pacemakers, defibrillators and catheters—are used to regulate patients' heart functions. The pilot's goal was to achieve accurate and timely inventory data that would enable the department to reduce its device and equipment inventory by \$30,000 to \$40,000. The system allowed the department to do even better than that, says Sam Braga, Florida Hospital's supply chain manager, posting a savings of \$65,000 at the conclusion of the trial. In addition, the improved visibility provided Braga with the confidence to justify purchasing some devices in bulk, which equated to a savings of \$85,000 (over what the hospital would have otherwise spent buying the devices in smaller quantities). In total, he says, the hospital was able to save \$150,000 through the pilot.

Based on these results, the hospital plans to employ the WaveMark-Lumedx solution in the facility's new cardiac care wing. The first medical procedures are due to begin in that location on Dec. 15.

The WaveMark Clinical Inventory Management Solution (CIMS) is a hosted service based on the use of passive 13.56 MHz tags complying with the ISO 15693 standard, attached to medical devices as they are received into hospital inventory. These tagged devices are stored in cabinets with built-in RFID interrogators so they can be inventoried on an on-demand basis, without being manually counted. WaveMark's software tracks the inventory and generates reports on device usage, based on RFID read events.

When a device order arrives at the hospital, staff members will place an RFID tag on each item, then utilize an RFID reader to enter the unique ID encoded to that tag into the CIMS database, along with the name, SKU and lot number associated with that particular device. The tagged item will then be stored in an RFID-enabled cabinet until it is required for a medical procedure.

At that time, the device will be removed from the cabinet, the interrogator of which will no longer be able to read its tag, thereby prompting the CIMS software to indicate the item as being outside the cabinet.

When the device is brought to the room in which it will be implanted, a worker will key an event identifier—a numeric code up to eight characters long, previously generated for billing purposes by the Lumedx Apollo Cardiovascular Information System when the patient's procedure was scheduled—into a computer. The employee then uses a stationary RFID interrogator to read the tag attached to the device to be used.

This association between the specific device implanted and the billing information is where the interface between the WaveMark and Apollo platforms takes place. Once interrogated, the RFID tag ID for each device used in a given procedure is associated with the patient for which that item is used, as well as that individual's billing and medical records.

If a patient ends up returning to the hospital with a health complaint linked to that procedure, the attending physician can look up detailed records regarding the implant in the Lumedx software, which contains a record of each device used for that patient, as well as the exact location in which it was implanted in the body—down to the exact artery, for instance, in which a stent was placed. "That information is vital to the overall care of the patient," Braga says.

According to Braga, the combined WaveMark-Lumedx system generates a range of reports based on inventory usage, as well as patient procedures and billing. The reports, he explains, generate much more information than he and his staff previously had access to. "We got so much information, it was overwhelming," he states. "I had to tell the people in meetings to turn the reports over [and stop reading them]."

Although Florida Hospital had already been using Lumedx software prior to testing WaveMark's solution, Braga deems the combined WaveMark-Lumedx system a great improvement over his hospital's older inventory-tracking process, which involves manually scanning bar codes on device packaging in order to enter them into and out of inventory. Because it is a manual process, bar-code scanning is subject to human error and can not account for when employees failed to follow established procedures. What's more, because the RFID interrogators take readings of the tags within each cabinet up to 72 times each day, Braga says he feels more confident about the timeliness of the inventory data.

"We feel more confident in the accuracy of these reports with WaveMark [versus bar-code-based reporting] because it tracks the [life] cycle," he says. When a tagged device is pulled from a WaveMark cabinet, the system expects to then see the tag read again, along with an associated Lumedx event ID, when it is used in a procedure. If this does not occur, the WaveMark software sends e-mail alerts to Braga. "You can't sweep things under the rug," he says.

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