RFID JOURNAL
THE WORLD'S RFID AUTHORITY

Bon Secours Richmond Finds RFID Saves $2 Million Annually

Topics/Verticals: Asset Tracking, Operations, Health Care

The company is using a real-time location system from GE Healthcare to track assets, as well as certain surgery patients, and expects to expand the system to additional operating rooms.

By Claire Swedberg

Dec. 8, 2009—After five years of employing an RFID-based real-time location system (RTLS) to manage assets, and following 18 months of tracking patients in operating rooms, health-care company Bon Secours Richmond Health System has seen a savings of $2 million each year, according to Kathy Santini, the firm's VP of surgical service. Those results, she says, exceed the previously projected annual gain by $1.8 million.

The savings comes as a result of drastically reducing the amount of rental equipment utilized by the company's four hospitals, as well as by decreasing the incidence of lost or stolen equipment. But the system has also saved the staff time, Santini says—the average search time for missing equipment throughout the hospital, before installing the system, was 40 minutes. In addition, at St. Mary's—Bon Secours Richmond's largest hospital—OR staff had been placing between 300 and 400 calls daily to locate equipment required for surgeries. The RTLS solution, provided by GE Healthcare, has cut the number of phone calls in half, and has nearly eliminated the time spent searching for equipment.

After St. Mary's installed the system within its operating rooms, the hospital was able to reduce the amount of time necessary to prepare a room for a surgical procedure after finishing a prior operation. The system decreased preparation time from 45 minutes to 20 minutes, by providing an alert to staff members at the exact moment a patient leaves a surgical room, thereby notifying them that the room is ready to be cleaned and prepared for the next patient. Workers can also use the system to determine what has and has not been done in the room during that preparation, such as whether the necessary equipment has been brought in.

Based on the OR system's success in 20 of the 24 operating rooms at St. Mary's, Bon Secours Richmond intends to roll out the system at two more of its hospitals—St. Francis Medical Center and Memorial Regional Medical Center—in the coming months. A fourth facility, Richmond Community Hospital, performs little surgery and, thus, will not require the system. All four, however, are using the Agility system to track assets.

According to Santini, Bon Secours Richmond also plans to begin installing a patient-tracking system in the emergency departments at all of its hospitals—which have a total of 850 beds—during the next 18 months.

The wireless tracking system that Bon Secours Richmond is using was initially proposed in 2003 by Fran Dirksmeier, president and CEO of RTLS firm Agility—now part of GE Healthcare, where Dirksmeier currently serves as the general manager of AgileTrac Solutions. Dirksmeier and Santini already knew each other, Santini says, and Dirksmeier pitched the idea of a system that would help locate missing assets within the facility. The system Agility installed in 2004—known as AgileTrac Asset

Manager—would be the first RTLS the company deployed, Dirksmeier says (see Hospitals Get Healthy Dose of RFID).

The asset-tracking portion of the deployment at Bon Secours Richmond's hospitals included tagging 11,000 assets, such as IV pumps, wheelchairs and stretchers, with 433 MHz active RFID tags, to make the management of equipment more effective. (Originally, the AgileTrac system relied on 303 MHz battery-powered RFID tags, but those have since been replaced with 433 MHz tags.) "Bon Secours instinctively knew they were spending too much money on assets," Dirksmeier states, in terms of rental costs, time spent searching for equipment, and equipment that was unusable due to misplacement or cleaning delays.

The Asset Manager software broke the reader areas into zones, each representing a separate section of the hospital, thus helping the staff determine on which particular floor or wing an asset was located. The system immediately began saving time on equipment searches, as well as money on rentals, and Bon Secours proceeded to install RFID readers at all four of its Richmond hospitals.

Around the time that Agility was acquired by GE Healthcare in 2007, Dirksmeier and Santini began discussing the idea of expanding the system to include the movement of patients through the St. Mary's surgical wing, which includes 24 operating rooms on two floors. Because GE Healthcare provides lean practices consulting, Bon Secours Richmond opted to incorporate GE's lean business practices assistance with an expansion of the Agility system. What's more, Dirksmeier says, GE's Agility division began upgrading the Bon Secours system to include infrared (IR) capabilities.

Once it switched from the 303 MHz tags to 433 MHz RFID tags with built-in infrared receivers, and also installed IR emitters in each room, Bon Secours Richmond was able to pinpoint a tag's location within a room rather than within a zone of the building. The IR emitter on the ceiling at the center of each room transmits an IR signal to the tags, which transmit their own unique ID number in turn, along with that of the emitter, to the RFID readers. The readers, wired to the hospital's back-end system, send that data to be interpreted by the AgileTrac software.

The OR portion of the system employs a software suite known as AgileTrac Enterprise to help manage workflow for staff members, by tracking the movement of patients and equipment in the hospital's pre-operative, operating and recovery rooms. In mid-2008, St. Mary's installed flat-screen monitors in its surgical wing, so that the RTLS software could display location data in order to ensure on-time starts to surgery, and to decrease wait times. Doctors and nurses have been using touch-screen features to notify appropriate personnel when a patient is ready for the next step in surgery, and the system automatically notifies workers once a patient enters the recovery area, so that preparations for the next procedure can begin immediately.

With the OR portion of the system, each patient being admitted for surgery at St. Mary's is provided with an RFID/IR AgileTrac tag attached to an armband, along with a brochure explaining how the system will be used to track his movement through the surgery and recovery rooms. Once a patient enters the

pre-operative area, Santini explains, the AgileTrac Asset Manager software determines that individual's arrival, and links the unique ID number on his armband's tag with his identity and medical records. An alert can then be sent to any staff members required to help prepare that patient for surgery. During the preparation process, workers utilize the touch screen to indicate the completion of various steps. The anesthesiologist, for instance, presses a prompt on the screen after meeting with the patient.

When the patient enters the operating room, the system records that action as well. It also documents his or her removal from the OR, indicating that the room must now be readied for the next patient. The software can also link the patient with all equipment used during his or her procedure, providing information that could prove useful later—for example, in the case of an infection.

Bon Secours Richmond expects the system, once expanded, to increase the number of patients treated in operating rooms, as well as in emergency rooms, by increasing the efficiency of equipment and patient movement, and by decreasing the length of time required to prepare an OR between patients. With the AgileTrac software, the hospital staff can be alerted automatically as soon as an OR is available, and can then begin cleaning the room and setting up instruments for the next scheduled surgery.

The satisfaction of Secours Richmond Health's staff may be the greatest gain, Santini says. The organization participates in Gallup polls to gauge its employees' satisfaction, she says. "Our nursing staff satisfaction is the highest in the nation of those polled by Gallup," she states. One question asked on the poll is whether the equipment and supplies the staff requires is available when needed. "Employee satisfaction is very important to us. We work really hard to make sure employees are comfortable and enjoy their job."

Although the exact date has yet to be determined, once Bon Secours begins providing AgileTrac tags to all patients who come to its hospitals' emergency departments, the facilities will be more easily able to maintain a commitment to guarantee a "zero-wait" time for emergency patients, a one-hour visit for those leaving after treatment and a two-hour maximum wait for those requiring a hospital bed. The system will help the hospitals identify bottlenecks, Santini says, and will send alerts when a patient has been waiting for a procedure for an excessive length of time.