

LewisGale Medical Center has saved approximately \$40,000 in scrub inventory expenses by managing the use of the medical-procedure uniforms with Autovalet Systems' CabiNet RFID Scrub Dispensers and DressCode software.

By Claire Swedberg

Tags: Health Care, Apparel, Inventory / Warehouse Management

Sep 24, 2017—LewisGale Medical Center, located in Salem, Va., has reduced the cost of scrub replacement purchases with an RFID-based system that manages the use of the medical procedure garments by personnel and vendors. The solution, from Autovalet Systems, was provided by the hospital's laundry service vendor, Handcraft Services, located in Richmond Va., and consists of a pair of cabinets that detect the movements of scrubs as they are accessed and later returned by staff members. Autovalet manufactures the cabinets and provides technical support.

Autovalet's solution, known as the CabiNet RFID Scrub Dispenser, has reduced the hospital's expenses by \$40,000 since it was installed in early 2016. The hospital, owned and operated by Hospital Corp. of America (HCA), now intends to purchase a second cabinet for the same purpose. HCA, one of the largest health-care providers in the United States, operates approximately 150 hospitals.



LewisGale Medical Center

Health-care providers at LewisGale and other hospitals wear scrubs consisting of a top and bottom in their size. When finished with a health-care procedure, such workers are expected to return the dirty scrubs before checking out another pair. At most facilities, the management of the garments is at least partially manual, and is based on trust.

Staff members access the scrubs they need, then return them once they are finished using them. However, if there is a concern that scrubs may not be available at a later date, or if employees simply do not take the time to pick up and return their scrubs regularly, the items begin to disappear. Staff members might take more than they need, and might not return them in a timely manner, meaning the garments then need to be replaced in order to ensure that inventory levels do not become too low.

The problem at most health-care facilities, says John Varley, Autovalet's director, is that some workers treat scrubs like disposable items. Many facilities use locked cabinets that require an ID badge to access the scrubs, but tracking how many items are removed can pose a challenge. Camera systems provide some information, but few companies have the time or resources to view the collected video footage.

For more than a decade, Autovalet offered a passive high-frequency (HF) 13.56 MHz RFID solution, and then an ultrahigh-frequency (UHF) RFID system, to help hotels and casinos manage their staff uniforms. In 2016, the company opted to create a similar UHF RFID-based system for the health-care market. "The main advantage with RFID is that our system tracks the garment, as well as the user," Varley says. The technology knows not only who borrowed each item, but when it was borrowed,

returned and laundered, as well as how often, for the duration of its lifetime.

Early last year, LewisGale became the solution's first health-care customer. "Before we implemented [the CabiNet system], there wasn't much accountability as far as scrub management went," says Kirk Likens, LewisGale Medical Center's director. Both personnel and third-party representatives—implant device vendors, for example—borrowed the scrubs for procedures and were trusted to return them. Because there was not always confidence that scrubs would be available when needed, users might hypothetically take 10, 12 or 15 pairs of scrubs, then return them only when it was convenient to do so.



Autovalet's CabiNet RFID Scrub Dispenser

The CabiNet is a locked cabinet dispenser with RFID read data stored on Autovalet's DressCode software. Staff members use their ID badge as a swipe card at the front of the cabinet upon accessing a scrub item. The swipe card system captures a worker's ID and uses DressCode software to authorize that individual to take an item from the cabinet. It then unlocks.

Inside the cabinet, up to 300 garments are folded and stacked on shelves. A built-in RFID reader and associated antennas read each item's tag ID. When an employee removes an item and closes the cabinet door, the device's reader again interrogates the

tag IDs, identifies which items were removed and stores that data, along with the individual's employee ID.

When that same individual returns the scrubs, he or she uses the return receptacle in a companion Autovalet cabinet. The tag ID is captured by another RFID reader, and the user's account is updated to indicate he or she has returned that specific item. When scrubs are removed for cleaning and are then returned to the clean cabinet, those activities are also stored in the software, thereby enabling management to understand inventory levels. Autovalet then sends reports indicating scrub inventory levels, as well as which scrubs were or were not returned. Alerts can be e-mailed automatically to managers in order to prompt the replenishing of the cabinets.

When implementing the RFID-enabled cabinets, LewisGale was able to incorporate product vendors into the system as well. Each vendor is provided with an ID badge linked to that individual and the company he or she represents. As a vendor removes scrubs from the dispenser, the system knows what company and individual is responsible for that action. If the vendor fails to return the soiled scrub items upon finishing his or her work, the system will detect this issue and the responsible company can be contacted.

The company that provides the scrubs is sewing the RFID labels directly into each item, Likens says, so that they arrive at the hospital already tagged and ready for use with the system. The hospital fills the cabinet with up to 370 pieces, and has 500 users with ID cards who can access the cabinet. On a typical day, he reports, the cabinet manages about 160 piece transactions. The hospital has, on average, approximately 830 garments for staff members.



Autovalet's John Varley

For the hospital, Likens says, the greatest benefit has been a reduction in the cost of replacing scrubs that end up missing. However, the system also boosts efficiency for employees, since they can quickly access the garments without filling out paperwork, and the workers managing the laundry services have real-time information regarding stock levels. The system also eliminates the risk of running out of scrubs when employees need them for a medical procedure.

LewisGale was the first customer to use the technology, Likens says. "We really served as a beta site," he adds, noting that the hospital has been pleased with the results. The medical center next plans to install a second cabinet to accommodate more scrubs.

The technology works with any UHF RFID tag, Varley says. Autovalet makes its own RFID readers built with [ThingMagic](#) M6 reader chips, along with four antennas. The cabinets are lined with aluminum to prevent stray reads. The sliding doors are a deliberate design feature as well, to prevent the excessive use of space in busy hospital hallways. The DressCode software can either be cloud-based or reside on a user's own back-end system.