

## Veterans Affairs Implementing RTLS Across Seven Midwest Hospitals

The facilities, located in Indiana, Illinois and Michigan, are installing six different types of real-time location systems, as well as passive RFID tags and other auto-ID technologies, with all data managed by Intelligent InSites software on a single platform.

By Claire Swedberg

Tags: [Asset Tracking](#), [Defense](#), [Health Care](#), [IT/Infrastructure](#), [Operations](#), [Sensors](#)

Aug 06, 2012 — The U.S. Department of Veterans Affairs (VA) is currently in the process of installing a real-time location system (RTLS) at all seven of its hospitals in Indiana, Illinois and Michigan. The VA's intention is to improve staff efficiencies, and thereby provide better medical care to veteran patients.

The VA's health-care system is divided geographically into 21 regions, known as Veterans Integrated Service Networks (VISNs), with Indiana, Illinois and Michigan comprising VISN 11. The RTLS solution involving the seven VISN 11 hospitals is being implemented by [Hewlett-Packard \(HP\) Enterprise Services](#), with a variety of hardware vendors providing real-time location and temperature data. [Intelligent InSites'](#) enterprise-wide RTLS software provides a single user interface for the applications, by managing data culled from all of the individual systems.



Intelligent InSites'  
Marcus Ruark

The installation is being called the largest such RTLS installation to date, the agency reports. Once completed, it will include 25,000 active RTLS tags, 94,000 passive RFID tags, and 2,000 wireless temperature and humidity sensors, and will cover a combined total of approximately 4.5 million square feet. The system also includes bar codes etched on 255,000 surgical instruments, as well as passive RFID tags for the 63,000 cardiac catheterization lab supplies consumed annually by the seven hospitals. Read data regarding all of these items will be transmitted to the Intelligent InSites software residing on VISN 11's network, thereby enabling hospital employees not only to locate items or identify temperature changes in real time, but also to run reports and conduct analyses regarding assets, inventory levels and location details. In addition, the solution automates workflows and alerts based on real-time data. For instance, an alert could be triggered in the event that a temperature rose or dropped out of range, or if a dirty infusion pump was moved into a clean storage closet.

"Our goal is to improve the care we provide to veterans," says Michael McDonald, VISN 11 biomedical engineering point-of-care (POC) chief. In considering RTLS solutions, he adds, "Our driving factor was the frustrations [from staff] in finding the right equipment at the right time."

VISN 11 spent at least five years evaluating the proper [RTLS](#) solutions that would accommodate the seven medical centers. Each facility required a system for four use cases—the tracking and management of assets, the monitoring of temperature and humidity levels, the tracking of items for the cardiac catheterization lab, and the sterile processing services (SPS) workflow related to surgical instruments. One of those hospitals (located in Ann Arbor, Mich.) has now been taken live with its [RTLS](#) solution for most of the use cases being targeted. Another is nearing completion, while a third is beginning installation this month, with three more in the early stages of implementation. The final center is slated to go live in May 2013.

The centers are installing a variety of [RTLS](#) hardware technologies, each selected to provide the best results for the specific hospital and the needs of its staff. The technologies include [Wi-Fi](#)-based [RFID](#) solutions provided by [AeroScout](#) and [Ekahau](#), a hybrid infrared (IR) and 900 MHz active [RFID tag](#) system from [CenTrak](#), an IR and 900 MHz active [RFID tag](#) solution supplied by [RF Code](#), a [ZigBee](#)-based active [RFID tag](#) system from [Skytron](#) and [Awarepoint](#), and an ultrasound-based [RTLS](#) solution from [Sonitor Technologies](#). In addition, a variety of passive [RFID](#) tags and handheld readers are being utilized.

At each medical center, the active [RTLS](#) solutions track and locate high-value mobile medical equipment, such as infusion pumps, patient monitors, ventilators, wheelchairs and hospital beds. Passive ultrahigh-frequency ([UHF](#)) [RFID](#) tags are being applied to lower-valued items, in order to speed up inventory processes and automate reordering, typically by hospital staff members equipped with handheld readers.

Passive 13.56 MHz [high-frequency](#) (HF) tags compliant with the [ISO 15693](#) standard, provided by [WaveMark](#), are applied to consumables, such as catheters and stents, stored in [RFID](#)-enabled cabinets within the cardiac catheterization labs, to automatically assess quantities on hand, and adjust PAR levels as needed. HF technology, as opposed to [UHF](#), transmits more effectively around the concentration of metal in the cabinets (for example, catheters are often packaged in aluminum). However, adds Marcus Ruark, Intelligent InSites' director of business development, "UHF is better for reading tags from a

However, adds Marcus Ruark, Intelligent InSites' director of business development, [UHF](#) is better for reading tags from a distance, such as identifying tagged items within entryways or open areas.

With SPS areas, 2-D bar codes are being applied to surgical equipment using a surgical instrument-tracking solution from [Censis Technologies](#), and are then scanned manually prior to and following surgical procedures. This is done to be sure that equipment is available before an operation and is properly managed afterwards, thereby ensuring the items' cleaning, sterilization and preparation for subsequent surgical procedures.

Intelligent InSites' temperature-monitoring application will gather data from temperature and humidity sensor tags via [TempSys'](#) CheckPoint solution. It will then automatically and remotely monitor conditions within coolers, and track the food, pharmaceuticals and supplies and equipment being stored in them.

The deployment, Ruark says, is unique, given the variety of systems providing data to a single customer. "It's a bit unusual to have so many active RTLS technologies at once," he states, "but it does demonstrate the value of having open and flexible RTLS software." RTLS data is received and processed by the Intelligent InSites software, and access to the applications and information is then made available to all users across the VISN, based on their particular password privileges. If authorized, staff members can view not only in which department an item they seek is located, but also in which hospital. What's more, the software enables the [Veterans Health Administration](#) (VHA) to perform a variety of analyses to solve problems related to missing equipment, optimal inventory levels, broken items, or cleaning and sterilization records.

During a trial of the solution at an Indianapolis hospital, McDonald witnessed several use cases that he had not initially expected. For example, he says, when a tagged bed was reported broken, the hospital's biomedical engineering department was able to track where that bed had been—not only at the time that it was reported broken, but from that point forward. Thus, the hospital could determine whether the bed had been taken to be repaired and returned to service. Without the system, McDonald says, staff members would have had to walk through the facility's rooms until finding the appropriate bed, and then try to ascertain whether it had been repaired.

VISN 11 expects that with the full rollout of its enterprise-wide RTLS solution, efficiency based on knowing the location and status of equipment will increase, as will hospitals' ability to ensure that inventory is maintained at appropriate levels.

Similar RTLS rollouts are expected to take place at other Veterans Integrated Service Networks sites. With a national RTLS

rollout in mind, the VA officially announced, in June 2012, that HP Enterprise Services has been awarded a \$550 million indefinite-delivery, indefinite-quantity (IDIQ) contract for an RTLS solution (see [RFID News Roundup: Veterans Affairs Awards \\$543 Million RTLS Contract to HP to Cover All VA Hospitals, Clinics](#)). The IDIQ contract was built off best practices and lessons learned based on what VISN 11 has already completed, according to a VHA official, who adds that the national contract is separate and unrelated to that of VISN 11.

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