



**Hewlett Packard
Enterprise**

Real Time Location System benefit realization

VA VISN 11 and Hewlett Packard Enterprise



Table of contents

5	Our Commitment
7	What is VA Real Time Location System (RTLS)?
8	VA Ann Arbor Healthcare System
16	Battle Creek VA Medical Center
24	Detroit VA Healthcare System
36	Aleda E. Lutz VA Medical Center
42	VA Illiana Health Care System
48	Richard L. Roudebush VA Medical Center
54	VA Northern Indiana Health Care System
61	Voice of VISN 11 Leadership
65	Voice of RTLS end users
71	Best practices and lessons learned from VISN 11



All Female Honor Flight Visits Washington Area Memorials. On Tuesday, September 22, 2015, Tri-State Honor Flight, an all female Veteran Honor Flight visited memorials dedicated to them in the Washington area. The flight was comprised of 70 Veterans of the World War II, Korean and Vietnam War eras, and 70 Veterans of the post-9/11 era. VA Secretary Robert A. McDonald spoke to these Veterans at a short ceremony at the Women in Military Service Memorial at Arlington National Cemetery which honors them. (Robert Turtill/ US Department of Veterans Affairs)



Photo taken at John D. Dingell VA Medical Center in Detroit, MI. (Suzanne Treachler/HPE)

Our Commitment



Recently, Veterans Integrated Service Network (VISN) 10 and the Veterans In Partnership Healthcare Network (VISN 11) integrated as part of the U.S. Department of Veterans Affairs (VA) MyVA Transformation plan. Formerly, VISN 11 served Veterans in Illinois, Indiana, Michigan and Northwest Ohio with comprehensive inpatient and outpatient healthcare over a large, geographically diverse network.

Providing the highest quality Veteran care is at the forefront of everything we do. To make sure Veterans are receiving the best care at our hospitals and clinics, we rely on technology and innovation. VISN 11 has been leading the way in one such innovation—the VA Real Time Location System (RTLS)—a solution that provides easy, ongoing, and end-to-end visibility across our medical centers from a single user interface. It integrates various technologies to actively trace assets, medical supplies and surgical instruments in real time.



The benefits of this program to Veterans and to our staff are already speaking volumes. RTLS is helping us to improve patient safety through process automation, standardization and real-time information—ensuring:

- medical equipment and instruments follow proper sterilization workflows
- the right equipment is available for procedures at the right time
- recalled items can be located and removed immediately
- equipment nearing expiration can be exchanged at no extra cost and without waste
- cost savings are achieved that can be reinvested back into additional Veteran care
- real-time data allows for optimal inventory levels and easy ordering
- medical staff experience better employee engagement, satisfaction and less turnover

We are thrilled to share the benefits we have experienced and urge you to read on to hear from our staff from across the former VISN 11. If you have any questions, do not hesitate to contact Karla Kay Sandell, Network Chief Logistics Officer (CLO)/Senior RTLS Contracting Officer's Representative (COR) at karla.sandell@va.gov.

Mr. Jack G. Hetrick

FACHE and Network Director, VISN 10
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Mr. Tony Zapata

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VA has the essential mission of serving America's Veterans—administering healthcare and benefits for those who have served, their families and survivors. Hewlett Packard Enterprise is honored to partner with VA, helping support Veteran healthcare and safety, improving care and access to care and reducing patient risk with real-time decision support. As part of our more than 30-year partnership, we are committed to supporting VA with the IT innovation that enables better health outcomes. Together, we are developing, delivering and maintaining critical applications and software that are meeting the changing needs of Veterans, including delivery of the VA Real Time Location System (RTLS).

I encourage you to read on to learn some of VA VISN 11's achievements with the RTLS program. If you have any questions or comments, do not hesitate to reach me at don.picard@hpe.com.

Don Picard

Vice President, Federal Healthcare
Hewlett Packard Enterprise



What is VA Real Time Location System?

Critical for enhanced patient safety is ensuring the U.S. Department of Veterans Affairs (VA) has real-time visibility into its medical assets and medical staff have optimal equipment and supplies to treat Veterans. To accomplish this, VA and Hewlett Packard Enterprise are rolling out a powerful solution called the Real Time Location System (RTLS). RTLS uses radio frequency (RF) ID tags to give medical facility staff end-to-end visibility across VA facilities via an integrated, easy-to-use portal. Simple, inexpensive tags on objects transmit signals wirelessly to transmitters and receivers throughout the facilities sending information to a computerized tracking system. Data collected from the tags is fed into a unified dashboard and is then used to optimize decision-making, equipment utilization, clinical efficiency, staff productivity and satisfaction, and most importantly patient safety.

RTLS applications used in VISN 11 include the following:

- **Active Asset Tracking:** improves efficiency by providing real-time locations of equipment moving around the medical facility, such as infusion pumps, patient beds and defibrillators.
- **Passive Asset Tracking:** improves efficiency of inventory management with the use of technology that reduces asset scanning time from hours to seconds.
- **Sterile Processing Instrument Tracking and Workflow:** improves patient safety by reducing the possibility of human error in disinfecting scopes and preparing instrument trays for surgery, moving technicians from a paper checklist to an application with automated count sheets, photos and detailed instructions.
- **Cardiac Catheterization Lab Supply Management:** improves patient safety and optimizes resources by maintaining a continuous inventory with 'smart' cabinets. These cabinets automatically update inventory, notify staff in advance of supply expiration dates and continuously monitor par levels, alerting staff when it is time to re-order supplies. This application also tracks recalled products directly to the affected patient or stock supplies within seconds.

Hewlett Packard Enterprise is supporting VA with RTLS, providing program management, operations planning, implementation, testing and training services as well as ensuring site readiness prior to solution roll out. With RTLS, Hewlett Packard Enterprise is integrating various technologies to actively track assets, medical supplies and surgical instruments in real time.



Marilyn Dogan (Detroit VAMC) locates an infusion pump using RTLS. (Suzanne Treachler/HPE)

“Bottom line, with RTLS I know we will never implant a recalled or expired product in a patient, ever. The quality checks and controls RTLS puts in place are critical for patient safety. Would I go back to the way we did it before? No way!”

– **Barbara Clarke, Cardiology Nurse Manager, VA Ann Arbor Healthcare System**

VA Ann Arbor Healthcare System

“At Ann Arbor, we embrace innovation and technology to meet our mission: Honor America’s Veterans by providing exceptional healthcare that improves their health and well-being. With RTLS, we can improve efficiencies and reduce errors—and with 1.1 million square feet of hospital, RTLS helps us locate the right medical equipment and inventories in real time. That is critical for Veteran safety and care.”

– **Chris Cauley, Executive Assistant to the Associate Director, VAAAHS**

Since 1953, VA Ann Arbor Healthcare System (VAAAHS) has provided state-of-the-art healthcare services to more than 65,000 Veterans living in a 15-county area of Michigan and Northwest Ohio. The main hospital campus located in Ann Arbor serves as a referral center for specialty care and operates 109 acute care beds and 40 Community Living Center (extended care) beds. Nearly 875,000 outpatient visits were conducted at our facilities in fiscal year 2015; there were more than 5,500 inpatient episodes of care provided in the hospital and extended care center.

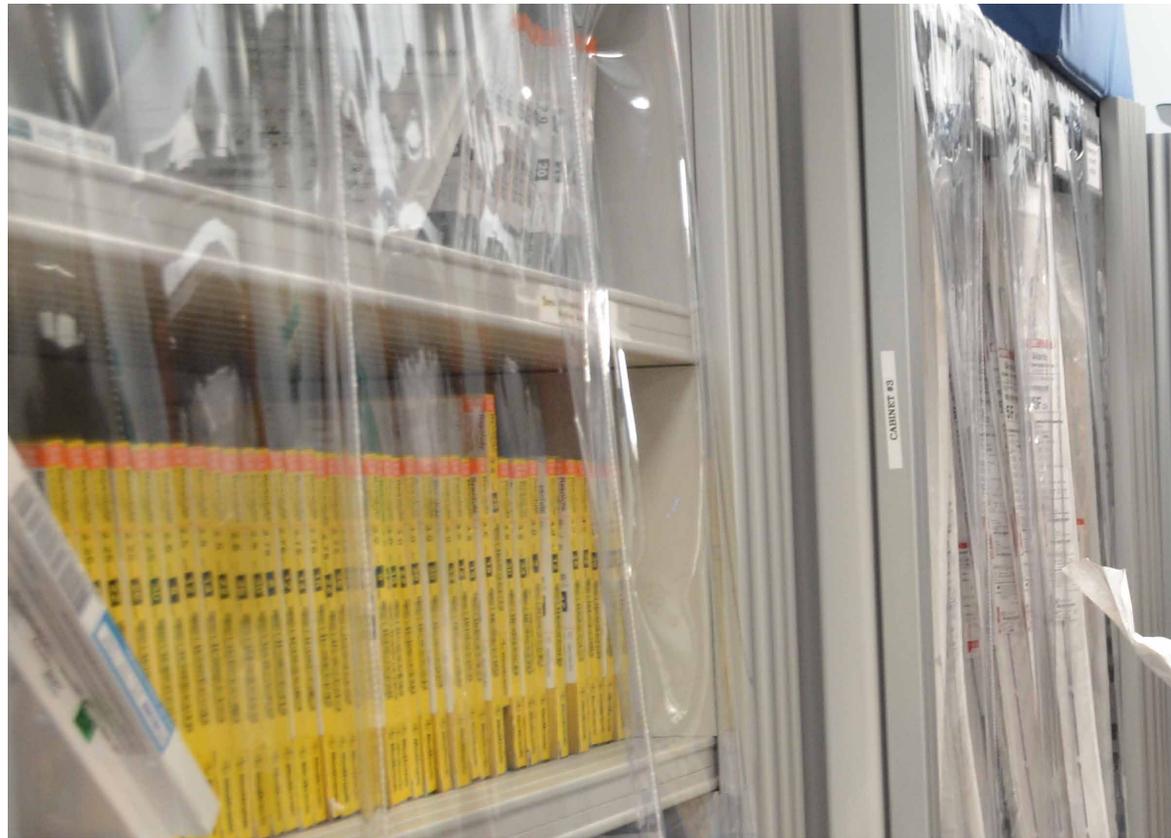




Department of
Veterans Affairs

Ann Arbor
Healthcare System





“The biggest cost savings is being able to anticipate expiration dates. We found that by just by turning RTLS on, it was already saving us \$13,156 a month, which is \$158,000 annually. We haven’t even calculated total cost avoidance yet, but it could be in the hundreds of thousands.”

– **Jordan Miller, Supply Management Specialist and RTLS site lead, VAAHS**

Cardiac Catheterization Lab experiences better patient safety and cost savings with RTLS

Ensuring cardiologists have the critical medical devices needed to treat Veterans undergoing heart procedures, the Ann Arbor Cardiac Catheterization (Cath) Lab turned to the VA RTLS solution. The Cath Lab uses imaging equipment to visualize and treat the arteries and chambers of the heart. With RTLS, initial studies have found improvements in routine inventory management, replenishment activities and proactive management of outdated on-hand supplies. These studies have found that RTLS:

- Eliminated the need to physically scan and count 84 percent of the inventory kept within the Cath Lab primary supply inventory, reducing the time spent identifying stock in need of replenishment on a semi-weekly basis. Because the new replenish process is in real time, the staff does not have to wait for the physical count. RTLS shows which items have reached their restock par levels, decreasing the risk of running out.
- Used the capability of remotely monitoring expiration dates on 84 percent of the product kept within the Cath Lab primary disposable supply inventory. This automated a manual effort where staff previously spent significant amounts of time physically removing all supplies from the cabinet, visually verifying the expiration date on the product and then physically ensuring the supplies were organized in a first-in, first-out inventory rotation. This rotation ensured items with the earliest expiration date were used first.



“By alerting us of expired products, it eliminates the risk of using expired product on a patient—and serves as another built-in patient safety check.”

–Tom Lewandowski, Lead Cardiovascular Technologist, VAAHS

Tom Lewandowski (Lead Cardiovascular Technologist, Ann Arbor VAMC Cath Lab) pulls an item off the RTLS smart cabinets for a procedure. RTLS smart cabinets automatically maintain inventory data when product is added or removed. (Suzanne Treachler/HPE)

Supply tracking and inventory management with ‘smart’ shelving

With thousands of items in the Cath Lab, keeping track of inventory levels, expiration dates and item locations is difficult, expensive and time-consuming. Examples of such assets include stents, catheters, guide wires and artificial heart valves costing as much as \$30,000. “When we got RTLS, it helped right off the bat having everything we needed. With the ‘smart’ cabinets, we know everything we have and exactly where it is. When there are 50 to 60 different types of catheters alone, this makes a huge difference in finding things faster during patient procedures,” said Tom Lewandowski, Lead Cardiovascular Technologist.

Each asset is tagged with RTLS/radio-frequency identification (RFID) tags that communicate with sensors in the smart cabinets and the point of care stations. Those sensors then feed data in real-time back to the central RTLS application. Each time an item is added or removed from the ‘smart’ shelves, the inventory is automatically updated and technicians can instantly locate what they need. RTLS also alerts staff when an item is nearing expiration and notifies vendors when inventory gets too low.

“And by notifying our vendors directly, it saves us time from having to contact them, ensures they provide exactly what we need and has also minimized vendor traffic in our Cath Lab,” added Barbara Clarke, Cardiology Nurse Manager. “That means less of a chance for cross contamination and better Veteran safety measures.”

With RTLS and interfaces to legacy VA systems, the accuracy of what is ordered is significantly improved. The orders reflect what is actually needed instead of what vendors think the lab needs. The automatic notification also saves the clinical staff time in having to communicate orders with vendors. As an item is removed from the shelf and scanned, it automatically adjusts inventory and reporting. This automation saves errors from manual typing, especially when entering in lengthy lot and serial numbers and allows clinical staff to be more efficient in assisting patient procedures. Additionally, all items are associated with an identification number to protect patient privacy.



Marine Corps Veteran, Paul Lehr, underwent a successful Transcatheter Aortic Valve Replacement (TAVR) procedure on Wed. Jan 9, 2015, at the VA Ann Arbor Healthcare System's Hybrid Open Heart Surgical Suite/Catheterization Laboratory. An alternative to open-heart surgery, VAAAHS is one of only 6 VA facilities throughout the country chosen to perform TAVR for eligible patients- a minimally invasive, state-of-the-art aortic valve replacement procedure. Photo by U.S. Department of Veteran Affairs / Released

Efficient and effective product recalls

When product recalls are issued by a manufacturer, the speed and accuracy of pulling those items from clinical operations has a direct patient safety implication. With RTLS, the item is entered into the system and the location of each affected product is made visible with the click of a button. Logistics staff can then immediately target those locations and pull the affected product. Most importantly, facilities can effectively track implants directly to the Veteran in whom the implant was placed. Prior to RTLS, the tracking of these critical patient care items was very labor-intensive and often impossible, but now all implantables as well as any supplies used are scanned directly to the individual patient record.

If at any time there is a manufacturer recall on products in these areas, RTLS can accurately track each recall within seconds. As a result, staff using RTLS can confidently know if any of the recalled product was used during a patient procedure and take appropriate actions.

The RTLS system also has controls that lock an item so that it cannot be ordered until the recall is cleared. "If there is ever a recall of a medical device, it is easy and fast for us to find out exactly which patients may have been affected, or better yet, pull the device before it is ever used," said Cauley.

Cost and time savings

Within the first six months of having RTLS in operation, the Ann Arbor Cath Lab was able to save significantly in expired supply returns alone. This means that the RTLS application would alert staff of impending expirations. Instead of throwing the items away after expiration, the staff is able to alert the vendors with return policies and receive newer replacement products at no extra cost.

"Before RTLS it was cost prohibitive to follow the replacement policies because everything was manual on excel spreadsheets. Now the computer alerts us, and we're able to take advantage of this significant cost saving benefit," said Angela Hernandez, Inventory Manager for Cardiology. Additionally, the Cath Lab staff has programmed the system to automatically send emails to vendors of the expiring supplies so they are able to send replacement product. This also saves the staff time they would spend making phone calls to vendors. "Those savings can go right back to patient care," explained Chris Cauley, Executive Assistant to the Associate Director, VAAHS.

The Cath Lab staff has also been able to better determine item utilization: implantable and non-implantable supplies that are critical to have versus those that are sitting unused on the shelves too long. "We did get things off our shelves that were taking valuable shelf space and costing us money that we knew we should offload. Some physicians and clinical staff were not convinced. Using the concrete data we were getting from RTLS, we could show the surgeons how often or little these items were being used," continued Clarke, "For example, we were able to remove 36 underutilized balloons off the shelf."

RTLS also provides a view into supply inventory levels across medical centers, helping to share VA resources without having to make new purchases where possible. For example, if the Indianapolis VA Medical Center needs additional heart valves and Ann Arbor has extra inventory, it can be shared with no additional cost to VA resources.

"We conducted many mock recalls so the staff could demonstrate their abilities. We were able to trace to the granularity of specific manufacturer lot numbers. Finding the exact items went from being nearly impossible to locating these items in seconds with RTLS."

**– Karla Sandell, Network Chief
Logistics Officer/Senior RTLS
Contracting Officer's
Representative**

"If an item expires, you have to throw it away...it's wasted. With RTLS we can prevent that waste."

**– Eric Hobbs, Total Supply
Support and Inventory
Management Supervisor,
VAAHS**

“An inventory process that previously took me three hours now takes seconds with RTLS.”

– Angela Hernandez, Inventory Manager for Cardiology, VAAAHS

From manual to automated

Before the RTLS solution, counting inventories including expiration dates, was a very manual process. An inventory manager would have to spend hours looking for each individual item which could be hidden in any room, shelf or drawer—sometimes as many as 2,000 line items.

Using the RFID technology that automatically reads inventory levels, this also reduces the human error element of mistakenly miscounting or misreporting assets.

“You not only need stock ready for par levels but you also need to be a good steward of federal government dollars and to not be wasteful. Now with RTLS, if we have excess product on the shelf, we can be more accurate with what we really need and use the data generated with RTLS to make better purchasing decisions,” said Hobbs.

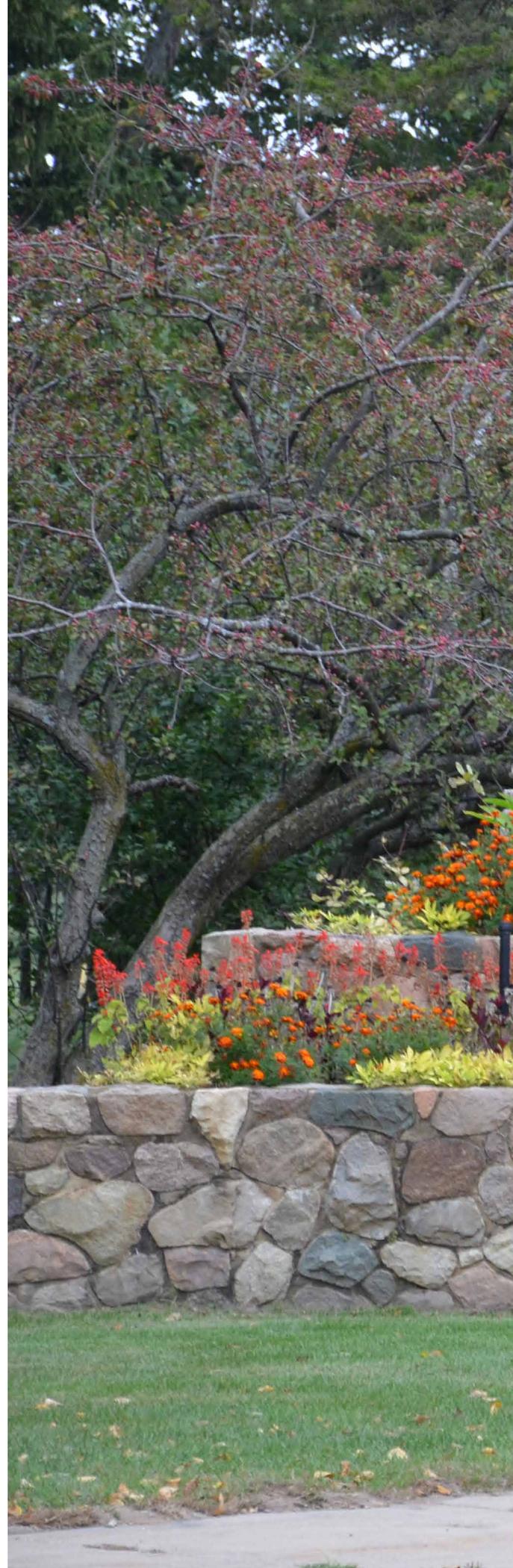
Barbara Clarke (Cardiology Nurse Manager) and Angela Hernandez (Cardiology Inventory Manager) retrieve product in the Cath Lab smart cabinets at VA Ann Arbor Health-care System. (Suzanne Treachler/HPE)

Battle Creek VA Medical Center

“We have had significant accomplishments here at Battle Creek. RTLS fits into that—it brings us into the future—to track our equipment and ensure a state-of-the-art environment as it relates to sterile processing. RTLS was part of our vision of where we wanted to be as an organization. Although there were some challenges with initial implementation, we are already seeing benefits.”

– **Edward Dornoff, Associate Director, Battle Creek VAMC**

Since 1924, the Battle Creek, Michigan VA Medical Center (VAMC) has provided exceptional healthcare services to more than 42,420 Veterans living in a 22-county area of western Michigan. Serving as the mental health referral site for VISN 11, Battle Creek has 206 serene acres and a multitude of programs supporting Veterans and their mental healthcare needs. The Battle Creek VAMC consists of 66 medical and psychiatric beds, 101 residential rehabilitation beds, and 109 nursing home care unit operating beds. In addition, specialized services offered include a Palliative Care Unit, a Substance Abuse Clinic, a Post Traumatic Stress Disorder Program and a Psychosocial Rehabilitation Program.





Department of
Veterans Affairs
Medical Center
Battle Creek



Dawn VanMeter, a Sterile Processing Services (SPS) technician at Battle Creek VAMC in Michigan, prepares instruments for sterilization. This is part of the step-by-step SPS workflow to ensure patient safety. (Suzanne Treachler/HPE)

Providing better patient safety and infection prevention

Keeping Veterans receiving treatment safe from infection, the Sterile Processing Services (SPS) department uses the VA Real Time Location System (RTLS) to ensure proper workflows, accuracy and eliminate the risk of human error. “Patient safety and infection control is critical. Before RTLS, staff used to have to write everything down—every item they processed, every step they made—and it took hours to days to track items down if we had a recall,” said Kristen Lemke, Assistant Chief for SPS at Battle Creek. “Now with RTLS, every item is traceable and we can recall it with the press of a button. We know exactly where those items are and can stop a recall before it ever leaves SPS or comes near a patient.”

SPS is responsible for making certain that all 18,000 pieces of medical equipment and instrumentation continually follow the proper workflow for cleaning and sterilization before being released for Veteran care. “Our job is to protect our patients. There are a number of different processes we need to follow to ensure every single piece of equipment is clean and uncontaminated,” said Javier Alvarado, Chief of SPS at Battle Creek. “RTLS was the outcome of VA’s effort to come up with new ideas to improve patient care. It affords us a standard process to reduce errors and provides us more visibility and accountability into those processes.”

Cost savings

In two instances, SPS was able to save the hospital a combined total of \$56,331 by using RTLS to apply critical thinking to reduce costs: “We were able to eliminate costs by using instruments we already had in our inventory,” stated Alvarado, “For example, our dental department recently needed a new complex oral surgery set that require several instruments we didn’t have available. However, using the RTLS solution, we ran a utilization rate report to find out how many times they utilized a different set they already had. We found out they had 75 universal sets but only used approximately 25 of them in a weekly basis. Based on this information, we eliminated 25 of the universal sets and used the excess instruments to create the new surgery sets. We saved \$24,436 with that single effort. If we didn’t have the system, it would have been a purchase. We also were able to save an additional \$31,895 on new instrument requests for our other clinics.” Furthermore, with better visibility into inventory and item substitutions, Sterile Processing Services was able to avoid the purchase of any new equipment in 2015 altogether.



Pictured above: A technician inspects the 2D matrix barcode on a dental instrument as part of the RTLS tracking solution. (Suzanne Treachler/HPE) Pictured below: Javier Alvarado (Chief of Sterile Processing Services, Battle Creek VAMC) visually inspects dental instrumentation. (Suzanne Treachler/HPE)

“Every single request for new instruments this year did not have to be a new purchase. With RTLS, we had better information into utilization and inventory.”

– **Javier Alvarado, Chief of Sterile Processing Services, Battle Creek VAMC**



An SPS technician demonstrates the scope sterilization process. (Suzanne Treachler/HPE)

Automated quality checks and improved accuracy

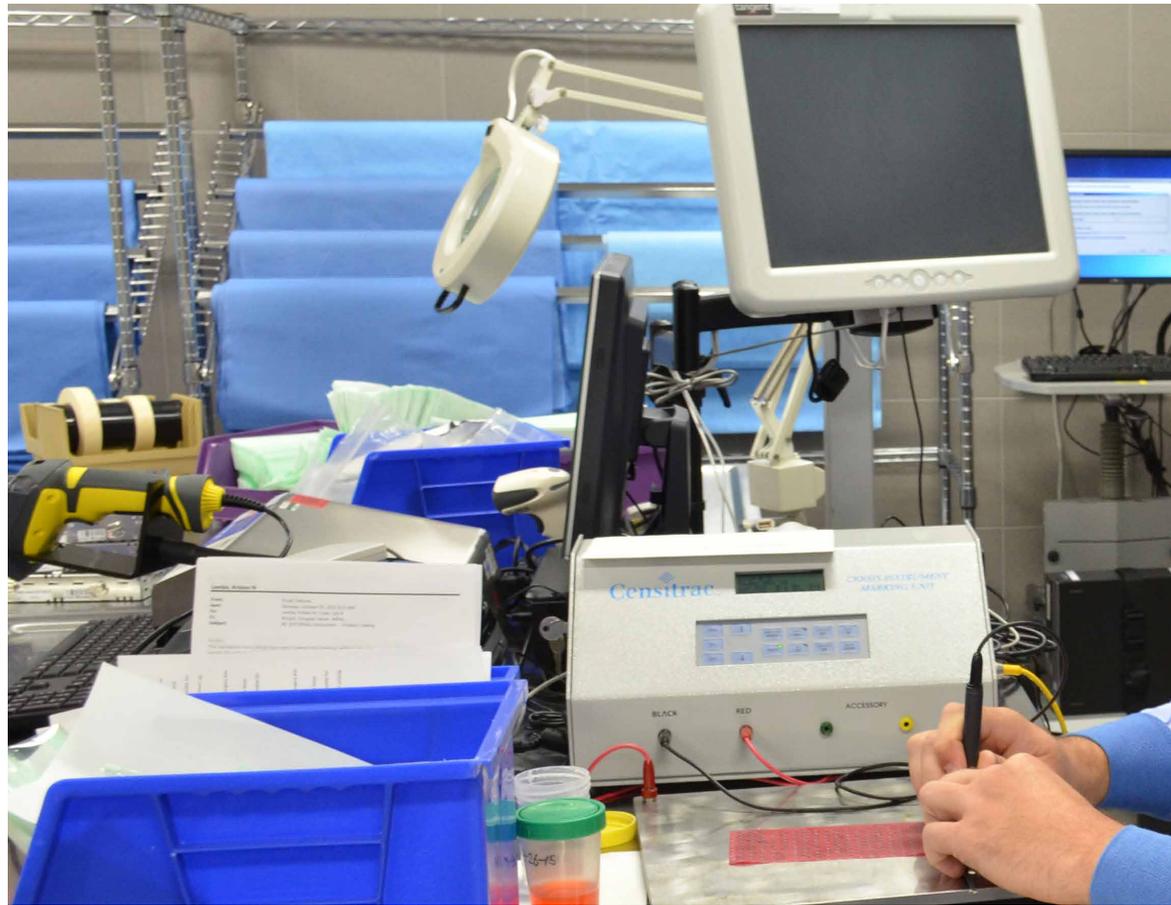
Another important patient safety benefit centers around special instructions for the decontamination of certain medical equipment. Some reusable medical equipment and instruments have a limit on the number of times it can be cleaned before it must be thrown away. “For example, some of our pulmonary service equipment can only be used 20 times, another item only 10 times, then must be discarded. Before it was very difficult to keep track of how many times each specific item passed through SPS. Now with RTLS, we receive an automatic system alert. It completely removes the risk of human error,” stated Lemke.

Ensuring physicians and dentists have the tools they need immediately, RTLS has helped SPS to improve the quality and accuracy of instrument sets. Photos of each item are included in the Sterile Processing Workflow application that aids technicians as they build instrument trays. This helps to easily train new technicians and reduce errors. RTLS has also helped staff to identify instrumentation that clinical staff have deemed as appropriate substitutes to a more common tool for a procedure. “RTLS includes photos so we can quickly see product nuances, such as a tiny hook on a dental instrument, and approved substitute items for a medical tray. The photo also helps us identify and remove damaged instruments. With more than 3,000 different types of instruments, that is a lot to memorize. But with RTLS, you can be accurate with the touch of a button,” said Karla Sandell, Network Chief Logistics Officer/Senior RTLS Contracting Officer’s Representative.

One module that is also improving patient safety is the Scope Processing Module. This RTLS function allows SPS staff to track the entire endoscope sterilization process. Scopes are used in minimally invasive surgeries and require a more complicated cleaning process after use than most equipment.

“The RTLS Scope Processing Module? I love it! Before RTLS there were manual processes that could present patient risk. Now we have automatic quality checks and reduced risk.”

– Javier Alvarado, Chief of SPS, Battle Creek VAMC



Steven Bortolussi, a Sterile Processing Services (SPS) technician at Battle Creek VAMC in Michigan applies the 2D matrix barcode to a newly purchased dental instrument. (Suzanne Treachler/HPE)

“We have an inventory of about 63 million dollars of equipment at our medical center. To be able to manage that, RTLS provides a great opportunity. To ensure patient safety and be the best stewards of government property, it is critical we know where our assets are at any given time.”

– **Edward Dornoff, Associate Director, Battle Creek VAMC**

Asset tracking improves efficiency and fiscal responsibility

In addition to SPS, Biomedical Engineering uses RTLS to perform preventative maintenance on the medical equipment used to treat Veterans. “We have anywhere from 160 to 300 assets per month requiring preventative maintenance. It is time consuming to search this campus-style facility with 10 major patient care buildings spread over 206 acres. Prior to RTLS we had a manual color coding system. Now we can type an item into the system and know exactly which building and room number, within three feet of its location,” said Angela O’Dell, Biomedical Support Specialist/Facility RTLS Program Manager.

RTLS has become a critical tool for asset recalls, repairs, item availability and managing costs. In just a few seconds, the staff can use RTLS to determine inventory levels, numbers of medical sets, turnover of those sets, expiration dates, recalls, special instructions and cost.

“The best cost improvement in my opinion,” continued O’Dell, “is the time saved for completing annual inventories. The time spent inventorying assets has been more than cut in half and that is a big cost saving.”



“It’s giving you accurate and concrete data that management can use to make more informed decisions and analyze that data for better resource management, allocation and productivity.”

– Karla Sandell, Network Chief Logistics Officer/Senior RTLS Contracting Officer’s Representative

Staff time savings reallocated to Veteran care

With RTLS, SPS leadership have precision data on staff productivity and utilization. Knowing how long it takes to perform certain tasks, they are better able to allocate proper resources. Understaffing can quickly become a patient safety issue, and management can use RTLS data for justification on staffing level increases. “I needed more technicians in Sterile Processing Services, and I was able to use the data from RTLS to justify my request to upper management. As a result, we were able to get approval to hire four additional technicians,” exclaimed Alvarado, “And as we open a new facility in Wyoming, Mich., I am able to use the RTLS data analytics to plan the optimal resources needed.”

RTLS also helps SPS staff be more efficient. In addition to having real-time visibility into inventory levels, the solution allows staff to easily send notifications to quickly and accurately request purchase orders. “If the system shows we are coming up short for a particular item, we simply send a note to logistics for the quantity needed. All the product information is already in there, ensuring streamlined and accurate purchase orders,” said Alvarado.

The Biomedical Engineering team recollected a pre-RTLS recall for software on 60 infusion pumps, the device that delivers fluids into a patient’s body in controlled amounts. At the time, it took a technician two-and-a-half days to perform the recall. “With RTLS, a recall like this would have taken half the time,” exclaimed O’Dell, “We have found that RTLS is accurate in finding assets 100 percent of the time.”

Detroit VA Healthcare System

“RTLS is a lot easier than we thought it would be. Essentially it comes down to patient safety and care. RTLS helps because it saves time that a patient would have to wait while the staff hunts for the medical equipment needed for their care.”

– **Annette Walker, Associate Director, Detroit VAMC**

Since 1939, the Detroit VA Healthcare System in Detroit, Mich. has been improving the health of more than 330,000 Veterans living in Wayne, Oakland, Macomb and St. Clair counties. In addition to the main facility in Detroit, the medical center offers healthcare services in two community-based outpatient clinics.





“With RTLS, it takes days instead of weeks to locate everything, so we are now better able to successfully complete recalls on time.”

– Robert Hijazi, Chief of Biomedical Engineering, Detroit VAMC

Ensuring the safety of medical equipment

Preventative maintenance

Making certain that essential medical equipment is maintained with minimal disruption to Veterans or clinical staff providing treatment, the Biomedical Engineering (Biomed) team uses RTLS to perform their work orders more efficiently. The Biomed team manages the hospital’s technology program, responsible for troubleshooting and preventative maintenance for thousands of medical devices throughout the hospital. They perform an average of 350 preventative maintenance work orders per month on equipment such as blood pressure machines, electrosurgical units, infusion pumps and aspirators.

When performing preventative maintenance, the Biomed team begins with the readily available devices. However, there is always equipment that is harder to find, and that is where RTLS comes in. “At end of the month we have about 10 percent of equipment preventative maintenance work orders pending that we can’t locate. By using RTLS, we save time from having to walk around the entire medical center and locate it. It’s more efficient,” said Robert Hijazi, Chief of Biomedical Engineering.

Safety recalls

The Biomed team also uses RTLS for recalls, when rapidly locating equipment is critical. “When we talk about recalls, this could affect patient safety: so this is PRIORITY,” said Hijazi.

Recently, more than 200 of the facility’s infusion pumps were recalled due to a display malfunction. In some cases, the manufacturer found that the pump could stop delivering fluids to the patient. The manufacturer’s technicians were onsite for one week to repair the equipment, so it was essential that every recalled pump was found and brought to the technicians quickly. Using their knowledge of the facility layout and assisted by RTLS, the Biomed team methodically located first the unutilized equipment for repair, followed by the in-use devices, which they swapped out with already-repaired pumps to ensure patient safety. With RTLS, the team was able to find 100 percent of the recalled items.

“In the past, it was like finding a needle in a haystack because these types of equipment move all over. With RTLS, you can locate equipment in real time, and even see the asset moving on the map.”

– Karla Sandell, Network Chief Logistics Officer/Senior RTLS Contracting Officer’s Representative



Jesse James (Biomedical Engineering Technician, Detroit VAMC) performs preventative maintenance on a piece of hospital equipment. (Suzanne Treachler/HPE)

“RTLS cuts down on the time the patient is not receiving the care they need. To me that’s the whole purpose of RTLS: to ensure Veterans get what they need as fast as possible.”

– Marilyn Dogan, Supervisor of Property Management, Detroit VAMC

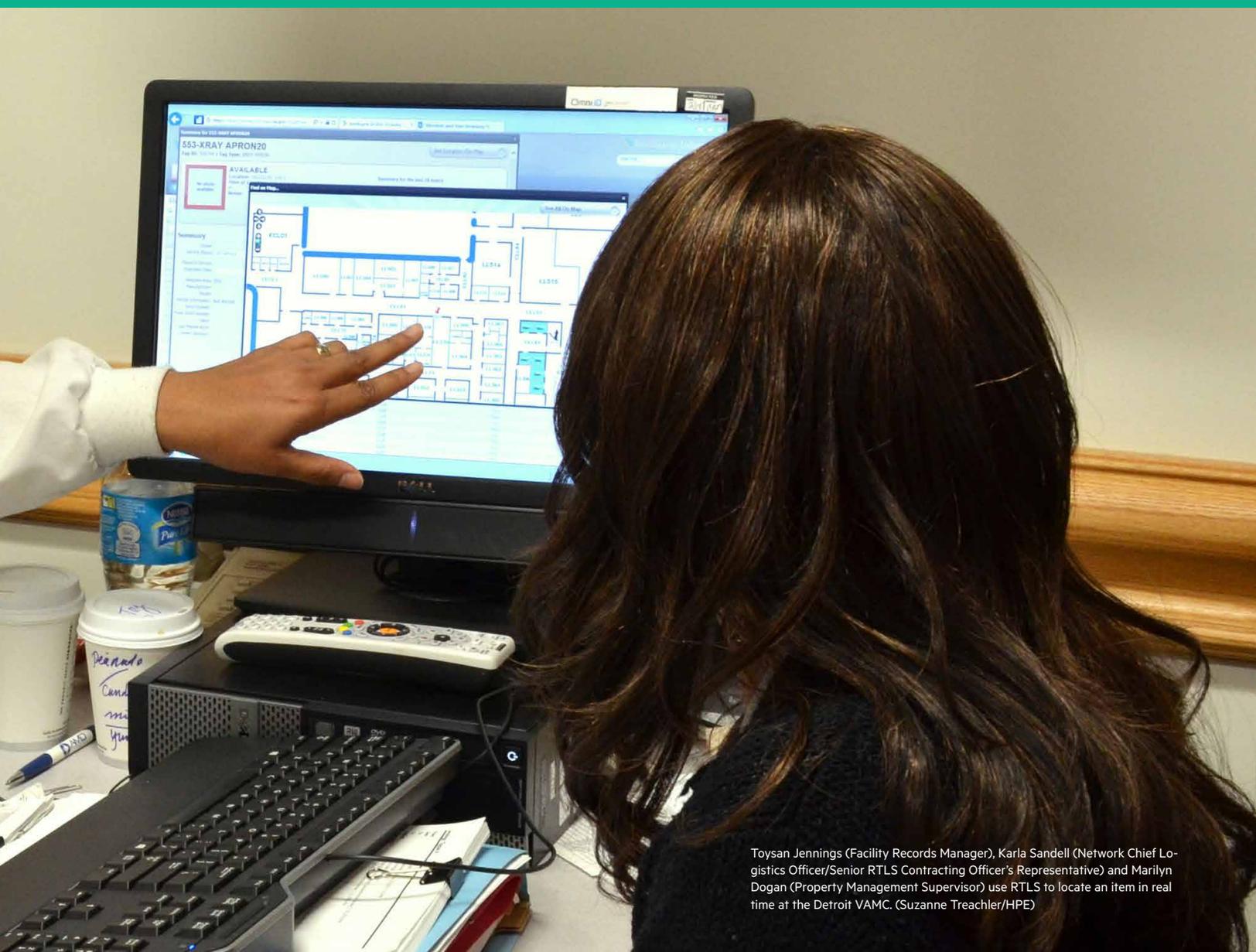


Tracking assets throughout the facility

The ability to quickly find a needed piece of medical equipment is crucial to patient safety. When clinical staff are in need of equipment, they turn to the Logistics Services Property Management team to find it. Pre-RTLS, if a nurse requested help finding a specialized patient bed, the supervisor would have to send her team out to manually search the 1.3 million square foot facility level by level. “You have a bariatric patient who just came out of surgery waiting for a bed lying on a stretcher,” explained Marilyn Dogan, Supervisor of Property Management. “They have to wait until we search for it and then clean it. There were times we couldn’t find one. We would have to call and rent one, which costs time and money.”

Now the Property Management team can use RTLS to identify all the bariatric beds and their locations in real time. Then they can see where those beds are and identify which bed is closest for faster retrieval. RTLS also lets them know which beds are currently in use and which may be available. “With clinical staff focused on direct patient care, equipment can be placed in whatever storage area is convenient, which made it very difficult to locate before we had RTLS,” said Toysan Jennings, Facility Records Manager.

Another example of RTLS addressing improved patient care is tracking the location of sequential compression devices, used to prevent blood clots after surgery. It is essential to have this device right away— with RTLS, hospital staff can locate those devices automatically instead of physically hunting for them.



Toysan Jennings (Facility Records Manager), Karla Sandell (Network Chief Logistics Officer/Senior RTLS Contracting Officer's Representative) and Marilyn Dogan (Property Management Supervisor) use RTLS to locate an item in real time at the Detroit VAMC. (Suzanne Treachler/HPE)

Streamlining the inventory process

Before RTLS, hospital staff performed inventories manually, scanning items individually throughout the storage areas, research labs and patient rooms. “In some cases, we were crawling on the floor of patient rooms trying to find bar codes on equipment,” exclaimed Dogan. It could take weeks to perform an equipment inventory list (EIL), but now with the passive tagging solution the inventory can be done in a matter of hours. For example, the research department maintains 28 EILs, each containing 40 to 200 items. With RTLS, they can simply wave a scanning wand in the research area instead of scanning each individual item.

“Now the research staff responsible for inventory can spend more time on research, as opposed to time spent locating and scanning assets.”

– Marilyn Dogan, Supervisor of Property Management at Detroit VAMC

Protecting equipment from theft or misplacement

The Property Management team also uses RTLS to protect government-owned equipment from leaving the facility. “We have exit alerts in the RTLS program when an asset leaves the building,” said Dogan. “We know which doors are commonly used for people to go outside and get fresh air. But there are certain doors that assets should not be passing through, such as parking. With RTLS exit alerts, we are able to dispatch staff to investigate immediately.”

With RTLS, the team can pinpoint the exact time and place a piece of equipment left the facility. They can use that information to find the relevant surveillance camera footage, which saves time in any missing equipment investigations. This also helps keep track of equipment that is shared with other facilities. By helping to prevent loss of equipment, RTLS helps the Detroit VAMC avoid replacement costs and ensures that equipment is available for patient care.





Toysan Jennings (Facility Records Manager, Detroit VAMC) locates a patient bed using RTLS. (Suzanne Treachler/HPE)



“By alerting us of expired products, RTLS eliminates the risk of using expired equipment on a patient—and serves as another built-in patient safety check.”

– Dr. Ronald Kitchen, Chief of Dental Service, Detroit VAMC

Dental tray accuracy and sterile processing

Dr. Ronald Kitchen, Chief of Dental Service at Detroit VAMC, and his team began using RTLS to improve patient care and reduce the risk of human error in dental kits. When a patient is in the dental chair, it is important for the dentist or oral surgeon to have the proper instruments in the procedure room at that moment. Even more important is knowing that instruments have been properly sterilized and are not damaged.

When new Sterile Processing Services (SPS) employees are hired, it's challenging to train them on the diverse array of dental instruments. The RTLS SPS application includes pictures and suggested tool substitutes, making it easy for staff to accurately assemble the dental trays. It also guarantees dental instruments have been through the proper cleaning process. “There are several hundred unique dental instruments that are organized into specific sets such as exam or implant kits,” said Kitchen. “RTLS gets technicians up to speed faster, improves tray accuracy and ultimately enables better Veteran care.”

RTLS also provides a quality feedback mechanism for clinical staff to communicate to the SPS department in real time. “The dentist can give feedback into the RTLS system to ensure changes and improvements can be made to the tray builds,” stated Kitchen.

Dental inventory management

Dr. Kitchen's team also uses RTLS' SPS instrument tracking solution to reduce manual processes. With RTLS, inventory levels are tracked automatically and thresholds are maintained, including adjustments for when broken instruments must be removed from rotation and sent out for repair.

RTLS instrument tracking saves hospital staff time in locating instruments for patient care. Instruments are often shared among departments. When the dental team needs a piece of equipment returned, they can use RTLS to locate the item in minutes. “I used to have my whole crew manually looking for things when we couldn't find them. For example, we had implant hand pieces sent to orthopedic and we needed them back. With RTLS we found them instantly,” added Kitchen.

Cost savings

Saving Detroit VAMC from the cost of ordering unnecessary equipment, RTLS instrument tracking helps to manage inventory. The same tracking function helps to avoid misplaced tools. “This also helps us to know if equipment walks out. For example, one hand piece costs \$800. I'm responsible for keeping count,” said Kitchen, “RTLS helps us to be smart and to not be wasteful.”



Dr. Ronald Kitchen (Chief of Dental Service, Detroit VAMC) inspects instruments in a dental kit prepared by Sterile Processing Services using RTLS. (Suzanne Treachler/HPE)



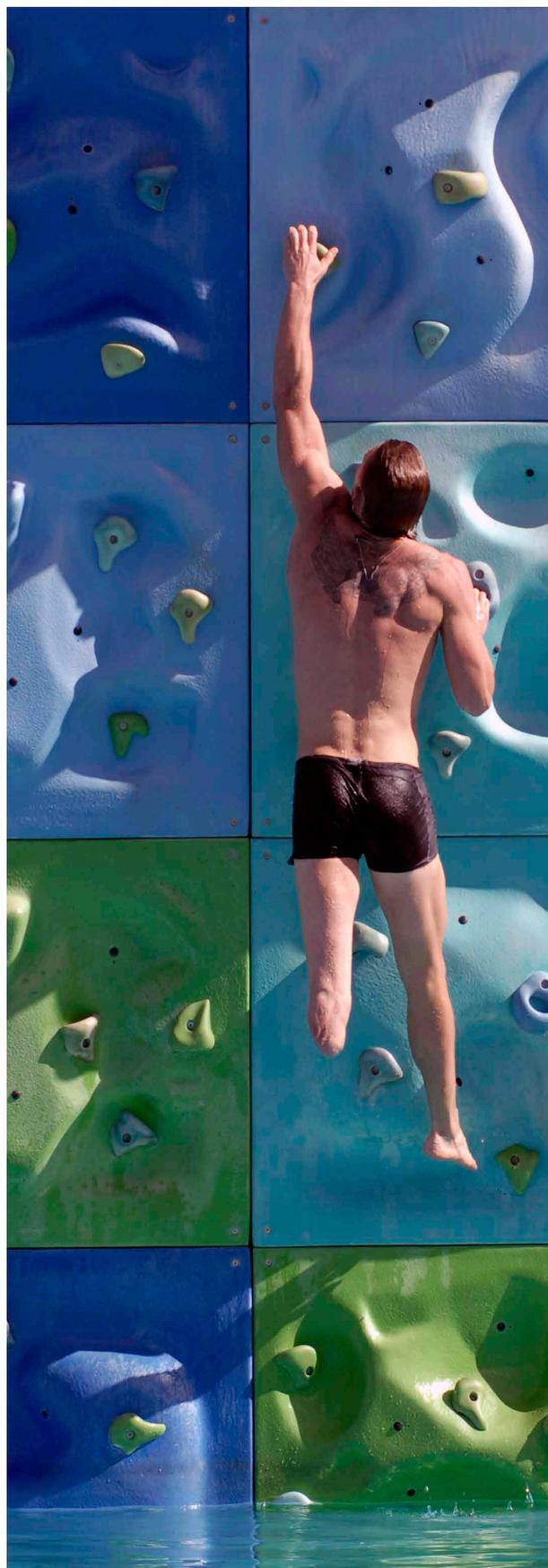
Marilyn Dogan (Detroit VAMC) locates an infusion pump using RTLS. (Suzanne Treachler/HPE)

Helping wounded Veterans transition back into the workforce

Providing wounded warriors with skills and confidence to return to the workforce, the Detroit VAMC participates in the Compensated Work Therapy Program (CWT). RTLS is a key aspect of that program, as it provides the opportunity for participating Veterans to learn new technology and skills. As part of the program, CWT Veterans assigned to Property Management Section use RTLS to track medical inventories and to troubleshoot any problems. Medical staff and Administrative supervisors including Marilyn Dogan, serves as mentors. Upon completion of a recent work study, 99 percent of the participants were hired by the federal government. This proved not only to be a benefit to the wounded Veterans, but also to the federal government by gaining skilled employees who are passionate about the VA mission.

“The wounded Veterans we worked with were simply amazing. They truly understand the role this technology plays in getting Veterans the best care, since they know firsthand what it’s like to be a patient.”

– Marilyn Dogan, Supervisor of Property Management, Detroit VAMC



Aleda E. Lutz VA Medical Center

“When we need a piece of equipment, we can easily find it. If you are looking for something that isn’t where it should be, you can find that. Veteran care is not delayed.”

– **Patricia Topham, Acting Associate Director for Patient Care Services and Nurse Executive, Saginaw VAMC**

Since 1950, the Aleda E. Lutz VA Medical Center (VAMC) in Saginaw, Mich. has been providing healthcare to more than 32,700 Veterans living in 35 counties of Michigan’s Lower Peninsula. Their services include primary care, mental health services, at-home physical and occupational therapy and specialty clinics. The Saginaw facility also includes an 8-bed acute care unit and an 81-bed community living center.





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VAC

Improved availability of assets

The Saginaw VAMC staff relies on RTLS to help them find medical equipment and provide timely care to Veterans. “With RTLS, when we need a piece of equipment, we can easily find it. Veteran care is not delayed,” said Patricia Topham, Acting Associate Director for Patient Care Services and Nurse Executive.

Not only does RTLS allow the staff to find assets in real time, it also has the capability of additional customized rules and alerts that can enhance the asset management process. “We keep a number of suction machines in our clean storage area,” said Topham, “We have rules built that we always need one in there, so we set up an automatic alert to have SPS deliver a clean suction machine to the storage room when the inventory reaches a certain level.”

The staff also uses RTLS’ exit alert capability to track assets that leave the facility. “When we have an emergency transfer, we are very focused on quickly completing the transfer for the safety of the Veteran. Sometimes the telemetry equipment remains with the patient. We can use RTLS to track when and where the assets left the facility, which enables us to contact emergency medical services and ask them to return the equipment after they complete the transfer,” explained Topham.

Enhanced inventory process saves time and money

With the help of RTLS, the extra time previously spent on an arduous inventory process can now be used to provide more quality care to the Veteran. Not only does RTLS’ passive tagging solution automate the scanning process, but the real-time location capability also helps the staff locate missing equipment during the inventory process. “Accountability of government equipment isn’t taken lightly,” explained Topham, “I have stayed after hours looking for a certain item. If I can’t find it, I have to write a letter to the director and the police. Sometimes we later find the item in an obscure area in the basement. It’s very serious here if you don’t find all your equipment each year when you perform your inventory.”

“RTLS helps us to be more fiscally responsible,” continued Topham, “since we have a better view into equipment levels. If we have a surplus, we can be send them to another facility that might need them more.”

“This has been a huge time saver when we are doing our annual inventory. What used to take days now takes a few hours.”

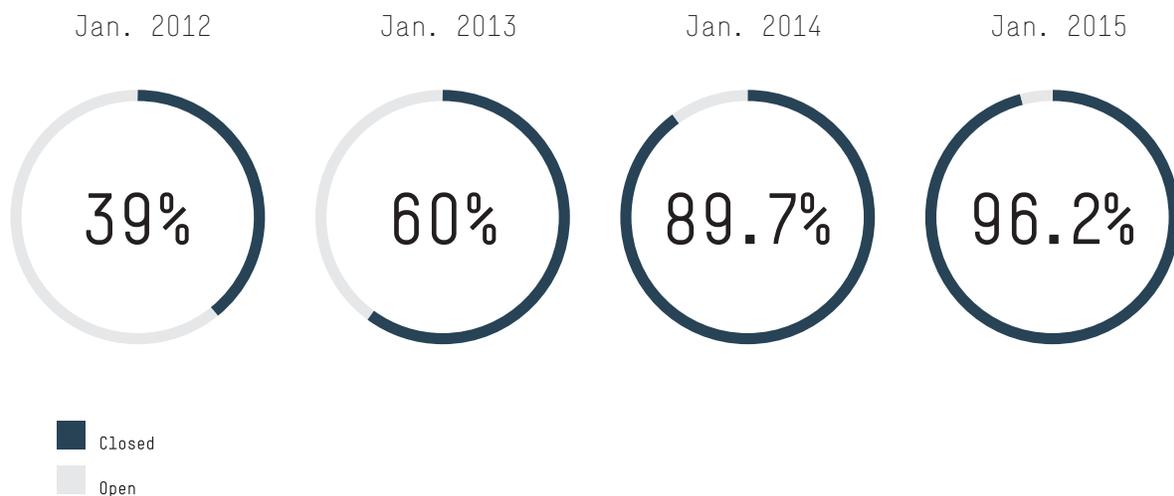
– Patricia Topham, Acting Associate Director for Patient Care Services and Nurse Executive, Saginaw VAMC

“Without a doubt our RTLS system has been a great asset for the Biomed team in locating the equipment when repairs are needed as well as completing scheduled maintenance in a timely manner.”

– Nathan Cox BESS, Biomedical Engineering, Saginaw VAMC

A 53.6 percent improvement in closed preventative maintenance work orders

RTLS helps the Saginaw Biomed team more efficiently and accurately locate equipment for Preventative Maintenance (PM) orders. A study completed by Nathan Cox BESS, Biomedical Engineering in Saginaw found that RTLS helped the Biomed team close 96.2 percent scheduled preventative maintenance orders within 30 days in January 2015. In 2012, before RTLS, the team only closed 39 percent. The active RTLS solution was rolled out in the summer of 2013, with expansion in granularity late 2014.





Carolyn Hannah-Ray (Biomedical Engineering Technician, Detroit VAMC) inspects an infusion pump that was located using RTLS. (Suzanne Treachler/HPE)

VA Illiana Health Care System

“Overall, the RTLS program has been fantastic.”

– **Sam Ganti, Chief of Biomedical Engineering,
Danville VAMC**

Since 1898, the VA Illiana Health Care System in Danville, Ill. has been improving the health of more than 150,000 Veterans living in the surrounding 34-county areas of Illinois. In addition to the main facility in Danville, the VA Illiana Health Care System also offers services in four community-based outpatient clinics and is noted for being the eighth oldest VA facility.



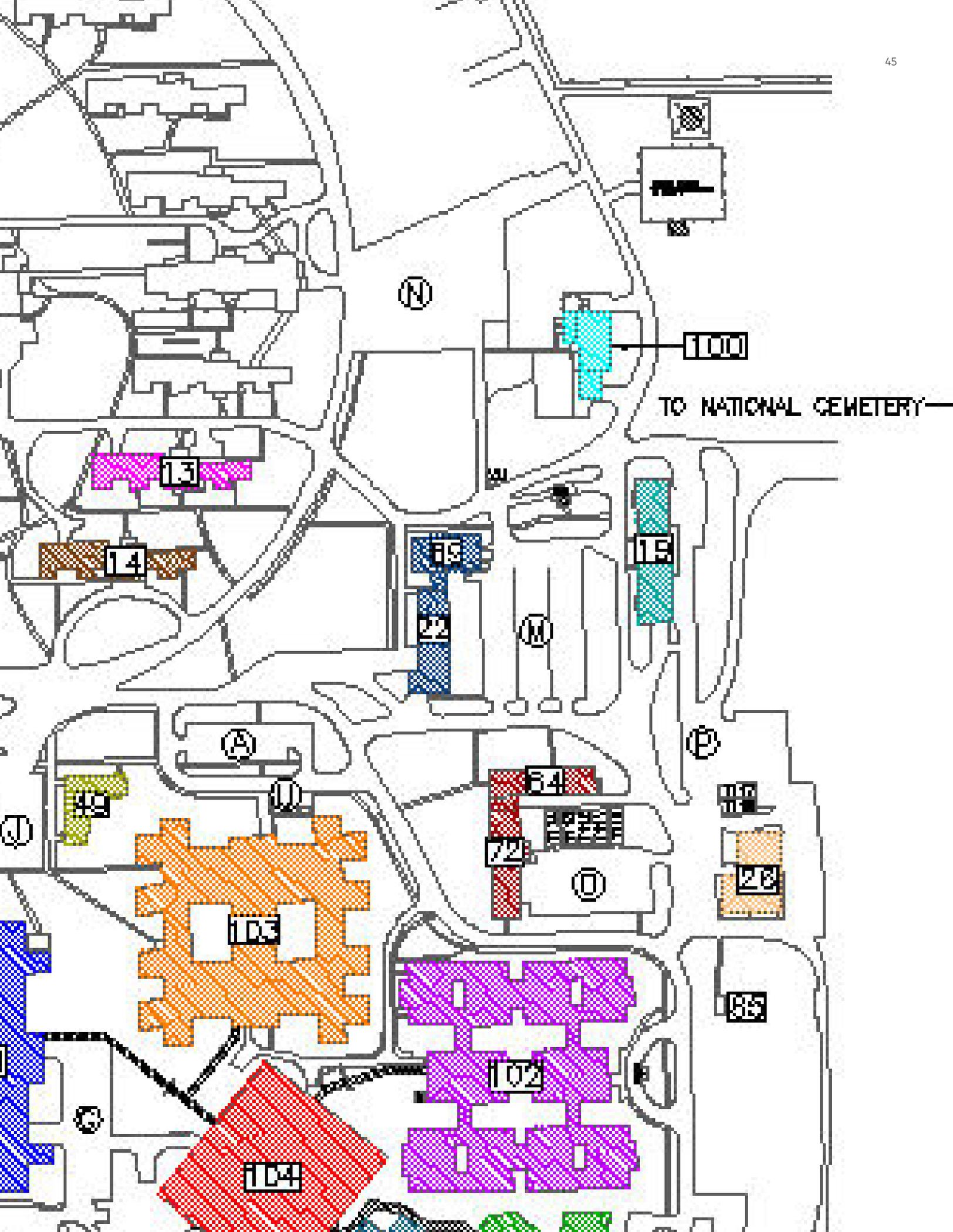


Optimizing time spent on equipment maintenance

With one hundred buildings across a large campus and 2,600 medical devices requiring maintenance, the Biomedical Engineering team has a lot of ground to cover. “I walk at least six miles a day,” exclaimed Sam Ganti, Chief of Biomedical Engineering for the Danville VAMC. Before RTLS was implemented in 2012, Ganti’s team had to look throughout the facility for devices, which was very time consuming. “RTLS is immensely helpful to us,” explained Ganti. “Equipment such as infusion pumps and suction machines move from one room to another. Prior to RTLS, we spent a lot of time looking around and asking everyone where the equipment is. Now when inspection time comes, we go through RTLS and go directly to the location and the item is available. It’s a huge time saver.”

“Time is money. I have the right number of technicians to provide maintenance on the equipment, but I don’t have the staffing level for everyone to look around for equipment all the time. If I reduce the time my staff spends searching, I can be efficient with my resources.”

– **Sam Ganti, Chief of Biomedical Engineering,
Danville VAMC**





“We’ve been able to improve our efficiency, which frees up our nursing staff to have more hands-on time with patients. That’s the goal, that’s why we’re here, to take care of the Veteran.”

– Kathy Christensen, OR Charge Nurse, Danville VAMC

Improving patient care in the Operating Room

With four operating rooms (ORs) and two endoscopy suites, the OR staff of the Danville VAMC rely on RTLS to help manage their surgical instruments. “RTLS has been very beneficial because our inventory is massive with more than eleven thousand instruments,” said Kathy Christensen, OR Charge Nurse. “We can now instantly know exactly where our instruments are located.”

This has proven to be especially useful when the staff needs to prep for atypical surgeries. “In the old days,” explained Christensen, “It would take a while to find equipment we don’t use often. We would have to call Sterile Processing Services and various other departments to find it. RTLS has eliminated this time consuming process.”

Having equipment available at the right time is critical. Continued Christensen, “If we’re in surgery and the physician asks for a piece of equipment that isn’t in the room, we can find it immediately. This significantly improves patient outcome because we don’t have to prolong the time the patient is on the table under anesthesia.”

In addition to non-standard requests during surgery, with RTLS standard surgical trays are also more reliable. “Because instrument tracking has improved with RTLS, there have been fewer instances of incomplete surgical sets, so we don’t have to go out as often to look for missing instruments,” said Christensen.



Richard L. Roudebush VA Medical Center

“I need an accurate system that tells me where my assets are when I need them. I need it to be user friendly for my staff, and I need a resource at the end of the year that tells me how effective my utilization is. I believe RTLS can help us achieve all of that.”

– **Dr. Ginny Creasman Pharm.D., Acting Medical Center Director, Indianapolis VAMC**

Since 1932, the Richard L. Roudebush Indianapolis VA Medical Center (VAMC) in Indiana has served as the state’s tertiary care facility. It receives referrals from VA facilities at Ft. Wayne and Marion, Ind., and from nearby Danville, Ill. The medical center provides acute inpatient medical, surgical, psychiatric, neurological, and rehabilitation care, as well as both primary and specialized outpatient services. The medical center was selected as the site for the Veterans in Partnership VISN 11 Network Polytrauma Center and is providing ongoing support to the returning Veterans from Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF). Additionally, the medical center has a 50-bed Domiciliary Residential Rehabilitation Treatment Program targeting homeless Veterans.





Performing preventative maintenance more efficiently

The Biomedical Engineering team at the Indianapolis VAMC is responsible for the maintenance of \$85 million worth of medical equipment for Veteran care. The team performs preventative, proactive and corrective maintenance to ensure the equipment is in proper working order and complies with strict VA guidelines. RTLS helps the staff perform their job faster by locating hard-to-find equipment.

Recently there were a couple hundred infusion pumps due for preventative maintenance (PM). The team performed a floor-by-floor sweep to locate the equipment, and yet there were several pumps they could not locate. Using RTLS, the team was able to search for those exact pumps in the system and find their location.

In addition to PM, the team uses RTLS for everyday item location. “If I need a pump, I can know exactly where the closest one is. That’s a patient safety improvement to me,” said Creasman.

RTLS also affords nursing staff more time toward direct patient care. “If a nurse calls down from 8 North and says a specific pump is broken, they don’t have to give us the room number or location. We can use RTLS to find it and get that room a working pump immediately,” said Keebaugh.

RTLS is especially useful for tracking mobile equipment such as patient beds. “Beds float around and are always moving. If we need to perform preventative or corrective maintenance on a specific bed, it can be hard to locate. With RTLS, the beds are tagged, and we can follow their movement whether it’s in a hallway, the bed shop for repair, or in a patient room,” said Keebaugh.

“It really helps pinpoint the precise location—whether clinical room, storage closet or hallway. With RTLS, the team completed 93 percent of the infusion pump PMs in 60 days, above our target of 90 percent and in significantly less time compared to before RTLS. Our technicians were able to use that extra time to focus on their other responsibilities in support of Veteran care.”

– Jordan Keebaugh, Assistant Chief of Biomedical Engineering and RTLS lead/project manager at Indianapolis

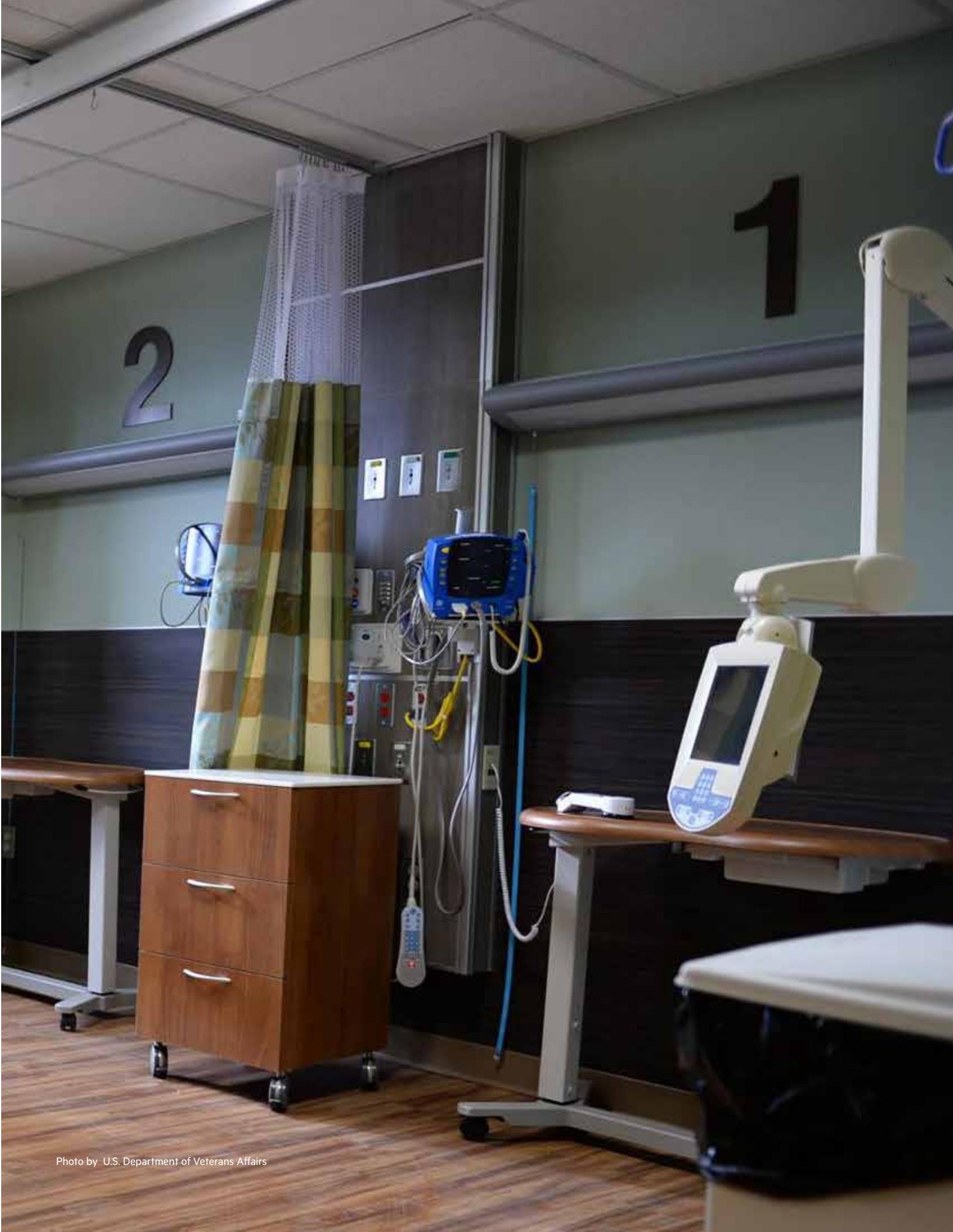


Photo by U.S. Department of Veterans Affairs



A user-friendly system

The RTLS interface is user friendly for the support and clinical staff who use it. “For us it was pretty easy to learn, very straightforward. You can look up equipment in several different ways; it’s very intuitive,” said Keebaugh.

“It’s easy to learn and the system itself is fairly user friendly. You push a button and off you go,” added Sanders. Ultimately, RTLS helps staff be more efficient, allowing more time for direct patient care.

“RTLS definitely helps us to do our jobs better and faster. If nursing and clinical staff have equipment faster, they have more time for direct patient care.”

– Jordan Keebaugh, Assistant Chief of Biomedical Engineering and RTLS lead/project manager, Indianapolis VAMC

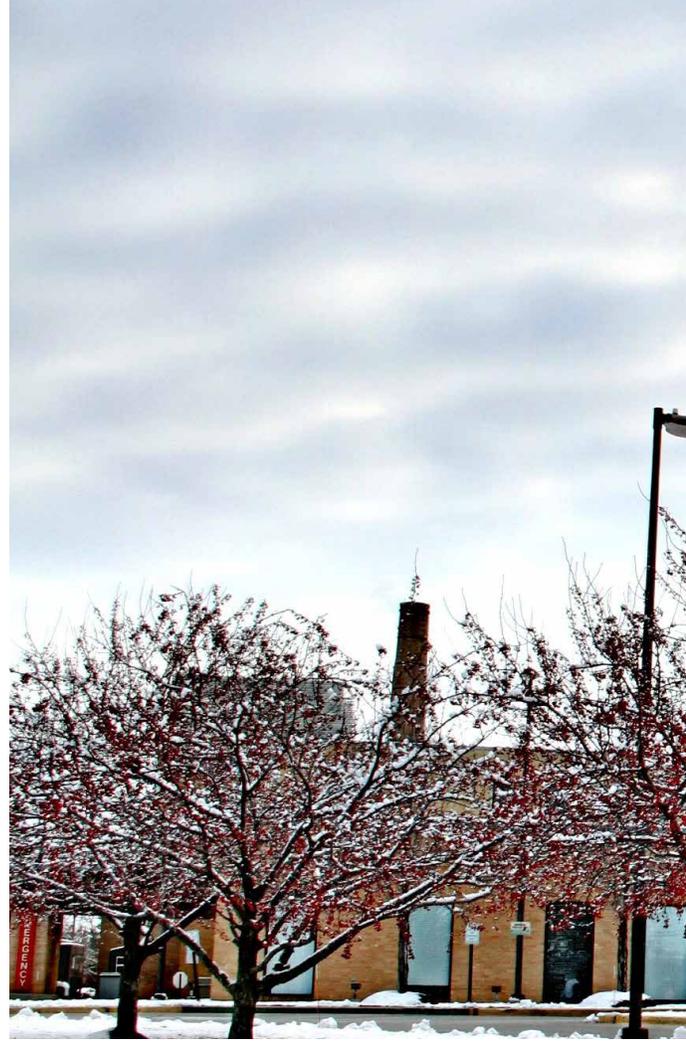
When using a stetho
Please page to 4800
only and alert Unit
Secretary/Charge
Nurse.

VA Northern Indiana Health Care System

“I think RTLS is just wonderful and it works out great for this department. Since RTLS became operational here, we hardly ever get calls looking for a set of instruments. Before RTLS, we were getting two to three calls a week. This has been a huge time saver.”

– **Steve Askew, Chief of Sterile Processing Services, VA Northern Indiana Health Care System**

Formed in 1995 by the integration of two VA Medical Centers, the Fort Wayne Campus offers primary and secondary medical and surgical services, and the Marion Campus offers a full range of mental health, nursing home care, and extended care services. Primary care clinics are available at both campuses and at multiple Community Based Outpatient Clinics.







A man in a white lab coat and safety glasses is working in a sterile processing area. He is looking down at a device in his hands. The background shows shelves with various items.

“RTLS keeps track of every single step of the process—no part of sterilization can be skipped.”

– Steve Askew, Chief of SPS, VA Northern Indiana Health Care System

Step-by step sterile processing reduces errors

The Northern Indiana Sterile Processing Services (SPS) team uses RTLS to track all of the instrumentation that passes through sterile processing before delivery back to Veteran care. “With RTLS, we track items from the dirty utility closets to the decontamination area and then to our prep area. We scan each item as it passes through each step. Once sterilized, instruments are often organized into packets or kits. The packet or kit is then scanned into the logistics area where it is then delivered and scanned to the end users,” explained Steve Askew, Chief of SPS, VA Northern Indiana Health Care System.

The patient safety implications of the RTLS solution cannot be overlooked. “It is definitely a patient safety improvement. The clinical staff have exactly what they need when they need it to provide care for the Veteran and can be confident that every piece of equipment has been properly sterilized,” said Geneva Winborn, Supply Technician.

In addition to ensuring instrumentation is properly sterilized, RTLS helps clinical and logistics staff find what they need sooner, without having to make a call. “RTLS has eliminated a lot of phone calls from clinical staff asking for a specific item. If they do call, I can go on the computer and tell them exactly where the item is. We have also taught them how to use RTLS so they can find it themselves without making the call at all,” said Askew. “And if an item is broken, we can transfer that information through RTLS to Logistics so they can replace it more seamlessly.”

With numerous instruments and a variety of manufacturers, it can sometimes be difficult to ensure the correct item is ordered. “There is no guesswork with RTLS. This system shows Logistics the exact item needed and where to order it. That provides cost savings because my team is not having to spend extra time researching that item again,” exclaimed Askew.

Effective training and performance improvement

The instrumentation visuals provided in the Sterile Processing Workflow application with RTLS help ensure SPS technicians, especially new ones, build accurate instrument sets. “Once you scan an item in SPS, the picture of that item is displayed so the techs can make sure they are using the right item. It also includes the manufacturer’s instructions and special instructions required by VA standards,” stated Askew. The data generated by RTLS also helps leadership know if they need to re-train certain employees.

The RTLS system’s user-friendly interface helped to get staff on board quickly. “It was a really easy system to learn. It wasn’t hard at all,” said Winborn.

In addition to training new employees, SPS is able to use the data generated by RTLS to know how long it takes to process certain items, and if any steps were skipped. This helps with resource and process management.

“RTLS helps us to continuously improve our methods,” continued Askew. “It helps us train new employees better. We went from occasionally missing two to three items before RTLS to now missing zero items with RTLS. Each item is scanned as it is put into a set, and the computer will remind the tech if they try to bypass an item.”

Better scope tracking

Using RTLS, the SPS team is able to track scopes a lot easier—knowing where every scope is at any given time. This capability allows the team to save time looking for scopes and reduces the pressure of keeping track of such high-value instrumentation.

“Scopes run from \$30,000 to \$100,000 each, and we have approximately 45 scopes. With such an expensive item, you can see why it’s critical we know where all our scopes are at any given time. It is also a patient safety imperative that we have scopes available,” exclaimed Askew.

Automatic expiration notifications

VA regulations require a 12-day maximum hang time from the time a scope has been disinfected to the moment it is used. This is the amount of time that a scope is deemed to be at the highest level of disinfection. This is a shorter window of time compared to some civilian hospitals due to VA’s extremely strict patient safety guidelines. To avoid letting scopes exceed their hang time thresholds, RTLS ensures scopes nearing that 12-day window are used first, as they appear at the top of the list in the system. Additionally, scopes that have exceeded the 12-day hang time appear as an automatic alert in the RTLS system. They are then delivered to SPS for re-processing.

“At any given time, we know there is no chance we’ll use a scope that has expired due to the controls in the RTLS system.”

– **Steve Askew, Chief of SPS, VA Northern Indiana Health Care System**



A member of the Marion VA Medical Center clinical staff. Photo by U.S. Department of Veterans Affairs



Karla Sandell, Marilyn Dogan, and Annette Walker at the Detroit VAMC.
(Suzanne Treachler/HPE)

Voice of VISN 11 Leadership



“When I learned about the use cases, I was really excited. I could see not only improvements in efficiency, I also saw the ramification for patient safety. That won me over.”

– **Tony Zapata, VISN 11 Deputy Network Director**

“With RTLS, our staff has been able to apply critical thinking to make even more improvements. As a result, RTLS is providing both patient safety and employee satisfaction.”

– **Karla Sandell, Network Chief Logistics Officer and Senior RTLS Contracting Officer’s Representative**



“We want to provide the tools and the resources to our staff so they can provide the very best care to our Veterans. That’s ultimately the goal here—Veteran safety. When they come here they know they are being given the best care possible.”

– **Edward Dornoff, Associate Director Battle Creek VA Medical Center**

“We have some very expensive equipment, so accurate inventory management is critical. For example, an artificial heart valve can cost as much as \$30,000. But regardless of cost, you have to have the right items when you need them. It is critical for patient safety.”

– **Chris Cauley, Executive Assistant to the Director, VAAHS**





“When you look at the reporting side, you can see instrument utilization for better decisions. Before purchasing, you can see if there are any assets already in-house, or if instruments are underutilized.”

– **Julie Chambo, Health Systems Specialist for the VISN 11 RTLS Program**

“The light bulb went off a couple months ago, this really works.”

– **Annette P. Walker Associate Director of John D. Dingell VA Medical Center**



“We are finding so many more possibilities about RTLS. It’s wonderful to hear what staff are saying. So many people were initially resistant to it and didn’t think it would work. Now people see that it really works and it’s great to hear their feedback from the field.”

– **Tony Zapata, VISN 11 Deputy Network Director**

“I like the technology, I think it has tremendous benefit. RTLS is excellent for inventory and using resources more effectively. I really do think we are doing a better job at managing our assets.”

– **Dr. Ginny Creasman Pharm.D., Acting Medical Center Director, Indianapolis VAMC**





Wilbert DeRamos (Biomedical Engineering Technician, Detroit VAMC) uses RTLS to locate an asset in real time. (Suzanne Treachler/HPE)



Barbara Clarke (Cardiology Nurse Manager) and Tom Lewandowski (Lead Cardiovascular Technologist) prepare to scan an item into the RTLS system in the Ann Arbor Cath Lab. (Suzanne Treachler/HPE)

Voice of the RTLS end users

“With real-time information, you know exactly where your inventory is and what level it is at ALL times.”

– Angela Hernandez, Inventory Manager for Cardiology, VAAHS



“There was an item on our shelf we hadn’t used in more than a year. We had purchased them for a specific procedure and they were not cheap - \$950 each. Before we reordered, we used RTLS to determine if it was something we really needed and its usage rates.”

– Tom Lewandowski, Lead Cardiovascular Technologist, VAAHS

“Cardiology is one of those places you never want to be as a patient without the right products at the physician’s fingertips.”

– Barbara Clarke, Cardiology Nurse Manager, VAAHS



“It essentially takes one year for the smart cabinets to pay for themselves through the cost savings RTLS is helping us realize.”

– Jordan Miller, Supply Management Specialist and RTLS site lead, VAAHS

“RTLS takes the guesswork out.”

– Dr. Ronald Kitchen, Chief of Dental Service, Detroit VAMC



“Everything we reprocess within Sterile Processing Services is tracked by RTLS. We are tracking items such as containers, scopes and instrument sets, from the moment they are in the decontamination rooms to the moment they enter back into the clinical room for patient care.”

– Javier Alvarado, Chief of SPS at Battle Creek

“With RTLS, the quality and accuracy in sterile processing is significantly better.”

– Kristen Lemke, Assistant Chief for SPS, Battle Creek VAMC



“We also now have the ability to go into program and enter situations where instruments have broken or if one of the sets has a broken piece. We can label the broken instruments, and it goes to SPS and they are able to proceed with the process of repairing or replacing it.”

– Sam Ganti, Chief of Biomedical Engineering, Danville VAMC



Steven Bortolussi scans a dental instrument into the RTLS Sterile Processing Workflow application to ensure it follows proper sterilization procedures. (Suzanne Treachler/HPE)



Marilyn Dogan (Property Management Supervisor) uses RTLS to locate an item in real time at the Detroit VAMC. (Suzanne Treachler/HPE)

“RTLS is showing us where we need process improvements, from clinical to operations. It brings better accountability.”

– Angela O’Dell, Biomedical Support Specialist/Facility RTLS Program Manager, Battle Creek



“When I’m out in the facility looking for items, I can log into RTLS right at the clinical nursing station and don’t have to go back to my desk. It’s very efficient.”

– Robert Hijazi, Chief of Biomedical Engineering, Detroit VAMC

“It cuts down on my staff having to go floor-to-floor to locate these items.”

– Marilyn Dogan, Supervisor of Property Management at Detroit VAMC



“Before, the Logistics team had to ask OR staff where certain items were located. With RTLS, they can perform inventories without disrupting the clinical staff.”

– Kathy Christensen, OR Charge Nurse, Danville VAMC



CtUC
Censtar Users Conference
Nashville, TN
August 9-11, 2015

Facility with the Most Sets Assembled with
Marked Instrumentation in 2015

Battle Creek VAMC
Battle Creek, MI

Robert E. Smith
Robert E. Smith
President and CEO
Censtar Technology

Javier Alvarado and Kristen Lemke
celebrate an award citing Battle Creek as
the facility with the "Most Sets Assembled
with Marked Instruments in 2015."
(Suzanne Treachler/HPE)

Best practices and lessons learned

For the benefit of future Real Time Location System (RTLS) programs, VA VISN 11 shares some of its best practices and lessons learned to ensure successful RTLS implementation and adoption.

Leadership and teamwork

Two of the defining factors for ensuring successful implementation and adoption of the VA VISN 11 RTLS program have been dedicated leadership and a coordinated team effort. Executive engagement and commitment from the top of the organization have been critical to the program's progress. Having leadership spend quality time at each facility and invest time with their staff has made a tremendous impact on end-user buy in and excitement.

"The most successful facilities," explained Dr. Ginny Creasman Pharm.D., Acting Medical Center Director, Indianapolis VAMC, "had someone with long-term vision who worked to get down to the nitty gritty and technical aspects, a leader who could look at things differently. Someone who communicated the needs and expectations, helped staff to move forward, and was adept at removing obstacles."

"I would like to acknowledge the success of implementing RTLS across our VISN to a tremendous leader—Karla Sandell, our RTLS lead—who is very knowledgeable of the system, who knows project management, and who spent numerous hours working with facilities to help bring this to life," said Tony Zapata, VISN 11 Deputy Network Director. "Her leadership has had a tremendous impact on patient safety. She takes the time to be onsite working with the RTLS users side-by-side to troubleshoot and ensure success."

"As a VISN we decided to go ahead with this. There were a couple of hiccups starting out at the gate. The success is because we have a dedicated individual, Karla Sandell, who has been shepherding this solution across all seven medical centers. One who knows RTLS inside and out and who works with local

teams and contractors," said Annette Walker, Associate Director, John D. Dingell VA Medical Center in Detroit.

Having the hospital support teams working together was another important factor. Teams from Biomedical Engineering, Logistics, IT, Sterile Processing Services and clinical areas such as the OR staff and Cardiac Catheterization Lab, all worked together to test and ensure the technology was working properly. In many cases, they also found that RTLS helped them to speak a common language. "The lab technicians and inventory management staff use different terminology for different items. With RTLS, they can enter a product name and we can enter a product number and we'll still come up with the same asset. It's like a crystal ball so we can communicate with each other—it closes our professional language gap," stated Angela Hernandez, Inventory Manager for Cardiology in Ann Arbor.

While all teams were integral to the program, having a dedicated IT leader from the Office of Information & Technology (OI&T) organization as well as onsite IT support was crucial.

"I could not do it without an experienced IT leader. General Kearney joined us as the Network CIO and really became a champion of RTLS as a technology. IT is the whole infrastructure behind RTLS so it's extremely important," added Sandell, "In the Fall of 2013, John Caras, Battle Creek CIO, was assigned the role and responsibility of IT RTLS Project Manager. Having OI&T resources engaged from all our sites at every step has been critical to our success."

"I am proud of the network staff, especially the front line employees for going above and beyond to get staff on board with the new technology and processes," said Zapata.



Detroit VAMC Biomedical Engineering team. (Suzanne Treachler/HPE)

Management of change and a dedicated communications plan prior to rollout

As with any process change, especially one that requires learning a new technology or system, management of change is critical for user buy in and adoption. Management of change encompasses both training and communications. Having dedicated onsite training for staff members and regular adoption checkpoints has been important.

Just as critical as training is communications. Communicating benefits of the program to end users, especially those benefits that will help them perform their job more efficiently is key. Many VA employees are passionate about helping Veterans, and knowing this technology could improve patient safety provided that extra motivation to train and begin relying on the technology. A key pillar for future implementations is a dedicated communication plan with tactics and a committed resource to ensure all stakeholders have the right information at the right time.

“Early on we didn’t as a network market or communicate the program and get that message down to the sites with an established team or understanding up front. When we did implement that strategy and that communication, it made a big difference,” shared Sandell.

“Every hospital has a different personality. It took some effort getting each facility to embrace this technology when I first took over this position. Now that has really paid off—and it’s having a positive impact on patient safety,” said Karla Sandell, Network Chief Logistics Officer/Senior RTLS Contracting Officer’s Representative. She continued, “You have to have a dedicated RTLS manager at the site. It was a collateral duty.”

People are often resistant to change. A key element of end-user adoption has been helping end users understand the benefits to the Veteran, and thus committing the time, energy and learning curve to getting it up and running. “There were a lot of reservations. It was a change and no one likes change. I think it’s hard to envision the benefits when you haven’t had this type of technology before. Those that are using RTLS every day, are having a big impact on accountability and patient care. They had to learn how it works in order to fully understand it and its worth to patient care,” continued Sandell.

“When first introduced to RTLS, there was a lot of push back—people didn’t want to embrace something new. Now they love it, they seem to not remember how they did it before. It makes their work and life a lot easier.” said Steve Askew, Chief of SPS, VA Northern Indiana Health Care System.

“I’ve been an OR nurse for more than 30 years. Anytime you try to institute a new system, especially when it’s computerized, it’s threatening and you get a hesitant response from the staff. It’s amazing how beneficial RTLS has turned out to be. The learning curve was only a few weeks, and the same nurses who were concerned about having to learn to use the personal digital assistants (PDAs) now get upset if they are unavailable.”

– Kathy Christensen, OR Charge nurse, Danville VAMC



Karla Sandell observes as Steven Bortolussi, a Sterile Processing Services (SPS) technician at Battle Creek VAMC in Michigan applies the 2D matrix barcode to a newly purchased dental instrument. (Suzanne Treachler/HPE)



Clinical input integrated into implementation

One of the keys to success of the VISN 11 RTLS implementation has been clinical staff involvement and feedback. Clinical knowledge of how medical equipment is used day-in and day-out has been an important component of RTLS adoption. For example, Patricia Topham—the Acting Associate Director for Patient Care Services and Nurse Executive for the Saginaw facility—provided valuable feedback for the RTLS implementation at Saginaw.

Large and less-mobile equipment such as exam tables are not usually included in the active tagging program, but Topham's experience of spending hours looking for missing exam tables led her to insist that they be tagged. This kind of practical input has a very positive effect on the usefulness of the RTLS solution. "We tend to tell clinicians what we are going to do and don't get input. Because of Patricia's position and

experience, she understands how this solution should really be used," said Karla Sandell, Network Chief Logistics Officer/ Senior RTLS Contracting Officer's Representative.

The opportunity works both ways, as Topham both contributes to the RTLS program and benefits from it as well. When she first learned about it through the VISN 11 leadership program, she saw it as an opportunity to expand her skills and knowledge beyond her current role. "I wanted to learn something that was outside of the nursing department. I've learned so much about the technology as well as the other departments and what they do. It's given me a greater appreciation for all the logistics that go on behind the scenes."

In addition to clinical inputs from the RTLS end users, having that background from VISN leadership was also helpful. "I'm a Registered Nurse originally, so I understand the implications for patient safety from that perspective," said Zapata.



U.S. Air Force photo by Airman 1st Class Ryan Conroy

Use and improve

To implement a program as large and modern as VA RTLS, VISN 11 has found that a “use and improve” strategy has been most effective. This method involves implementing the solution first and then adjusting to address initial challenges and incorporate user feedback.

As indicated by the significant management of change effort, there will always be challenges in the initial stages of a new technology program. In following the “use and improve” method, VISN 11 has found it is better able to incorporate feedback from the end users and ensure each use case truly helps patient safety and the hospital staff in carrying out their jobs. This has been even more relevant with VA serving as an early adopter of RTLS.

“We had to set our expectations knowing that any new technology is not going to be perfect from the get-go. We had to partner with our contractors, with OI&T, clinical and the other various support teams. We had to implement it and then work through the kinks to make sure it worked the way we wanted it to and that it was truly impacting patient safety for the better. That is how we got to where we are today, and it has made all the difference,” said Sandell.

“It’s amazing—our staff is seeing how RTLS is helping them. It’s making their job easier. And they feel confident that when they need something, they can find it.”

– Karla Sandell, Network Chief Logistics Officer/Senior RTLS Contracting Officer’s Representative



Employee engagement

VISN 11 leadership have noticed improved employee engagement with RTLS, specifically around job satisfaction. For example, employees are spending less time searching a facility for equipment or manually counting inventories. “RTLS flowed easily into our process. It went from tedious manual inventories to simply waving a wand, gathering data instantaneously,” said Barbara Clarke, Cardiology Nurse Manager at VA Ann Arbor Healthcare System.

Staff are also finding satisfaction from learning new skills and technology. “There are some unintended consequences of RTLS. It has helped staff to apply critical thinking—not only are they learning a new system but they are also using data now and looking at how they can improve things. It’s remarkable. If you can do that, it’s better than teaching anything. Bottom line, that is what process improvement is to me,” said Zapata.

“Our employees like knowing they can help make improvements. For example, technicians in Sterile Processing Services can put in notes about instruments if they think something is wrong” said Steve Askew, Chief of SPS at VA Northern Indiana Health Care System.

Vernessa Saddler (Nurse at Detroit VAMC) uses RTLS to locate an infusion pump in a storage closet. (Suzanne Treachler/HPE)



Ref. Army 1st Sgt. William Staude salutes soldiers as they march past him during the Veterans Day parade in downtown Pittsburgh, Pa., Nov. 11, 2011. The soldiers are assigned to the 316th Expeditionary Sustainment Command. U.S. Army photo by Sgt. 1st Class Michel Sauret.



