

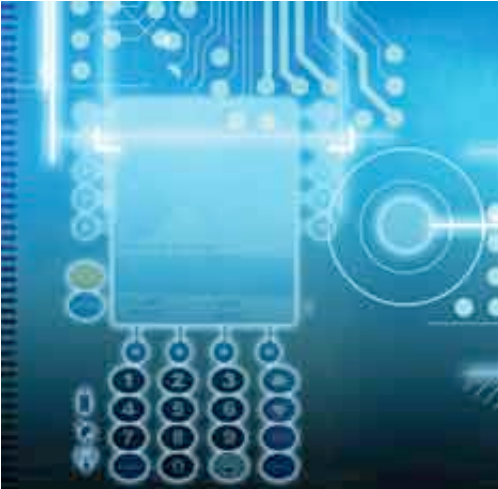
PRINTER FRIENDLY...[« Go back](#)

Please [contact Kerrigan Media](#) for a reprint of this article.

Military Medical Technology

ONLINE EDITION

Automated Military Pharmacies



Military pharmacies face a variety of concerns today, including prescription growth, quality assurance, medication safety, pharmacy workflow and cost control challenges. These issues have led to the adoption of automated systems in pharmacies across the services.

by Kelly Fodel, MMT Correspondent

Military pharmacies face a variety of concerns today, including prescription growth, quality assurance, medication safety, pharmacy workflow and cost control challenges. These issues pertain to pharmacies of all sizes and have led to the adoption of automated systems in pharmacies across the services. Military Medical Technology is providing a look at the needs and solutions in some Army, Air Force and Navy hospitals, as well as the latest technology that has been developed by medical supply manufacturers.

WALTER REED ARMY MEDICAL CENTER

The pharmacy at Walter Reed Army Medical Center was recently automated in April of this year, using a product from Omnicell called Pharmacy Central (WorkflowRx), which is an intelligent “perpetual inventory management system.” The medication control system uses computers and automated carousels to track inventory and orders and save shelf space. The system manages the entire central pharmacy inventory and automates the ordering, receiving, stocking and picking processes. Walter Reed processes more than 11,000 outpatient prescriptions per week, not to mention the huge number of medications used on an inpatient basis.

“Instead of going to different shelves to pull the needed medications, the computer automatically

goes to that item to select it. It saves us from going up and down shelves 50 times,” said Charlene Hightman, a pharmacy technician.

A huge benefit to this new system is the space in the pharmacy; it cuts the space needed in half. Thanks to the new automated system, the large bulk shelving system in the pharmacy has been replaced by bigger workstations for pharmacy technicians.

“Obviously the system is new, but objectively speaking, we were able to massively renovate the supply area and cut down on a tremendous amount of area,” said pharmacist Captain Martin Russell.

The system uses bar code technology to stock, pick and return medications to reduce medication errors. An automated carousel is used in conjunction with the software to retrieve drugs.

“For example, if you wanted to retrieve lidocaine, all we have to do is type in ‘lidocaine’ into the system and it will automatically move to the drug and pick it,” said pharmacy technician Ashley Hawkins. They scan the bar codes of each medication, which adds extra insurance that the medication is the correct one. Pharmacy techs then take the medication and distribute it to different wards throughout the hospital into secure vending machines for nurses to access.

In the few months since Walter Reed’s pharmacy was automated, the staff has seen a huge improvement in efficiency. They can fill orders that are placed by 5:00 p.m. from outpatient, satellites, clinics or wards by 5:00 the next morning. Instead of spending the bulk of their time retrieving and restocking medications, the pharmacy techs can now focus on better patient care.

“We are allowed to blend into other lanes and help out patients in other respects. By automating, I can count on the pharmacy technicians to do other tasks, such as ordering medications that are short-ordered or monitor items that may be recalled, in order to really support our patients,” said Russell.

NATIONAL NAVAL MEDICAL CENTER

At the National Naval Medical Center, there are a few automated systems employed in the pharmacy. On the front line, there is a bar coding system to increase accuracy, efficiency and patient safety.

“We have a system where a specific drug has a specific bar code associated with it. So if someone is filling something that happens to be incorrect, the system alerts us that the bar codes do not match,” said Lieutenant Commander Benjamin Schwartz, assistant head of pharmacy.

Automation has improved the wait time for patients, as well. “Waiting time is important to everyone,” said Schwartz. “In the days before the technology, we would take a paper prescription and enter it in our system and literally file the hard copy away. If we had a question, we would have to rummage through thousands of files to find this one prescription. Now, this technology allows us to scan in the prescription into a computer database.” Prescriptions are linked directly to the bar codes on the bottle labels, exponentially minimizing the time required to fill prescriptions or answer questions about prescriptions.

The main pharmacy at the medical center fills about 30,000 prescriptions per month. The robotic system takes care of tedious tasks, such as filling vials, applying labels to bottles and counting pills. “They take what we would have used a technician to do, but save more time, freeing us up,” Schwartz said.

Thanks to automation and the bar code scanning, medication errors have been drastically reduced or virtually eliminated. “It is all about patient safety,” said Schwartz.

The only downside to automation that Schwartz can see is when an equipment malfunction occurs.

Though this does not happen often, it can throw off the work of the pharmacy and increase waiting times, as everything is now tied to the automation system. Schwartz says this outlines the need for regular maintenance and upkeep of the system, for both the software and the mechanical components. "We lean on these and rely on these, and when they go down, it does affect our operation," Schwartz said.

AIR FORCE

The Air Force has been using bar code technology in its pharmacies since 2001. By this November, with the final pharmacy coming online, the entire system of Air Force medical pharmacies will be automated.

Colonel Phil Samples is the chief of the Air Force's Medical Operations Division. He has supervised the automation of USAF pharmacies and from the beginning wanted to use the same technology at each location. The Air Force uses automation systems from Innovation in all of its pharmacies.

"One of the reasons we went with Innovation was for standardization. When our people went from one facility to another, we did not want them to have to learn new systems. When we first started... Innovation was the only company that had a scalable system we could put in our smallest facilities overseas, to our largest facilities here in the states," Samples said.

Innovation has 130 pharmacy automation systems installed with the USAF. Of these installations, the USAF has five Central Fill sites using Innovation's RDS Robotx system for high volumes. This fast robot has a smaller footprint, opening up more pharmacy space. The other sites use PharmASSIST Symphony+, which provides counting technology and workflow, and Pharmassist Robotx. The USAF also uses Innovation's Pharmassist Symphony+ workflow throughout these installations.

Right now, the Air Force is purchasing a small manual filling device called the Eyecon. Innovation has integrated Eyecon into its system and has the sole rights to sell this product to the Department of Defense. It is a fast visual digital counting device that scans the bottle, and as soon as pouring takes place, it can detect how many capsules are present. Samples calls it a good addition to their system and another "piece of the puzzle."

The main reason the USAF is using automation, a reason which is cited by pharmacies everywhere, is to reduce medication errors. "We have seen a 10- to 15-fold decrease in errors since employing these systems," Samples said. Any errors that occur now are almost exclusively due to transcription problems. There is still the possibility of a doctor writing a prescription incorrectly or a pharmacy technician misreading an illegible prescription.

LATEST TECHNOLOGY

A number of companies are promoting their "latest and greatest" automation innovations.

ScriptPro pharmacy automation systems operate in approximately 200 DoD and VA pharmacies. All of these pharmacies, including the likes of Lakenheath AFB in the United Kingdom (installed 1999) and Bremerton Naval Hospital in Washington (installed 2001), have one thing in common, according to Mike Coughlin, president and CEO of ScriptPro: up-to-date, integrated equipment and systems that meet today's pharmacy practice needs. ScriptPro technology is covered under an all-inclusive customer support program that protects the investment in automation for years to come. ScriptPro upgrades its systems and ensures that new features and improvements can be retrofitted. According to Coughlin, "We don't come out with replacement products every few years and leave you trying to manage with obsolete equipment, non-standardized systems, and budget headaches," said Coughlin. "There are no surprises or disappointments when you work with ScriptPro."

The SP Central Workflow System allows tracking of 100 percent of the prescriptions in the pharmacy

—so each staff member will know the who, what, when, where and why of every prescription in the process. All prescriptions, whether filled manually or robotically, are dispensed with the same barcode features that provide tracking and improved medication accuracy.

ScriptPro Telepharmacy provides software and hardware to allow pharmacies to conduct safe and efficient telepharmacy operations. The pharmacist oversees and supports personnel filling and verifying prescriptions, and inventory replenishment at a remote location using a video, audio, and data connection over a network. One pharmacist can support multiple facilities.

ScriptPro understands that choosing the right technology partner is a critical decision and has developed two technology evaluation guides to help pharmacists assess options, ask informed questions, and thoroughly consider the right technology fit for their pharmacy setting. The guides include: robotic prescription dispensing systems and pharmacy workflow systems. These guides are offered at no charge by ScriptPro.

“We have thousands of satisfied customers around the world,” said Coughlin. “Just like the B-52 bomber and the Nimitz aircraft carrier—you can count on us for the long haul,” said Coughlin. The FastFill robotic oral solid dispensing solutions from AmerisourceBergen Technology Group are designed for high-performance pharmacies that require maximum efficiencies. The FastFill 120 is ideal for pharmacies that fill between 200 and 500 prescriptions per day, while the larger FastFill 220 can handle 500 to more than 1,000 prescriptions per day.

FastFill canisters are individually factory-calibrated for a specific NDC number, depending on the pharmacy’s needs, with a guarantee of 99.99 percent counting accuracy. Canisters can be also grouped to accommodate higher-volume medications. Both devices employ biometric security scanning, which not only provides a high level of security by ensuring only approved users can login to the system, but it also provides the ability to track which employees have filled canisters at any point in time. In addition, barcode scanning ensures patient safety by matching the patient name with the appropriate order. During canister replenishment, barcode scanning ensures that the bulk bottle and designated canister are in sync.

Once an order is entered into the pharmacy management system and it is determined that the required medication is housed in one of the FastFill robotic solutions, that order is sent to the device. At this point, the machine begins the process of labeling, dispensing and delivering the order. When the order is ready to be removed from the device, the pharmacist or technician scans the prescription order and device directs them to the appropriate pick up window.

These solutions were built for safety, speed and efficiency. The FastFill 220 is designed to mirror a single row of traditional aisle shelving, making it easy to boost productivity without expensive remodeling. The FastFill 120 has an even smaller footprint, making installation even easier. Both devices offer random-loading vial bins, so users need not worry about stacking or inserting vials individually. This saves a tremendous amount of time during refilling.

With the ability to set par levels for each medication, the FastFill software will notify the user that it is time for replenishment. The system also provides the pharmacist with a notification if the contents of a canister are nearing expiration or already expired.

Pickpoint Corp. has been placing its remote dispensing system (RDS) in military hospitals since 2001. “It is like a candy machine, just with medicine,” said Todd Miller, customer relationship manager for Pickpoint. Medication is prepackaged and loaded into the machines by pharmacy staff and labeled with bar codes for proper dispensing. This is optimal for emergency rooms, acute care clinics and other locations that require larger formularies.

Pickpoint also has a new product, the intelePharmacy WCS (will-call system). This product will enhance the pharmacy’s will-call management system by easily identifying patients, thereby

decreasing put away and retrieval times. Drugs are placed in a special hanging bag, which is scanned by the system and highlighted via LED. The bag illuminates, making it easy to find a prescription.

The military is a big customer for Omnicell, which created the WorkflowRx system that MMT described earlier, which is in use at Walter Reed. In addition to supplying automation to a number of Army and Air Force bases, “we are extensively integrated with the Department of Veterans Affairs system,” said Kent Roberts, senior marketing manager. “We have about 120 VA hospitals that use our products.” Omnicell recognizes that military pharmacies may have different needs from civilian hospitals, based on a different patient base. For example, the logistics of getting medications to patients can be different. In addition, the VA system has its own bar code verification system that was introduced ahead of the rest of the market. Omnicell works with the VA to meet its bar coding needs.

Omnicell introduced a new product, SinglePointe, just last year. “Nobody has anything quite like it,” said Roberts. SinglePointe works in conjunction with the automated dispensing cabinets, located on the nursing floors. These “vending machines” are accessed by nurses and verify medication orders and dosages. Traditionally, the cabinets can only control about 80 percent of the medication a patient might need. Inhalants, eye drops, ointments, creams, compounded IV solutions and other multi-use items have been a challenge to store and distribute.

Accommodating those difficult-to-store items, SinglePointe makes a cabinet “patient-specific” and provides a single point of profile-based access for all of a patient’s medications by storing them safely and securely in the automated cabinet. This virtually eliminates missing doses. Profile checks can now be applied to all patient medications, reducing the potential for errors.

In other news, Omnicell recently purchased a mobile cart company in late 2007. “When the nurse walks away from a traditional cabinet [after the drug is vended], we lose control,” Roberts said. This opens the door to error and can have disastrous results. Using a mobile cart with secure locking doors allows the drugs to move securely from patient to patient and the drugs to be vended bedside. “When we bought this company, it was specifically to address that last 50 to 100 feet from the cabinet to the bedside.”

Another company, Cardinal Health, produces a popular line of automation products. The Pyxis MedStation is a core product that was one of the first products to allow for decentralized pharmacies. This vending cabinet is located on the nursing floors and allows access only to the medication that is requested. Drawers will pop open when the correct information and correct patient have been identified. Pyxis Connect is a physician order management system. It streamlines and automates the physician order process. The Pyxis Connect system captures a digital image of the handwritten prescription order and routes it to an electronic “in box” in the pharmacy, eliminating the need to physically run a prescription to the pharmacy. The result is faster patient care with increased efficiency.

The most serious medical mistakes can often be due to IV pump errors. Cardinal produces the Alaris IV pump to counter this threat. Each IV pump has the full hospital drug library installed. When a nurse starts an infusion, the pump prompts the nurse for the medicine and dosage. If the nurse enters information that falls outside the hospital’s accepted “normal” dosage for that drug, the pump will not work until it is researched and overridden. It also keeps a record of all alerts, so the pharmacy can adjust its drug library or better educate staff about high-risk drugs.

Another provider, Asteres Inc., through its ScriptCenter delivery system, has delivered more than 340,000 prescriptions to over 24,000 people at retail and hospital pharmacies. The company is expanding into the military with the upcoming installation of the ScriptCenter at the Los Angeles Air Force Base.

As pharmacies continue to decentralize and prescription orders increase, we will see automation and robotic technology evolve to meet the growing needs of military pharmacies. The result will be better working conditions for pharmacy staff, freeing them to serve patients instead of doing typical grunt work. For patients, the technology will continue to ensure that their medications will be administered quickly and with the highest level of safety. •

For more information, contact MMT Editor [Jeff McKaughan](#) or search our [online archives](#) for related stories.