

Case Study



Tuomey Regional Solidifies Its High-performance Foundation for Efficiency and Growth

At a Glance

Tuomey Regional Medical Center
Sumter, SC

Solution Spotlight

- ROBOT-Rx®
- AcuDose-Rx®
- MedCarousel®

Results

- Increased by 10% the ROBOT-Rx daily dispensing volume following the upgrade
- Accelerated turnaround times for cart and first dose dispensing
- Supported in-patient room medication delivery
- Reduced missing medications
- Reduced offline inventory 25%
- Balanced medication inventory across all storage locations
- Reduced cabinet stock outs and associated pharmacy technician labor
- Increased staff productivity and opportunities for value-added activities
- Increased nursing staff satisfaction

Overview

Upgrading its existing ROBOT-Rx pharmacy automation solution gave Tuomey Regional Medical Center a solid foundation for patient-centric medication dispensing and adoption of bar-code assisted bedside medication verification. Along with streamlining processes, the upgrade yielded measurable inventory reductions and savings—and was carried out with no disruption to clinical and patient care routines.

Challenges

Tuomey Regional Medical Center, located in Sumter, S.C., is a 301-bed acute care facility that anchors the Tuomey Healthcare System. Tuomey serves area residents with facilities that include birthing and nursing centers, inpatient and outpatient surgery units, and an emergency department that treats up to 55,000 patients annually.

Tuomey's pharmacy employs a staff of 20 FTE pharmacists and 22 technicians to serve an average daily census of 225 patients, filling an estimated 835,000 medication orders annually.

For years, Tuomey Regional relied on pharmacy automation technology to keep pace with the hospital's growth and to maintain high-quality service to patients and the caregivers who serve them. The hospital implemented the 12-ft. Rx-3000 model robot in the late 1990s to establish a hospital-wide, bar-code medication foundation and to automate storage and dispensing. The ROBOT-Rx dispenses approximately 2,000 doses per day to support 24-hour cart fill and first dose dispensing, accounting for about

92 percent of all medications dispensed. The MedCarousel storage and retrieval system augments first dose dispensing, manages inventory, and also manages restocking of AcuDose-Rx automated dispensing cabinets, deployed on nursing units and other key areas for PRN use. Overall, approximately 97 percent of all medications dispensed by pharmacy are scanned for accuracy by the ROBOT-Rx or MedCarousel.

After 10 years of patient-centric dispensing, Tuomey Regional's pharmacy and nursing leaders decided to re-evaluate its medication-use processes.

Explained Renae K. Chadwick, R.Ph., MHA, Tuomey Regional's Pharmacy Manager, "We have moved rapidly toward bedside medication verification supported by in-room medication storage to improve patient safety and service. The ROBOT-Rx provided the essential bar-code medication foundation that we needed to support this strategy, but we wanted to consider other options as well."

Besides patient safety, Chadwick's team also took into account medication accessibility, nursing labor efficiencies, and medication inventory. For instance, over time, an increasing percentage of the hospital's medication storage had shifted from central pharmacy into AcuDose-Rx cabinets throughout the hospital. The result was that cabinet dispensing was requiring more nursing time and was driving up medication inventory. Further, expanded hospital services and higher patient traffic limited available space for additional storage on nursing units.

“Moving medication distribution responsibility back into the pharmacy and into the new ROBOT-Rx significantly reduced processing time for pharmacy and nursing.”

Rena K. Chadwick, R.Ph., MHA
Pharmacy Manager
Tuomey Regional Medical Center

After a thorough review, the leadership team validated the hybrid distribution model as the best option for achieving their patient safety goals.

Answers

To meet the hospital’s goals and help pave the way for other patient-centric initiatives, Tuomey upgraded to the high-performance (HP) model ROBOT-Rx with the Envelope Delivery System (EDS). The new model robot retains the efficient octagonal configuration of the RX-3000 while increasing processing speed and medication storage. At Tuomey Regional, the EDS enables auto processing of patient-specific medication envelopes. The envelopes are delivered to nursing units, where they are kept in lockboxes inside of each patient room. Full support for bar-coding and integration with key pharmacy systems helps ensure accuracy, tracking, and charge capture.

The field upgrade to the HP ROBOT-Rx platform was accomplished in just 10 days. Pharmacy flexed inventory into the MedCarousel, and pharmacy technicians performed cart fills and first doses via the carousel and manually under the staff pharmacists’ supervision. The team also used the changeover as an opportunity to balance inventory and optimize medication storage in the new robot, MedCarousel, AcuDose-Rx cabinets, and other storage locations.

“We have pharmacists and technicians who know our policies and medications extremely well,” said Brenda Mobley, Tuomey Regional’s Pharmacy Automation Specialist, who spearheaded the upgrade planning and execution. “We absorbed the entire workload within the pharmacy, so most of the nurses probably didn’t even realize what was happening. It was a tremendous team effort, and made us appreciate our pharmacy automation technology.”

Results

Since the upgrade, Tuomey Regional increased ROBOT-Rx storage by 149 line items, and its dispensing volume has increased by almost 10 percent, to 2,300 doses per day.

The upgrade also resulted in an immediate reduction in cart fill processing time. “The safety of the ROBOT-Rx’s bar-coding feature is critical for us,” Chadwick said. “Upgrading let us maximize that functionality, which lets us use the robot to assist with these efforts.”

“Further, moving more of the medication distribution responsibility back into the pharmacy and into the new ROBOT-Rx significantly reduced processing time for pharmacy and nursing,” she noted.

Moving more pre-packaged medications into the robot also reduced offline inventory—and accompanying storage space—by 25 percent. Chadwick said that additional savings are expected as a result of balancing inventory between central pharmacy and cabinet stock. This ultimately is having a cascading effect, reducing the need for and scope of daily pocket loads and unloads on the AcuDose-Rx cabinets, resulting in more stable medication inventory, fewer stock outs, and less pharmacy technician labor requirements.

The EDS’s autoprocessing feature completely automates processing of first doses, so pharmacy technicians are free to perform additional tasks as the robot fills orders. “Technicians can multitask now, which really enhances their productivity,” Chadwick said.

Perhaps most important, the switch to envelope delivery and in-room storage means that medications are now closer to patients than ever before, which improves not only patient service and safety, but also nursing staff satisfaction.

“The nurses in our bar-code verification pilot actually prefer the new system because it gives them much better control over medications,” Chadwick says. “There are far fewer stockouts and they know well in advance if a medication is missing. The medication administration records for each patient now specify ‘obtain from patient drawer’ or ‘obtain from AcuDose-Rx’ based on the type of medication. So, nurses know exactly where it will be. And that’s an important nursing satisfier.”

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