

Case Study



Geisinger Medical Center Delivers on Just-in-Time Promise for Med Admin

At a Glance

Geisinger Medical Center
Danville, PA

Solution Spotlight

- ROBOT-Rx®

Results

- Moved to just-in-time medication delivery model using existing labor
- Re-engineered manual processes to increase efficiency and add value
- Reduced missing medications by 22%
- Reduced waste of IV admixtures
- Established 2-hour ER cart fill to improve service and reduce waste
- Solidified foundation for future bar-code scanning at the bedside

Overview

McKesson solutions enabled Geisinger Medical Center to implement a just-in-time approach to medication delivery that significantly reduced missing medications, improved service to nursing, and is supporting the hospital's mission of continuous improvement in patient care.

Challenges

Geisinger Medical Center (GMC), located in Danville, Pa., is a 485-bed tertiary and quaternary care facility that anchors the Geisinger Health System, serving more than 2.6 million people in northeastern Pennsylvania. Geisinger also operates the Geisinger Wyoming Valley Medical Center, a 242-bed specialty care facility in Wilkes Barre, Pa. Geisinger is nationally recognized for quality and cost efficiency, and has been cited as a positive example by President Barack Obama in speeches on healthcare reform.

GMC's pharmacy services both the Danville campus (average daily census: 363) and Wyoming Valley (average daily census: 170) located 60 miles away.

Geisinger's reputation grows from the hospital's commitment to continually improving quality of care while controlling costs. In 2009, that vision led GMC to take a closer look at the way it filled and delivered medication orders.

"Our goal was to establish a just-in-time approach that timed medication delivery as closely as possible to administration," said Jack Payne, Pharmacy Informatics Administrator at GMC. "We also wanted to reduce both the amount of medication

stored on nursing units and other departments, as well as the number of 'missing' doses."

To deliver on its vision of greater patient service and safety, GMC required an efficient, centralized dispensing system. This meant greater reliance on its McKesson ROBOT-Rx, which automates storage, dispensing, returning, and restocking of bar-coded medications. ROBOT-Rx automates approximately 4,200 medication dispenses each day, including 630 first doses.

Answers

The shift to just-in-time medication delivery began in 2009 with a pilot program serving three areas of GMC: an intensive care unit, a step-down cardiac care unit, and a specialty care unit. "We had established trust with nurses on these units and knew we could depend on them to champion the project when it rolled out to the rest of the hospital," Payne explained.

Initially, the ROBOT-Rx performed cart fills three times a day, dispensing to patient-specific envelopes delivered to either an in-room nurse server or unit-based storage area. Soon, recalled Claude Parnell, Pharmacy Operations Manager at GMC, they discovered that the volume and timing of medication orders did not justify an evening fill, and scaled back to a twice-a-day schedule. They also factored first dose filling into the schedule. "We determined the medication delivery deadlines, worked backward from that point, scheduling fills and staffing, and moved people to where they needed to be instead of hiring additional technicians," he said. "We let the cart drive the horse."

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Jack Payne

Pharmacy Informatics Administrator
Geisinger Medical Center

The change management aspects of the project included training additional pharmacy technicians to operate ROBOT-Rx and rescheduling staff to accommodate the new order-filling and delivery windows. In addition, project managers educated nursing staff previously accustomed to having medications on-hand hours before administration.

"Initially, the reports of missing doses increased," Payne recalled. "We found that part-time or replacement nurses, for example, were unaware of the new delivery schedule. When they started their shifts and medications weren't waiting for them, they would immediately file a missing dose report. We responded with a more aggressive education effort and the missing dose reports decreased significantly."

Today, ROBOT-Rx completes a night cart fill timed for 6:00 a.m. delivery and a smaller cart fill for the 4:00 p.m. medication pass. The 24-hour fill for Geisinger Wyoming Valley Medical Center takes place at 1:30 a.m., and is delivered in time for the morning medication pass. In addition, emergency room orders are filled and distributed every two hours. Other, non-automated pharmacy operations, such as processing expensive IV admixtures, have conformed to the just-in-time model. "We found that physician IV orders typically change following morning rounds," Payne explained. "So filling these orders multiple times per day also meets the just-in-time objective."

Results

While the team encountered challenges initially, the move to twice-a-day cart fills provided a measurable, sustainable payback.

The biggest difference was in the number of missing doses reported, which decreased by 18 percent in the hospital's adult care units and by 42 percent in the pediatric care units. Hospital-wide, the number of missing doses at GMC declined by more than 22 percent.

"We found that as patients transferred to inpatient status from the ER or moved among departments during diagnostic testing, their medications now kept pace with them," Payne said. "We saw the biggest benefit in areas such as step-down units that experience a relatively high degree of patient turnover. This is where the reduction in missing medications had the greatest impact."

"Fewer missing medications also mean fewer returns and ultimately, more complete and accurate charge capture once medications are administered," he added. Multiple fills also prompted a closer look at workflows that are not handled by ROBOT-Rx, but still are intertwined with the delivery schedule. "We started filling for the emergency department every two hours because patients going from the ER to inpatient status often had missing doses that didn't follow them onto the patient floors," said Elizabeth Gajkowski, Pharmacy Information System Analyst at GMC. "Now we run a cart fill every two hours that gives the ER only what it needs, just when it needs it, and when the patient is transferred we can ensure that the medication gets sent to the right place."

Rethinking manual processes also reduced labor and waste on IVs and injectibles by enabling the pharmacy to respond to changing orders instead of preparing a full day's supply. "In areas like pediatrics, where doctors typically change their orders during morning rounds, we no longer waste medication or the labor needed to prepare it—a very positive result of our process change," Payne said.

While reducing inventory costs, expired medications, and other factors are important considerations, Payne noted that the ultimate benefit is the quality of patient care. "The fewer medications you have on a floor, the less you need to worry about transferring them with a patient or administration errors, and that's a good thing," he said.

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