



Hospital Cuts Inventory Costs by \$400,000, Expects Ongoing Annual Savings of \$300,000

Overview

Country or Region: United States

Industry: Healthcare

Customer Profile

Based in West Burlington, Iowa, Great River Health Systems is a regional provider of specialty and primary healthcare.

Business Situation

Great River wanted to improve medication distribution and management without adding employees.

Solution

Great River connected Windows Embedded-based devices including 2 anesthesia workstations, a pharmacy carousel, and 28 medication-dispensing cabinets, with a central server running Windows and Microsoft SQL Server.

Benefits

- Reduces medication delivery time from 1.5 hours to 30 minutes
- Cuts pharmacy inventory costs by US\$400,000
- Gains two-year ROI
- Achieves annual savings of \$300,000

"We've cut the amount of medication we keep in stock by half, providing an initial inventory ROI of \$400,000. The solution from Microsoft and Omnicell automatically ... reduces the incidence of overstocks, outages, and waste from outdated drugs."

Darwin Cooley, Pharmacy Director, Great River Medical Center

Great River Health Systems, a regional provider of healthcare, sought a better solution for medication management. To improve efficiency and patient care, its hospital extended its existing platform with an intelligent system from Microsoft and Omnicell. Great River connected Windows Embedded-based devices including 2 anesthesia workstations, a pharmacy carousel, and 28 medication-dispensing cabinets, with a central server running Windows and a Microsoft SQL Server database. The result is a reduction in delivery time of patient medication from 1.5 hours to 30 minutes, a \$400,000 reduction in inventory costs, rapid ROI and ongoing annual savings of \$300,000.



Biometrics reader on dispensing cabinet provides safe, secure and quick access to medications

"With more time for clinical activities, pharmacists and nurses help the hospital realize significant savings by improving patient care and reducing transmission costs."
Darwin Cooley, Pharmacy Director, Great River Medical Center

Situation

Based in West Burlington, Iowa, Great River Health Systems includes a network of specialty and primary-care clinics, retail pharmacies, and retail medical equipment and supplies services. Its 378-bed hospital, Great River Medical Center, admits 6,000 employees, including 100 physicians. The hospital provides in-patient care and performs more than 180,000 outpatient procedures annually. To enhance patient care and workflow, Great River wanted a better solution for medication management.

Optimizing efficiency was a top priority for improving care and controlling costs, as well as satisfying regulatory compliance. Centers for Medicare and Medicaid Services (CMS) stated that after medication is ordered, it must be administered within 30 minutes. However, with time-consuming manual processes, it could take up to 1.5 hours for patients to receive medication.

Great River knew that getting medication to patients faster and spending more time educating them on proper use would improve outcome and reduce the rate of readmission. Under CMS guidelines, Medicare could deny hospitals reimbursement if patients were readmitted within 30 days for the same condition. Manual processes not only slowed medication distribution, they also reduced the time nurses and pharmacists had available for patients.

Three technicians worked full time stocking pharmacy shelves, ordering inventory, and delivering medication to 28 dispensing cabinets located throughout the hospital. In addition, pharmacists checked every dose of medication for accuracy before releasing it to patients and dispensing cabinets. "We found that we needed to increase automation," says Darwin Cooley, Pharmacy Director, Great River Medical Center. "We were doing too much manually, which wastes both pharmacy and nursing time. We were overwhelmed by the number of calls from nurses and physicians who were waiting for medication."

Multiple interruptions and manual processes also increased the risk of error. "Even the most diligent, cautious, and caring professionals can make errors when under pressure," says Cooley. "We needed to reduce that risk as much as possible."

Great River sought to improve patient care without having to hire new employees. To improve efficiency, the hospital wanted an intelligent system that would automate medication distribution and management.

Solution

In February 2011, Great River Medical Center asked Omnicell, a leading supplier of automated medication solutions, for

"Before the ... installation of the packager and carousel, it would take an average of one and a half hours for patients to receive a newly ordered medication. But now... we've cut the time down to an average of 30 minutes."

Darwin Cooley, Pharmacy Director, Great River Medical Center

help. The hospital, which was already using older versions of the vendor's medication-dispensing cabinets, decided to upgrade to the Omnicell® G4 medication management platform. Powered by Microsoft technology, the solution would include the Windows Embedded and Windows Server operating systems and SQL Server software.

Omnicell and Great River believed that a solution based on a Microsoft platform that included Windows Embedded would provide the reliability, security, and flexibility needed to connect medication-dispensing equipment with diverse applications and peripheral devices. As a result, Great River could implement an end-to-end solution that extends between the wholesaler, the pharmacy, and the patient bedside. The solution links dispensing cabinets at nursing stations, a pharmacy carousel, and anesthesia workstations in the heart and vascular catheterization labs. All devices operate within an intelligent system that includes electronic medical

records (EMR), pharmaceutical inventory, and financial and billing applications. The solution includes 28 automated medication-dispensing cabinets running Windows Embedded. Nurses can go online at any network terminal using the Omnicell Anywhere RN™ application to queue up medication in the cabinets. Located next to nursing stations, the cabinets are equipped with biometric scanners, barcode readers, and label printers. To provide needed security as well as fast access, nurses sign in to the cabinets with one of two registered fingerprints. Barcodes are scanned when high-risk medications are stocked in the cabinets, and again at bedside for patient safety. Instead of handwriting labels or bypassing the safety step altogether, nurses can use the label printer to automatically generate patient-specific barcode labels for medications on demand. The personalized labels ensure that medications are clearly identified at all times—for example, when medications are transferred from one container to another, such as a vial to a syringe.

To further increase efficiency, Great River installed a perpetual inventory management software solution supported by a high speed packager and carousel technology in its pharmacy. An automated retrieval system running on Windows Embedded, the software records medication that is removed or added to the device. When inventory drops below a preset level, the (WorkflowRx™) software automatically reorders the medication from the wholesaler. Both the carousel and high-speed unit dose packager are integrated with the software to help improve workflow along with dispensing time and accuracy.

Medication carousel in the pharmacy





Saves Time and Improves Patient Care

As a result of the new solution, workflow has improved throughout the facility. For example, by using the Omnicell Anywhere RN application to remotely order patient medications from a mobile laptop or any nursing unit workstation, nurses can reduce bottlenecks and cut time spent at the cabinet by approximately 33 percent. The new workflow and other efficiencies contribute to faster distribution, greater accuracy, and better patient care by eliminating barriers between patients and medication. The hospital estimates that by using Anywhere RN, nurses can reduce interruptions in medication administration by 54 percent. The solution not only saves time, but also improves care because each interruption is associated with a 12.7 percent increase in clinical error. "Before the Omnicell G4 upgrade and installation of the packager and carousel, it would take an average of one and a half hours for patients to receive a newly ordered medication," says Cooley. "But now, with the new software and hardware running on an Omnicell and Windows Embedded platform, we've cut the time down to an average of 30 minutes."

In addition, pharmacists spend less time on routine tasks such as ordering from the wholesaler and verifying the accuracy of medications restocked in the Omnicell cabinets. "In the past, a pharmacist was required to manually check all medication before stocking the cabinets," says Cooley. "Because accuracy is greatly improved with the automated solution from Omnicell and Microsoft, our State Board of Pharmacy allows us to check just five percent of the daily restocks, freeing up valuable clinical pharmacist time. This translates into better patient care, improved outcomes, and decreased cost-of-care."

Anesthesia workstation

"Because accuracy is greatly improved with the automated solution from Omnicell and Microsoft, our State Board of Pharmacy allows us to check just five percent of the daily restocks, freeing up valuable clinical pharmacist time."

Darwin Cooley, Pharmacy Director, Great River Medical Center

Finally, the hospital installed the Omnicell Anesthesia Workstation which also runs on the same Windows Embedded operating system. The workstations include a secure cabinet and software that tracks and monitors all medications, including controlled substances administered during catheterization procedures. The cabinet is also accessed through a biometric scanner and offers automated FIFO rotation (Safety Stock) for reduction of expired medications. The solution prevents diversion of drugs by unauthorized users, ensures that medication will be immediately available for use when needed in the OR and procedure rooms, and minimizes the time nurses spend on distribution tasks.

Benefits

By managing and distributing medication with an intelligent system that extends existing infrastructure with new technology, Great River Medical Center is saving time, enhancing patient care, and cutting personnel and inventory costs significantly.

For More Information

For more information about Microsoft products and services, call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada Information Centre at (877) 568-2495. Customers in the United States and Canada who are deaf or hard-of-hearing can reach Microsoft text telephone (TTY/TDD) services at (800) 892-5234. Outside the 50 United States and Canada, please contact your local Microsoft subsidiary. To access information using the World Wide Web, go to:

www.microsoft.com

For more information about Great River Medical Health Systems products and services, visit the website at:

www.greatrivermedical.org

For more information about Omnicell products and services, visit the website at: www.omnicell.com

Cuts Inventory Costs by \$400,000

Great River has reclaimed considerable floor and shelving space with the Omnicell carousel and has reduced inventory costs significantly for rapid return on investment (ROI). "We've cut the amount of medication we keep in stock by half, providing an initial ROI of \$400,000 in the first year," says Cooley. "The solution from Microsoft and Omnicell automatically prepares the order, then sends it directly to the wholesaler without manual intervention, which reduces the incidence of overstocks, outages, and waste from outdated drugs."

Expects to Save \$300,000 Annually with Improved Efficiency

By improving efficiency, Great River expects rapid ROI and ongoing savings that are critical to its long-term viability as a patient health service provider. "With a solution from Omnicell and Microsoft, we anticipate that ROI will take two years, and after that we expect to save \$300,000 annually by decreasing labor and inventory costs and reducing waste," says Cooley. "With more time for clinical activities, pharmacists and nurses help the hospital realize significant savings by improving patient care and reducing readmission costs."

Create the Internet of Your Things with Intelligent Systems

The Internet of Things is not a futuristic technology; it's here today. When your enterprise puts together devices, software, cloud services and business intelligence tools from Microsoft, you create the Internet of Your Things. As a trusted technology leader, Microsoft can help you drive business value from new and existing technology assets, devices, and data to create one truly flexible, intelligent system. When you connect your people and your infrastructure, you can change the trajectory of your business in real time.

For more information, visit:

www.InternetofYourThings.com

Software and Services

- Windows Embedded Standard 7
- Microsoft Server Product Portfolio
 - Microsoft SQL Server 2008 R2 Standard
 - Microsoft SQL Server 08 Workgroup
- Windows XP

Partner

- Omnicell