

THE MCKESSON MEDICATION SAFETY ADVANTAGESM

CUSTOMER PROFILES
Spring/Summer 2006



>>> *Giving You the Power
to Improve Patient Safety*

GIVE YOUR CLINICIANS THE POWER TO IMPROVE SAFETY AND CARE

For many healthcare providers, the 1999 Institute of Medicine landmark report was the wake-up call for change. Change that included giving clinicians the right tools to face patient safety challenges and exceed clinical performance goals. Tools such as bar-code scanning technology that dramatically improves patient safety with every med pass. And, solutions that deliver robust clinical content as well as integrated patient, allergy and drug information at the point of decision making.

With the McKesson Medication Safety AdvantageSM, you harness the power of proven software, automation, distribution, packaging and consulting solutions. Most important, you empower clinicians with integrated solutions and process improvements to help ensure patient safety and give your care providers a medication safety advantage.



ABOUT THIS BOOKLET

As these customer profiles demonstrate, only McKesson gives you a medication safety advantage by providing safeguards at every step where medication errors can occur: prescribing, transcribing, dispensing, administering and monitoring. From the physician to the pharmacist to the nurse, McKesson delivers medication safety that is more efficient, more effective and safer.

TABLE OF CONTENTS

- | | | | |
|----------|--|-----------|---|
| 2 | Presbyterian Healthcare Services
Presbyterian Retools Medication Use for End-to-End Safety | 10 | St. John's Regional Medical Center
ROBOT-Rx Pays Back with Substantial Safety, Productivity and Financial Benefits |
| 4 | Duke University Hospital
Duke University Leverages the Power of IT to Enhance Patient Safety | 12 | Solaris Health System
McKesson Delivers Technology and Clinical Processes That Hit the Mark for Solaris |
| 6 | Spartanburg Regional Medical Center
Spartanburg Nurses Regain Three Hours Each Shift with CarePoint-RN | 14 | John Muir Medical Center, Walnut Creek
Passion and Commitment Guide John Muir Medical Center, Walnut Creek to Safest Outcomes |
| 8 | Pocono Health System
Pocono Medical Center Strives To Be Among the Safest in America | 16 | JFK Medical Center
Packaging System Empowers Bedside Scanning and Electronic MAR Initiatives |

AT A GLANCE

ORGANIZATION

Presbyterian Healthcare Services
Albuquerque, New Mexico
– Facilities: 453-bed Presbyterian Hospital, 170-bed Presbyterian Kaseman Hospital and six other community hospitals for a total of 900 beds

SOLUTION SPOTLIGHT

- Horizon Admin-Rx
- Horizon Care Alerts
- Horizon Expert Documentation
- Horizon Expert Orders
- Horizon Meds Manager
- AcuDose-Rx
- ROBOT-Rx
- NarcStation
- Clinical Consulting Services
- Pharmaceutical Distribution Services

CRITICAL ISSUES

- Medication safety
- Drug accountability
- Variation in process
- Clinician satisfaction

RESULTS

- Reduced medication errors by 78%
- Improved medication controls
- Increased charge capture up to \$350,000 with bedside scanning and medication cabinets
- Standardized processes and best practices
- Improved nursing satisfaction

Presbyterian Retools Medication Use for End-to-End Safety

In the late 1990s, a controlled substances investigation put Albuquerque, N.M.-based provider Presbyterian Healthcare Services (PHS) on high alert. Management moved quickly to develop a strategic plan to invest in state-of-the-art technologies to reduce errors, mitigate patient harm and improve the entire medication use process. Today, PHS has an end-to-end medication management solution and proudly claims a 78% reduction in medication errors.

CHALLENGES

Faced with inefficiencies and gaps in its medication use process, PHS turned to McKesson to leverage existing investments in revenue cycle and resource management technologies as well as supply management, distribution and outsourcing services. Management saw the answer in standardizing clinical processes and improving medication safety with advanced clinical technologies and process change.

“From the time an order is written until the medication is administered to the patient, there are many places to automate and

improve the patient care process,” says Mark Reifsteck, PHS senior vice president and chief operations officer. “We needed a re-tooled, end-to-end system to manage the process and reduce the potential for errors.”

ANSWERS

PHS formed a collaborative team from nursing, pharmacy, administration and IT. They evaluated the current medication process and identified delay points, potential for errors, handoffs and variation. The team analyzed workload and staffing issues and developed financial, operational and quality metrics.

Presbyterian deployed McKesson’s integrated automation solutions, including the flagship ROBOT-Rx® robotic drug dispensing system, AcuDose-Rx® unit-based medication cabinets and NarcStation™ controlled substance storage system. To fully automate medication safety, PHS also implemented Horizon Meds Manager™ pharmacy information system, Horizon Admin-Rx™ point-of-care medication scanning solution, Horizon Care Alerts™ clinical alerts system, Horizon Expert Documentation™ nurse documentation

solution, and Horizon Expert Orders™ computerized provider order entry/clinical decision support (CPOE/CDS) system.

The provider also engaged the expertise of McKesson's clinical consultants. "There always seems to be an assumption that you're going to automate existing processes," says Lauren Cates, MBA, MHA, vice president for PHS. "If you don't redesign the process, you can't truly maximize what automation offers."

In addition to deploying new technologies and educating staff, Presbyterian rebuilt medication order entry pathways, revised medication packaging, reduced order processing steps, revised floor stock, standardized dosing schedules, and revised physician order delivery. By integrating the process changes with the pharmacy automation and clinical solutions, Presbyterian began to close the safety gap.

Tom Swanson, MS, R.Ph., pharmacy manager responsible for medication safety, quality and compliance at PHS, explains, "This is about building and designing safer systems. Technology takes you to that next level that you can't reach with just a manual system."

RESULTS

PHS has experienced significant improvements post-automation. Results point to a 78% reduction in medication errors — an outstanding achievement with more than 2 million doses administered annually. Real-time charting at the bedside reduced undocumented administrations from 10% to less than one-half percent. AcuDose-Rx cabinets and bedside scanning enhanced charge capture up to \$350,000 per year. Transcription errors have also decreased, and the provider expects additional gains with the recently deployed CPOE/CDS system.

"Nurses are happy with the technology, and they also feel like their work is safer," notes Kathy Davis, PHS vice president and chief nursing officer. "There's more of an in-depth understanding of what it means to have the new processes and technology in place to facilitate decision making and get it right 100% of the time."

Reifsteck concludes, "These 'products' are much, much more than automation or IT systems — they are the tools we use to improve health and save lives every day." ■



"These 'products' are much, much more than automation or IT systems — they are the tools we use to improve health and save lives every day."

— Mark Reifsteck,
Senior Vice President and
Chief Operations Officer, PHS

Duke University Hospital Leverages the Power of IT to Enhance Patient Safety

AT A GLANCE

ORGANIZATION

- Duke University Hospital
Durham, N.C.
- An affiliate of Duke
University Medical Center
- 924 beds
- 846 active physicians
- 36,879 inpatient visits
per year

SOLUTION SPOTLIGHT

- Horizon Expert Orders

CRITICAL ISSUES

- Patient safety
- Clinical adoption of IT
- Evidence-based medicine
- Operational efficiency

RESULTS

- Reduced turnaround time
for medications by one hour
- Achieved 100% physician
signature compliance
for orders
- Improved patient
documentation and
adherence to care guidelines

Long recognized for excellence in medical care, Duke University Hospital in Durham, N.C., is now leading the industry in best practices for implementing technology solutions that drive improved patient safety. Duke is transforming its clinical practice by completing installation of the Horizon Expert Orders™ real-time clinical decision support and computerized provider order entry (CPOE) solution, on 600 beds and to more than 950 physicians within six months. This represents all adult services at Duke University Hospital, with peaks of 25,000 orders per day.

CHALLENGES

While the industry has experienced a crescendo of recommendations from regulatory, clinical, payor and purchaser groups touting CPOE as an important technology for preventing medical errors, CPOE remains a challenging implementation for hospitals, with fewer than 5% of U.S. hospitals cited as fully implementing these solutions. “The goal at Duke wasn’t simply to get physicians to use computers for order entry; it was to provide them with easy-to-use technology that helps them deliver better, more efficient care,” says Michael L. Russell, M.D., associate chief information

officer and a practicing physician at Duke. “We were seeking a solution that could help us eliminate errors due to illegible handwriting and provide decision support to assist in consistently applying best practices.”

ANSWERS

Duke’s search led to the implementation of Horizon Expert Orders, which gives physicians interactive feedback during the ordering process through its rich library of clinical protocols, diagnostically appropriate order outlines, rules, treatment advisories and reference information.

Recognizing that CPOE is not simply a technology implementation but a clinical change that will transform the way physicians and the care team work, the project team focused on creating multi-disciplinary teams to implement the system. These teams investigated the thousands of daily processes at Duke University Hospital and translated them into order sets and decision support tools that made the computerized system physician-friendly.

“From the attending physicians to residents to nurses, reaction to the system has been very positive,” reports Asif Ahmad, Duke’s vice president and chief information officer.

“The system takes a very different approach to electronic decision support — the solution works the way physicians think and function, it’s quick and easy to learn, and the evidence-based clinical content delivers value that makes physicians want to use it.”

A key to success for Duke was the ability to quickly infuse the Horizon Expert Orders system with order sets and clinical guidelines on how to treat hundreds of medical conditions based on the cumulative knowledge of the hospital’s world-class physicians. “The system allows us to easily tailor the decision support so that it provides maximum value to the physician and the patient receiving care,” Dr. Russell explains.

RESULTS

Duke’s rapid implementation of the Horizon Expert Orders solution is a unique achievement and critical step forward in creating best practices for patient safety for the healthcare system. Most importantly, the solution is helping Duke University Hospital achieve its goals of improving operational

efficiencies, safety and quality of care. “This technology enables us to effectively communicate our care strategies to the physicians who practice at Duke,” Dr. Russell adds.

Structured, protocol-driven order sets — such as bone marrow transplantation orders — allow physicians to activate 100 or more orders with a single keystroke. In these cases, not only can a whole family of orders be implemented with just “one click,” the system also can calculate doses, dose administration schedules and timing of future orders without error, according to Dr. James Tcheng, a Duke cardiologist who played a major role in maximizing physician use of the technology.

Since implementing the solution, the number of callbacks for inappropriate and illegible orders was dramatically reduced. Additionally, Duke has experienced a one-hour reduction in the time it takes to get medications to patients, as well as 100% physician signature compliance for orders and improved patient documentation and adherence to care guidelines.

“The solution also enabled us, where appropriate, to standardize care throughout Duke,” states Dr. Tcheng. “Our staff embraces this technology as a strategic aid to the delivery of care and in the reduction of medical errors.” ■



“The system takes a very different approach to electronic decision support — the solution works the way physicians think and function, it’s quick and easy to learn, and the evidence-based clinical content delivers value that makes physicians want to use it.”

— **Asif Ahmad,**
Vice President and Chief
Information Officer,
Duke University Health System and
Duke University Medical Center

Spartanburg Nurses Regain Three Hours Each Shift with CarePoint-RN

AT A GLANCE

ORGANIZATION

Spartanburg Regional
Medical Center
Spartanburg, S.C.
– 588 beds

SOLUTION SPOTLIGHT

– CarePoint-RN

CRITICAL ISSUES

- Nurses spent 25% of their time gathering medications and supplies
- Medication error risk increased by multiple systems in disparate locations
- Desire for more nursing quality time with patients
- Efficiency support for nurses

RESULTS

- Nurses regained 2.5 hours per shift by reducing medication prep time
- Nurses redirected their efforts and increased patient care time by 28%
- Nurses reduced documentation time by 30 minutes per shift
- Maximized value of nursing IT systems
- Ergonomic features of CarePoint-RN improved patient interactions

Officials at Spartanburg Regional Medical Center view technology as essential to helping them meet the hospital's mission of providing safer, more efficient patient care. The Spartanburg, S.C.-based hospital was among the first in the United States to automate central pharmacy operations with ROBOT-Rx® in 1996, and it started scanning bar-coded medications at the point of care in 1997.

Today, the organization utilizes the full suite of McKesson's next-generation Horizon Clinicals® solutions. Physicians, nurses and other clinicians have access to real-time patient data through solutions that improve workflow, reduce the variability of care and streamline processes.

CHALLENGES

Against this backdrop, Spartanburg Regional offered to be the national test site for McKesson's CarePoint-RN™ workstation — the first mobile medication cabinet and wireless workstation for nurses. Two of the hospital's heart units received two CarePoint-RN mobile cabinets, each to be used by a single nurse. Nurses measured CarePoint-RN against two major objectives: increased medication safety and improved operational efficiency for nursing.

Prior to using CarePoint-RN, the medication-use workflow required nurses to dispense patient medications from unit-based cabinets, one patient at a time. Twice each day, Spartanburg Regional nurses spent 15 minutes gathering medications and supplies for each patient. For the average shift with six patients, that's three hours per day for each nurse — or about 25% of their total shift time.

The process could become further bogged down by long lines of nurses waiting at the medication cabinet, supply requisition and misplaced cabinet keys.

ANSWERS

Spartanburg Regional nurses tested CarePoint-RN for approximately 12 weeks. They found it to be a significantly safer, more efficient option for dispensing and administering medications.

With CarePoint-RN, workflow is simplified because it contains everything nurses need at their fingertips: medications, supplies, electronic patient charting, and bar-code scanning technology. With CarePoint-RN, medications are delivered straight to the

CarePoint-RN unit, and stored in lockable, patient-specific bins. Therefore, the potential for nurse dispensing errors is eliminated.

“Our nurses took to the new CarePoint-RN mobile cabinets immediately,” says Kathy Dalton, RN, clinical unit educator. “Usually, when new approaches are implemented, it takes a while for people to get comfortable with the changes. In this case, the nurses liked the change and would not let anyone take their mobile cabinets away.”

RESULTS

Nurses using CarePoint-RN spend just 15 minutes each during two med passes to gather medications and supplies. That’s just 30 minutes per nurse per shift. During an average shift, that’s 28% more time nurses redirected to patient care.

According to Catherine Whelchel, RN, CHE, chief nursing officer, the nurses also reported that medication administration and documentation is safer because CarePoint-RN streamlines tasking by combining all administration and charting tools on a single, integrated wireless platform. Nurses use the on-board bar-code technology to verify the “five rights” of medication administration: right patient, right medication, right dose, right time and right route.

“Our key goals are to get the nurses into the patient’s room and to optimize medication administration safety procedures,” Whelchel says. “The CarePoint-RN mobile cabinet solution helped us put all the pieces of med safety together. Nurses definitely have more time with patients, and having everything easily accessible at the patient’s bedside facilitates bar-code scanning, which helps close the loop on medication administration safety.”

Spartanburg Regional nurses found that the medication safety attributes of CarePoint-RN also contributed to significant systematic workflow improvements. As a result, the nurses were freed from redundant, manual movements, and they spent significantly more time on direct patient care — which contributes to job enrichment and nurse satisfaction.

“The new CarePoint-RN mobile cabinet technology improved nursing workflow, which enables nurses to spend more time with patients,” says Ann Braswell, RN, clinical coordinator, information services-clinical support. “It is an ideal system for point-of-care electronic medication administration, ensuring the ‘five rights’ of medication administration.” ■



“The CarePoint-RN mobile cabinet solution helped us put all the pieces of med safety together.”

— Catherine Whelchel, RN, CHE,
Chief Nursing Officer,
Spartanburg Regional
Medical Center

AT A GLANCE

ORGANIZATION

- Pocono Health System
East Stroudsburg, Pa.
- Facilities: 233-bed Pocono Medical Center, Mattioli Emergency Center, Dale and Frances Hughes Cancer Center.
 - Adding comprehensive cardiovascular and diagnostic services in 2006

SOLUTION SPOTLIGHT

- Horizon Admin-Rx
- Horizon Care Record
- Horizon Expert Documentation
- Horizon Expert Orders
- Horizon Meds Manager
- PakPlus-Rx
- AcuDose-Rx
- Clinical Consulting Services
- Pharmaceutical Distribution Services

CRITICAL ISSUES

- Medication safety
- Drug accountability and charge capture
- Patient outcomes or care quality
- Clinician productivity

RESULTS

- Improved safety by using bar-code medication administration 95% of the time
- Improved medication controls and \$2.5 million in increased charge capture
- Reduced time to first dose from 2 hours to 12 minutes
- Re-deployed 1.5 pharmacy FTEs for clinical rounding
- Reduced pharmacy order call backs by 65%

Pocono Medical Center Strives To Be Among the Safest Hospitals in America

With 233-beds, Pocono Medical Center (PMC) falls in the American Hospital Association's definition for medium-size hospitals (100-299 beds) and sits far from a bustling urban area, nestled in the rural Pocono Mountains region. But, size and location haven't stopped PMC from pursuing an aggressive three-year initiative to use leading edge technologies and process improvements to enhance safety and outcomes.

CHALLENGES

Part of the Pocono Health System, PMC and medical facilities in East Stroudsburg, Pa., provide comprehensive healthcare to residents of the surrounding counties. To achieve its predefined clinical outcomes goals in the midst of burgeoning demand, the health system sought to give the power of technology to clinicians. However, the objective was not to just install systems.

“Patient safety is one of our driving forces,” says Marian Moran, Pocono Health System vice president and chief information officer. “We wanted to take a leadership role, and technology was identified as key in allowing us to be among the best and safest in the nation.”

ANSWERS

PMC sought to improve the medication use process by eliminating paper and replacing it with an automated electronic solution that would control the entire process from the time an order was entered to the time the patient received the medication.

Pocono chose the McKesson Medication Safety AdvantageSM, a comprehensive solution that helps ensure safety during prescribing, transcribing, dispensing, administering and monitoring. Outcomes and objectives were identified in a project charter. McKesson's consultants worked with PMC's interdisciplinary team to analyze current state and workflows. They also developed benchmarks for key indicators. Together, the teams developed a best practice model and roadmap as well as measurements and implementation plans.

The first tools in place included McKesson's AcuDose-Rx[®] medication dispensing cabinets and MedDirect[™] order management system. In addition to PakPlus-Rx[®] packaging service, Pocono contracted for the McKesson pharmaceutical distribution service to help ensure safety in the supply chain.

ROBOT-Rx Pays Back with Substantial Safety, Productivity and Financial Benefits at St. John's

AT A GLANCE

ORGANIZATION

- St. John's Regional Medical Center
- Joplin, Mo.
- 372 beds

SOLUTION SPOTLIGHT

- ROBOT-Rx
- PakPlus-Rx
- AcuDose-Rx
- STAR Pharmacy

CRITICAL ISSUES

- Manual cart fill required too many FTE hours
- Risk of error was higher with manual picking
- Medication turnaround time was too long
- Wanted to increase clinical pharmacy activities

RESULTS

- Slashed daily cart fill time from 13.5 FTE hours to 1.5
- Increased clinical interventions by 700%
- Saved \$425,000 annually through clinical interventions
- ROBOT-Rx return on investment in less than three years
- Achieved ROBOT-Rx dispensing accuracy of 99.9%

In 2001, St. John's Regional Medical Center had an aggressive pharmacist-patient intervention program. Two staff pharmacists were dedicated full-time to clinical care. Together, they recorded more than 1,000 patient interventions annually to help positively affect patient outcomes. Pharmacy leadership realized that automating the pharmacy's manual systems would improve productivity and enable the department to devote more time to clinical practice.

CHALLENGES

St. John's had an ambitious plan for medication safety, including bar-code scanning of medications at the point of care. As the first steps, the hospital focused on aligning its medication-use process on bar-code scanning technology, and in remaking its central pharmacy dispensing systems.

At the time, St. John's 16 staff pharmacists and 15 pharmacy technicians spent most of the workday manually preparing the daily medication cart fill. Dispensing the approximate 1,600 daily doses required a combined 13.5 FTE hours for staff pharmacists and technicians.

“To improve our ability to affect patient outcomes, we needed to align our medication dispensing, and eventually, our medication administration systems, with bar-code automation technology,” says Jack W. Udell, Pharm.D., director of pharmacy.

ANSWERS

After a thorough review process, hospital officials selected the McKesson ROBOT-Rx® system and the PakPlus-Rx® packaging service. A robotic dispensing system for the central pharmacy, ROBOT-Rx automates the storage, dispensing, returning, restocking and crediting of bar-coded medications. PakPlus-Rx is the only professionally managed, onsite service that packages 100% of a hospital's bar-code medication needs.

The bar-code technology is integrated with the pharmacy information system — McKesson's STAR pharmacy solution — which allows pharmacists to screen for allergies, drug interactions and therapeutic interactions.

Within weeks of installation, ROBOT-Rx was performing 100% of the cart fill. ROBOT-Rx automates the dispensing, returning, and crediting functions for about 90% of St. John's medications. Pharmacy technicians operate ROBOT-Rx, while the pharmacists perform a 10% random check each night. Overall, daily cart fill time has decreased from 13.5 to 1.5 hours, including manual picks.

Within six months, St. John's was using ROBOT-Rx to dispense first doses. "It saved us the most time, and, in hindsight, I wish we had used ROBOT-Rx for dispensing first doses sooner than we did," Udell says. "Dispensing first doses is easy to do, and it has paid big dividends."

He also acknowledges that the success of ROBOT-Rx is due in part to the efficiency of the PakPlus-Rx service. "The onsite packager ensures that a reliable source of bar-coded medications is always ready," he says. "Because all the medications we use are bar coded, the packager provides an inherent double check, which helps prevent dispensing errors from occurring before they ever have a chance to happen."

RESULTS

ROBOT-Rx had an immediate impact on medication safety. "ROBOT-Rx performs almost perfectly; it has been 99.9% accurate," Udell reports. "And turnaround rates improved dramatically, which improved the pharmacy's credibility throughout the hospital, especially when it comes to pharmacy-nursing relations."

By automating what previously had been manual functions, ROBOT-Rx also freed pharmacists to increase their clinical roles. Pharmacist-patient intervention jumped 700% after the ROBOT-Rx installation, representing annual savings to the hospital of \$425,000. Udell noted that the ROBOT-Rx return on investment took less than three years, with most of the savings realized through the redeployment of pharmacists to clinical activities.

While ROBOT-Rx forms the cornerstone for St. John's comprehensive medication safety solution, the hospital has also extended automation to the nursing units with 28 AcuDose-Rx® medication dispensing cabinets for a variety of floorstock, routine and PRN medications. The hospital also continues to position itself for point-of care medication scanning and electronic medication administration record systems. ■

St. John's
Regional Medical Center

"ROBOT-Rx performs almost perfectly; it has been 99.9% accurate. And turnaround rates improved dramatically, which improved the pharmacy's credibility throughout the hospital, especially when it comes to pharmacy-nursing relations."

— Jack W. Udell, Pharm.D.,
Director of Pharmacy,
St. John's Regional Medical Center

AT A GLANCE

ORGANIZATION

- Solaris Health System
Central New Jersey
- Facilities: 441-bed JFK Medical Center, 396-bed Muhlenberg Regional Medical Center, 94-bed JFK Johnson Rehabilitation Institute

SOLUTION SPOTLIGHT

- Clinical Consulting Services
- Horizon Admin-Rx
- Horizon Expert Documentation
- Horizon Expert Orders
- Horizon Meds Manager
- ROBOT-Rx
- MedDirect
- PakPlus-Rx

CRITICAL ISSUES

- Patient safety
- Care quality
- Care team communication
- Demand for real-time patient information
- Manual, labor-intensive processes
- Documentation quality, compliance and timeliness

RESULTS

- Reduced medication administration variances by 46%
- Enhanced patient care with real-time access to clinical documentation, medication profiles and allergy information
- Improved information access and communication with electronic MAR and portal
- Standardized and reduced nurse documentation time by 11.9%

McKesson Delivers Technology and Clinical Processes That Hit the Mark for Solaris

Recognizing that technology alone is not enough, Solaris Health System in central New Jersey partnered with McKesson to transform processes for advanced clinical systems. McKesson's clinical consultants worked to understand baseline processes, identify change opportunities, prioritize activities and gain support. As a result, Solaris scored major successes in medication safety, IT adoption, nursing documentation, process standardization and clinician satisfaction.

CHALLENGES

With many years of successful IT implementations, Solaris has a depth of experience. The challenge now was how to get the most out of technology and ensure clinicians saw value and maximized use. Standardizing documentation content and processes and medication use was integral to patient safety initiatives. Additionally, clinicians needed real-time access to patient information and tools to enhance efficiency.

“Quality and safety are our top priorities,” says Robert Bayly, MD, Solaris vice president of medical affairs. “When you make substantial commitments and investments that touch clinical processes, you must optimize technology.”

ANSWERS

In addition to implementing McKesson's full medication safety suite, Solaris contracted for clinical consulting services. This included creating a Program Management Office guided by a process improvement methodology vital to achieving business and clinical objectives.

“McKesson's consulting approach moves away from just going live with systems to a model focused on helping people adapt the workflow and optimize the use of the technology,” says Amie Thornton, vice president, Solaris Program Management Office.

McKesson established baseline assessments for Solaris' key strategic objectives: medication safety, physician adoption of IT and nursing documentation efficiency. They also identified clinical outcomes/metrics for post-implementation improvements.

Nursing overtime was a problem, exceeding budget because documentation was done after end of shift. In addition to implementing the Horizon Expert Documentation™ solution, McKesson worked with Solaris to roll out redesigned process workflows and policies.

For medication safety, Solaris implemented McKesson's ROBOT-Rx® drug dispensing system, PakPlus-Rx® packaging service, MedDirect™ pharmacy order communication system, and the Horizon Meds Manager™ pharmacy information solution. Then Solaris added the Horizon Admin-Rx™ medication administration solution, followed by the Horizon Expert Orders™ computerized provider order entry/clinical decision support system (CPOE/CDS) to nursing first and then to physician users throughout 2006.

RESULTS

With new processes and technologies, clinicians are now electronically connected, communicating better and enhancing patient care and quality. More than half of the physicians use a Web portal to view vital patient information. The recent addition of the electronic medication administration record (MAR) allows them, for the first time, to see accurate, real-time medication profiles and administrations. The electronic MAR also provides nurses with order accuracy crosschecks and enables pharmacists to better monitor therapies. Interfaced allergy messaging enables clinicians to access the same critical patient information, while pre-defined rules in the pharmacy system trigger alerts for ADEs. The robot improved cart fill accuracy to 99.6% and helped eliminate lost medication orders.

Perhaps most significant, the combination of using the bar-code system as well as process changes enabled Solaris to decrease administration variances by 46% and reduce timing variances from 25.1% to 5.9%. “Near miss” and “high risk” medication statistics are available daily to nurse managers for staff education.

Previously, nurses spent 42% of their time documenting care, which has been reduced by 11.9%. Standard content across the campus also ensures nurses ask the same patient assessment questions.

“With McKesson as our partner, we created a more efficient, safer and accurate medication delivery process, which allowed the nursing staff to truly embrace patient safety,” says Beverly Rolston-Blenman, Solaris vice president, nursing operations.

With a push to fully roll-out CPOE/CDS, Dr. Bayly expects continued wins as the organization streamlines processes and further integrates information systems. “We’ve learned to closely monitor processes after implementing the technology to ensure we’re using it to the best advantage. We are hitting our marks and installing systems that clinicians embrace.” ■



“McKesson’s consulting approach moves away from just going live with systems to a model focused on helping people adapt the workflow and optimize the use of technology.”

— Amie Thornton,
Vice President, Solaris PMO

Passion and Commitment Guide John Muir Medical Center, Walnut Creek to Safest Outcomes

AT A GLANCE

ORGANIZATION

John Muir Medical Center
Walnut Creek, Calif.

- Facility: 321-bed acute care hospital
- Specialties: High- and low-risk obstetrics, orthopedics, neurosciences, cardiac care and cancer care
- Medication administration: 75,000 doses per month

SOLUTION SPOTLIGHT

- Horizon Admin-Rx

CRITICAL ISSUES

- Availability of readable, bar-coded medications
- Non-compliance with bar-code standards
- Medication safety

RESULTS

- Bar codes on 99% of unit-dose medications
- Achieved 99.7% compliance with bar-code scanning
- Increased reporting of medication errors and near-misses by 39%
- Decreased the percentage of errors causing harm by 33%

When he was nine years old, Eric Saff's father died from a misdiagnosis because his medical chart was misplaced in the hospital where he was being treated. That tragic loss, coupled with his mother's three close calls with medication errors, has fueled a lifelong pursuit of using healthcare informatics to improve patient safety.

Saff, chief information officer for John Muir Health, is in the right place to see his dedication bear fruit. The health system's largest hospital, John Muir Medical Center (JMMC) in Walnut Creek, Calif., is a 321-bed acute-care facility and the designated trauma center for Contra Costa County. It's here that a passion and commitment to safety is evident in the innovative use of information technology, process analysis and redesign as well as system optimization. JMMC, Walnut Creek dramatically changed clinicians deeply embedded beliefs and practice patterns to significantly improve medication safety.

CHALLENGES

The organization has long used technology to support clinical practice, with a clear expectation that staff will use it daily to improve patient outcomes. Even though JMMC, Walnut Creek had been using bar-code technology since 1996,

the legacy system did not work well within nurses' clinical workflow and full safety and quality benefits were not being realized.

A team of nursing and pharmacy management, staff, and clinical analysts evaluated the medication administration process. Findings included problems with the readability of bar codes, non-compliance with bar-coding procedures and overriding of alerts. Clinical query reports reaffirmed the need for improvements.

"We knew we could only achieve benefits and improve quality if our clinicians and processes were aligned to take advantage of the full capabilities of the technology," notes Delynn Peltz, director of clinical informatics for the health system. "We were also challenged with how nurses could better access patients in the rooms."

The lack of readable bar codes on all medications proved to be another obstacle. While the 2004 FDA bar-code legislation helped set standards, Peltz explains that the pharmacy had to be vigilant in ensuring that all medications had readable bar codes.

ANSWERS

JMMC, Walnut Creek used a combination of clinical process redesign and technologies, including McKesson's medication administration and bar-code scanning solution, Horizon Admin-Rx™.

JMMC fine-tuned medication order processing to improve its use of the administration system. Changes to pharmacy systems and procedures increased the availability and readability of bar-coded unit-dose medications. Nurse analysts modified documentation screen flows and content to enhance usability, and they educated staff on bar-coding and its importance in patient safety. If clinicians had problems scanning, pharmacy or nursing analysts did additional training. Compliance for using the technology was also mandatory, publicly shared and part of employee performance evaluations.

"These tools are part of our commitment to patient safety," says Peltz. "By standing side by side with clinicians, showing them that the technology worked, and requiring that bar-code scanning be integrated into the care process, nurses began to value the system."

Saff adds, "Horizon Admin-Rx goes hand in hand with the thermometer and the stethoscope. We created believers, one avoided error at a time."

Another key to the provider's success was the creation of a blame-free reporting environment. "We didn't focus on the individual, but rather on the processes and systems that allowed a medication error to occur," explains Beverly Jones, vice president of patient care services.

RESULTS

The presence of bar codes on unit-dose medications increased from 88% to more than 99%, with readability increasing to virtually 100% of the time. Staff compliance with bar-coding procedures improved to 99.7% — while administering more than 75,000 doses per month. Overriding of alerts fell to less than 8.6%. As clinicians embraced the blame-free culture, medication error and near-miss reporting increased by 39%. Errors causing harm decreased by 33% — a John Muir benchmark that remains below national averages.

"Three years ago, we started on a \$40 million journey to improve patient safety," says Ken Meehan, executive vice president of operations at John Muir Health. "We have a lot of cutting-edge medical equipment, but we also have the information technology to support it. When you put it all together, it's an unbeatable combination." ■



"Horizon Admin-Rx goes hand in hand with the thermometer and the stethoscope. We created believers, one avoided error at a time."

— Eric Saff,
Chief Information Officer,
John Muir Health

Packaging System Empowers Bedside Scanning and Electronic MAR Initiatives

AT A GLANCE

ORGANIZATION

- JFK Medical Center
- Atlantis, Florida
- 424 beds

SOLUTION SPOTLIGHT

- PACMED
- AcuDose-Rx

CRITICAL ISSUES

- Bar-code packaging of unit-dose medications
- Improve staff efficiencies
- Reduce cost of packaging

RESULTS

- Reduced FTE daily cabinet fill time by 75%
- Automated cabinet fill, enabling staff redeployment
- Provided bar codes for more than 95% of unit-dose medications
- Saved a projected \$500,000 over five years compared to other packaging systems
- Realized savings between \$.02 and \$.50 per dose by buying medications in bulk

JFK Medical Center is located in Palm Beach County, Fla., home to one of the oldest per capita populations in the United States and a large number of winter-only residents. The hospital focuses its services on geriatric cardiac care, each year performing up to 800 open-heart surgeries and 7,000 cardiac catheterization procedures.

This level of patient volume and acuity were critical factors as the hospital moved to medication scanning at the point of care — a practice that demands that bar-coded medications are always ready. The pharmacy leadership responded with an innovative “packaging on demand” solution.

CHALLENGES

Entering 2004, JFK Medical Center had two main medication safety goals: begin bar-code scanning medications at the point of care and institute electronic medication administration record (MAR) initiatives. But it was a series of decisions made in the late 1990s that positioned the hospital to make these advances.

At the time, the hospital relied upon manual, centralized pharmacy services in filling 9,000 daily doses via carts. For floorstock and

narcotics, the hospital used unit-based cabinets. According to Trina Kaylor, Pharm.D., the unit-based cabinets and carts were very inefficient. “We were looking for an alternative medication distribution system to increase our efficiency and not hamper patient care,” she recalls. Kaylor is the former director of pharmacy at JFK Medical Center, an HCA-member hospital, and she is now the director of pharmacy for HCA’s MidAmerica Division.

JFK Medical Center found the solution in AcuDose-Rx® unit-based cabinets with full-profile dispensing. “The AcuDose-Rx cabinets allow us to use automation to continue our clinical pharmacy philosophy,” Kaylor says. “We made great strides in clinical pharmacy, documenting more than 1,700 interventions per month for an average cost avoidance of \$80,000 to \$100,000 per month.”

Now, fast forward to 2004. Both nursing and pharmacy were pleased with the results of JFK Medical Center’s profile-dispensing system and were hoping for a smooth transition to bedside scanning and electronic

MAR initiatives. That meant finding a reliable, cost-efficient packaging solution to fill the hospital's AcuDose-Rx cabinets with bar-coded, unit-dose medications.

ANSWERS

JFK Medical Center considered multiple bar-code packaging systems. The team analyzed cost, workload, physical attributes and construction requirements, in addition to functionality, software and interface issues, and time to implement. Hospital officials selected the PACMED™ high-speed packager. "Integration with our existing systems was imperative, so we felt strongly about staying with McKesson," Kaylor says.

Before PACMED, the hospital's pharmacy techs performed three manual cart fills per day. Often, by the time techs finished picking, the list was outdated, forcing them to run lists continually to update what they had already picked. The process took about 2.5 pharmacy hours for each pick, or 7.5 hours per day.

Now, with PACMED configured to package the hospital's top 300 oral solid medications — about 95% of all hospital medications — the pharmacy tech selects an AcuDose-Rx cabinet, and PACMED begins the packaging process.

"Each strip of packaged medications from PACMED is dispensed for a particular AcuDose-Rx cabinet. Essentially, it's packaging on demand," explains Michele Weizer-Simon, Pharm.D., automation manager. "PACMED runs virtually unattended and packages the whole house in about 60 minutes. Manual picks have been reduced to about four to six medications — such as IV fluids, injectibles and non-solids."

RESULTS

All told, the total time required to fill cabinets dropped 75%. Furthermore, PACMED's intelligent software provides alerts when levels fall below par, assists with the ordering process for bulk medications, and allows better utilization of stock.

Kaylor and Weizer-Simon report that PACMED is the most cost-effective packaging solution they investigated, including the initial cost and associated costs. For example, the hospital can now buy medication in bulk, which saves between \$.02 and \$.50 per dose.

"Overall, PACMED increased our work efficiency, improved our medication inventory management, and enabled us to go live with electronic MAR," concludes Weizer-Simon. ■



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— Michele Weizer-Simon, Pharm.D.,
Automation Manager,
JFK Medical Center

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