



**Proven Results in
Medication Management:**
Saint John's Health System

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Saint John's Health System

Saint John's Health System, based in Anderson, Indiana, is a community hospital that joined the St. Vincent Health Ministry in 2002. Saint John's is a comprehensive integrated health system with many noted centers of excellence. Its diversified services are usually only found in larger metropolitan areas, which helps to make Saint John's unique.

HealthGrades, the nation's leading independent healthcare quality company has recognized Saint John's Health System among the top five percent of hospitals in the US for clinical quality performance. Honored for Overall Clinical Excellence, Saint John's was the recipient of the HealthGrades 2006 Distinguished Hospital Award for Clinical Excellence™.

Within Saint John's Health System are an acute care medical center with a digital cardiac catheterization lab and sub-acute rehabilitation center; a psychiatric and addictions-treatment hospital; a durable medical equipment company; a skilled nursing facility; a home care and hospice agency; two free-standing outpatient surgery centers; a children's clinic that provides free medical care to children through age 18; and an ambulatory services center that houses centers of excellence in cancer care, outpatient rehabilitation, women's services, and digestive diseases.

Saint John's also has a second outpatient rehabilitation center, four free-standing family practice facilities in the outlying communities of Madison County, and an urgent care center, which offers occupational medicine.

Challenge

Dependent upon a manual process, Saint John's struggled with a tedious, inefficient patient medication loop. A physician's handwritten order necessitated a nurse review, and a chart copy was then sent to the pharmacy where the order was again entered by hand. The pharmacist verified the order and dispensed the medication, and a nurse had to confirm the right drug, dose, route, time, and patient. After the medication was administered, the documentation was logged by hand on paper.

The lengthy process and the number of parties involved provided ample opportunities for error. Additionally, without a proper way to control whether its physicians were prescribing medications within the formulary, Saint John's faced many compliance-related issues. Realizing the process could be improved, Saint John's sought to streamline and automate the patient medication management process by closing the medication loop and implementing the complete Siemens medication management system. Saint John's anticipated the benefits of implementing this system would lead to increased patient safety and formulary compliance, reduced medication errors and adverse drug events, and decreased variation to improve quality.

- We see a way to reduce charting omissions by 69%
- We see a way to increase formulary compliance by 50%
- We see a way to improve medication turnaround time by 50%

The Partnership

Saint John's recognized that to properly close its medication management loop, it would need to implement various technologies to streamline activity throughout the continuum of care at its facility. Following various conversations and customer site visits, Saint John's decided to partner with Siemens Medical Solutions.

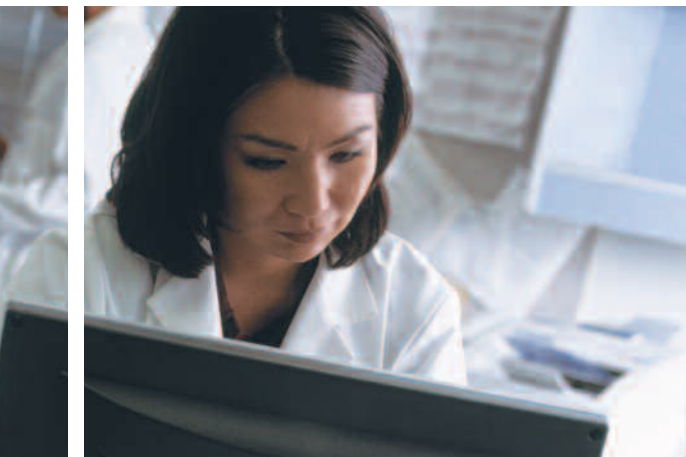
"We were really impressed with what we saw and learned on our visits to some of Siemens customers sites," explained Roger Strange, director, Information Systems. "Its systems worked really well, demonstrated results, and were cost effective, which was a big selling point since our organization is community-based with limited funding."

Saint John's and Siemens worked closely together to first identify the proper solutions to help meet its goals of streamlining its overall medication process.

Implementation Strategy and Roll-out

The first step of Saint John's transformation took place in 1997 with the installation of Siemens Pharmacy®, which provided complete support for the Pharmacy department from an operational, clinical, and management perspective. This solution allowed Saint John's to streamline workflow by enhancing the medication distribution process and interfacing with third-party dispensing devices. Siemens Pharmacy helped Saint John's improve medication therapy through pharmacist intervention documentation as well as clinical conflict screening and drug-lab clinical rules.

The next step in Saint John's strategy was to implement Siemens OAS/Gold for INVISION®, which served to upgrade the online nursing functions such as vitals, I&O, allergies, and admission assessment. This took place in 2002. This implementation allowed clinical data entry screens and pathways to be tailored and modeled more closely after the users' workflow and thought processes. This allowed for quick and easy access to the information that each end-user needed most often, creating greater efficiencies and time savings for staff members.





In June 2003, Saint John's implemented Siemens INVISION® computerized physician order entry (CPOE) which helps minimize human error by providing clinicians tools for automatic dose calculations and clinical decision support to aid decision-making at the point-of-care. Saint John's understood that CPOE was key to achieving a closed-loop system, while driving process efficiencies and helping to advance quality and patient safety initiatives. Saint John's leadership was confident that with the implementation and use of CPOE, its patient medication loop would become more efficient and there would be less room for error. Siemens and Saint John's worked closely together to interface its CPOE system with all of the other systems that were already in place.

Saint John's also understood that one of the keys to its success would be to gather as much support for its new system as possible. For this reason, Saint John's formed a team of six physicians that would be involved in the overall change management process of the traditional physician order entry to the new CPOE system. Having been so involved in this project and seen all of the benefits of the system, these physicians became Saint's John's biggest CPOE proponents.

"These physicians were so excited about this new system that they were continually enlisting support from other staff members," stated Dr. Gary Brazel, vice president, chief medical officer. "They all felt a sense of ownership of the new system. At our annual medical staff meeting, one physician announced to the entire assembled medical staff that the system has made him a better doctor which really seemed to resonate with our physicians."

Lastly, Saint John's added Siemens Med Administration Check™ (MAK) to its network in November 2004. This implementation completely closed the loop on the medication use process by providing a tool for nurses to successfully validate and document medication administration. It uses bar-code scanning and point-of-care documentation to streamline the medication process, reduce errors, and improve communication. These systems, combined with the Pyxis MedStation® — an automated medication management system — form the current information systems infrastructure of Saint John's Health System.



Results

With all of the solutions in place and working together, the medication management loop was closed, creating greater efficiencies throughout each point of the process. Prior to the use of the new interfacing system, there were numerous steps involved in the process and all parties involved were revisiting and verifying orders frequently. Now, as a result of the more streamlined process, all involved in the medication process find no need to constantly revisit and double-check orders and medications. Following a doctor's order entry into CPOE, the order is sent electronically to the Pharmacy. There is no handwritten order to try to interpret, and all information is complete. The Pharmacy is able to verify the order through its Siemens Pharmacy system and dispense the medication. The process of documenting the medication administration is streamlined using MAK, since the administering nurse confirms the right drug dose, route, and patient using bar-code technology before administering the drugs.

Saint John's also witnessed many department-specific benefits through its use of Siemens solutions. For example, Saint John's pharmacy witnessed several improvements as a result of the CPOE implementation. The hospital experienced a notable reduction in transcription errors as the legibility of orders improved and abbreviations were eliminated. Remarkably, more than 75% of orders originating in INVISION required no re-formatting or revision by the pharmacist. This time-saving process change allowed pharmacists' time to be reallocated to additional clinical responsibilities.

Order clarification interventions involving route, strength, and frequency also decreased. CPOE provided clinical warnings — allergies, interactions, and duplicates — directly to the provider during order entry, greatly improving patient safety. Saint John's enjoyed a physician-driven process for scheduling the first dose of therapy and an enhanced turnaround time to medication availability. Approximately 60 percent of all orders were accessible in Pyxis in fewer than 15 minutes, allowing for a much quicker turnaround time from order to drug delivery.

The implementation of Siemens MAK greatly enhanced the nursing staff's processes through enhanced functionality. The MAK medication module displayed the last charted date and time on patient profiles, and it allowed for the auto-shifting of continuous IV fluids. Users experienced timely identification of problematic orders via MAK reporting tools and received messaging regarding refills and changes.

"Through our medication management system, we have been able to build a culture of safety at Saint John's," explained Dr. Gary Brazel, vice president, chief medical officer. "The system has allowed us to reduce the chance for medication errors, greatly improving patient safety, as well as remaining competitive in terms of nurse retention. Our nurses now have much greater confidence when administering medications. Many have stated that they would never want to work in an environment that did not provide this system."



In addition to these solution-specific improvements, Saint John's saw holistic improvement through its more streamlined process and witnessed how much time was saved through the use of its new systems. This time savings allowed for physicians and nurses to spend more time where it matters — with patients.

"We have received extremely positive feedback from many of our on-staff physicians and nurses," stated Strange. "We have experienced high levels of satisfaction from all users. Our physicians and nurses are now spending less time clarifying orders and more time caring for their patients."

Saint John's also experienced enhanced formulary compliance with a 50 percent reduction in non-formulary doses. INVISION CPOE allows physicians to utilize an online, up-to-date hospital formulary for product selection and ordering. In many cases, the physician is alerted to appropriate formulary alternatives when non-formulary product is selected. This decrease in non-formulary orders supports the goal of enhancing medication formulary compliance for cost containment and standard care.

Saint John's Health System currently processes half of all inpatient medication orders through CPOE. Out of 120 physicians, 76 have been trained on CPOE, and more than 50 use the computer for order entry on a daily basis. PYXIS contains 90 percent of medication doses and boasts less than a one percent override. Overrides occur when the system detects a safety issue such as drug allergy, drug interaction, or duplicate drug order. MAK experiences less than a five percent product bar-code override, and charting omissions have decreased by 69 percent since January 2005.

Future

First and foremost, Saint John's hopes to serve as a model to other healthcare institutions moving forward. Its executives can share the knowledge they have gained through their medication management system implementation with others to help improve patient care throughout the industry.

"We recently hosted senior leadership from St. Vincent Health Ministry and noted how impressed they were with what we had accomplished," said Strange. "They explained that they were interested in learning more about the best practices we have implemented here and wanted to leverage our knowledge and expertise in this area. This made us very proud of all of our achievements to date."

Saint John's plans to continue to utilize technology to assist in improving patient safety and the quality of care. Specifically, it plans to continue to make enhancements to its CPOE system and to eventually implement Siemens Lifetime Clinical Record system to enhance patient care through access to crucial patient information. Saint John's is also exploring Siemens Decision Support Solutions and the possibility of building in evidence-based knowledge.



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