

Main Line Health



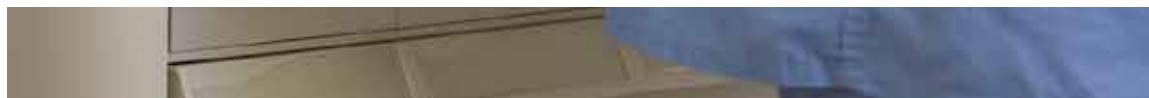
Med Administration Check Anchors Patient Safety Initiative — Soarian® CPOE Helps Ensure Closing the Loop

Main Line Health

Case Study

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Vital Stats

Name of healthcare organization: Main Line Health

Primary location: Lankenau Hospital

Other facilities/locations: Bryn Mawr Hospital, Paoli Hospital, Riddle Hospital, Bryn Mawr Rehabilitation

Number of beds: 1,270

Number of nurses: 4,500

Number of physicians: 1,980

Year established: 1860

Annual admissions: 70,000

Lankenau Hospital

At a Glance

Main Line Health (MLH) is a five-hospital health system located in the western Philadelphia suburbs with approximately 7,600 employees and 1,980 doctors. With roots that date back to the 1860s, MLH has a rich history of cutting-edge and community-focused healthcare. It was not until recently, however, that MLH decided to take the next step in promoting quality and safety by implementing an integrated IT solution.

MLH's SafetyFirst initiative was launched in 2004 with a goal of leveraging the benefits of healthcare technologies to improve quality, safety, and the overall patient experience. MLH envisioned a completely automated system for the entire medication life cycle — from order entry to medication administration. But its entrée into the world of safety-driven IT solutions began with Siemens Med Administration Check™ (MAK — as it is known to customers), a barcode point-of-care solution for medication administration.

Challenge

The catalyst for the MAK implementation was patient safety. MLH had processes in place to minimize complications, but there were no supporting computer systems in place to guard against human error at the point of medication administration. Everything was dependent upon the caregiver's ability to focus and ensure that the right drug was administered to the right patient at the right time.

"There was no peace of mind before MAK," said Claire Baldwin, vice president of patient services at MLH. "Nurses would go through the day offering meds to dozens of patients and, although careful and attentive, there was always a hint of uneasiness knowing a mistake could be made." Put simply, there were no checks and balances at the point of administration.

Patient safety, however, was not the only compelling reason for MAK. "Prior to 2004, the entire organization was tracking medication administration records manually and on paper," said Richard Centafont, system vice president for pharmacy and radiology services. "It worked, but was extremely inefficient. The time spent reconciling handwritten remarks and rectifying discrepancies was enormous."

MLH needed a solution that would support the medication use process, instill safeguards against potential human errors at the point of care, enable on-the-fly corrections with near-real-time data, and set the standard by which the success of all future safety-driven IT implementations would be measured.

“Our overall goal is to standardize practices across the entire system and to make sure that doctors, no matter where they practice, have the same set of order sets available to them.”

Harm Scherpbier
Vice President and Chief Medical Information Officer
Main Line Health

Solution

Identifying the solution for MLH involved more than assessing the needs of the medication administration system. The long-term goal was to have an interoperable, integrated system that covered the entire medication life cycle, which, in addition to the medication administration component, would include simplified documentation and a Computerized Physician Order Entry (CPOE).

MLH decided early in the planning process to embrace a single-vendor approach rather than use best of breed. The single-vendor methodology would force MLH to evaluate each party's ability to address a complete medication life-cycle solution, not merely the administration portion.

“We already had Siemens Pharmacy in place at the hospital, and with Siemens experience in Medication Administration Check and Physician Order Entry, we decided to partner with Siemens for the full implementation of orders and medications,” explained Harm Scherpbier, vice president and chief medical information officer at MLH.

After assessing solutions from multiple vendors, MLH selected Siemens as its strategic IT partner for its SafetyFirst initiative. MLH determined that MAK provided the most efficient and beneficial solution for the medication administration portion of the project, but also recognized the synergies that came with multiple Siemens solutions.

Simplifying Implementation

Siemens Pharmacy and MAK are on the same platform, which eliminated the need to develop interfaces that would typically accompany two systems from different vendors.

“The electronic world we envisioned through the Siemens solution was to support the entire medication loop: from the doctor ordering a medication, to the pharmacist preparing and dispensing the medication, to the nurse administering and monitoring the effects of the medication,” said Scherpbier. “To avoid errors at any point in this loop, we needed one information system guiding the medication through the full cycle. That is why we chose Siemens. They offer the entire loop.”



Bryn Mawr Hospital

Implementation

MLH believed the key to a successful implementation was understanding how the various parties — physicians, pharmacists, and nurses — would use MAK, and ensuring the proper workflows were established from the onset. The health system took an interdisciplinary team approach and created a steering committee to collect input from multiple disciplines.

The benefits of this model were apparent early in the process, particularly in how the new technology would affect the nursing and pharmacy departments. MAK's barcode technology forced these two departments to interact and communicate more efficiently.

"It was clear that MAK was going to take two distinct, siloed departments and basically merge them into one department that needed to work together to make the process work," said Centafont. "If pharmacy didn't initiate the entire medication order entry system properly, then nursing couldn't do its job properly."

Deployment

MLH began its installation at one location, Bryn Mawr Hospital. MAK first went live on only two floors — with the intention of having nurses learn the system and resolve any issues before moving forward.

After a two-week test pilot on the first floors, it was deployed throughout the entire hospital. Two months later, the system was deployed at the next hospital.

Simultaneously with the initial deployment, select members of the nursing staff — "super users" — were conducting training and education for the entire hospital. Unless the staff understood the technology and how to use it efficiently, the benefits would not be realized.

Aggressive Timetable

Within six months, by the end of 2004, all four hospitals then in the MLH system were up and running on MAK. "We looked at other hospitals that had deployed this technology and found few that were as aggressive with their deployment strategies as we were," said Centafont.

MLH was also aggressive with where the solution was deployed. Paoli Hospital, one of the five hospitals within the current MLH network, was the first hospital to deploy the MAK solution in an Emergency Department, and Paoli, Lankenau, and Bryn Mawr have MAK operating within its Neonatal Intensive Care Units.

"We were cognizant about our patient safety initiative and wanted to ensure our patients throughout all facilities were receiving the same level of care," continued Centafont. "That meant deploying MAK as quickly as possible in as many places as possible."

“We are now able to track wrong-drug, wrong-patient types of occurrences. MAK brings transparency to the whole medication management system that was never there before.”

Rich Centafont
System Vice President for Pharmacy and Radiology Services
Main Line Health

Results

In the first two years following the MAK implementation, 23 percent of all notifications for possible patient ID errors and 73 percent of all notifications for possible medication errors resulted in MLH staff stopping the administration of a medication, selecting a different medication, canceling the administration, or switching patients.

“We are now able to track wrong-drug, wrong-patient types of occurrences,” said Centafont. “MAK brings transparency to the whole medication management process that was never there before.”

MAK also provides MLH with near-real-time information. Rather than gathering the paper trail and reconciling discrepancies at the end of a shift, as was done on the old system, transcription and barcoding errors are recognized immediately by MAK and allow nurses and pharmacists to make on-the-fly corrections.

Efficiencies

The amount of time nurses spend administering medications has not decreased as a result of MAK. What used to be a simple delivery now requires interface with the computer and multiple scans. The efficiencies realized are not related to time as much as they are to safety and reporting. The extra steps allow data capture that can be recalled in a matter of minutes.

“From a patient safety and transparency perspective, this system is wonderful,” said Baldwin. “There are few labor cost savings with the system, but there’s improved quality, improved data, and improved documentation.”

MAK’s continuous data-feed enables the MLH staff to improve its processes. Between January 2006 and December 2007, the total number of patient notifications decreased by 4 percent and medication notifications decreased by 23 percent — a clear indication that employees are using the information to improve processes and, as a result, reducing the total number of notifications registered by MAK.

Proactive Data

With the increased data aggregation and documentation, MLH has enhanced its ability to proactively identify and improve workflow and processes.

“There’s a tremendous capacity for information and, as a result, we can run more reports and proactively look for and solve problems,” said Baldwin. “For example, if a floor registers more overrides than another, we can run a report, investigate the scenario, and discover the cause and take corrective measures.”

The same process can be applied to tracking documentation issues. “If someone’s not noting things correctly or there’s an inefficient practice, we can use MAK’s data to identify them,” said Baldwin.

Clinician Satisfaction

An ancillary and unanticipated benefit to MAK has been the positive reaction of not only the existing clinicians, but also new recruits. As part of an annual, internal survey at MLH, one of the questions asked to interns and new nursing school graduates is why they chose MLH.

“The top response is the system we have in place. Because of the barcoding and electronic records, they feel they can give better care to their patients,” said Baldwin. “For them, the system is proof that we put safety first. It is proof that our SafetyFirst initiative is more than mere words.”

Bringing the power of barcoding into the ED

Many patients come into the hospital by way of the Emergency Department. Having an accurate and complete record of the medications administered during this period is critical to ensure that safety initiatives are maintained once the patient is admitted. Paoli Hospital started utilizing Siemens barcode technology, Med Administration Check, in the ED in February of 2008 and has seen some significant benefits. "We finally have a complete electronic medication record," said Jan Nash, VP of Patient Care Services. "When a patient is admitted, physicians, nurses, and pharmacy can easily see what was administered in the ED."

The ED uses the "chart – pharmacy review pending" pathway for most medication administrations. "The Pharmacy is able to review medications administered in the ED while processing admission orders," said Al Celidonio, the director of Pharmacy at Paoli. He added that another benefit of the system is that "the patient is not charged for a medication until it is actually administered."

Meds obtained from the pharmacy are verified and then scanned by the ED nurse, the same as would be done on a regular floor. According to Teri Seiter, RN, MS, CEN, patient care manager, "Patients appreciate the increased level of safety by having their ID band checked frequently."

The benefits of using Med Administration Check in the ED are clear:

- A complete record of meds administered throughout the patient stay
- Better communication to floors during hand-offs
- Improved documentation of ordered and administered medications
- An early transition to physician order entry and Soarian Clinicals integration



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Rich Centafont
System Vice President for Pharmacy and Radiology Services
Main Line Health

“Almost every function we have for MAK is in some way associated with the superior patient experience and patient safety initiative. Its entire purpose is to drive patient safety.”

Claire Baldwin
Vice President of Patient Services
Main Line Health

Next Steps

The MAK implementation was only the beginning of the strategic partnership between MLH and Siemens. Each IT implementation advances MLH one step closer to its goal of offering an interoperable medication life-cycle solution.

It started with the Pharmacy implementation, which established a preferred platform and safety checks for pharmacists. MAK then aided the medication administration portion by streamlining documentation and helping clinicians reduce the potential for human errors at the bedside.

Beyond the bedside, MLH is expanding the use of MAK as the first Siemens customer to apply this technology in the Emergency Department (ED). The Paoli Hospital ED is up and running — providing much improved accuracy on medication documentation in the Emergency Room. Whether patients go home or are admitted to the hospital, all follow-up physicians now have an accurate and legible record of the medications received during a stay in the Emergency Room.

Final deployment will round out the system's end-to-end goals and introduce patient safety at the point of order entry.

MLH is in the process of implementing Soarian CPOE. A pilot program of physicians is scheduled to start at Lankenau Hospital using Siemens new Soarian system. After the pilot, Soarian CPOE will be rolled out to the other physicians at Lankenau, followed by other campuses in MLH.

The Soarian CPOE implementation supports the medication management process: from ordering to dispensing to administration. Not only does this help prevent human errors at any point in the loop, but it also greatly improves turnaround time, so patients receive meds more timely — which in turn speeds the recovery time.

“Our partnership with Siemens is really exciting,” said Baldwin. “Through every step of our safety initiative, they have understood and aligned their solutions to meet our goals. They have been a positive and integral part of our vision.”

“Before we had MAK, everything was on paper. Transcription was taken off by hand. Data collection was all by hand or observation. It was truly just another world.”

Claire Baldwin
Vice President of Patient Services
Main Line Health

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Local Contact Information

Siemens Medical Solutions USA, Inc.
51 Valley Stream Parkway
Malvern, PA 19355-1406
USA
Phone: +1-888-826-9702
www.usa.siemens.com/healthcare

Global Business Unit

Siemens Medical Solutions USA, Inc.
Health Services
51 Valley Stream Parkway
Malvern, PA 19355-1406
USA
Phone: +1-888-826-9702
www.usa.siemens.com/healthcare

Global Siemens Headquarters

Siemens AG
Wittelsbacherplatz 2
80333 Muenchen
Germany

Global Siemens Healthcare Headquarters

Siemens AG
Healthcare Sector
Henkestrasse 127
91052 Erlangen
Germany
Phone: +49 9131 84-0
www.siemens.com/healthcare

Legal Manufacturer

Siemens Medical Solutions USA, Inc.
Health Services
51 Valley Stream Parkway
Malvern, PA 19355-1406
USA

www.siemens.com/healthcare