SNAPSHOT

Opportunity
Verify the home medication list of every patient who enters the emergency department.

Solution
MEDITECH's Expanse Patient Care

Benefits

- Saved more than three minutes on home medication list verification per ED patient

- Resulted in a 29.4% improvement in the average time to verify home medications

- Achieved a System Usability Score of 89 (well above the 68-point industry threshold), indicating a strong degree of user satisfaction

- Gained efficiencies and time savings, moving Major Health Partners closer to its goal of reconciling home medications on every ED patient (average daily census of 70 ED patients)

Profile
Located in Shelbyville, IN, Major Health Partners is a leading healthcare provider serving communities across central and southeastern Indiana. It consists of an 89-bed medical center and a full range of specialty services and clinics.
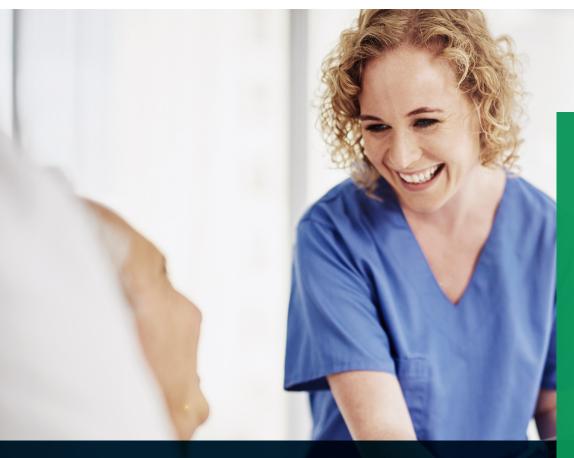
Major Health Partners Sees 30% Time Savings on Home Medication Verification in the ED With Expanse Patient Care

Introduction

Research has shown that involving pharmacy technicians in the process of confirming patients' home medications results in greater accuracy and may contribute to a safer medication reconciliation process. [1,2] More than five years ago, Major Health Partners moved forward with this strategy and assigned pharmacy technicians to the newly created role. Called medication reconciliation technicians, these clinicians have become an invaluable part of the care team. They strive to collect an accurate home medication list for every patient who enters the emergency department, one of MHP's organizational goals.

Not long after bringing MEDITECH's Expanse EHR LIVE in 2019, MHP set out to further leverage the web platform's flexibility throughout its clinical areas. In doing so, hospital leadership seized the opportunity to become an early adopter of Expanse Patient Care, MEDITECH's web-based nursing and therapy solution, which is designed to enhance mobility and streamline workflows.

Medication reconciliation technicians in the ED were among the first staff to use Expanse Patient Care. Anecdotal evidence supported time savings and high user satisfaction, but MHP and MEDITECH wanted to measure the workflow's effectiveness in a System Usability Study.
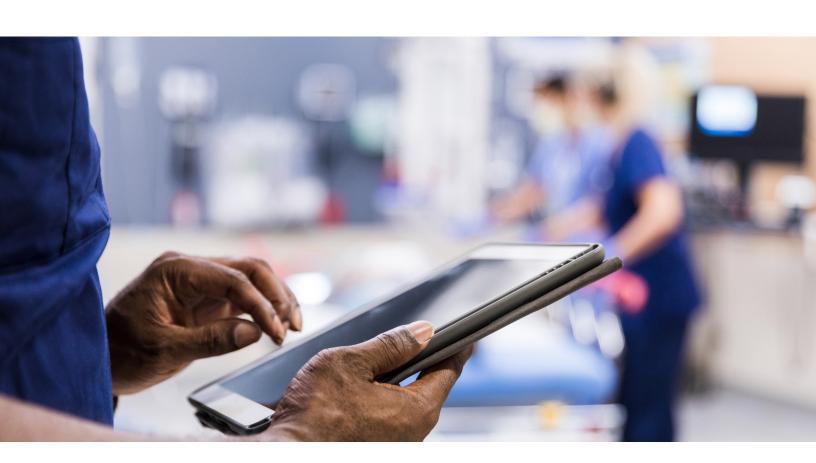
Embracing transformative solutions

Providing staff with the latest technology is nothing out of the ordinary for MHP. As a longtime collaborative partner with MEDITECH, hospital leaders were eager to improve their clinicians' workflow efficiencies with a web-based solution while helping to shape Expanse Patient Care.

In addition, they anticipated that giving nurses and other clinicians a similar EHR view and user experience as their physician colleagues would enhance communication and lead to safer, more coordinated patient care.

"We've been a MEDITECH partner since 1995 and have a great relationship," said CIO Carol Huesman. "Since our clinicians challenge us to be innovative, we look for the latest, most advanced tools. As an early adopter of Expanse Patient Care, we had the opportunity to contribute to an agile solution that keeps us on the cutting edge."

At the start of the early adopter phase and again 120 days post LIVE, MHP conducted a usability study to gather insights into workflow efficiencies and measure end-user satisfaction. Results show a rate of clinician satisfaction well above the industry average, along with time savings due to improvements in the ED's home medication verification process.

Process Measurement

Advanced usability studies ensure new products are providing intuitive and efficient workflows by measuring clinical processes. MHP collaborated with MEDITECH to create the usability study, helping to determine what would be measured; this information would provide insight into the workflow impact of Expanse Patient Care on the home medication verification process. MHP's goal is to confirm the home medications for every patient who enters the ED.

Collecting both quantitative and qualitative data enabled MHP to evaluate effectiveness, user satisfaction, and efficiency. The organization was able to compare results gathered pre-implementation with results gathered 120 days post LIVE to understand the full benefit of Expanse Patient Care. MEDITECH's nursing product manager tracked 13 different tasks representing common home medication verification clinical scenarios, including:

- Adding new medications to the home medication list.
- Adjusting medication doses.
- Documenting "last taken" information.

Quantitative data was collected for each task as well as the overall workflow, keeping in mind workflow variations among individual users:

- Mouse movement based on pixel count
- Average length of time
- Number of clicks

To understand user satisfaction with Expanse Patient Care, MHP and MEDITECH used the System Usability Scale to collect quantitative data. The SUS is an industry-standard grading system that helps quantify participant responses to the software.

The study focused on medication reconciliation technicians, most of whom are certified pharmacy technicians. Part of the staffing model within the hospital's ED, a technician's sole job responsibility is to confirm home medications for all patients who enter the ED, which amounts to verifying hundreds of medications daily.

By the numbers: MHP home medication verification

MHP's goal is to perform home medication verification for every patient who walks through the door:

- Average volume per day: 70 patients

- Average number of home medications per patient: 5 - 10

- Total number of home medications verified per day: 350 - 700

"Staffing the ED with medication reconciliation technicians has had a tremendous impact on throughput. It also allows nurses to focus on direct patient care."

Sara Lewis, RN
Clinical Informatics Specialist
Major Health Partners

"Gathering usability data from our medication reconciliation technicians enabled us to gain valuable insights into how we're managing patient throughput in our busy ED," said Sara Lewis, RN, a clinical informatics specialist at MHP. "These technicians are very proficient at reconciling home medications because it's their sole focus, as opposed to nurses who might have to do it quickly when acuity is high. This gave us a solid area for measuring efficiencies as well as end-user satisfaction."

Results

Findings from the Expanse Patient Care usability study showed significant time savings and overall process improvements, as well as a high rate of user satisfaction among medication reconciliation technicians in the ED.

Improving clinical efficiency

Average time by task is a key metric for clinician efficiency. MHP's medication reconciliation technicians saved more than three minutes in their overall home medication verification workflow per patient, a 29.4% improvement in comparison to the baseline. Technicians experienced similar results for individual medications. Reducing the average time by task translates to:

- An increase in the number of ED patients whose home medications are verified, moving MHP closer to its goal of verifying the home medication list of every patient who enters the ED.
- A smoother workflow for medication reconciliation technicians.
- Improved ED throughput.

As part of the usability study, MHP measured pixel count, or the amount of mouse movement needed for a technician to complete the home medication verification process. Less mouse movement means technicians are opening and closing fewer screens. For the overall workflow, mouse movement decreased by 32.8%. Technicians experienced similar results when reconciling individual medications.

The usability study also showed a decrease in the number of clicks required to confirm home medications, indicating an expedited verification process. Technicians saw a 13.6% reduction in clicks overall and a similar reduction in clicks per medication confirmation.

Increasing user satisfaction

MHP used the SUS to help measure medication reconciliation technicians' satisfaction with Expanse Patient Care. Participants rated the solution an 89 on the SUS during the post-LIVE usability study. This score equates to an A — the highest possible ranking for usability performance and satisfaction. The industry threshold for acceptable usability is 68.

Results of home medication verification usability study

Quantitative measurements:

Efficiency

✓ 29.4% improvement in the average time for overall home med verification workflow, a time savings of more than 3 minutes

✓ 28.6% improvement in the average time to reconcile each med

Mouse movement

✓ 32.8% improvement in overall mouse movement for home med rec workflow

✓ 32.6% less mouse movement needed to reconcile a med on average

Click reduction

✓ 13.6% improvement in click reduction for overall home med rec workflow

✓ 13% improvement per med

Qualitative measurements:

Medication reconciliation technicians gave Expanse Patient Care a score of 89, or an "**A**" – the highest possible ranking for usability and satisfaction.

Coordinating care transitions outside the hospital

MHP refers patients to four skilled nursing facilities in the area. These care transitions are now streamlined because of Expanse's web-based capabilities, which make it easier and more secure to share patient information at discharge. Once staff from these facilities have been authenticated in the system, they can view relevant information such as clinician notes and medication lists, helping the SNF to better prepare for the patient's admission.

Learning on the go

According to Lewis, the learning curve for Expanse Patient Care was minimal.

"We held usability sessions and asked staff to become familiar with the new functionality," she said. "We were pleased to find they didn't require additional training. Our medication reconciliation technicians found the system to be very intuitive."

Even though MHP didn't include nurses in the home medication verification portion of the usability study, Lewis believes the time savings would be similar, regardless of who is confirming the medications.

Refining workflow processes

Expanse Patient Care has enabled MHP to refine workflow processes not just in the ED but throughout its clinical care settings. To keep everyone on the same page, IT and clinical leaders set up the home, patient summary, and hand-off screens based on users' workflow, helping to manage patient throughput.

To support consistency among clinicians, the leadership team also decided to limit edits that can be made to the various screens. Changes to the home, summary, and hand-off screens are based on consensus. For example, if 80% of staff find a certain change would be helpful, that change is then delivered across the board to all

staff. However, because staff may experience a learning curve for a significant change, edits to that particular screen are restricted for six months, to ensure everyone has time to adjust.

"Staff within each discipline are looking at the same chart and the same patient information, making it easier for hand-offs within the ED," said Lewis. "The system brings the most clinically relevant data to the patient summary screen, which can be seen from the patient list. This enables us to eliminate the extra steps involved in closing one chart and opening a new one when performing hand-offs."

MHP strives for consistency and minimizes screen changes while embracing certain aspects of Expanse Patient Care's flexibility.

"Other units love the MyWidget and the PatientWidget," said Lewis. "The MyWidget allows users to add information they feel is important to know about every patient. Additionally, clinicians can rearrange widgets to correspond with their workflow and even to reduce the amount of scrolling. These features are a great way for staff to personalize screens to their individual work styles and make their workflows more efficient."

Conclusion

Lewis noted that results from the usability study demonstrate how conducive Expanse Patient Care is to the ED's medication reconciliation workflow, saving valuable time and creating efficiencies around patient throughput.

"Streamlining the process contributes to providing timely and appropriate care for our patients," she said.

Verifying home medications in the ED is only one of the benefits MHP has experienced with Expanse. By bringing all of its clinicians onto a single platform,

particularly those who work in both the ambulatory and acute settings, MHP continues to meet the needs of its clinicians and patients.

"Now we're all using the same patient chart, locating information from the same source, and directing that patient's care more effectively across the continuum," she said. "But we won't stop here. We're always looking at ways to improve, and plan to build on Expanse's capabilities throughout MHP."

References

1. Irwin AN, Ham Y, Gerrity TM. Expanded Roles for Pharmacy Technicians in the Medication Reconciliation Process: A Qualitative Review. Hospital Pharmacy. 2017;52(1):44-53. doi:10.1310/hpj5201-44

2. Petrov K, Varadarajan R, Healy M, Darvish E, Cowden C. Improving Medication History at Admission Utilizing Pharmacy Students and Technicians: A Pharmacy-Driven Improvement Initiative. P T. 2018;43(11):676-684. PMID: 30410283

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