

Project Submission:
2009 Delaware Valley Patient Safety Award

PAOLI HOSPITAL

*“Improving Patient Safety in the
Emergency Department (ED): Implementation
of Medication Bar-Coding (MAK)”*

Abstract:

Our organization took the opportunity to improve patient safety in the ED by implementing an electronic medication bar-coding system referred to as “MAK”. This implementation seized the opportunity to standardize electronic medication administration across multiple areas of the hospital while providing a safer way to administer meds to ED patients in an often chaotic environment. Additionally, the use of this system opened the door for interdisciplinary collaboration centered on the shared interest of rendering exceptionally safe care to our patients - creating a complete electronic medication summary and allowing clinicians on the patient care units to clearly see what medications were administered to patients in the emergency department.

Title:

Improving Patient Safety in the Emergency Department (ED): Implementation of medication bar-coding (MAK).

Goals:

The goals were to deliver medications in a safe and effective manner with minimal opportunity for errors; streamline medication records for seamless transition for inpatients to avoid confusion; nourish interdisciplinary relationships around the common interest of patient safety; create a comprehensive final medical record that concisely lists medications given at multiple points of the patient visit; and avoid an increase in the LOS for ED patients utilizing this methodology.

Baseline Data:

The data collected prior to the implementation of this technology falls into 2 categories: a need for the ED to improve medication delivery and an opportunity to link the ED medication administration record (MAR) with that of the inpatient MAR; both avenues with qualitative measures of success. The need for improvement in the delivery of medication strictly in the ED came from a sense by staff and leadership that the current method had multiple opportunities for error. There was no evidence of standardization nor were there any hard stops in the administration process other than correct identification of the patient utilizing 2 indicators in addition to the nurses’ diligence in following the colloquial ‘5 Rights’ of medication administration (right patient, right medication, right route right dosage, and right time).

Linkage of the ED MAR to the inpatient record was viewed as a critical necessity. Having a difference in documentation methods between heavily utilized patient care areas left many occasions prime for duplication of medication administration as well as uncertainty around timing of medications to be administered on a schedule. Although there is an effective hand off system in place, error was still a possibility without an overt recognition of such.

It was important to us also that length of stay in the emergency department not increase while implementing this methodology.

Interventions:

It was first identified that multiple disciplines must be deeply involved in the success of this program. Namely, information services, pharmacy, ED nursing leadership, education, and end user staff. We also recognized that the nationally renowned vendor for our product had not experienced the cutting edge implementation of such a system in an ED setting and was very much focused on the collaboration among departments. A workgroup consisting of staff from the above mentioned departments met regularly to map potential processes for their discipline and to match those drafts with others to begin the development of the medication bar-coding practice.

The information service involvement was for the equipment, technical, and software support. This product had been deployed on inpatient units, so the IS staff were comfortable with the product. ED nursing leadership and education developed the training for the staff based on the roll out to the inpatient units and tailored the content to the ED. The vendor provided program insight and guidance as well as garnering tips to bring to other organizations interested in utilizing this technology.

Pharmacy remains a critical partner to the success of MAK in the ED. A secondary goal of this initiative was to have the medications reviewed by pharmacy prior to their administration. In this case, that is not occurring due to the expediency by which the medications in the ED must be administered. This is a topic that remains on the radar for both the ED and pharmacy for continuous review.

The MAK system was implemented after staff training was provided in February, 2008.

Results:

Overall, the MAK system has been successful in the ED. Our goal was to increase patient safety in the ED and it has been accomplished. To date, there has been a 32% decrease in medication errors in the ED. Patients' satisfaction with the new system is positive. Patients are comforted knowing that we have another safeguard in place to ensure the accuracy of the medication they are receiving in the ED. Documentation of medication administration has improved dramatically. Along with administration documentation, patient response to medication is also documented utilizing the MAK system. Patient length of stay has not increased in the ED since the implementation of MAK.

Additionally, the entire medication record is readily available so that when the patient is discharged, the medication administration summary is legible, complete, and able to be utilized for patient education.

Pharmacy has seen increased compliance with their ability to note first dose timing for the administration of certain medications where proper spacing between doses is critical. We have also improved billing accuracy in that medication charges are applied to the patient account based on administration of the drug rather than on dispense.

Replication throughout Region:

We have shared our results with our organization, prompting the other hospitals to move forward with implementation. Over the past 12 months, MAK has been implemented in two of our acute care hospitals. As previously mentioned, the vendor experienced this implementation as the first of its kind in an emergency department setting. Since our sharing of this success via the vendor, we have received many inquiries throughout the region and nationally about implementing MAK or another type of system in the ED setting, including a request to present at a national information systems conference. We offer site visits to our colleagues and provide information liberally to others interested. The ability to share what we see as a best practice puts this experience over the top in terms of worth to the leaders and staff involved with creating a success.