

e-MAR, Bar-Coding Halves Medication Errors

Orlando, Fla.--A 54% reduction in medication errors was objectively documented following installation of an electronic medication administration (eMAR) and bar-code scanning system at Lancaster General Hospital (LGH), a 521-bed community teaching hospital based in Lancaster, Pa.

The study findings, which were presented in a poster session at the American Society of Health-System Pharmacists 2004 Midyear Clinical Meeting, suggest that the technology system "significantly decreases error rates by enhancing clinical communications between pharmacy and nursing," said Richard Paoletti, RPH, MBA, Director of Pharmacy for LGH.

Researchers from the VHA, Inc., a collaborative of voluntary healthcare organizations based in Irving, Texas, measured baseline medication errors and medication accuracy rates in three acute care units at LGH during an 11-day period in May 2003. Following this baseline period, two of the units--a general medical/surgical unit and a cardiac telemetry unit--received the MedPoint eMAR and bar-code scanning system from Bridge Medical, Solana Beach, Calif. The third unit--a second cardiac telemetry unit--served as a control group and continued to use a manual medication administration system.

A post-implementation measurement of errors and medication accuracy was completed in January/February 2004. The sample size was 300-plus doses per each nursing unit. Medication errors were objectively documented using the direct observation methodology AU MEDS created by Lenexa, Kansas-based MedAccuracy.

Excluding errors caused by not giving medications on time, the new technology system was linked to a 54% reduction in errors in the medical/surgery unit at LGH, according to the VHA researchers. When time errors were included in the calculation, the system was linked to a 36% reduction in errors in the medical/surgery unit.

The system reduced errors in the intervention cardiac telemetry unit as well, but the findings were less dramatic because the patient population in this unit was less diverse than that in the medical/surgical unit, making errors easier to detect manually, the VHA researchers noted.

Transcription Errors Reduced

Lead researcher Donald Harry, MS, RPh, Project Manager for VHA's consulting division, noted that a "crucial improvement" came from giving the pharmacy the responsibility for entering all medication orders and from the implementation of an eMAR system.



"When we looked at the root causes for medication errors," said Mr. Harry, "the number of transcription errors in the MAR for the general medical/surgery unit were dramatically reduced after the implementation of MedPoint."

"Before we implemented MedPoint we were on a handwritten, five-day med-sheet which nursing owned, and there was no reconciliation with what pharmacy was actually entering on a patient," said Betty Pearsall, RN, Nursing Director at LGH. "Now the MedPoint software interfaces with the pharmacy system and the pharmacists are responsible for entering all medication orders. Having real-time reconciliation on every drug that is ordered is one of the most significant reasons errors went down as dramatically as they did."

The LGH staffers credited the combination of bar-coding technology and MedAccuracy's observation methodology for providing LGH with a real-time understanding of its medication system errors.

"The reduction in errors from the patient bar-coding system and our ability to accurately measure error rates with a direct observation methodology were probably the most significant benefits from the study," said Tina M. Suess, RN, Bridge System Administrator at LGH.

Mr. Harry added that this was the first study to examine the impact of point-of-care bar coding on medication errors using an objective observational method for determining the incidence of errors.

LGH has since expanded the Bridge MedPoint bar-coding system on all inpatient units and the MedAccuracy observation methodology is used twice a month to observe medication passes.

--Liz Parks