

Nurses' Role in Preventing Medication Errors

Each year, about 7,000 people die because of medication errors in hospitals. Although errors can happen throughout every step of the medication process, experts say they occur most frequently during the prescribing and administering stages. According to the Institute of Medicine, on average, a hospital patient can expect to be subjected to at least one medication error each day.

Nurses play a critical, albeit relatively invisible role, in preventing medication errors, a problem that costs hospitals alone about \$2 billion a year. According to a 1995 *Journal of the American Medical Association* study, nurses are responsible for intercepting 86% of all medication errors. However, that same study pointed out, that the process of administering medications, a practice that falls primarily to nurses, was one of two times when the most frequent errors occurred.

Nurses are spearheading efforts to facilitate better medication management and to prevent medication errors in the hospital and elsewhere. A number of projects under the auspices of the Robert Wood Johnson Foundation's Interdisciplinary Nursing Quality Research Initiative (INQRI) are specifically looking at interventions to help nurses prevent errors and keep patients safe. The following are examples of such efforts:

Identifying effective practice. A multi-disciplinary team at Rutgers University¹ is identifying changes in nursing care processes that are needed to prevent medication errors as well as adjustments in nurse staffing and the practice environment that are important to facilitate interception of such errors. This is the first study of its kind to show how predictive practice environments and nurse staffing levels are when it comes to medication errors. Preliminary findings reveal that there is a core cluster of nurse safety processes that are significantly associated with fewer medication errors. These include critical thinking and questioning, such as asking physicians to clarify or rewrite unclear orders, as well as independently reconciling patient medications and educating patients and families. This team also found that hospitals with supportive practice environments, including having front-line managers, allowing nurses to participate in organizational decisions, and having good collaborative relationships with physicians were key quality indicators. Finally, hospitals that had more RNs per patient were found to be places where nurses were more likely to engage in safer practices. The study also looked at the role of computerized physician order entry (CPOE). Findings reveal that full implementation of CPOE reduced medication errors significantly and is a predictor of fewer medication errors.

Leveraging technologies. CPOE, as well as a range of medication management health information technologies (MMHIT), are being implemented by health care organizations to prevent medication errors. University of Wisconsin-Madison² researchers have examined the role of these technologies, including bar coding medication administration (BCMA) to see whether they could also introduce new sources of error. Building on the Rutgers work, this team is attempting to develop a set of measures that isolate and quantify nursing's contributions to medication management quality. They are examining how CPOE and BCMA are being used by nurses in two intensive care units in Wisconsin. Their goal is to see whether a systems approach to the design, implementation and use of MMHIT can help identify, prevent and mitigate new errors and support nursing performance, error recovery processes, communication and decision-making.

Improving transition from hospital to home. About 400,000 patients are affected by adverse drug events (ADEs) each year at a national cost of approximately \$3.5 billion. Johns Hopkins Hospital³ researchers have evaluated the effectiveness of a nurse-pharmacist clinical information coordination team in improving medication reconciliation management on admission and discharge, quantified potential harm due to reconciliation failures and determined the cost-benefit related to averted harm. Preliminary findings quantify how much each adverse drug event costs based on the literature, the cost of the nurse-pharmacist intervention and how many ADEs could be avoided with appropriate intervention. Elements of the intervention include having nurses obtain home medication lists from patients, using a set of criteria to involve the pharmacist, and accessing multiple sources including community pharmacists and primary care physicians to complete the list. Discrepancies between the admission and discharge medication orders were resolved by consultation with the hospital provider. Thus far, their work suggests how important medication reconciliation at the time of admission and at discharge is to avoiding ADEs, improving patient safety and reducing healthcare costs.

Supporting patients where they live. A study being conducted by a team at Washington State University⁴ contributes to a better understanding of the potential for home care nurses to lead in the identification and resolution of medication discrepancies during transitions between hospital and home care providers.

Across the country, nurses are on the frontlines confronting the issue of medication reconciliation. These studies highlight the unique contributions that nurses can make in improving the quality of care received by patients as it relates to their medications.

1. Flynn, Linda, "Examining the Impact of Nursing Structures and Processes on Medication Errors." Robert Wood Johnson Foundation ID#59188 6/1/07-5/31/09.
2. Carayon, Pascale, "Nursing, Technologies and Medication Management: New Multidimensional Measures of Cost and Quality." Robert Wood Johnson Foundation ID#61148. 6/1/07-12/31/09.
3. Costa, Linda, "Nursing-Pharmacy Collaboration on Medication Reconciliation: A Novel Approach to Information Management." Robert Wood Johnson Foundation ID#62596. 9/1/07-8/31/09.
4. Corbett, Cindy, "Empowering Home Care Nurses to Efficiently Resolve Medication Discrepancies." Robert Wood Johnson Foundation ID#63961. 9/1/08-8/31/10.