REVIEW ARTICLE

Medication Reconciliation

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ABSTRACT

The Institute of Medicine (IOM) stated that preventable medication errors are the most common type of errors in healthcare. It is of fundamental significance when building a safer care continuum, as it highlights the reason for continuous and more vigilant medication reconciliation and required effort at all interfaces of care, including community. Without a robust medication reconciliation process, the potential for catastrophic outcomes remains a constant concern. Prevention of medication errors is essential through strategies that are based in evidence of medication reconciliation strategies on medication errors in community.

Keywords: Medication errors, healthcare delivery system, medication reconciliation, adverse drug reaction, quality improvement

Medication safety is a significant issue in hospitals and throughout healthcare. Great improvements are needed, and hospitals are engaged in many efforts to reduce errors and increase this aspect of patient safety. Nurses are the most involved at the medication administration phase, although they provide a vital function in detecting and preventing errors in the prescribing, transcribing and dispensing stages too. Administration errors constitute a significant proportion of all errors, yet, there isn't much known about the causes or about the effectiveness of proposed solutions.

Research addressing the complex process of medication use in hospitals is the need of the hour and requires a new approach to produce valid knowledge from studies done in the field with few controls of confounding factors. There is a large and growing body of research addressing medication safety in healthcare.

MEDICATION ERRORS

Any preventable event that may cause or lead to inappropriate medication use or patient harm, while the medication is in the control of the healthcare professional, patient or consumer is termed a medication error. These events may be associated with professional practice, healthcare products, procedures and systems, including prescribing; order communication; product labeling, packaging and nomenclature; compounding; dispensing; distribution; administration; education; monitoring and use.

Some of the factors associated with medication errors include the following:

- Medications with similar names or similar packaging
- Medications that are not commonly used or prescribed
- Commonly used medications to which many patients are allergic (e.g., antibiotics, opiates and nonsteroidal anti-inflammatory drugs).

ERROR-PRONE PROCESSES

There are five stages of the medication process: (a) ordering/prescribing, (b) transcribing and verifying, (c) dispensing and delivering, (d) administering and (e) monitoring and reporting. Monitoring and reporting is a newly identified stage about which there is little research. Some of the most noted hospitalized

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patients suffer preventable injury or even death as a result of adverse drug events (ADEs) associated with errors made during the prescribing, dispensing and administering of medications to patients.

Nurses are primarily involved in the administration of medications across settings. Nurses can also be involved in both the dispensing and preparation of medications (similar to pharmacists), such as crushing pills and drawing up a measured amount for injections. Preliminary research on medication administration errors (MAEs) reported an error rate of 60%.

Medication errors have been reported mainly in the form of wrong time, wrong rate or wrong dose. In other studies, approximately one out of every three ADEs were attributable to nurses administering medications to patients.

MEDICATION ERROR-PREVENTION STRATEGIES

Medication errors are common in hospital settings. To limit and mitigate these errors, it is necessary to have a thorough knowledge of the medication-use process in the emergency department and develop strategies targeted at each individual step. Some of these strategies include medication-error analysis, computerized provider-order entry systems, automated dispensing cabinets, barcoding systems, medication reconciliation, standardizing medication-use processes, education and emergency-medicine clinical pharmacists.

NURSES' EDUCATION AND TRAINING

Lack of medication knowledge is a constant problem, and there is a need to continually gain more knowledge about current and new medications. Nurses with more education and experience may have greater knowledge of medications.

Educational Strategies Aimed to Improve Medication Safety and Avert Unnecessary Medication Errors

Educational and training programs on drug therapy are required for medical/paramedical students, drug prescribers (doctors) and nurses (administering drugs) to reduce drug errors and to improve patient safety. A systematic approach is urgently needed to decrease organizational susceptibility to error, through providing required resources to monitor, analyze cause of errors and implement preventive strategies to reduce them.

A proper functioning national standardized system for medication errors detection and reporting using a unified terminology all over the country is necessary to allow for better knowledge sharing and practice change.

Medication Reconciliation

Medication reconciliation is a process that matches a patient's current hospital medication regimen against a patient's long-term medication regimen.

Or

Medication reconciliation is the process of comparing an individual's medication orders to all of the medications that the individual has been taking. It is a process that is an integral part of safety for older adults living in their homes in community settings.

Medication reconciliation is flexible enough to enhance hospital specific workflows and keep current on new information (Medication Reconciliation) relating to prescription medications and their reactions while supporting and exceeding the Patient Safety Goals, i.e.,From admission, transfer and discharge to post visit patient care, including community. Medication reconciliation simplifies the process of reconciling a patient's medication therapy across the continuum of care. Healthcare system (HCS) works with hundreds of hospitals across the nation to simplify and streamline medication reconciliation. While every hospital has a goal of improving patient safety and saving time, every hospital is unique with its policies, protocols and guidelines.

SOLUTIONS OF MEDICATION RECONCILIATION

- Obtain a patient's prior medication history including medication fill and refill information and previous visit information.
- Analyze prior medication history.
- Provide medication transfer and discharge reports electronically or through printed media.
- Provide discharge prescriptions including patient medication education.
- Communicate and link directly to existing hospital clinical information systems.
- Identify high risk patients for medication nonadherence and obtain fill/refill information for clinicians use in follow-up visit.

HCS medication reconciliation has been proven to save time and increase accuracy during medication reconciliation:

- 2.4 more critical medications identified during admission

- 50% increase in computerized physician order entry
- 51-minute reduction in time to reconcile
- 23% increase in ordered critical medications.

Components of medication reconciliation include:

- Medication procurement
- Medication knowledge.

Medication procurement

- How and where the patient obtains and refills prescriptions?
- How the patient pays for the medications?
- Whether or not medication doses are ever missed due to lack of funds?

Steps for self-medication management

- Assessing the patient's knowledge of dose and frequency of medications
- Special instructions related to medications
- Medication mode of action
- Side effects to monitor and report
- Monitoring with each change in medication regimen.

Medication Knowledge

- Provide educational materials including medication instructions written in large letters and in bullet or list format, use of medication schedules and tailored instructions on how medications should be taken.
- Patients also need to understand the importance of communicating any changes in their medications to their healthcare providers.
- Patients should be encouraged to bring the medication list with them to physician visits to encourage medication reconciliation, and the list should be updated when medications are added or discontinued.
- Pharmacists can help empower patients by teaching them what it means to be an alert consumer and involved in their healthcare.

Medication reconciliation is centred on the safety principle of independent redundancy. Independent redundancy is a process whereby more than one care provider checks to make sure procedural steps are completed correctly.

The specific issues most in need of research (QI-Quality Improvement activities) are as follows:

- Barcoding and other medication safety technology—widely recommended, but little or no valid research using before-and-after designs.
- Independent RN double-checks—logical and widely recommended, but no research has been done describing, let alone testing, the effects of this policy.
- Relationship between nurse staffing and medication errors—a few descriptive studies and studies asking RN perceptions of the problem suggest that staffing and workload are major factors, but there are no research studies using valid and reliable data.
- Techniques to reduce distractions, interruptions, other risk factors for medication error need to be tested.
- Methods of effective education in medication safety for nurses and all care providers.
- Effectiveness of implementing new checklists, policies and procedures.
- Understanding work-arounds.
- Methods and techniques for successful implementation of system and process change.

Current Medication Proforma (For Medication Reconciliation)

Current medications	Dose	Route	Frequency	To be continued during hospital stay	Patient/ Family teaching
				Yes/No	Yes/No
				Yes/No	Yes/No
				Yes/No	Yes/No
				Yes/No	Yes/No
				Yes/No	Yes/No

CONCLUSION

Medication safety for patients is dependent upon systems, process and human factors, which can vary significantly across healthcare settings. Hence, corrective actions should target priority areas and root causes to prevent recurrence. There is a need of quality-improvement programs that focus on educating the staff about medication errors and the importance of reporting.

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