Prevention of Medication Errors- A step ahead in providing better Patient Safety

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ABSTRACT

The reality that medical treatment can harm patients is one that the healthcare community has had to come to, in terms with over recent years. Adverse events associated with medication errors are chief causes among them. A medication error is an error which can be defined as any discrepancy between the prescriber's interpretable medication order and what was administered to a patient. Prescribing & drug administration appears to be associated with greatest number of errors.

To ensure patient safety& provide better health services, medication errors should be curbed. India is still lacking the regulatory system for the control of medication errors. Therefore, a stringent regulatory set up should be established to reduce medication errors. Awareness among the health-care professionals regarding medication errors may be the major factor in the establishment of a successful regulatory system. Some of them might be aware but reporting is rare due to many factors such as miscommunication, fear of punishment, potential termination from job, failure to comply with the policies etc.

Reporting will disclose medication errors, could trigger warnings, but should not create an unhealthy atmosphere post reporting, and acknowledging the facts and working on it could help prevent medication errors as all of health care domain are working for patient safety at the end.

Keywords: medication error, patient safety, adverse events, charts review

OCCURRENCE OF MEDICATION ERRORS

Error can occur from prescribing to the receiving of the drug by the patient. Common causes of medication error include incorrect diagnosis, prescribing errors, dose miscalculations, poor drug distribution practices, drug and drug-device related problems, incorrect drug administration, failed communication and lack of patient education. These are all preventable errors and it can be avoided if prompt care is taken in this regard.

Prescription errors: A widely recognized cause of error is illegible handwritten prescriptions. Errors may result from insufficient or missing information about co-prescribed medications, improper medication history taking and allergic sensitivities. Errors in prescribing can occur when an incorrect drug or dose is selected, or when a regimen is too complex in case of computerized physician order entry (CPOE).When prescriptions are transmitted orally, sound-alike names may cause error. Similarly, with look -alike medications can be a major error while administration of the drug.

Dispensing errors:
The term dispensing error refers to medication errors linked to the pharmacy or to whatever health care professional dispenses the medication. The most common reason for this is busy environment and interruptions by phone calls or queries by patients. Other common errors include dispensing an incorrect medication, dosage strength or dosage form, miscalculating a dose, and failing to identify drug interactions if any.

Administration errors:
Errors caused by drug administration can be made by the health care provider or by the patient themselves. Much of the problem in drug administration is communication. Patients are often unaware that errors can happen and often do not take an active role in understanding what is being communicated to them. Errors most often occur

when communication is unclear regarding: drug name, drug appearance, why the patient is taking the drug, how much and how often to take it, when is the best time to take it, how long to take it, what common side effects could occur, what to do about a missed dose, common interactions with other drugs or foods, and whether this new drug replaces the current regimen or no.

DETECTION

Medication errors have important implications for patient safety and their identification is a main target in improving clinical practice errors, in order to prevent adverse events. Error Detection is the first crucial step. The major methods for detecting medication errors are chart review, computerized monitoring, administrative databases using direct observation, incident reporting & patient monitoring. This detection can be done by means of direct observation, voluntary reporting (by doctors, nurses, pharmacists and others) and chart review.

In order to have a safe system to be executed, detection is the first crucial step. There are many organizations which provide information and alerts on the same, available on the web issued by national and federal healthcare systems, regulatory agencies, and non-profit-making organizations [the Food and Drug Administration (FDA), European Medicines Agency (EMEA), United States Pharmacopeia (USP-MEDMARX) etc.

Chart review:
It is retrospective and based on practice sources (medication charts, laboratory data, and prescription data). It can be improved by using computerized data such as CPOE and electronic medical records. Cases are evaluated by two or more experts and corrections are made accordingly to prevent future errors. Documentation of the same is done to involve in training programs & awareness among various health care professionals. It is the most precise approach and traditional detection tool in capturing medication errors but the downside of this method include trained reviewers to capture and report and the result will depend on the quality of documentation and reviewers ability to capture it.

Computerized monitoring:

Computerized Physician Order Entry (CPOE)is a process of electronic entry of medical practitioner instructions for the treatment of patients under his or her care. The primary benefit of using CPOE is that it helps reduce transcription errors. Pharmacists detect order errors and rectify them & fill out a report. Medication errors can therefore be readily detected before adverse events even occur. If CPOE is in use, prescription & dispensing errors can be easily detected. Implementation of this software is costly but in terms of safety, it's a best tool & can serve as a boon to patient safety.

ADMINISTRATIVE DATABASES:

Administrative databases screen International Classification of Diseases, 9th revision codes, for statistical purposes. Administrative databases can be used by using direct observation, incident reporting & patient monitoring.

- **Direct observation** required the data collector to accompany the nurse administering medications and observe the preparation and administration of each dose. The observer recorded exactly what the nurse did with the medication and witnessed the drug's administration to the patient. Direct observation is the only method available for detecting errors of administration. The loop hole of this method requires trained personnel to capture & record the data accordingly.

- **Incident reporting**: Data collectors allowed two to three weeks to pass after the observation period before returning to analyze reports and classify any errors reported. The time required to complete this process was recorded for each incident report. To assess the accuracy of each data collector's work, the research pharmacist reviewed photocopied incident reports, if available, or went to the facility to review the original documents. The reports are then submitted to the quality department & later forwarded to the management for further actions against it.

- **Voluntary reporting**: Voluntary event reporting is a *passive* form of surveillance for near misses or unsafe conditions, in contrast to more *active* methods of surveillance such as direct observation of providers or chart review. Voluntary event reporting systems are generally confidential, in that the identity of the reporter is known, but legal protection is provided unless professional misconduct or criminal acts took place. A simple structured form is required to help reporting and analysis. Feedback, regular reports, and the implementation of corrective actions are all necessary. Near misses and medication errors are usually reported.

- **Patient monitoring:** Patient monitoring, with interviews, using structured forms, by mail, telephone, or visits, or by satisfaction questionnaires and focus groups, can discover medication errors and associated adverse events in outpatients where many errors arise from poor communication.

PREVENTION

Focusing on the word error has drawn attention to "prevention" and what can be done to minimize mistakes and improve patient safety. Some of the measures are:

1. **Pharmacy Intervention**: Clinical pharmacists should check the medication chart and propose some changes if any drug related issues are seen. This would include, correct dose, frequency, administration, substitutes of the proposed drugs & provide information to the health care professionals if any query is raised. This would help reduce medication errors drastically.
2. **CPOE**: CPOE is effective in reducing medication errors. It involves entering medication orders directly into a computer system rather than on paper or verbally. Transcription errors such as incomplete prescription, poor handwriting, decimal points, abbreviations, complex drug regimen issues can be prevented.
3. **Bar codes**: Just as the technology is used in retail and other industries, required bar codes would contain unique identifying information about drugs. When used with bar code scanners and computerized patient information systems, bar code technology can prevent many medication errors, including administering the wrong drug or dose, or administering a drug to a patient with a known allergy.
4. **Reporting**: Reporting discloses medication errors, can trigger warnings, and encourages the diffusion of a culture of safe practice.
5. **Audit:** is a relatively simple tool for evaluating actual performance and in planning corrective actions to reduce the risk of medication errors.

CONCLUSION

Reducing medication errors is an ongoing process of quality improvement. What should be done ideally is generally known as 5R's (right dose, right time, right patient, right route&right drug). Faculty systems must be redesigned, computerized integrated medication delivery must be instituted by health care professionals adequately trained to use such technological advances.

Sloppy handwritten prescriptions should be replaced by computerized physician order entry, a very effective technique for reducing prescribing/ordering errors, but another far less expensive yet effective change would involve writing all drug orders in plain bold English, rather than continuing to use the abbreviations that are subject to misinterpretation. After all, effective communication is best accomplished when it is clear and simple.

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