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Effectiveness of medication reconciliation on reducing medication discrepancies



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Abstract

Preventing harm from medications, or adverse drug events (ADEs), remains a top patient safety priority not only in hospitals but also across the continuum of care for patients. Many organizations have demonstrated that implementing medication reconciliation at all transitions in care — at admission, transfer, and discharge — is an effective strategy for preventing ADEs. Medication reconciliation is the process of creating the most accurate list possible of all medications a patient is taking — including drug name, dosage, frequency, and route — and comparing that list against the physician's admission, transfer, and/or discharge orders, with the goal of providing correct medications to the patient at all transition points within the hospital. A retrospective study was conducted at Mysuru for the past 6 months and the overall incidence of medication error was found to be 15.50%. The rate of pre-prescribing error was higher than drug duplication and drug interactions. Reconciliation by pharmacists on medication errors on admission and collecting medication histories decreased the opportunities for medication errors which would reduce adverse drug events.

Keywords: medication reconciliation; adverse events; patient care

Introduction

Medicine is an art of health science that are administered to living species for enhancement of life expectancy. The drug should be selected based on individual requirement. Prescription pattern when analysed, medications may be temporarily withheld, new medications may be added, and chronic medications may be changed. Hospitalized patients are therefore at a higher risk for experiencing therapy duplication and errors that may result in fatal response. The various types of discrepancies maybe omission of medication, wrong name of medication or incorrect dosing. Geriatric patients with chronic medical condition tend to visit more healthcare providers and tend to have poly pharmacy and can lead to adverse drug events (ADEs)^[1].

Detection and management of medication discrepancies to reduce ADEs play a major role in maintain patient safety. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) issued a mandate in 2005 stating that hospitals should perform medication reconciliation at each transition of care which was compying to the National Patient Safety Goals program. According to the mandate, a process should be in place for comparing the patient's present medications with those ordered, and a complete list of the patient's medications must be communicated to the next provider of care^[3, 4]. Furthermore, a complete list of medications should be provided to the patient at discharge. Many hospitals have started to perform medication reconciliation by adding "check boxes" into the medical record in order to ensure the process in action^[2].

Studies highlight that most of the medication discrepancies which are more likely to cause potential ADEs, were most commonly seen at the patient's time of discharge than at their admission^[5, 6]. While testing the effectiveness of medication reconciliation process in a study conducted by Varkey P *et al.* Stated that, before the intervention, there was a mean of 0.5 admission medication discrepancy and 3.3 discharge medication discrepancies per patient, hence proving that these discrepancies are more at the time of discharge^[6]. In critical care unit the errors at the time of discharge were virtually eliminated by a reconciliation process^[7].

There are a number of critical elements in the medication reconciliation process. Following are some of the points:

- 1) Accurate Preadmission medication lists are critical to make the medication reconciliation process easier. Access to all available medication list sources (e.g., the patient, electronic medical records, and pharmacy files) helps in the data being accurate.
- 2) Collecting past medication history requires practice and skills and must be done with high accuracy.
- 3) Identifying the medication discrepancies when the patient is being transferred from one care to another is important as these are the vulnerable times when such errors occur.
- 4) Targeted interventions are probably the most cost-effective, therefore performing medication reconciliation becomes of utmost importance [7].

Methodology

This retrospective study was conducted in the tertiary care referral hospital in Mysore for a period of 6 months. Data were collected from the discharge summary of the patient's case sheets, medication reconciliation from and discharge summary where medication reconciliation is done.

The practice of medication reconciliation involves the active participation of doctor, nurse, clinical pharmacist. The process of medication reconciliation starts when the patient is getting admitted in the hospital.

Process of medication reconciliation

Doctor when receives the patient, he makes the current list of the medication from the following:

1. Patient/carer interview Family recall,
2. GP medication list,
3. Referral letter,
4. Phone call,
5. Patient medication list,
6. Patient's own medications,
7. Prescriptions or dose administration aids,
8. Previous hospital discharge summary,
9. Pharmacy.

As a routine procedure, the physician prepares the medications to be prescribed. Then he/she compares both the list and makes a clinical decision which he/she communicates with the nurse. In the ward the clinical pharmacist verifies this reconciliation from. Further during patient discharge the physician again compares the current medication and finalizes the discharge summary which is then counterchecked by clinical pharmacist for any errors or discrepancy.

Date collection form

The data were collected using the validated data collection which includes the following points:

1. Patient's demographic details - gender, age, address
2. Diagnosis
3. Medications prescribed, Number of medication, Number of discrepancies
4. Types of errors (improper dose, frequency, duration, omission error, drug interactions, therapeutic duplication) and
5. Intervention suggested by the clinical pharmacist.

Exclusion criteria

The cases discharged against medical advice, death cases and new born babies were excluded from the study.

Inclusion criteria

All the patients admitted and discharged from the hospital with prescribed medicine statistical analysis was done in the study and results were prepared.

Discussion

Medication errors are not always reported as a serious problem in health care setting. It can occur at any stage of treatment, like prescribing, administration and dispensing. Clinical pharmacists play a major role in this situation for strong intervention by detecting and preventing medication errors to improve patient health [8].

The overall percentage of medication errors observed in the study was 15.50%, the professionals managed to produce negligible harm to the any patients, whereas a study conducted in a multispecialty hospital detected 39%. The similar results were reported by Patel *et al.* [9] and Sandippatel *et al.* where their overall percentages of medication errors were 45.90%.

During the study periods, out of all the drugs that were prescribed majority of the observed medication errors were found with drugs belonging to the class of cardiovascular and in the CTVS department (19.13%). Similar result was seen in another study conducted, where 23 out of 1320 drugs are sorted to have error [8].

In our study, further medication errors were seen in the orthopaedics department. Inappropriate drug use was most commonly seen in patients who were treated for hypertension (43.23%) followed by drugs used to treat Diabetes (27.51%). Both of the disease conditions being the most common and therefore medication reconciliation in such patients will show more benefits in the patient than harm

In our study, Prescription errors (12.22%) are the most common type of error. A study conducted by Sandippatel *et al.* also showed similar results where 70.40% of errors where prescription errors [8]. Another study conducted at an institution, pharmacists identified in one week 1111 prescribing errors that required intervention with the physician [10]. Sara Al Khansa *et al.* showed similar results where 32.4% of the errors were prescribing errors [11].

Our results showed the importance of the process of medication reconciliation and its uses in reducing and preventing medication errors which further aggravate the results in decreasing the harm to the patients. Similar studies done in Saudi Arabia also showed that by detecting and rectifying the various medication errors, the potential patient fatality was minimized [11]. Errors at the time of discharge are common and significant. Clinical pharmacists can play a major role in reducing these medication errors at the time of discharge.

Conclusion

The study concludes that the overall incidence of medication error was found to be 15.50%. The rate of prescribing error was higher than drug duplication and drug interactions. This study also showed the various medication errors occurring in the various departments.

Reconciliation by pharmacists on medication errors on admission and collecting medication histories decreased the opportunities for medication errors which would reduce adverse drug events.

Our future plans are to include a much bigger sample size, to increase the number of medication reconciliation on discharged patients and to also conduct the study for a longer

period of time. Our study concluded that, after the implementation of the process of medication reconciliation upon discharge medications, the discrepancies reduced drastically.

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