Journal of Current Medical Research and Opinion
Received 10-07-2022| Revised 24-07-2022| Accepted 29-07-2022| Published Online 04-08-2022

DOI: https://doi.org/10.52845/CMRO/2022/5-8-2

ISSN (O) 2589-8779 | (P) 2589-8760

CMRO 05 (08), 1284-1290 (2022)

Research Article

A Prospective Study: Effect of Medication Error in a Tertiary Care Hospital

Dr. Prolay Paul[1] | Dr. Rajesh Nath[2] | Dr. Suchanda Gadre[3] | Satish Kumar BP[4]| Dr. Supriyo Ray[5]

[1]Clinical Pharmacologist, Narayana Superspeciality Hospital, Howrah, West Bengal 711103
[2]Clinical Pharmacology Intern, Narayana Superspeciality Hospital, Howrah, West Bengal 711103
[3]Medical Superintendent, Narayana Superspeciality Hospital, Howrah, West Bengal 711103
[4]Associate Professor, Department Of Pharmacy Practice, Sri Adichunchanagiri College of Pharmacy, BG Nagar, Karnataka, India
[5]Assistant Medical Superintendent, Narayana Superspeciality Hospital, Howrah, West Bengal 711103

Abstract

Background:
A study was carried out in a tertiary care hospital in Kolkata to investigate and gauge the prevalence of medication error. Prescription errors, dispatching errors, drug administration errors, and indenting errors are the different types of medicine errors. This study's objectives include identifying the prevalence and types of pharmaceutical errors, investigating their causes, and researching possible solutions**.**

Objective:
Determine and assess the failures in a Tertiary Care Hospital in Kolkata, and offer suggestions for lowering medication failures.

Design:
Survey analysis, based on incidents of medication errors from retrospective cohort studies.

Participants :
three-month patients who have been admitted, i.e. May, June, July

Methods :
The writing of medicine cards by trained observers like nurses, pharmacists, and doctors frequently results in medication errors. Data was collected by Clinical Pharmacist, who are highly trained to spot medication errors. Direct observation was used to carry out a prospective cohort research. In SPSS V20 and Excel V10, a descriptive study of the frequency and kind of medication errors was performed. To determine the median difference in error rates between the last three months' worth of error reports, the descriptive analysis was used.

Result : Most common error was in prescription error accounting for 99.8% of the 3935 errors. Dispensing error was associated with 0.0002% of overall error. And Indenting error was 0.0005% of overall error and administration error was 0.001% of overall error. In the last 3 months most of the cases incident reached the individual but did not cause harm. The overall error rate detected in this study were respectively may 1.53%, June 29.09% and July 35.40%.

Conclusion :
To prevent or eliminate medication error, a number of variables must be implemented in the healthcare system. Errors are often to blame for health care catastrophes. These mistakes with medications are frequently not the result of ineptitude, but rather of ignorance of the implications of a mistake and numerous other minor, avoidable causes. Numerous ongoing quality improvement initiatives are being carried out to track drug errors, which help to reduce overall error rates day by day.

Keywords: Prescription error, Dispensing error, Indenting error

Introduction:

Health care places a high priority on patient safety, and any deviation from the fundamental course of treatment, such as failure to take prescribed medications, may cause great harm to both the patient and the organisation. The occurrence and type of pharmaceutical errors were investigated in a Tertiary Care Teaching Hospital in Kolkata, India. "Any preventable incident that may cause or contribute to improper drug use or patient harm when the medication is in the control of health-care professionals, patients, or consumers," according to the National Coordinating Council for Medication Error Reporting and Prevention[1].

Medication mistakes have a direct influence on the patients' lives. Additionally, it leaves a bad perception of the hospital and health care professionals in the minds of the public, which has an adverse effect on both the patient and the organisation. Misdiagnosis, improper prescribing, dose estimates, wrong administration, and a lack of patient education are common causes of drug errors. Other factors, such as stress from the workplace or inadequate training, may have an impact on drug errors. The current study's objective was to determine and assess the prevalence of medication mistake. Additionally, take the required actions to raise the standard of health care services. A well-established Tertiary Care Hospital's multisystem medicine administration process for inpatients includes stages for prescription, indenting, dispatching, and drug administration.

Materials & Methods:

Study Procedure:

In the Tertiary Care Hospital, a retrospective observational study that lasted three months was used to analyse the drug mistakes. The current study's data came from a medication error form that was reported and updated every day by authorized individuals, primarily clinical pharmacists. These clinical pharmacists have received thorough training in the various types of drug errors and the reporting procedure.

Methods:

Direct observation was used to carry out a prospective cohort research. Errors were presented as precise numerical values or as percentages. The organisation of the data was qualitative. In order to determine the number of differences in error rates between the previous three months' errors2, the descriptive analysis was continued with the aid of the median. Utilizing SPSS version 20 and Excel 2010 for all statistical analysis.

Inclusion Criteria: All age group patient whose length of hospital stay more than 24 hours are included in the study. Patient belongs to Critical care, Neuro Medicine, General surgery, Surgical gastroenterology, General medicine, Radiation oncology, Haemato Oncology/BMT, Nephrology, Orthopaedics, Gynae-Oncology, Urology, Cardio Thorasic Vascular Surgery, Emergency, Endocreniology Department are included in the study.

Exclusion Criteria: Day care patients are excluded from the study. Paediatric patients are excluded from the study.

Medication Error Categorization based on harm scoring:

The types of medicine errors included prescribing, dispatching, administering drugs, and indenting. The classification of medication errors according to their significance was made by the National Coordinating Council[2,3].

Table 1: Categorization of Medication Error based on the harm score

No Error	**No Harm**
Category A	Events or circumstances have the potential to lead to error.
Error	**No Harm**
Category B	Error happened, but it didn't get to the patient.
Category C	Error that reached the patient but did not do any harm (including omission errors)
Category D	Error reached the patient, necessitating monitoring to make sure the patient wasn't harmed and/or requiring action to stop the harm.
ERROR	**HARM**
Category E	Error happened that may have caused the patient's momentary injury or resulted in it, necessitating action.
Category F	Error was made that may have caused the patient's momentary injury or resulted in it, necessitating the patient's initial or extended hospitalisation.
Category G	Error happened that may have caused the patient's irreversible injury or perhaps just contributed to it.
Category H	Error happened that necessitated intervention to maintain life.
ERROR	**DEATH**
Category I	Error happened that could have caused the patient's death or contributed to it.

Result:

A total of 750 patient medication cards were examined during the research period, and errors and pertinent data were gathered.

The demographics of this study indicated that men were more likely than women to make prescription errors. It was discovered that 58.25% of male and 41.75% of female patients were lucky enough to live even after prescription mistakes when comparing the gender of the patients who did. (Figure A)

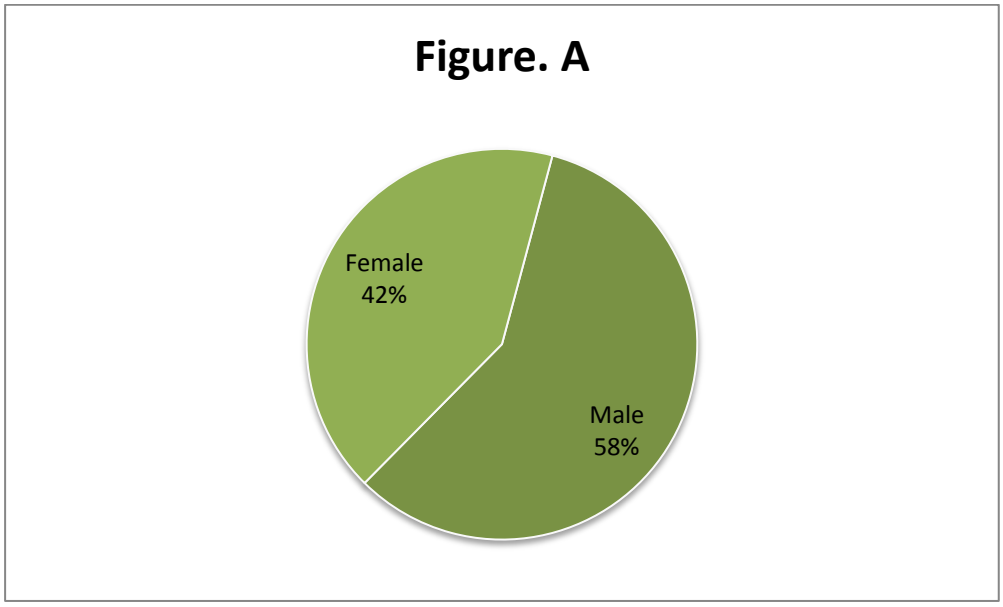

Figure A: Percentage of Male & Female who survived in Medication Error

Prescription error were found to be 99.8% of the 3935 errors during the months of May, June & July, 2022, and dispensing errors were linked to 0.0002 % of total errors[4]. As opposed to 0.001 % and 0.0005 %, which were administration and indenting errors, respectively.

According to the classification of medicine mistakes, the prescription error has tremendous increased, administering error has increased a bit, and indenting error is almost negligible from May to July, 2022. However, it was in an escalating mode in the event of the dispatching mistake [Figure B, Table 2].

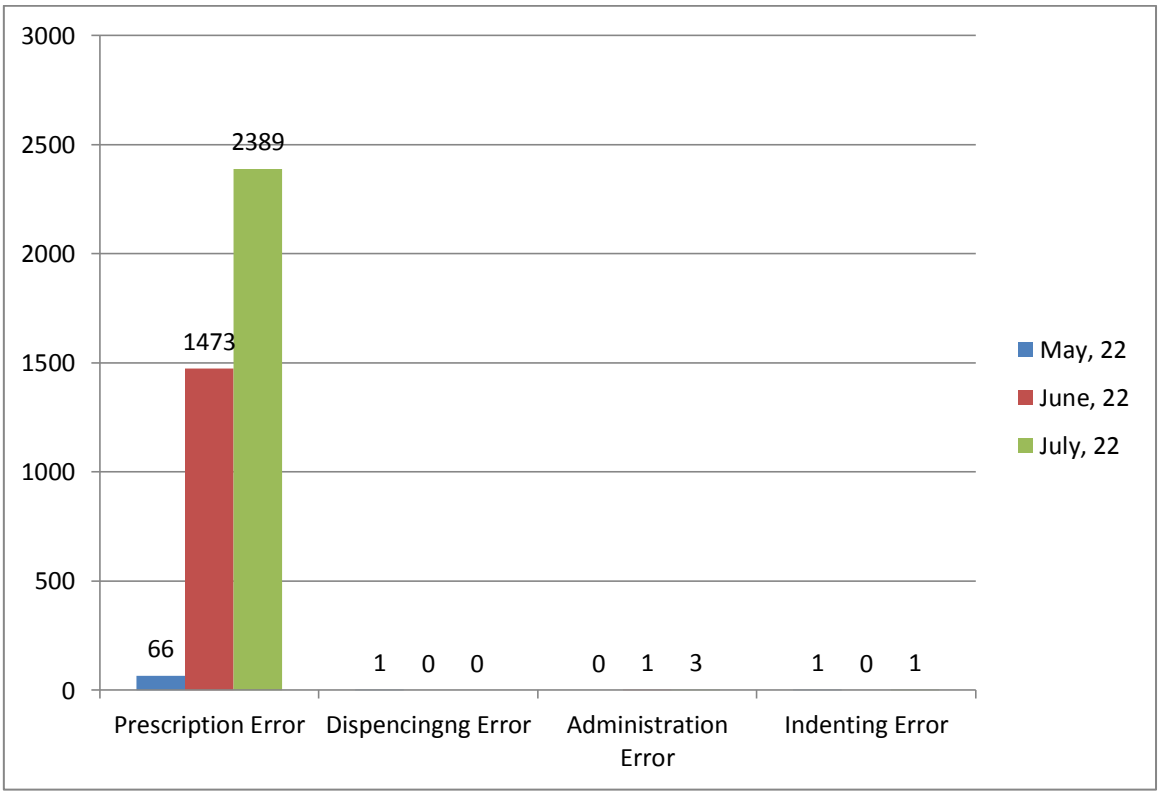

Figure B: Number of patient survived in Medication error for the month of May to July, 2022.

Table 2: Classification of Medication error from May to June, 2022.

Month	Prescription Error	Dispening Error	Administration Error	Indenting Error
May	66	1	0	1
June	1473	0	1	0
July	2389	0	3	1

Based on data from hospital inpatients, the month-wise distribution of total error rates was as follows: May – 1.53 % , June – 29.09 % , and July – 35.40 % .

In an analytical investigation, it was discovered that the pharmaceutical harm score in the month of June & July, 2022 increased compared to month of May [Figure: C] based on the month-wise distribution as indicated in Table 3.

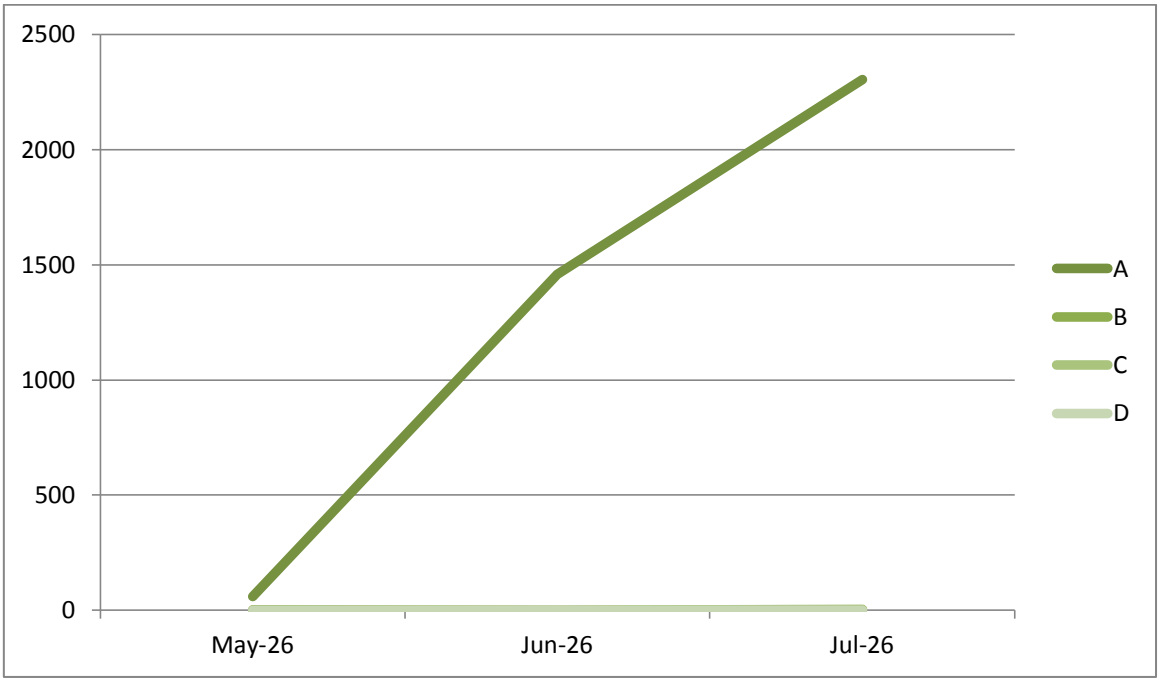

Figure C: Trend of harm score based on the medication error for the month of May to July, 2022.

This study show an increase in Harm Score A (which means circumstances or events that have the capacity to cause error), Harm Score B (Error happened, but it didn't get to the patient), Harm Score C (Error that reached the patient but did not do any harm, including omission errors), Harm Score D (Error reached the patient, necessitating monitoring to make sure the patient wasn't harmed and/or requiring action to stop the harm), Harm Score E (Error happened that may have caused the patient's momentary injury or resulted in it, necessitating action), Harm Score F (Error was made that may have caused the patient's momentary injury or resulted in it, necessitating the patient's initial or extended hospitalization), Harm Score G (Error happened that may have caused the patient's irreversible injury or perhaps just contributed to it), Harm Score H (Error happened that necessitated intervention to maintain life), Harm Score I (Error happened that could have caused the patient's death or contributed to it).

There was significant increase in other harm Score i.e, B & C, which was not same throught the month of May, June & July.[Table: 3]

Table 3: Medication Error Categorization based on harm scoring.

Harm Score	A	B	C	D
May, 22	60	2	0	0
June, 22	1458	0	1	0
July, 22	2304	1	3	0

Discussion:

The common reasons for medication errors

- Important patient data was absent (allergies, age, weight, pregnancy, etc.)
- Inadequate computer screening, obsolete references, and other important drug information were missing.
- Drug order miscommunication (illegible, incomplete, misheard, etc.)
- Issues with the medicine's name, label, and packaging (look-alikes, incorrect drug identification)
- Problems with drug distribution or storage
- Problems with drug delivery devices (bad device design, intravenous injection of syringe contents, etc.)
- Environmental, personnel, and work-flow (lighting, noise, workload, interruptions, etc.)
- Insufficient staff training
- Insufficient Patient Education (Lack on patient consultation, non-compliance)
- Lack of independent quality control or pharmacy check systems
- Lack of physician understanding (when a new medicine replaces one or more older ones, a combination drug may imply that a person takes it once a week rather than daily)[5].

The majority of mistakes and flaws can be avoided. This research carefully addressed pharmaceutical errors by providing the appropriate information, instruction, and counselling to the relevant authorities.

On-the-spot corrections for medication mistakes were made by analysing the error and its root cause. Controlling the drug mistake required careful consideration of the root problem. Since there are several degrees of medication error, as has already been discussed, determining the level and kind of mistake can help to lower the rate of medication error at that specific level, producing an overall more favourable outcome.

To achieve with a low medication mistake rate, health facilities must pay attention to a number of issues. The primary goal of intervention should be education, and the patient's damage can be minimized by creating a secure and engaging work environment. Interventions are structured to aid with knowledge improvement, training, complexity reduction, strong feedback control, and the introduction of highly recommended monitoring systems[6].

Conclusion:

The study's findings suggest that prescription mistakes happen often, even at the highest levels of health care. Patient safety and treatment quality can both be enhanced by early identification and correction of drug errors. In order to reduce medication errors, the study further supported the requirement for developing and implementing drug protocols and medication policies in hospitals.

List of Abbreviation:

BMT: Bone Marrow Transplant

Conflict Of Interest: None Declared.

References:

1. Allan EL and Barker KN. Fundamentals of medication error research. American Journal

of Health-System Pharmacy March 1990; 47(3): 555-571.

2. BP SK, Pravallika PM, Tanushree BM, Ghosh S, Paul P, Ravindra BN, Roy AD. Need of the Hour-Clinical Pharmacist in Developing Pharmaceutical Care Plan for Better Patient Care.

3. Paul P, Gopika Surendran D, Ajayakumar K, Jose AM, Mathew LA, Kunjumon S, Kishorilal O, Akshay KM. Medication Error: Are We Taking Seriously?.

4. Cheung KC, Bouvy ML, De Smet PA. Medication errors: the importance of safe dispensing. British journal of clinical pharmacology. 2009 Jun;67(6):676-80.

5. M. Poornima Sravya, V. Raghuram, CH. Chaitanya Lakshmi and V. Tejaswi Medication

errors as a major concern to health careA Case Report,[Sravya et al., Oct, 2013; 4(10).

6. Vijay Roy, Paneet Gupta, Shouryadeep Srivastava. MEDICATION ERRORS: CAUSES

& PREVENTION; Health Administrator Vol: XIX Number 1: 60-64.