MAR Oncology and Hematology (2026) 6:2

Research Article

The Evaluation of Awareness of Medication Error Among Healthcare Workers

Dr. Arpit Sharma*

***Correspondence to**: Dr. Arpit Sharma, Assistant Medical Superintendent, Homi Bhabha Cancer Hospital, Sangrur, Punjab, (A Unit of Tata Memorial Centre, Mumbai) Dept. Of DAE, Govt. Of India.

Copyright.

© 2026 **Dr. Arpit Sharma,** This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Received: 04 February 2026

Published: 12 February 2026

DOI: https://doi.org/10.5281/zenodo.18616315

Abstract

Background*: Medication errors (MEs) are a major contributor to preventable patient harm worldwide, particularly in high-risk settings such as oncology units. Despite increasing emphasis on patient safety, under-reporting and system-level barriers continue to hinder effective prevention.*

Objectives: *This study aimed to evaluate the awareness, perception, and practices of healthcare workers regarding medication errors and to identify the common types, root causes, and preventive strategies in a tertiary care hospital.*

Methods: *A descriptive mixed-method study was conducted using quantitative and qualitative approaches. Secondary data were collected through medication surveillance audits of 30 inpatient records using a structured checklist. Primary data were obtained through unstructured questionnaires administered to 40 healthcare professionals, including doctors, nurses, pharmacists, and administrators. Descriptive statistical analysis was performed, and root cause analysis was conducted using fishbone and Pareto techniques.*

Results: *Among healthcare workers, 95% were aware of medication errors and 87.5% knew appropriate actions following an error. The most common medication errors reported were delay in dispensing (55%), administration errors (15%), and prescription errors (15%). Audit findings revealed frequent documentation gaps, including missing stop date/time (23%), absence of allergy documentation (17%), and dose not administered (17%). Under-reporting was significantly associated with workload (82.5%) and fear of legal consequences (12.5%).*

Conclusion: *Medication errors are largely system-driven and under-reported despite high awareness among healthcare workers. Implementation of technology-based systems such as CPOE, barcoding, clinical pharmacy services, and a non-punitive reporting culture is essential to improve medication safety.*

Keywords: *Medication error, patient safety, healthcare workers, oncology, clinical pharmacy, CPOE.*

Introduction

Medication errors represent one of the most common and preventable causes of patient harm in healthcare systems. The National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) defines a medication error as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is under the control of a healthcare professional, patient, or consumer. These errors may occur at any stage of the medication-use process, including prescribing, transcribing, dispensing, administration, and monitoring.

The landmark Institute of Medicine report To Err is Human estimated that between 44,000 and 98,000 deaths occur annually in the United States due to medical errors, with medication errors accounting for a substantial proportion. Oncology patients are particularly vulnerable due to complex chemotherapy regimens, narrow therapeutic indices, and high-risk drug profiles.

In developing countries such as India, medication errors remain largely under-reported due to lack of structured surveillance systems, limited use of health information technology, and absence of a strong patient safety culture. Healthcare professionals, especially nurses and pharmacists, play a crucial role in preventing, identifying, and reporting medication errors. Understanding their awareness, attitudes, and practices is essential for designing effective interventions.

This study was undertaken to assess the level of awareness regarding medication errors among healthcare workers in a tertiary care hospital and to analyze the types, causes, and preventive strategies related to medication errors.

Methodology

Study Design

A descriptive mixed-method study was conducted using both quantitative and qualitative approaches.

Study Setting

The study was conducted in a tertiary care hospital with a focus on oncology services.

Sample and Sampling

- Quantitative sample: 30 inpatient medication records selected using simple random sampling.
- Qualitative sample: 40 healthcare professionals selected through convenience sampling, including doctors, nurses, pharmacists, administrators, and clinical pharmacists.

Data Collection Tools

1. Medication Surveillance Audit Checklist – used to evaluate compliance with medication safety parameters.
2. Unstructured Questionnaire – used to assess awareness, perception, and practices of healthcare workers.

Data Analysis

- Descriptive statistics (percentages and frequencies) were used.
- Root cause analysis was performed using fishbone and Pareto charts.
- Qualitative responses were thematically analyzed.

Results

Awareness Among Healthcare Workers

Out of 40 respondents:

- 95% were aware of the concept of medication errors.
- 75% were aware of different categories of medication errors.
- 87.5% knew how to proceed after identifying an error.
- 100% recommended structured training and education.

Common Types of Medication Errors

Reported by healthcare workers:

- Delay in dispensing – 55%
- Administration errors – 15%
- Prescription errors – 15%

- Dose missing – 10%
- Dispensing errors – 5%

Medication Audit Findings (n = 30)

The most frequent documentation-related errors included:

- Stop date/time not documented – 23%
- Allergy not documented – 17%
- Dose not administered – 17%
- Prescriber signature missing – 7%
- Therapeutic duplication – 7%

Reporting Barriers

- 82.5% did not report errors due to workload.
- 12.5% feared legal consequences.
- 10% did not know whom to report to.

Error Severity

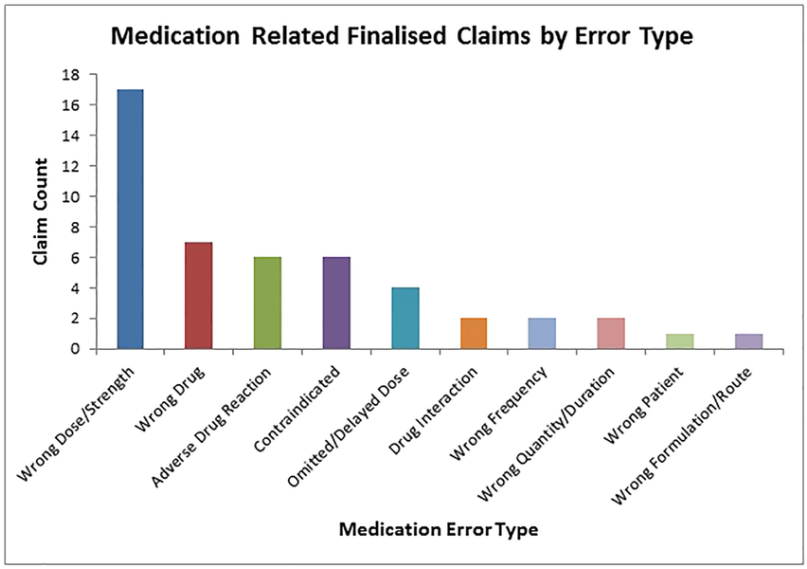
Based on NCC MERP classification:

- Type A errors – 76.67%
- Type C errors – 23.33%

No severe harm (Types D–I) was reported.

Type of Error	Percentage
Delay in dispensing	**55%**
Administration error	15%
Prescription error	15%
Dose missing	10%
Dispensing error	5%

Figure 1. Distribution of Common Types of Medication Errors (n = 40)



Graph 2: Barriers to Medication Error Reporting

Insert in Results section after:

"Under-reporting was significantly associated with workload (82.5%) and fear of legal consequences (12.5%)."

Barrier	Percentage
Too busy / workload	**82.5%**
Fear of legal consequences	12.5%
Did not know whom to report	10%

Figure 2. Barriers to Reporting Medication Errors

Discussion

This study demonstrates that healthcare workers possess a high level of awareness regarding medication errors; however, actual reporting remains suboptimal. The dominant barriers identified were workload, fear of legal repercussions, and absence of a supportive reporting system. These findings are consistent with previous studies by Bates et al., Leape et al., and Franklin et al., which emphasized that under-reporting is primarily due to system-level and cultural factors rather than lack of knowledge.

The predominance of documentation-related errors highlights the need for structured electronic systems such as CPOE and electronic MAR. Delay in dispensing, the most common error, reflects workflow inefficiencies and inadequate staffing in pharmacy services.

The study reinforces the critical role of clinical pharmacists in intercepting errors and promoting rational drug use. Multidisciplinary collaboration, supported by health information technology, remains the cornerstone of medication safety improvement.

Conclusion

Medication errors in tertiary care hospitals are predominantly system-driven and under-reported despite high awareness among healthcare professionals. Implementation of technology-based interventions, strengthening of clinical pharmacy services, regular training programs, and establishment of a non-punitive reporting culture are essential to reduce medication errors and improve patient safety.

Recommendations

1. Implement Computerized Physician Order Entry (CPOE).
2. Introduce barcode-assisted medication administration.

3. Establish independent medication safety committees.
4. Promote non-punitive error reporting systems.
5. Conduct regular prescription audits and training.
6. Integrate clinical pharmacists into patient care teams.

Limitations

- Small sample size.
- Single-center study.
- Focused mainly on non-clinical parameters.
- Did not assess long-term patient outcomes.

References

1. Tavva NV, Mohanta GP, Parimalakrishnan S. Medication errors: A prospective study. Arch Pharm Pract. 2011;2:33–37.
2. Bates DW, Cullen DJ, Laird N, et al. Incidence of adverse drug events. JAMA. 1995;274:29–34.
3. Kohn LT, Corrigan JM, Donaldson MS. To Err Is Human. National Academy Press; 2000.
4. Franklin BD, et al. The impact of electronic prescribing. BMJ Qual Saf. 2009;18:427–432.
5. Kaushal R, et al. Medication errors in pediatric inpatients. JAMA. 2001;285:2114–2120

Medtronic