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**MEDICATION PRESCRIPTION ERRORS IN A SELECTED TEACHING HOSPITAL**

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**Abstract**

Ensuring patient safety is a challenge, as unsafe care is a significant source of preventable patient mortality and morbidity world over. Among the preventable harm patient can get during hospital care is medication error.

Errors in prescribing of medication are commonly found in healthcare practice. Errors are best corrected when real and potential errors are documented, reported & evaluated.

**Objective:** To identify and find the type of medication prescription errors and the occurrence of these errors in the outpatient prescriptions received at the pharmacy of a teaching hospital of South India.

**Method:** A prospective study descriptive in nature was conducted for a period of six months. The data was collected with the help of a checklist. The checklist was prepared based on the prescription policy of the hospital. The checklist was divided into four components: type A (patient demographics), type B (physician details), type C (Drug details) and type D (other details like legible handwriting, date, provision of instructions by Pharmacy personnel).

**Results:** Analysis of the data revealed that out of 1500 randomly selected prescriptions included in the current study, 98% prescriptions had more than one error. Among the errors Type B error(s) was observed being the highest (43.5%). Type C error(s) were about 30.6% and Type A error was 14.2%. Least (11.7%) of all the error(s) were observed in Type D.

**Conclusion:** Prescribing faults and prescription errors being commonest among medication errors; these may become fatal and can affect patient's safety and quality of health care. Hence increasing awareness about medication errors among the prescribers through a well-designed continuous education program is the need of the hour, to achieve zero medication erroring the healthcare institutions.

**Keywords:**

Outpatient, Prescription errors, Quality, Patient Safety

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## INTRODUCTION

In the course of patient care, prescribing medicines is an integral part. The process of prescribing medications involves various implicit decisions to be made like, the choice of medicines, its communication to pharmacist in the form of prescriptions for dispensing and finally, administration of medicines. However, it is seen that there is a gap in the understanding of the medication process, with patient being least informed and almost oblivious of the benefits and risks of medicines<sup>1</sup>.

Prescriptions are handwritten or computerized documents that contain vital components to be mentioned such as containing the patient's name, age and sex, registration number, the date, specific treatments prescribed and an authorizing signature. It acts as a tool of communication, through which doctors, nurse or other registered professionals communicate with pharmacists or other healthcare professional. Prescribers include doctors of various types and in some countries, nurse practitioners, physician's assistants, dentists, podiatrists, optometrists, clinical and clinical pharmacists also write prescriptions<sup>2</sup>.

Prescription errors encompass those related to the act of writing a prescription. A prescribing fault can arise from the choice of the wrong drug, wrong dose, wrong route of administration, and the wrong frequency or duration of treatment, poor legibility of handwriting. Use of abbreviations or incomplete writing of prescription can lead to misinterpretation by healthcare personnel. This can result in errors in drug dispensing and administration.

Medication are normally prescribed and administered with the intention of improving the patient's quality of life and health outcomes. Prescribing errors could result in adverse events affecting the patients<sup>3</sup>.

Prescribing errors phenomena are very common within health care practice. Errors are best corrected when real and potential errors are reported, documented and evaluated to minimize harm to patients. The corrective and preventive action should be taken to avoid such errors. Most of the studies which are undertaken in hospital with most common research approach is frequency of errors, computerized tools, training for bringing improvement in prescribing and expanding professional roles<sup>4</sup>.

The current study mainly focused on the errors observed, based on the prescription policy of the hospital. Policies are developed to bring improvement in the quality & safety of health care. Adherence to the policy is prerequisite for better outcome. The current study was planned

to identify errors in prescription writing for patients attending as outpatients in a selected teaching hospital in the southern state of India

## METHODOLOGY

A prospective study descriptive in nature was conducted in a tertiary care teaching hospital for a period of 6 months. In order to achieve the objectives of the study a multidimensional checklist was prepared and used to obtain the required information regarding the identification and occurrence of prescription errors in a teaching hospital in Southern part of India.

A total of 1500 outpatient prescriptions received at the hospital's pharmacy department were selected using convenient random sampling technique.

In order to collect the relevant data a checklist was prepared based on the prescription policy of the selected hospital. The checklist was divided into four components namely type A, type B, type C, & type D errors. Type A concerned with patient Demographics, type B was Physician Details, type C was Drug details and type D concerned with other details such as legible hand writing, date of prescribing and provision of instructions by Pharmacy personnel.

The entries in the prescription were assessed based on the details in the checklist. Errors in prescribing were noted. The error(s) were identified and included in the analysis. The collected data was put on master chart and analyzed using appropriate statistical methods.

## RESULTS AND DISCUSSION

Out of 1500 randomly selected prescriptions included in the study, 1472 (98.1%) had more than one error. Overviews of the type of prescription errors identified are depicted in Table 1.

### Type A - errors (Patient Demographics):

It is evident from figure 1 that Type A - error (Patient demographics) was 14.2%. The main reason for type A errors were incomplete Patient demographics such as Patient Name 7.1%, OP Number 12%, Age 19.3% and Gender 18.5%.

### Type - B errors (Physician Details)

Type B errors (Physician details) were 43.5%. Figure 2 shows that, they resulted due to incomplete details such as prescriptions without physician name 47.2%, without signature of the physician 10.1%. Non-Inclusion of consultant's registration number was as high as 92.7%. 16.3% of prescriptions were found without the name of the department and unit.

### Type C errors (Drug Details)

Type C errors (Drug details) were 30.6%, it is evident from figure 3 that, they were mainly due to incomplete details such as usage of brand

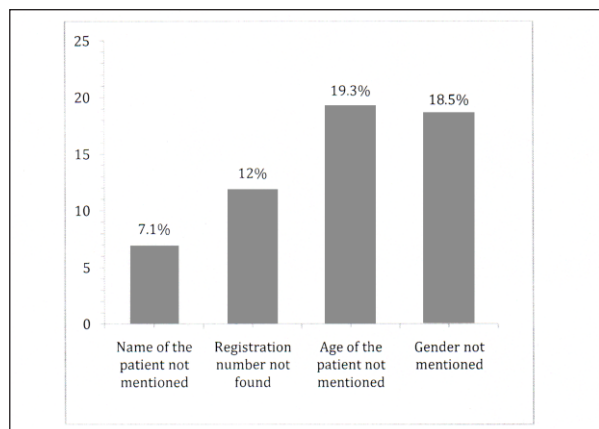


Figure-1 : Graphical representation of type- A errors ( Patient Demographics)

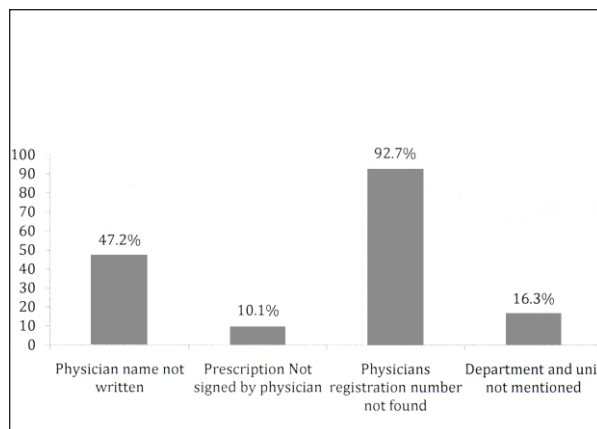


Figure-2 : Graphical representation of type- B errors (Physician Details)

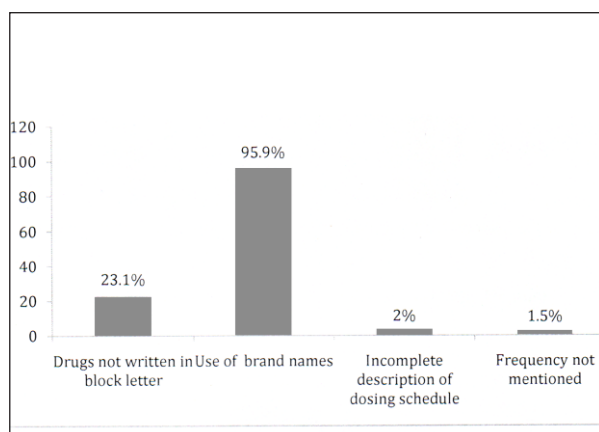


Figure-3 : Graphical representation of type- B errors (Drug Details)

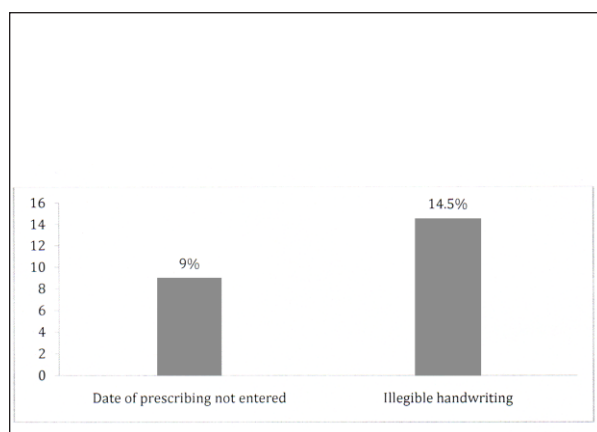


Figure-4 : Graphical representation of type- D errors (Other Details)

name was found to be 95.9%, incomplete description of Dosing schedule was 2%, Non-inclusion of Block Letters resulted to 23.1% and 1.5% of the prescription did not mention the frequency of drug administration.

**Type D errors (Other Details):**

Type D errors (other details) was 11.7%, figure 4 depicts that it included errors such as date of the prescription not mentioned was 9% and Illegible handwriting 14.5%.

Prescription errors are one of the major causes in medication errors. Errors in the prescribing process can result in harm to patients. This study revealed that out of the overall errors, type B, that is the incomplete physician details were observed more in the prescriptions analyzed.

In the components analyzed, use of brand names accounted for major share of the errors as high as 95.9% followed by the physician's registration number not being mentioned accounting for 92.7% of the errors.

Meyer TA et. al <sup>5</sup> in her study on improving the quality of the order-writing process for inpatient

**Table 1: Types of Prescription Errors observed**

TYPE	COMPONENTS	PERCENTAGE OF ERROR	OVERALL ERROR (%)
Type A errors (Patient Demographics)	Name of the patient not mentioned	7.1	14.2
	Registration number not mentioned	12	
	Age of the patient not mentioned	19.3	
	Gender not mentioned	18.5	
Type B errors (Physician Details)	Physician name not written	47.2	43.5
	Prescription Not signed by physician	10.1	
	Physicians registration number not found	92.7	
	Department and unit not mentioned	16.3	
Type C errors (Drug Details)	Drugs not written in block letter	23.1	30.6
	Use of brand names	95.9	
	Incomplete description of dosing schedule	2	
	Frequency not mentioned	1.5	
Type D errors (Other details)	Date of prescribing not entered	9	11.7
	Illegible handwriting	14.5	

orders and outpatient prescriptions revealed that failure to print prescriber name 96%, illegible signature (94%) and failure to include DEA number (89%) and illegible handwriting other than signature (69%).

Mohan P et.al<sup>1</sup> in their study, Identification and Qualification of Prescription error reported that Out of a total of 1000 prescriptions, 650 prescriptions (65%) were found to have one or more errors. All types of errors except type A were observed in their study. In 1000 prescriptions analyzed, type B errors were found in 22.4% prescriptions. The main reasons for type B errors were use of brand name (8.9% of prescriptions), no mention of strength of preparation (8.7% of prescriptions), incomplete description of dosing schedule and dosing instructions (2.6% prescriptions) and illegible handwriting (2.2% prescriptions). Type C errors were found in 9.7% prescriptions. They resulted due to use of brand names (0.9% prescriptions) and illegible handwriting (8.8% prescriptions). The most common type of errors was type D and was found in 69.1% prescriptions. Type D errors were due to no mention of diagnosis (60.1% prescriptions) no mention of age (6.5% prescriptions), illegible handwriting (2.3% prescriptions) and gender not mentioned (0.2% prescriptions).

Pote. S. et.al<sup>6</sup> in their study of Medication prescribing errors in a public teaching hospital in India reported that out of 304 cases the drug-drug interactions(DDI) were found to account for (68.2%) of the total errors, which was followed by in correct dosing interval & overdosing. Incorrect interval was found to be 12.1%, overdose 7%, in complete prescription 5%. The study reveals that the role of a clinical pharmacist appears to be a strong intervention; and, the clinical pharmacist, initially, could only confine to identification of the medication errors.

In the present study through informal interview,

it was found out that majority of the members of Drug and Therapeutic committee at the hospital under study, were not aware of the existence of prescription policy of the hospital. The Prescription policy, which was framed in the year 2003, is required to be reviewed by the drug and therapeutic committee and strategies need to be developed to ensure adherence to the policy. This shall contribute to a great extent for reduction in the prescription errors.

Monitoring patient's demographics apparently appears superfluous but is vital from pathophysiological point of view especially for patients in extremes of age. It is also important if two patients of the same name, gender and diagnosis are attending OPD at one time.

### RECOMMENDATION

Based on the findings of the study, following recommendations are made:

1. Introducing computerized physician order entry (CPOE), act as a tool to reduce prescription errors.
2. The hospital should make it mandatory to prescribe medicines only by generic names and in block letters to maintain uniformity, clarity, ease in understanding and price reduction.
3. Reporting of any fatal prescription error must be made mandatory and same time reporting of non-fatal errors should be encouraged to avoid occurrence of errors.

### CONCLUSION

Prescribing faults and prescription errors being commonest among medication errors; these may become fatal and can affect patient's safety and quality of health care. Hence increasing awareness about medication errors among the prescribers through a well-designed continuous education program is the need of the hour, to achieve zero medication erroring the healthcare institutions.

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## ANKLE TOPHI

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### Abstract:

Gout is most widely understood rheumatological disease of heterogeneous nature, often familial, associated with abnormal deposits of urate in tissues and characterized initially by a recurring acute arthritis, usually monoarticular, and later by chronic deforming arthritis. Tophi are associated with chronic gout.

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**Key Words:** Gout, Tophi, Ankle Tophi.



Fig 1



Fig 2

**Case report and Discussion:** A diagnosed case of gouty arthritis presented to us in the outdoor patient department of Guru Nanak Dev Hospital and government medical college, Amritsar with complains of pain, tenderness and restricted movements around the right ankle joint. On examination, a tophi was noticed with signs of inflammation around the joint.

The tophus is the cardinal feature of advanced gout. Some patients with recurrent acute gout, especially those with uncontrolled hyperuricaemia, develop chronic tophaceous gout characterized by tophi in soft tissues<sup>1</sup>. Microscopically, tophi are chronic foreign body granuloma-like structures containing collections of monosodium urate (MSU) crystals surrounded by inflammatory cells and connective tissue.

Tophi can be found around external ears, feet, olecranon, prepatellarbursae, and hands<sup>2</sup>. Ankles are rather “uncommon” site for tophi to occur. Picture 1 and 2 shows tophi at the above described unusual site.

Important differential diagnosis are septic arthritis, reactive arthritis, pseudogout (characterized by elderly onset, predilection for knees or wrists, radiological chondrocalcinosis, and synovial fluid pyrophosphate crystals) and rheumatoid arthritis (with polyarticular presentation)<sup>3</sup>. In patients with tophi, detection of MSU crystals

in the toothpaste-like material aspirated from the lump is diagnostic for gout<sup>4</sup>. Tophi are implicated in the development of structural joint damage and increased mortality risk in people with gout.

Effective treatment of tophaceous gout requires long-term urate-lowering therapy, ideally to achieve a serum urate concentration of <5 mg/dL (300 μmol/L). Recent advances in gout therapeutics have expanded urate-lowering therapy options for patients with severe tophaceous disease to allow faster regression structural outcomes.

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