Original Research Article

An Observational Study to Evaluate Prescription Writing Practices in OPD Services of a Tertiary Care Teaching Hospital, South India

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Abstract

Background: Evaluation in health program is an integral part of a professional role. The idea is to compare the performance with the standard. Prescription writing is an important component of medication safety as medication errors most frequently occur during prescribing by physicians. Prescription audit is a part of the medical audit which helps to observe, assess and suggest modifications,if need in the practice of prescribing by consultant physicians. Therefore, this study seeks to determine the prescription writing practices in compliance with guidelines given by Medical Council of India (MCI).**Aim**: To study the prescription writing practices in OPD services of a tertiary care teaching hospital, South India. **Methodology**: The study was cross sectional and descriptive type and was conducted from June toNovember 2018. A total number of 1620 prescriptions of Out-patient departments were photographed, scrutinized and evaluated. Selected prescriptions were assessed for parameters given by Medical Council of India (MCI). The data obtained were analyzed in Microsoft excel and valid results and conclusion were drawn. **Results**:Out of 1620 prescriptions, 51.6% (837) were legible and 48.4% (783) were illegible. Out-Patient Registration number was missing in about 49.3% (798) of the prescriptions. In the prescription details, 75.7% (1227) of prescriptions showed route of administration and only 2.03% (33) used generic names. About 9.82% (159) and 48.89% (792) of the prescriptions didn't have prescriber's signature and Medical Council registration number respectively. **Conclusion**: Prescription auditing improves the quality of healthcare delivery. This study highlights the need to train the consultant physicians especially house surgeons and postgraduates on writing legible prescriptions for quality improvement.

Keywords: Prescription, Prescription writing practices, Audit, Legibility, Out-patient department, Medication errors.

Introduction

Prescription is a mode of communication from physician to pharmacist to dispense the accurate medications and for the patients to follow instructions writtenin it. Prescription writing must always adhere to standard recommendations given by various authorities like World Health Organization, Medical council of India, Joint commission International, National accreditation board for hospitals and healthcare providers etc. It is the legal and ethical duty of the prescriber to write legible prescription and ensure its completeness in all aspects [1]. "A medication error is any preventable incident that may cause or lead to inappropriate medication use or patient harm, while the medication is in the control of healthcare professional, patient or consumer"[2].A medication error may happen at any stage of medication management and use such as selection, storage, prescribing and transcribing, dispensing and administration. Bates et al in his study stated that 49% of medication errors occur at the time of prescribing, 26% occur at the time of medication administration, 14% occur at the time of dispensing and 11% due to transcribing [3]. Inappropriate/illegible prescription writing is one of the main causes for medication errors which include prescription errors and transcription errors.Prescription errors include all errors related to incorrect prescribing of medications i.e., irrational prescribing, prescribing incorrect name of the drug, strength, route, dose, frequency, rate of administration etc. Transcription error is a peculiar type of error that commonly occurs while transcribing. Transcribing means copying the information from patient case records to the prescription sheet. Others sources of medication errors include indenting errors, documentation errors, errors due to verbal order, preparing & dispensing errors and administration errors.Efforts should be made to attenuate medication errors by implementing prescription and administration policies in the hospital [4]. An audit of prescription is a crucial tool to observe, identify, evaluate, invent and implement the ways for safe prescription.

Prescription audit is a continuous quality improvement tool that strives foradvance patient care.It can deliver information about the total parameters of prescription, which helps us to discovery out the reasons for incomplete prescription writing and quality levels of documentation of prescriptions.

In India, the prescribers need to follow the guidelines of prescription by Medical Council of India. Hence, this study was conducted with an aim to assess prescription writing practices and evaluate the compliance and noncompliance data of audit according to the standards given by Medical Council of India in the outpatient department of a tertiary care teaching hospital, South India.

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Research Methodology

The currentstudy is observational and cross sectional type performed for the duration of Six months.

The data source required to conduct the study was retrieved from the patients prescription presented at the outpatient pharmacy. No patient interaction was considered.

A self-designed standard structured proforma was used to document the parameters which need to be studied and the same were identified through Medical Council of India model prescription format.

A total 1620 prescriptions were randomly collected with the following information for analyzing the errors in prescription writing.

a. **Prescriber's details** -Doctor's name, Qualification, Medical council registration number, Full address, Contacts, Doctor's signature, Date of prescription and Seal of the prescriber.
b. **Patient demographics**- Patient name, Address, Telephone number, Age, Gender and Weight.
c. **Prescription details** -Name of medicine, Strength, Dosage instruction i.e., route, frequency and drug usage instructions, Duration, Total quantity and Legibility (Prescription in capital letters only).
d. **Dispensary details**-Date of dispensed, Name of the pharmacist, Name of the pharmacy and City.
e. **Additional parameters**-Prescribing department, UHID /Outpatient registration number and prescriptions of drugs by generic name

Data analysis:Collected data were entered into Microsoft Excel 2010 spreadsheet and analyzed.Descriptive statistics such as frequencies and percentages were used to analyze the categorical data. Tabular representation has been used for visual interpretation of the analyzed data.

Results

A total of 1620 prescriptions were audited.

Table 1 shows information about the number of prescriptions presented to pharmacy from various specialties, in which it was evident only in 58.8% (954) of prescriptions.

9.6% prescriptions were from Otorhinolaryngology, 7.9% were from dermatology, 6.8% belong to General medicine,6.1% of them were from General surgery, 3.3% each were from Urology and Pediatrics. Prescriptions from Nephrology, Psychiatry,Medical Gastroenterology and Respiratory medicinewere of 3.1%, 2.5%, 2.5% and 2.4% respectively.

The remaining prescriptions were from the departments of Neurology (2.2%), Orthopedics (2.2%), Rheumatology (1.8%), Neurosurgery (1.8%), Emergency medicine (1.1%), Plastic surgery (0.9%), Pediatric surgery(0.3%),Obstetrics and gynecology (0.1%) and Ophthalmology (0.1%). The remaining 41.2% of prescriptions did not have Speciality mentioned in it.

Table 2 shows compliance rate to documentation of prescriber's complete information.

Doctor's name, qualification, medical council registration number and signature was present in 927 (57.2%), 682 (42%), 828 (51.1%) and 1461 (90.1%) prescriptions respectively. Seal of the prescriber was evident in only 682 (42%) prescriptions and date was found missing in 10.5% (171) prescriptions.

Table 3 shows information about documentation of the patient characteristics like name, age, gender etc. Patient name and gender were evident in 1584 (97.7%) and 1032 (63.7%) of the prescriptions. Patient age was recorded in about 1008 (62.2%) prescriptions.

Outpatient registration number was present only in 822 (50.7%) prescriptions. Contact information of the patient was not evident in any of the prescriptions audited.

Table 4 shows compliance rate to various prescribing indicators. 1470(90.7%) of them were prescribed with medications and remaining prescriptions with consumables.

Among the prescriptions with medications, drug strength was mentioned in 843 (52%) prescriptions. Route of administration and drug frequency was mentioned in 1227 (75.7%) and 1209 (74.6%) respectively.Quantity of medications was documented in all the prescriptions. Duration of the medication usage was mentioned in 1137 (70.1%). Medications were written in capital letters in only 837 (51.6%) prescriptions and the remaining was not compliant with this parameter. Only 33 (2%) prescriptions were evidenced with generic names.

Table 1: Speciality wise distribution of prescriptionsreceived

Speciality	No. of prescriptions (n=1620)
Speciality not mentioned	666 (41.12%)
Otorhinolaryngology (ENT)	156 (9.62%)
Dermatology	129 (7.96%)
General Medicine	111 (6.85%)
General Surgery	99 (6.12%)
Urology	54 (3.34%)
Pediatrics	54 (3.34%)
Nephrology	51 (3.14%)
Psychiatry	42 (2.59%)
Medical gastroenterology	42 (2.59%)
Respiratory medicine	39 (2.40%)
Neurology	36 (2.23%)
Orthopedics	36 (2.23%)
Rheumatology	30 (1.85%)
Neurosurgery	30 (1.85%)
Emergency Medicine	18 (1.12%)
Plastic Surgery	15 (0.92%)
Pediatric Surgery	6 (0.37%)
Obstetrics and gynecology	3 (0.18%)
Ophthalmology	3 (0.18%)

Table 2: Compliance rate towards prescriber's details

Prescriber's details	No. of prescriptions (n=1620)
Name of the doctor	927(57.2%)
Qualification	682(42.09%)
Medical council registration number	828(51.1%)
Doctor's signature	1461(90.1%)
Seal of the prescriber	682(42.09%)
Date of prescription	1449(89.4%)

Table 3: Compliance rate towards patient demographics

Patient demographics	No. of prescriptions (n=1620)
Name of the patient	1584 (97.70%)
Age of the patient	1008 (62.20%)
Gender	1032(63.79%)
Outpatient registration number	822(50.70%)
Weight (Pediatrics only)	60 (3.70%)

Table 4: Compliance rate of prescribing indicators

Prescribing indicators	No. of prescriptions (n=1620)
Prescriptions with medications	1470 (90.74%)
Drug strength	843 (52.03%)
Route of administration	1227 (75.74%)
Frequency of dose	1209 (74.62%)
Duration	1137 (70.18%)
Total quantity of medications	1470 (90.74%)
Prescriptions with generic names	33 (2.03%)
Prescriptions with capital letters	837 (51.67%)
Prescriptions with consumables	150 (9.25%)

Discussion

Quality in healthcare is defined as "Degree of adherence to pre-established criteria or standards". Quality improvement is an ongoing response to quality assessment data about a service in ways that improve the process by which services are provided to patients [NABH]. Medications are critical component in modern healthcare system. Prescription of drugs is an area prone to mistakes and fraught with dangerous consequences due to mistakes in writing the instructions by the doctor So, this research is conducted to evaluate the prescription writing practices and to identify the gaps in compliance with Medical council of India standards.

Prescriptions, in which the name of the doctor is not clear, invalidate it and can cause inconvenience to the patient as some medications can't be dispensed by the pharmacist.In this study, Prescriber's name, qualification, Medical council registration number, signature, stamp of the consultant were present only in 57%, 42%, 51%, 90% and 42% respectively and date of prescription was missing in 10.6% prescriptions. While a studyconducted in Apex institute of India revealed that name of the prescriber, designation, medical council registration number, prescriber's signature, address, stamp and date of prescription was mentioned in 7.3%, 6.7%, 0%, 96.7%, 2.7%, 0.7% and 6.7% prescriptions respectively. Our study hospital has preprinted prescriptions containing name of the hospital, address and contact details on it. Full address and contact information of the prescriber wasn't mentioned in any of the prescriptions.

Patient identifications are vital for make sure that the right patient receives the medications and also for medicolegal and documentation purposes.In this study, we found that patient name, age, sex, outpatient registration number and department was mentioned in 97.7%, 62.2%, 63.7%, 50.7% and 58.8% respectively. In a study conducted in Eastern India were observed that patient age, sex and weight written in 97.83%, 97.97% and 8.7% prescriptions. While study conducted in Northern India revealed that department, patient name, gender, age and weight was mentioned in 100%, 100%, 100%, 100% and 17% prescriptions and not even single prescription in capital letters [3]. The patient address and telephone number can be tracked through UHID or outpatient registration number but prescriptions lacking outpatient registration number. Prescriptions from the department of pediatrics and pediatric surgery contain weight but not on prescriptions of other departments.

Medications must always written in capital letters to prevent the wrong drug being dispensed.The present study revealed that 837(51%) prescriptions were written in capital letters and remaining number of prescriptions were poorly handwritten. Name of the drugs written by physicians with poor handwriting is the leading cause of error due to dispensing of incorrect medications. The probable reason for such percentage of illegibility could be due to excessive workload which relay on verbal communication to trainee doctors rather than writing it down. So it is also essential to assess the prescription writing skills acquired by medical students at undergraduate and postgraduate levels.This study showed that out of 1620 prescriptions audited 150(9.2%) prescriptions were prescribed with consumables and remaining with medications.Mentioning the drug strength in the prescription improves the quality of therapy by clarifying the plan of therapy to the patient and by helping the pharmacist to dispense the drug of mentioned strength. Most drugs are available in multiple strengths and dosage forms and thus it poses problems.

Various prescribing indicators were used to measure and analyze the prescriptions to review the quality of the prescriptions. Compliance rates to various prescribing indicators like drug strength, route of administration, frequency of dose, duration of therapy and total quantity of medications.

The present study revealed that 2% of the prescriptions were prescribed with generic name and remaining was by brand names.

While a study conducted in Shimoga, Karnataka showed that medicines prescription by generic name, strength, dosage, duration and frequency of medicine use was mentioned in 84%, 25%, 25%, 25% and 100% prescriptions respectively [7].Whereas a study conducted in tertiary care teaching hospital in rural India, 10.2% prescriptions was missing prescription of drugs by generic name [8]. The intention behind the low generic name prescriptions was due to physician's adherence to the hospital formulary and misconceptions about the bioavailability and efficacy of generic medications as well as patients will get medicines in a discounted price in study hospital. None of the prescriptions contains pharmacist name, name of the pharmacy, city of the pharmacy located and date of medication dispensed.[9,10]

Perhaps the single most important educational outcome of medical audit is that people become critically aware of the theoretical underpinnings of their own practice. Continuing evaluation stimulates improved clinical services, professionalism, hospital administration and better patient care. This is the medical audit.

We have conducted this study to improve the quality of patient care. Second, Data was collected by single author to reduce the inter-observer variation. On other hand there have been few limitations as well. First, the current study catered only prescriptions of outpatient department only. Second, the findings emerging out of this study cannot be generalized or extrapolated to other hospitals in India because of study tools used will be different in different studies.

Conclusion

Prescription auditing improves the quality of healthcare delivery. This study highlights the need to train the consultant physicians especially house surgeons and postgraduates on writing legible prescriptions for quality improvement.

Prescription writing practices of physicians identify there is a need for with respect to prescriber's details and legibility of prescriptions. Unfortunately the prescription writing practices in a teaching hospital, which inevitably serves as a paradigm for the undergraduate and postgraduates, is often illegible and inconsistent. Repeated assessment and feedback mechanism is necessary to promote legible, professional practice and quality standard culture in a teaching hospital.

The Department of Hospital Administration and Quality Assurance committee had focused on the results of prescription audit process which helps the Hospital during accreditation.

Conflict of Interest: Nil
Source of support:Nil

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