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Research Article

Evaluation of Prescribing Acumen of Healthcare Professionals in a Tertiary Care Teaching Hospital in North India

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ABSTRACT
Background: Prescription writing is a critical component of clinical practice that directly influences therapeutic outcomes, patient safety and healthcare expenditure. Inappropriate prescribing practices contribute significantly to medication errors, irrational drug use, antimicrobial resistance and increased healthcare costs. Prescription audit serves as an effective quality assurance tool for evaluating prescribing behaviour and promoting rational use of medicines.
Objective: To evaluate prescribing skills of healthcare professionals in a tertiary care teaching hospital in North India.
Methods: A hospital-based, cross-sectional, observational study was conducted in the Department of Pharmacology at L.L.R.M. Medical College, Meerut and associated tertiary care teaching hospital, Meerut. A total of 207 outpatient prescriptions were audited using National Health Systems Resource Centre (NHSRC) guidelines.
Results: Complete documentation of OPD registration number, age and date of consultation was observed in 100% prescriptions, whereas gender was mentioned in 96.1%. However, major deficiencies were observed in recording patient name (11.1%), allergy status (2.4%), clinical history (8.2%), diagnosis (35.7%) and dose schedule (1.4%). Generic prescribing was noted in only 28.5% prescriptions. Antimicrobials were prescribed in 40.5% encounters, while adherence to antimicrobial prescribing policy was only 29.4%.
Conclusion: Substantial deficiencies exist in prescription completeness and rational prescribing practices. Regular prescription audits, structured educational interventions and strict implementation of standard prescribing guidelines are required.

Keywords: Prescription Audit, Rational Prescribing, Generic Prescribing, Prescribing Errors, Antimicrobial Stewardship.

INTRODUCTION

Prescription writing is a fundamental clinical responsibility that requires scientific accuracy, legal compliance and patient-centered decision-making. A prescription acts as the primary communication link between prescriber, pharmacist and patient, making its completeness and clarity crucial for safe therapeutic outcomes.

The World Health Organization defines rational use of medicines as ensuring that "patients receive medications appropriate to their clinical needs, in doses that meet their individual requirements, for an adequate duration and at the lowest cost" [1].

Medication errors remain a major public health concern globally. Prescribing errors constitute one of the most preventable causes of patient harm, contributing to adverse drug reactions, prolonged hospitalization, increased morbidity and mortality [2].

Prescription audits provide a structured mechanism to identify irrational prescribing, incomplete documentation, polypharmacy, inappropriate antimicrobial use and non-adherence to essential medicines guidelines.

In India, NHSRC prescription audit guidelines and NMC prescription writing reforms emphasize rational prescribing, generic medicine use and comprehensive documentation. Despite these regulatory initiatives, gaps in real-world prescribing practices persist.

This study was conducted to systematically evaluate prescribing skills and behaviour among healthcare professionals in a tertiary care teaching hospital.

MATERIALS AND METHODS

Study Design and Setting

This hospital-based cross-sectional observational study was conducted at L.L.R.M. Medical College and its associated teaching hospital, S.V.B.P. Hospital. The study was undertaken after obtaining approval from the Institutional Ethics Committee (Approval No. SC-1/2024/5280).

The study aimed to evaluate prescription writing practices and adherence to rational prescribing in the outpatient departments of a tertiary care teaching hospital.

Sample Size Calculation

The sample size was determined in accordance with recommendations from the National Health Systems Resource Centre (NHSRC) prescription audit guidelines. Based on an average daily outpatient attendance of approximately 2000 patients at the study centre, the minimum required sample size was calculated to be 91 prescriptions, considering a 95% confidence level and 10% margin of error.(3)

To enhance the statistical robustness and reliability of the findings, a substantially larger sample of 207 prescriptions (approximately 2.2 times the minimum required sample size) was included in the final analysis.

Prescription Collection Procedure

Prescription collection was carried out at the central pharmacy of the hospital over a 15-day period from 20 November 2024 to 5 December 2024.

Prescriptions from outpatient departments across multiple clinical specialties were included to provide a broad overview of prevailing prescribing practices.

No restrictions were imposed based on patient demographic characteristics such as age, gender, or socioeconomic background, nor on the basis of clinical diagnosis, thereby ensuring inclusivity and reducing the likelihood of selection bias.

Each prescription was considered a single patient encounter for the purpose of audit analysis.

Inclusion and Exclusion Criteria

All outpatient prescriptions containing one or more medication orders and issued during the study period were eligible for inclusion.

The following were excluded:

- inpatient prescriptions
- emergency department prescriptions
- prescriptions containing only investigation requests without medication orders

Prescription Audit Tool and Assessment Parameters

Prescription evaluation was performed using a structured audit framework based on the National Health Systems Resource Centre (NHSRC) prescription audit guidelines and standard rational prescribing principles.(3)

Prescriptions were assessed for the following parameters:

Table:

Statistical Analysis

Data obtained from the audited prescriptions were entered into Microsoft Excel for compilation and analysis.

OBSERVATION &RESULTS

Table 1. Prescription Documentation Quality

Parameter	Percentage (%)
OPD Registration Number	100
Age	100
Date of Consultation	100
Gender	96.1
Patient Full Name	11.1
Clinical History	8.2
Allergy Status	2.4
Clinical Examination Findings 29.4	
Diagnosis Mentioned	35.7
Dose Schedule Mentioned	1.4
Duration Mentioned	72.9
Physician Signature	6.7

Table 2. Rational Prescribing Indicators Parameter

	Percentage (%)
Generic Prescribing	28.5
Antimicrobial Prescriptions	40.5
Adherence to Antimicrobial Policy	29.4
Injection Prescribing	3.3
Vitamin/Tonic Prescriptions	47.3
Investigations Advised	17.8
Parameter	**Percentage (%)**
Follow-up Advice	12.5

DISCUSSION

In the present study, essential demographic details such as OPD registration number, age, and date of consultation were documented in all prescriptions (100%), while gender was recorded in 96.1% of cases, indicating satisfactory compliance with basic patient identification requirements. Comparable findings were reported in a prescription audit conducted in a tertiary care hospital in North India, where demographic details were consistently documented, likely due to automated registration systems.(4)

However, despite adequate recording of demographic information, clinical documentation was markedly deficient. Only 11.1% of prescriptions included the patient's full name, while brief clinical history (8.2%), allergy status (2.4%), clinical examination findings (29.4%) and legible handwriting in capital letters (2.8%) were poorly documented. Such omissions may compromise patient safety, impede continuity of care and hinder assessment of prescription appropriateness. Proper patient identification remains essential to ensure accurate medication dispensing . Similar deficiencies in documentation of diagnosis, dosage instructions and treatment details have been reported in previous prescription audit studies(5) . Supporting this concern, a report by CNBC TV18 highlighted that nearly half of the prescriptions reviewed from 13 ICMR Rational Use of Medicines Centres in India were incomplete, with deficiencies identified in 2171 out of 4838 analyzed prescriptions (6).

Legibility of prescriptions remains another important concern. The National Medical Commission recommends that prescriptions should be clearly written, preferably in full capital letters, and typed whenever feasible to minimize medication errors (7). In line with this, GMCH Chandigarh has issued directives encouraging prescription writing in capital letters or through computerized systems (The Indian Express, 2025). Furthermore, the Punjab and Haryana High Court recently emphasized that legible prescriptions are a fundamental patient right, underscoring the need for digitized prescribing systems and improved documentation practices (8).

In the present audit, a definitive or presumptive diagnosis was documented in only 35.7% of prescriptions, indicating that many prescriptions lacked clear clinical justification. Accurate documentation of diagnosis is essential for rational prescribing and continuity of care. Similar findings have been reported previously (9).

Generic prescribing was observed in only 28.5% of prescriptions, which is substantially lower than figures reported in other studies (10), where approximately 75% of medications were prescribed by generic name. Generic prescribing is strongly advocated in both national and international guidelines to improve affordability and accessibility of medicines. The National Medical Commission's 2023 regulations explicitly require registered medical practitioners to prescribe drugs by generic names while promoting rational prescribing practices (7). The Supreme Court has also supported wider adoption of generic

prescribing, further some Indian states, such as Rajasthan, have already implemented mandatory generic prescription policies (11).

Adherence to standard treatment guidelines was observed in 55% of prescriptions, reflecting moderate compliance with evidence-based prescribing recommendations. However, dose schedules were clearly documented in only 1.4% of prescriptions, representing a critical gap in prescription completeness. Similar deficiencies in documenting dosage frequency and administration instructions have been reported earlier in another study(5). Documentation of treatment duration was relatively better, being mentioned in 72.9% of prescriptions.

Regarding prescribing patterns, vitamin and tonic preparations were prescribed in 47.3% of prescriptions, while antimicrobials accounted for 40.5% of encounters. Such excessive antimicrobial use contributes significantly to the global challenge of antimicrobial resistance.

Adherence to the ICMR antimicrobial policy was observed in only 29.4% of prescriptions, suggesting suboptimal antimicrobial stewardship practices. Strengthening stewardship programs remains essential to improve prescribing quality and patient safety.

Injectable medications were prescribed in only 3.3% of prescriptions, which aligns with WHO recommendations favoring minimal use of injections in outpatient settings. Similar low rates of injectable prescribing have been reported in another study (10), suggesting a rational preference for oral formulations where appropriate.

Another concerning finding was the low documentation of physician signatures (6.7%) and follow-up advice (12.5%). Physician authentication is necessary for prescription validity and medico-legal accountability, while follow-up instructions are critical for monitoring treatment response and ensuring continuity of care. Comparable findings have been reported in a study conducted in 2022 (9).

Overall, while demographic documentation was satisfactory, significant deficiencies were observed in clinical documentation, prescription completeness and rational prescribing practices. These findings reinforce the importance of regular prescription audits, targeted training of healthcare professionals and strict implementation of standardized prescription-writing guidelines to improve prescribing quality and patient safety.

CONCLUSION

Prescription writing practices in the studied tertiary care teaching hospital showed substantial deficiencies in completeness, rationality and adherence to prescribing guidelines.

Major concerns included:

- poor generic prescribing
- incomplete documentation
- inadequate antimicrobial stewardship
- weak follow-up documentation

Institutional prescription audit programs, continuing medical education and strict adherence to standard guidelines are urgently needed.

Ethics Approval

Institutional Ethics Committee approval was obtained.

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Conflict of Interest

The authors declare no conflict of interest.

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