Prescription Audit in General Outpatient Department of a Tertiary Care Teaching Hospital: A Prospective Observational Study

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ABSTRACT

Introduction:

A prescription audit objectively evaluates clinical care and promotes rational medication use. This study evaluated outpatient prescribing patterns, prescription completeness, and adherence to the World Health Organization (WHO) core prescribing indicators in a tertiary care teaching hospital.

Methods:

A prospective cross-sectional observational study was conducted at ESIC Medical College & Hospital, Basaidarapur, New Delhi, over a period of six months (April 2026 to September 2026). A total of 200 paper-based first-encounter outpatient prescriptions were selected across clinical departments using systematic random sampling. Prescriptions were evaluated using WHO/International Network for Rational Use of Drugs (INRUD) core prescribing indicators and a standardized completeness checklist.

Results:

The average number of drugs prescribed per encounter was 2.78 (reference range: 1.6–1.8). Generic prescribing was high at 98.56%, and 95.32% of medications conformed to the National List of Essential Medicines (NLEM). Antibiotics were prescribed in 32.0% of encounters (reference range: 20.0–26.8%), whereas injectables accounted for 6.5% (reference range: 13.4–24.1%). Patient details were documented in 98.5% of prescriptions, doctor signature and date in 89.0%, and diagnosis in 59.0%. Doctor registration numbers were recorded in only 11.5% of cases. Overall, 85.0% of prescriptions were legible. Polypharmacy (five or more medications) was noted in 36.0% of encounters.

Conclusions:

Prescribing demonstrated excellent generic naming and adherence to essential drug lists. However, high antibiotic utilization, polypharmacy, and omission of prescriber registration numbers and clinical diagnoses represent key areas requiring targeted educational initiatives and institutional policy enforcement.

Keywords: Polypharmacy; Drug Utilization Review; Anti-Bacterial Agents; Essential Medicines; Guideline Adherence.

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Introduction

A prescription is a medico-legal document issued by a registered medical practitioner for patient treatment, reflecting the clinician's diagnostic accuracy and therapeutic judgment [1,2]. Prescription audit (PA) constitutes a systematic, critical appraisal of prescribing quality, diagnostic and therapeutic interventions, resource utilization, and their overarching effect on clinical outcomes and patient safety [3].

Every complete prescription should comprise four fundamental components: superscription, inscription, subscription, and signature, endorsed with the practitioner's medical council registration number [4]. The superscription specifies administrative details pertaining to both prescriber and patient (name, age, sex, address, and date). The inscription designates the medication name, dosage form, strength, and frequency, while the subscription indicates dispensing directions and quantities. The prescriber's signature and registration details validate the legal mandate [4]. The Medical Council of India guidelines mandate that registered physicians prescribe drugs by their generic names legibly and preferably in capital letters to foster rational pharmacotherapy [1].

The World Health Organization (WHO) defines the rational use of medicines as patients receiving pharmacotherapy appropriate to their clinical needs, in doses tailored to individual requirements, for an adequate duration, and at the lowest cost to them and the community [5]. Inappropriate medicine use remains a global concern, with more than half of all medicines inappropriately prescribed, dispensed, or sold [5,6]. To assess prescribing behavior objectively, the WHO and the International Network for Rational Use of Drugs (INRUD) established core prescribing indicators, which encompass the average number of drugs per encounter, the percentage of drugs prescribed by generic name, the percentage of encounters with an antibiotic prescribed, the percentage of encounters with an injection prescribed, and the percentage of drugs prescribed from an essential medicines list [6]. The present study was undertaken at a tertiary care teaching institution to evaluate outpatient prescribing quality and completeness against these standardized indicators.

Methods

This prospective cross-sectional observational study was carried out in the outpatient department (OPD) pharmacy of ESIC Medical College & Hospital, Basaidarapur, New Delhi, across a duration of six months, from April 2026 to September 2026. The institution is a 600-bed tertiary care teaching hospital providing broad-spectrum clinical specialties.

A sample size of 200 outpatient prescriptions was audited. Systematic random sampling was deployed at the outpatient pharmacy counter. The sampling interval was calculated as the total number of patients present in a dispensing queue divided by a fixed cluster size of ten. A random integer between one and ten served as the starting number, after which every kth prescription was selected.

Only first-encounter prescriptions from new outpatient attendees were included. Prescriptions belonging to follow-up visits and those with completely illegible handwriting were excluded from final analysis.

Data were transcribed onto a pre-tested, standardized data-extraction tool comprising two sections: Section I captured WHO/INRUD core prescribing indicators (number of drugs, generic nomenclature, antibiotic and injectable formulations, and concordance with the National List of Essential Medicines [NLEM]), and Section II assessed prescription completeness (patient identifiers, doctor details, medical council registration number, date and signature, clinical diagnosis, dosage regimen, duration of treatment, fixed-dose combinations [FDCs], follow-up advice, and readability). All collected data were entered into Microsoft Excel and analyzed using descriptive statistical metrics. Continuous data were summarized as means, and categorical data were expressed as frequencies and percentages.

Results

A total of 200 outpatient prescriptions were audited across thirteen clinical specialties. Skin and dermatology

comprised the highest proportion with 34 prescriptions (17.0%), followed by psychiatry (29; 14.5%), general medicine (28; 14.0%), pediatrics (23; 11.5%), and ear, nose, and throat (ENT) (20; 10.0%). The temporal sampling distribution was uneven, with 93 prescriptions (46.5%) collected in August 2026 and 69 prescriptions (34.5%)

collected in September 2026, accounting for 81.0% of the aggregate dataset.(Table 1)

Regarding the WHO core prescribing indicators, the mean number of drugs prescribed per encounter was 2.78, which exceeded the established WHO target

range of 1.6 to 1.8. The proportion of drugs prescribed by generic name
was 98.56%, approaching the ideal standard of 100%. The percentage of encounters featuring an antibiotic was 32.0%, exceeding the reference threshold of 20.0% to 26.8%. Injectable formulations were documented in 6.5% of patient encounters, remaining below the reference range of 13.4% to 24.1%. Concordance with the essential medicines list (EDL/NLEM) reached 95.32% against the optimal benchmark of 100%.(Table 2).

Evaluation of prescription completeness demonstrated that demographic patient identifiers were documented in 197 prescriptions (98.5%), while doctor names and designations were recorded in 180 prescriptions (90.0%). Clinician signatures and dates were present in 178 prescriptions (89.0%). In contrast, the prescriber's medical registration number was documented in only 23 prescriptions (11.5%), representing the most substantial administrative deficiency. A provisional or definitive clinical diagnosis was recorded in 118 prescriptions (59.0%), whereas 82 prescriptions (41.0%) lacked diagnostic entries. Drug dosage regimens and durations of therapy were explicitly documented in 180 (90.0%) and 161 (80.5%) prescriptions, respectively. FDCs were present in 132 prescriptions (66.0%), and follow-up advice was noted in 130 prescriptions (65.0%). Legibility assessment revealed that 170 prescriptions (85.0%) were legible, whereas 30 prescriptions (15.0%) were classified as illegible.(Table 3)

Analysis of medication volume stratification showed that only four prescriptions (2.0%) contained a single drug. Prescriptions containing two, three, and four medications accounted for 21.5%, 23.0%, and 17.5%, respectively. Prescriptions containing five or more medicines—defining polypharmacy—accounted for 36.0% (72 prescriptions), with two encounters presenting with seven or ten medications.(Table 4)

Table 1. Demographic and General Study Characteristics (N = 200)

Outpatient Department (OPD)	**Frequency (n)**	**Percentage (%)**
Department distribution		
Skin/Dermatology	34	17.0
Psychiatry	29	14.5
Medicine (including general medicine)	28	14.0
Paediatrics	23	11.5
ENT	20	10.0
OBGYN	13	6.5
Eye/Ophthalmology	12	6.0
Dental	12	6.0
Chest/Pulmonary	10	5.0
Orthopaedics	7	3.5
Surgery	5	2.5
Cardiology	4	2.0
Oncology	1	0.5
Other/unclassified departments	2	1.0
Total prescriptions audited	**200**	**100.0**
Timeline (by month)		
April 2026	4	2
May 2026	3	1.5
June 2026	7	3.5
July 2026	24	12.0
August 2026	93	46.5
September 2026	69	34.5
Total	**200**	**100.0**

Table 2: WHO Core Prescribing Indicators Performance Matrix (N = 200)

WHO Core Prescribing Indicator	Formula Metrics	Study Value	WHO Target
Avg. number of drugs per encounter	Total drugs prescribed ÷ Total prescriptions	2.78	1.6–1.8
% of drugs by Generic Name	Generic drugs ÷ Total drugs × 100	98.56%	100%
% encounters with an Antibiotic	Encounters with ≥1 antibiotic ÷ Total encounters × 100	32.0%	20.0–26.8%
% encounters with an Injection	Encounters with ≥1 injection ÷ Total encounters × 100	6.5%	13.4–24.1%
% of drugs from EML / NLEM	Drugs from EDL/NLEM ÷ Total drugs × 100	95.32%	100%

Table 3. Prescription Completeness and Legibility (N = 200)

Evaluated Checklist Parameters (Section II)	Present, n (%)	Absent, n (%)
Patient Details (Name, Age, Sex, Address)	197 (98.5)	3 (1.5)
Doctor Name & Details	180 (90.0)	20 (10.0)
Doctor Registration Number	23 (11.5)	177 (88.5)
Date & Signature of Doctor	178 (89.0)	22 (11.0)
Diagnosis / Clinical Indication	118 (59.0)	82 (41.0)
Drug Dosage Regimen Specified	180 (90.0)	20 (10.0)
Duration of Treatment Specified	161 (80.5)	39 (19.5)
Fixed Dose Combination (FDC)	132 (66.0)	68 (34.0)
Follow-up Advice Documented	130 (65.0)	70 (35.0)
Prescription Readability (Legible)	170 (85.0)	30 (15.0)

Table 4: Polypharmacy Distribution Stratification (N = 200)

Number of Drugs Prescribed	Prescription Volume (n)	Percentage (%)
1 drug	4	2.0
2 drugs	43	21.5
3 drugs	46	23.0
4 drugs	35	17.5
5 drugs	50	25.0
6 drugs	20	10.0
7 drugs	1	0.5
8–9 drugs	0	0.0
10 drugs	1	0.5
Total	**200**	**100.0**

Discussion

Regular auditing of outpatient prescriptions is essential for characterizing facility-level medicine utilization and mitigating preventable medication errors[1,6]. In this study, generic prescribing was 98.56%, demonstrating substantial institutional adherence to regulatory guidelines and

hospital procurement policies. This generic prescribing rate is substantially higher than figures previously documented by Pal et al. (21% to 59%) [1], Saha et al. (19.07%) [2], Verma et al. (75%) [7], and Kanagasabapathy et al. (65.7%) [8]. Generic prescribing lowers financial burdens on patients, curtails healthcare expenditure, and minimizes commercial brand substitution errors [9].

Concordance with the NLEM was observed at 95.32%, aligning closely with rational therapeutic principles and reflecting the availability of listed medicines within the hospital formulary. This performance surpasses values published by Biswas and Paul (65%) [9], Verma et al. (55.4%) [7], and Ninnekar et al. (37.9%)[10], although Fekadu et al. identified a 99.6% rate in community pharmacies in Ethiopia [11]. Prescribing from standardized essential lists guarantees that patients receive validated treatments with proven efficacy, acceptable safety, and optimal cost-effectiveness [5,6].

Conversely, the mean number of drugs per encounter was 2.78, surpassing the WHO benchmark of 1.6 to 1.8. While this index is comparable to findings by Saha etal. (2.64) [2] and lower than those reported by Verma et al. (3.03) [7] and Biswas and Paul (3.39) [9], it nonetheless signifies an inclination toward polypharmacy. Over one-third (36.0%) of audited encounters contained five or more medications. Although multi-drug therapy can be clinically indicated for multimorbid patients, polypharmacy inherently multiplies the hazard of adverse drug reactions, drug-drug interactions, and non-compliance [12].

Antibiotics were prescribed in 32.0% of encounters, exceeding the recommended limit of 26.8%. This rate is lower than figures observed by Kanagasabapathy etal. (39.8%) [8] and Fekadu et al. (71%) [11], but considerably higher than the 15.05% reported by Saha et al. [L2] and 20.59% reported by Verma et al. [7].

Elevated antibiotic prescribing in outpatient environments promotes selective antimicrobial resistance pressure and warrants stringent antibiotic stewardship interventions [13,14]. Injectable administration was documented in 6.5% of prescriptions, staying safely below the upper reference limit of 24.1%. This reflects a favorable practice favoring oral dosage formulations in ambulatory care [7,14].

The assessment of prescription completeness highlighted noticeable omissions in documentation. Clinician registration numbers appeared in merely 11.5% of prescriptions, which compromises accountability and contravenes statutory guidelines. Furthermore, diagnostic indications were absent in 41.0% of prescriptions, impairing pharmacist verification and compromising continuity of care. Although prescription readability was 85.0%, the remaining 15.0% classified as illegible represents an avoidable source of dispensing and dosage errors. Transitioning to computerized provider order entry and institutional prescription checklists can resolve these deficiencies [1,14].

Conclusions

The audited outpatient setting demonstrated positive prescribing practices, characterized by high generic compliance and close adherence to the essential medicines list, alongside low injectable usage. Nevertheless, the study identified critical targets for quality improvement, notably polypharmacy, elevated antibiotic prescribing, and documentation deficits concerning prescriber registration details and provisional diagnoses. Instituting standardized prescription templates, antimicrobial stewardship rounds, and continuous medical education will enhance clinical care and patient safety.

CONFLICT OF INTEREST

The authors declare that they have no competing financial, personal, or professional interests that could have influenced the work described in this paper.

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REFERENCES

1. Pal P, Banerjee P, Panja B, Kushwaha GK, Chakraborty A, Ghosh SK, et al. Prescription Audit of a Teaching Hospital in Eastern India using a Step-By-Step Methodology (Prescription Audit Guidelines and World Health Organization Core Prescribing Indicators). Int J Pharm Clin Res. 2024;16(8):1310-1316.

2. Saha A, Bhattacharjya H, Sengupta B, Debbarma R. Prescription audit in outpatient department of a teaching hospital of North East, India. Int J Res Med Sci. 2018;6(4):1241-1247.

3. Sharma R, Soni R, Sashidharan N, Tilwani K. Prescription audit in general outpatient department of a tertiary care teaching hospital: A prospective observational study. Int J Pharm Clin Res. 2024;16(2):1798-1805.
4. Shelat PR, Kumbar SK. Analysis of Out Door Patients' Prescriptions According to World Health Organization (WHO) Prescribing Indicators Among Private Hospitals in Western India. J Clin Diagn Res. 2015;9(3):FC01-FC04.
5. World Health Organization. Promoting rational use of medicines. Geneva: World Health Organization; 2025. Available from: http://www.who.int/activities/promoting-rational-use-of-medicines [Accessed Jan 28, 2025].
6. World Health Organization Action Programme on Essential Drugs, International Network for Rational Use of Drugs. How to Investigate Drug Use in Health Facilities: Selected Drug Use Indicators. Geneva: World Health Organization; 1993:14-45.
7. Verma N, Vinayagam S, Mittal N, Mittal R, Bansal N. Prescription audit in outpatient pharmacy of a tertiary care referral hospital in Haryana using World Health Organization/International Network of Rational Use of Drugs (WHO/INRUD) core prescribing indicators: a step towards refining drug use and patient care. Pharmacy (Basel). 2025;13(2):48.
8. Kanagasabapathy S, Rajagopal A, Murugan V, Balagurumoorthy M, Vasudevan K. Analysis of the pattern of drug use using WHO core drug indicators among general OPD patients in rural Puducherry. J Family Med Prim Care. 2024;13(11):5193-5197.
9. Biswas A, Paul S. Prescription Audit of General OPD at a Tertiary Care Hospital in West Bengal: Cross-Sectional Study. Int J Curr Pharm Res. 2026;18(1):53-57.
10. Ninnekar SZ, Torvi JR, Jasmine KP, et al. A prescription audit in ENT OPD of a tertiary care hospital: descriptive study. Int J Basic Clin Pharmacol. 2024;13(6):812-816.
11. Fekadu G, Hussien Z, Tesfaye A, et al. Assessment of prescription completeness and drug use pattern using WHO prescribing indicators in private community pharmacies in Addis Ababa: a cross-sectional study. J Pharm Policy Pract. 2023;16(1):124.
12. Singh T, Banerjee B, Garg S, Sharma S. A prescription audit using the World Health Organization recommended core drug use indicators in a rural hospital of Delhi. J Educ Health Promot. 2019;8:37.
13. Ofori-Asenso R. A closer look at the World Health Organization's prescribing indicators. J Pharmacol Pharmacother. 2016;7(1):51-54.
14. Raghute L, Mahakalkar C, Joshi P, et al. A Cross-sectional Study Assessing Prescriptions of a Tertiary Care Teaching Institute of Central India using the WHO Core Drug Indicators. J Med Sci Health. 2019;5(1):1-6.