

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)

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Abstract:

Background: Rational use of medicines is the most crucial part of medical care provided to a patient. Things like polypharmacy overuse of antibiotics and injectable drugs, and prescribing medicines without following relevant guidelines can lead to irrational medicine use. The prescription audit should be carried out at regular intervals to improve prescription writing skills to establish a better healthcare system.

Methodology: This study was conducted to audit the quality of OPD prescriptions by using a step-by-step methodology (prescription audit guidelines, National Health Mission, MoHFW) and WHO core prescribing indicators and finding root cause of the problem in the prescriptions of Dermatology, Venereology & Leprosy (DVL) OPD of teaching hospital in Eastern India after taking approval from IEC, IIMSAR over 3 months. A total of 96 outpatient prescriptions have been randomly sampled, irrespective of patient characteristics, diagnosis, and Department of DVL. Responses from each prescription have been evaluated against WHO guidelines (27 points structured checklist) in the form of observed responses as 'YES' or 'NO' and the data has been expressed as % of total responses recorded, and a number of medicines prescribed per prescription as mean \pm SD.

Results: The audit responses before and after sensitization indicate a significant improvement in several criteria. Notable enhancements include an increase in the recording of weight in pediatric patients (from 23% to 48%, $p = 0.0245^*$), improvement in legible handwriting in capital letters (from 36% to 75%, $p = 0.001^*$), and an increase in the prescription of medicines by generic names (from 21% to 59%, $p = 0.026^*$). The salient features of clinical examinations recorded also showed improvement (from 58% to 76%, $p = 0.034$). However, there were areas with no significant change, such as the prescription of antibiotics as per the facility's policy. On the contrary, a decrease was observed in the prescription of injections (from 11.4% to 18%, $p = 0.0368$). Overall, these findings underscore the positive impact of sensitization on the quality of audit responses, with several parameters showing statistically significant improvements.

Conclusion: The prescription audit showed that there is a need to train prescribing doctors as per the standard MoHFW step-by-step methodology (prescription audit guidelines and World Health Organization core prescribing indicators) for rational prescription writing to minimize the chance of major errors like not writing the dose of the drug, not writing it in capital letters, drug-related instructions, diagnosis and so on. The prescription audit should be carried out at regular intervals to improve prescription writing skills to establish a better healthcare system.

Keywords: Prescription audit, prescription audit guidelines, National Health Mission, rational use of medicines, World Health Organization, prescribing indicators, Dermatology.

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Introduction

A prescription is a written medico-legal document by an authorized person for the treatment of the patient and is a reflection of the quality of healthcare service being delivered to the patient. However, prescription errors may promote the irrational use of drugs and decrease patient compliance. Making regular prescription audits a must to improve standardized treatment for the patient. [1]

Prescribing pattern behavior reflects the health promoter's responsibilities toward the rational use of drugs. Audit of such prescribing practice aids in improving the drug use pattern by identifying the nuances and critical steps involved which could be evolved for a better health care to the patient. The most common causes of inappropriate use of medicines are polypharmacy, inappropriate use of antibiotics, overuse of injections, failure to prescribe in accordance with clinical guidelines, and inappropriate self-medication. [2]

Objectives of Prescription Audit [3]

- To assess the extent of incomplete/incorrect prescriptions.
- To reduce the irrational usage of antibiotics, syrups, injections, etc
- To identify opportunities for the improvement and developing benchmarks at the facility level.
- To channelize the good practice of writing complete, legible and rational prescriptions by the service providers.

Irrational prescribing is a global problem. The emerging data reveal that prescribing errors are common and can affect between 4.2 to 82% of the prescriptions. [4] Such errors can result in adverse event, unsafe treatment, additional cost of treatment, inefficient use of resources, and irrational medicine use. Almost 4 in 1000, prescriptions have errors that have the potentials to cause adverse effects. [5] A study done by Bates et al. to assess adverse medicine events found that 28% of adverse medicine events are preventable. The study has concluded that 56% of such preventable adverse events occurred at the stage of prescription ordering. [6]

Prescription errors can result from individual as well as system-related factors. Prescription errors are typically events that derive from slips, lapses, or mistakes, such as writing a higher or lower dose than the correct one. Factors related to patients can also result in errors and adverse effects, such as history of allergy and non-adherence to instructions. Therefore, detecting such errors is the first crucial step in building safer systems and preventing adverse events. A systemic analysis of prescriptions can detect these errors through the prescription audit. [3] World Health Organization

(WHO) stated rational use of drugs requires that patients receive medication appropriate to their clinical needs, in doses that meet their own individual requirement for an adequate period of time and at the lowest cost to them and their community". [1] To investigate the rational use of drugs, WHO have established few core indicators, viz. prescribing indicators, patient care indicators and health facility indicators. [7] Prescribing indicators included number of drugs prescribing per encounter, percentage of drugs prescribed by generic name, percentage of encounter by injection and antibiotics prescription and percentage of drugs prescribed from essential medicine list (EML). [1,7]

Training and assessment of prescribers, regular monitoring, making prescriber's aware of the errors and the guidelines and open communication has been widely recommended as an important intervention tool to decrease the prevalence of prescribing errors.[2, 8-9] Regular audit by the hospital on prescription pattern and prescribing behavior, followed by constructive feedback and continuing medical education on good prescribing habit adhering to clinical guidelines, ensures quality health care. [8] Studies have shown that if undergraduate students are given adequate training in safe and rational prescribing, the incidence of prescribing errors is significantly reduced. [9] In addition to this, there is a need to sensitize the prescribers for rational prescribing. As the study was done at a teaching hospital, most of the prescribing load is shared by junior and senior residents. Intervention in the form of training in rational prescribing at their level will help to facilitate the attainment of WHO targets for prescribing.

This study will be conducted to audit the quality of outpatient department (OPD) prescriptions by using a step-by-step methodology (prescription audit guidelines, National Health Mission, MoHFW and WHO core prescribing indicators) in the Department of Dermatology and finding root cause of the problem in a teaching hospital in Eastern India.

Methodology

This study was conducted to audit the quality of OPD prescriptions by using a step-by-step methodology (prescription audit guidelines, National Health Mission, MoHFW) and WHO core prescribing indicators and finding root cause of the problem in the prescriptions of Dermatology, Venereology & Leprosy (DVL) OPD of teaching hospital in Eastern India after taking approval from IEC (Ref. No.IEC/IIMSAR/Haldia/2023/48 dated 05.06.23) over 3 months. A total of 96 outpatient prescriptions have been randomly sampled [Table 1], irre-

spective of patient characteristics, diagnosis, and Department of DVL. Responses from each prescription have been evaluated against WHO guidelines (27 points structured checklist) in the form of observed responses as 'YES' or 'NO' and the data has been expressed as % of total responses recorded, and a number of medicines prescribed per prescription as mean \pm SD. World Health Organization (WHO) has established "core prescribing indicators"¹⁰ for analysis of the prescriptions, and promotion of rational use of medicines. These indicators have been broadly classified into following three categories:

- a) Prescribing Indicators
- b) Patient Care Indicators
- c) Facility Indicators

The WHO core drug use indicators include five questions each on prescribing and patient care indi-

cators and two questions related to health facility. The patient care indicators included average consultation and dispensing time, which excludes the waiting time.

Sample Size

Adequate sample size (table 1) is essential for the audit and meaningful evaluation of prescriptions.

The sample (prescriptions selected for audit) should be representative of the total OPD attendance. Calculating sample size may be a cumbersome process. For ease of calculation, a sample size calculator is provided below with the Margin of Error (-10%) and Confidence Level (95%).

Facilities having resources may aspire for calculating sample size on -5% margin of error.

Table 1: Sample Size Calculator for Prescription Audit

Population (OPD attendance)	Sample Size (No. of Prescriptions to be audited) [Margin of Error -10%; confidence level 95%]
1000	88
3000	94
5000	95
10,000	96
20,000	96
30,000	96
50,000	96

All the prescriptions was analysed on the following parameters:

Prescription format and its completeness with regard to:

Indicators for Completeness of the Prescription [3]

Completeness of the prescription can be assessed, and scores are given for each component of the prescription and its correctness, as given below:

- Patient details- name, age, sex, address, reported allergy, Date of consultation/registration in OPD date.
- Diagnosis or description of the health problem.
- Medicine information- dosage forms, name of medicines prescribed in full or abbreviation, strength of formulation, dose, advisory (before/after food, at bedtime, etc.) duration of therapy, medicine interactions.
- Non-pharmacological treatment description.
- Signature and information about the prescriber- doctor's name, qualification, registration no.

Indicators for Patient Care, Legibility and Rationality of the Prescription [3]

- Percentage of prescription with legible handwriting

- Average number of drugs per prescription
- Percentage of drugs prescribed by generic name
- Percentage of prescription where medicines prescribed are in line with STG.
- Percentage of prescription where allergies are mentioned.
- Percentage of prescription with brief history written.
- Percentage of prescription with provisional or Final Diagnosis
- Percentage of prescription where salient features of clinical examination are recorded.
- Percentage of prescription where schedule/Dosages are written.
- Percentage of prescription with Vitamins, Tonics, or Enzymes.
- Percentage of prescription wherein Antibiotics are prescribed as per Hospital Antibiotic Policy.
- Percentage of prescription with prescribed injections.
- Percentage of drugs prescribed from the EDL
- Percentage of drugs actually dispensed
- Percentage of drugs adequately labeled
- Patients' knowledge of correct dosage.

Action Plan and Root Cause Analysis: Following this, two lowest-performing attributes have been

identified to prepare an action plan with a defined timeline.

Statistical Analysis: Detailed analysis is required to understand the prescription practices, identification of the bottlenecks and opportunities for improvement. Once the calculated numbers of prescriptions have been received, all 26 attributes need to be written in a tabular form. Afterward, each prescription is evaluated against these attributes in the form of observed response as 'YES' or 'NO'.

The collected information will be then transferred into an excel sheet to get a comprehensive view of prescription practices, indicators' calculation, gap identification, and best practices. Continuous variables will be analysed using descriptive statistics (absolute numbers, means plus standard deviations (SD), or medians with 25th and 75th

percentiles) as appropriate. Categorical data were described by the number (n) and percentage (%) of subjects in each category. All statistical calculations was performed using Statistical Package for Social Science (SPSS), version 20.0. Data were expressed in n (%). A P-value of <0.05 is considered as statistically significant.

Results

A total of 96 outpatient prescriptions have been randomly sampled, irrespective of patient characteristics, diagnosis, and Department of DVL. Responses from each prescription have been evaluated against WHO guidelines (27 points structured checklist) in the form of observed responses as 'YES' or 'NO' and the data has been expressed as % of total responses recorded, and a number of medicines prescribed per prescription as mean \pm SD.

Table 2: Data analysis and calculation of indicators of prescription audit (n=96)

Sl. No.	Criteria	Audit response before sensitization	Audit response after sensitization	P value
1	OPD Registration Number mentioned?	96(100%)	96(100%)	0.2365
2	Complete Name of the patient is written?	96(100%)	96(100%)	1.654
3	Age in years (≥ 5 in years) in case of < 5 years (in months)	96(100%)	96(100%)	1.624
4	Weight in Kg (only patients of pediatric age group)	23(23%)	47(48%)	0.0245*
5	Date of consultation - day / month / year	96(100%)	96(100%)	1.364
6	Gender of the patient.	96(100%)	96(100%)	2.415
7	Handwriting is Legible in Capital letter	35(36%)	72(75%)	0.001*
8	Brief history Written	52(54%)	70(73%)	0.451
9	Allergy status mentioned	81(84%)	92(96%)	0.496
10	Salient features of Clinical Examination recorded	56(58%)	73(76%)	0.034
11	Presumptive / definitive diagnosis written	87(90%)	93(96%)	0.648
12	Medicines are prescribed by generic names	21(21%)	57(59%)	0.026*
13	Medicines prescribed are in line with STG.	47(48%)	57(59%)	0.634
14	Medicine Schedule / doses clearly written	93(96%)	95(98%)	0.981
15	Duration of treatment written	92(95%)	94(97%)	1.364
16	Date of next visit (review) written	75(78%)	90(93%)	0.841
17	In case of referral, the relevant clinical details and reason for referral given.	12(13%)	18(19%)	0.396
18	Follow-up advise and precautions (do's and don'ts) are recorded	17(17%)	29(30%)	0.146
19	Prescription duly signed (legibly)	96(100%) Legible 63(65%)	96(100%) Legible (92%)	1.377
20	Medicines Prescribed are as per EML/ Formulary	62(64%)	73(76%)	1.12
21	Medicines advised are available in the dispensary	47(48%)	61(63%)	1.841
22	Vitamins, Tonics or Enzymes prescribed?	10(10.4%)	8(9%)	0.4714
23	Antibiotics prescribed?	17(17.7%)	13(14%)	0.649
24	Antibiotics are prescribed as per facility's Antibiotic Policy	15(15.6%)	11(12%)	<0.001*
25	Investigations advised?	42(43%)	38(39%)	0.742
26	Injections prescribed?	11(11.4%)	17(18%)	0.0368

The audit responses before and after sensitization indicate a significant improvement in several criteria. Notable enhancements include an increase in the recording of weight in pediatric patients (from 23% to 48%, $p = 0.0245^*$), improvement in legible handwriting in capital letters (from 36% to 75%, $p = 0.001^*$), and an increase in the prescription of medicines by generic names (from 21% to 59%, $p = 0.026^*$). The salient features of clinical examinations recorded also showed

improvement (from 58% to 76%, $p = 0.034$). However, there were areas with no significant change, such as the prescription of antibiotics as per the facility's policy. On the contrary, a decrease was observed in the prescription of injections (from 11.4% to 18%, $p = 0.0368$) [Table 2].

Overall, these findings underscore the positive impact of sensitization on the quality of audit responses, with several parameters showing statistically significant improvements [Table 3].

Table 3: Root Cause Analysis & Action Plan

Root Cause	Actions to be taken
<ul style="list-style-type: none"> Knowledge is inadequate Skills are inadequate Attitudes are inappropriate 	Brainstorming <ul style="list-style-type: none"> Every suggestion is documented TM Encourage all to participate
	Why-Why Analysis <ul style="list-style-type: none"> 'Plan, Do, Check, Act' cycle as explained Education and communication to all stakeholders

Discussion

Audit Prescription audit is a facility level review exercise, conducted periodically, for reviewing the facility's prescriptions. It helps in assessing the extent of OPD patient-related information as recorded on the prescriptions, prescribing habits of clinicians, appropriateness of medicine usage and its availability, drug dispensing practices and workload of the dispensary. Prescription audit is an improvement activity, and if regularly done, it ensures that the patients receive high-quality care, which is equitable, cost-effective and efficient. [3]

In the present study the audit responses before and after sensitization indicates a significant improvement in several criteria. Notable enhancements include an increase in the recording of weight in pediatric patients (from 23% to 48%, $p = 0.0245^*$), improvement in legible handwriting in capital letters (from 36% to 75%, $p = 0.001^*$), and an increase in the prescription of medicines by generic names (from 21% to 59%, $p = 0.026^*$). The salient features of clinical examinations recorded also showed improvement (from 58% to 76%, $p = 0.034$). However, there were areas with no significant change, such as the prescription of antibiotics as per the facility's policy. On the contrary, a decrease was observed in the prescription of injections (from 11.4% to 18%, $p = 0.0368$) [Table 2]. Overall, these findings underscore the positive impact of sensitization on the quality of audit responses, with several parameters showing statistically significant improvements [Table 3].

Our study revealed that there was not fully complete prescription was found. Hospital details like address, patient name date of prescription were mention in 100% prescriptions. Similar to report by Siddarth et al., where it was 99.3%. [11] Gender,

age and address of patient were missing in all (100%) the prescriptions similar to study conducted at Maharashtra [12] while Siddarth et al., [11] reported that in 33% and 0.7% prescriptions address and gender were missing. Study revealed that dose, direction of drug and duration of treatment was not completely written in 90%, 74% and 80% of prescriptions respectively. Abbreviations were used in all (100%) prescriptions. Doctor's medical registration number was mentioned in 0% prescriptions. [1]

The WHO core prescribing indicators analysis revealed that the average number of drugs per encounter was 2.38 ± 1.1 and the percentage of drugs prescribed by generic name was 796 (55.4%). Only 44 (7.3%) of the prescribed drugs were antibiotics and also merely 63 (10.5%) of the drugs were prescribed as an injection. About 1265 (88%) of the drugs were prescribed from NLEM. Out of the total 1437 drugs, about 217 (15%) of the drugs were FDCs. Of which, the percentage of FDCs not prescribed from NLEM was 133 (9.25%). [2]

The percentage of antibiotics prescribed was optimal at 13% compared to the WHO recommendation (20%–26.8%). [8] One of the main reasons could be due to the hospital policy on rational use of antibiotics such as selective reporting of antimicrobial susceptibility to minimize the inadvertent use of high end and reserve drugs.

This study also revealed a lower percentage (11–18%) of drugs prescribed as injection as against the optimal value (13.4%–24.1%) recommended by the WHO. [2,13] Oral route was the major route of administration noted in our study. Patil B et al (2023) study [14] revealed that twenty-six (4%) prescriptions were not written in capital letters, 86 (13%) prescriptions did not mention the route of

drug administration, and the consultant's or physician's name and signature were missing in 13 (2%), and six (1%) prescriptions, respectively. None of the prescriptions were written using the generic names of the drugs. Polypharmacy was observed in 51 (8%) prescriptions. Moreover, potential drug-drug interactions were identified in 12 (1.9%) instances. The most prescribed drugs were antihistaminics, with 393 (23%) prescriptions. A total of 1257 drugs were prescribed making an average of 3.14 drugs per prescription, out of which 28.72% drugs were prescribed by generic name. About 34.0% of patients were prescribed antibiotics and 2.25% of patients were prescribed injectable drugs. There were 9 (2.25%) prescriptions found in which the signature of a doctor was omitted. The doctor's stamp and registration number were omitted in 49 (12.25%) and 119 (29.75%) prescriptions respectively. [15]

The percentage of prescriptions with an injection prescribed emphasizes reasonable use of injectables, higher percentage suggests issues like the prescriber's skill, the emergency health state of a patient, and biased understanding of the various medicine formulation potency. A higher percentage of antibiotics prescribed suggest infection outbreak, irregular use of antibiotics, and the prescriber's inexperience or lack of confidence in the diagnosis. [15]

This study highlights that implementing strategies by the hospital to curb inappropriate prescription writing, inadvertent use of antibiotics and by establishing guidelines on the use of injections in OPD would pave the way for more rational use of medicines and ultimately to a better health care to the community. Like present study, study on prescription audits done at various institution levels would aid to compare drug use pattern and provide suggestions to improve prescribing behavior among the institutes. [2,3]

Limitations: Study was conducted in single centre & single clinical department.

Conclusion

The study highlighted the prescription errors in writing the drugs in capital letters, mentioning the dose, route, and frequency of drugs, etc. It provided insight into the common diseases in dermatology and routine prescribing patterns and addressed the frequency of polypharmacy and drug-drug interactions. The study has emphasized that regular audits by the hospital on prescription patterns and prescribing behavior, followed by constructive feedback and CME on good prescribing habits adhering to clinical guidelines will ensure quality health care. The prescription audit showed that there is a need to train prescribing doctors for rational prescription writing to reduce the chance of major errors like not writing the dose of the drug,

not writing it in capital letters, drug-related instructions, diagnosis, and so on.

Ethical Approval: Ethics approval has been taken from IEC, ICARE Institute of Medical Sciences & Research, Haldia, West Bengal [Ref. No.IEC/IIMSAR/Haldia/20 23/48 dated 05.06.23]

Consent: Informed consent was obtained from all participants before collecting the data.

References

- 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 Mar;9(3):FC01-4. doi: 10.7860/JCDR/2015/12724.5632. Epub 2015 Mar 1. PMID: 25954629; PMCID: PMC4413077.
- Meenakshi R, Selvaraj N, Anandabaskar N, Dhamodharan A, Badrinath AK, Rajamohammad MA. Prescription audit of a teaching hospital in South India using World Health Organization core prescribing indicators - A cross-sectional study. *Perspect Clin Res.* 2022 Jul-Sep; 13(3):132-136. doi: 10.4103/picr.PICR_172_20. Epub 2021 Jan 8. PMID: 35928646; PMCID: PMC9345256.
- Prescription Audit Guidelines. https://nhs.uk/sites/default/files/2021-07/1534_Prescription%20Audit%20Guidelines16042021.pdf [Accessed on July 01, 2023]
- The Pursuit of Responsible use of Medicines: Sharing and Learning from Country experiences, World Health Organization 2012. <https://www.who.int/publications/i/item/WHO-EMP-MAR-2012.3> [Accessed on July 01, 2023]
- Ross S, Bond C, Rothnie H, Thomas S, Macleod MJ. What is the scale of prescribing errors committed by junior doctors? A systematic review. *Br J Clin Pharmacol.* 2009 Jun; 67(6):629-40. doi: 10.1111/j.1365-2125.2008.03330.x. Epub 2008 Oct 23. PMID: 19094162; PMCID: PMC2723201.
- Velo GP, Minuz P. Medication errors: prescribing faults and prescription errors. *Br J Clin Pharmacol.* 2009 Jun; 67(6):624-8. doi: 10.1111/j.1365-2125.2009.03425.x. PMID: 19594530; PMCID: PMC2723200.
- WHO DAP, INRUD (1993). How to Investigate Drug Use in Health Facilities, pp. 14-45.
- 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.
- Ahsan M, Shaifali I, Mallick A.K, Singh H.K, Verma S, Shekhar A. Prescription auditing based on World Health Organization (WHO)

- prescribing indicators in a teaching hospital in North India. *Int J Med Res Rev* 2016; 4(10):1847- 1852.doi:10.17511/ijmrr. 2016.i 10.22.
10. World Health Organization. How to Investigate Drug Use in Health Facilities: Selected Drug Use Indicators – EDM Research Series No 007. 1993. [Last accessed on 2023 Feb 05]. Available from: <http://www.apps.who.int/medicinedocs/en/d/Js2289e/>
 11. Siddarth V, Arya S, Gupat SK. A study of prescribing practices in outpatient department of an apex tertiary care institute of India. *Int J Res Foundation Hosp Health Adm.* 2014; 2(1):31–35.
 12. Phalke V, Phalke D, Arif S, Mishra A. Prescription writing practices in a rural tertiary care hospital in Western Maharashtra, India. *Australias Med J.* 2011; 4(1):4–8.
 13. Atif M, Sarwar MR, Azeem M, Umer D, Rauf A, Rasool A, et al. Assessment of WHO/INRUD core drug use indicators in two tertiary care hospitals of Bahawalpur, Punjab, Pakistan. *J Pharm Policy Pract.* 2016; 9:27.
 14. Patil B, Patil J, Hugar L, Moharir G. Analysis of Prescribing Practices in the Dermatology Outpatient Department of a Tertiary Care Teaching Hospital. *Cureus.* 2023 Apr 20; 15(4):e37910. doi: 10.7759/cureus.37910. PMID: 37220430; PMCID: PMC10200007.
 15. Mulkalwar S, Patel A, David S, Pabari K, Math P, Tilak AV. Prescription Audit for WHO Prescribing Indicators and Prescription Errors in a Tertiary Care Teaching Hospital. *Medical Journal of Dr. D.Y. Patil Vidyapeeth Mar–Apr 2024; 17(2): 299-303.*