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A prescription audit using the World Health Organization-recommended core drug use indicators in a General Hospital of Chhotaudepur, Gujarat

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Abstract:

Introduction: Prescription audit is a part of the holistic clinical audit and is a quality improvement process that seeks to improve patient care and outcomes through a systematic review of care against unambiguous criteria and implement the changes.

Aims and Objectives: The study aimed to investigate the rational use of drugs, to audit the quality of outpatient department (OPD) prescriptions at General Hospital Chhotaudepur regarding their completeness and legibility, & to examine them against the WHO-recommended core drug use indicators.

Materials and Methods: An observational & cross-sectional Study was carried out after obtaining Ethics approval. The patient's informed consent was taken. A total number of 150 Prescriptions reaching the pharmacy from the outpatient departments (OPDs) of all the clinical departments were audited. All the prescriptions were analyzed for the Prescription format and its completeness & The WHO core indicators for drug use.

Result: A total response of 150 prescriptions from different departments was analyzed. Of all 96.93% of drugs were prescribed by their generic name. Only 3% of prescriptions had mention of diagnosis (final/presumptive). Averages of 3 medicines were prescribed per prescription. An overwhelming 71.2% (107 out of 150) audited prescriptions had antibiotics prescribed. Only 21.2% of prescriptions were duly signed. A total of 28.8% of prescriptions had illegible handwriting.

Conclusion: As we can understand from the above findings, there is a scope for improvement from consulting patients to writing and prescribing medicines to the time when medicines are dispensed.

Keywords: Core drug indicators, prescription audit, rational prescription, World Health Organization

Introduction :

A prescription is a written document prescribed by a registered medical practitioner to address a patient's health needs, with the assistance of a pharmacist or nurse as the primary intermediary in pharmacotherapy. [6] The act of writing a prescription is a crucial method of therapeutic intervention by doctors, requiring acquired skills through training. The quality of a prescription reflects the physician's proficiency and their approach to rational prescribing.

To assess the rational use of drugs, the World Health Organization (WHO) collaborated with the International Network for Rational Use of Drugs to develop a set of "core drug use indicators."

Prescription audit is an integral part of a comprehensive clinical audit that aims to enhance patient care and outcomes. It involves a systematic review of care against clear criteria and implementing the changes accordingly. [17]

This study was conducted with the aim of investigating the rational use of drugs by evaluation of prescriptions with respect to their completeness and legibility, comparing them against the WHO's recommended core drug use indicators.

Materials & Methods

It was a descriptive cross-sectional type of study, which was carried out at General Hospital Chhotaudepur, Dist. Chhotaudepur, state: Gujarat. All Prescriptions reaching the pharmacy from the outpatient departments (OPDs) of all the clinical departments were included in the audit. Prescriptions from IPD, those patients attending OPD for Tetanus Toxoid (TT) & other vaccines, and neonates (≤ 28 days) were excluded from the study.

By using the Sample Size Calculator for Prescription Audit under Prescription audit guidelines, given by the National Health Systems Resource Centre (NHSRC), under the National Health Mission of the Government of India, we derived a sample size of 150 prescriptions that were audited by us. [18] A sample size of 150 was obtained based on the following assumptions: 95% confidence level with 10% margin of error.

The study was initiated after getting approval from the institutional ethics committee. The data were subjected to analysis percentages-wise.

Result :

A total no. of 150 prescriptions were obtained from the various clinical departments like medicine, orthopedics, pediatrics & obstetrics-gynecology. It was observed that out of 150 prescriptions, 80 were for male patients & 70 were for female patients.

Of them 118 prescriptions had doctors writing brief histories regarding the patient's illness. Very few prescriptions had mention of examination of a particular patient & details regarding any required investigations present.

Table 1- Completeness of prescription with respect to medical, Drug related and other components

Medical-component			
Sr.no.		Mentioned % (n)	Not Mentioned % (n)
1..	Final/ presumptive diagnosis	3% (5)	**97% (145)**
Drug-related component			
1	Name of drug	Full name	46.46% (70)	-
		Abbreviation	53.53% (80)	
2.	Name of drug	Generic	**96.93% (145)**	-
		Brand	3.07% (5)	
3.	Dose	35.85% (54)	**64.15%(96)**
4.	Time of administration	10.60% (16)	**89.39% (134)**
Other details of theprescription			
1.	No. of medicines/prescription	3 Medicines/prescription	
2.	Duration of treatment	83.3% (125)	16.7% (25)
3.	Follow-up advisory	12.1% (18)	87.9% (132)
4.	Date of next visit	7.6% (11)	92.4% (139)

Of all 96.93% of drugs were prescribed by their generic name. Majorly 2/3rd of prescriptions were without mention of dose for particular prescribed drugs. Almost none of the prescriptions had a route of drug administration & frequency of drug intake mentioned for the patient. The majority of prescriptions had follow-up advisories & details regarding the date of the next visit missing. (Table 1)

Table 2- WHO prescribing indicators

A) Comparison of WHO Prescribing indicators between present study, standard & other studies

	Avg. no. of drugs per Encounter	% of drugs by generic name	% of encounters with an antibiotic prescribed	% of encounters with an Injection prescribed	% of drugs prescribed from the EML
Standard	<2	100%	<30%	<20%	100%
Sharma M (2)	3.02	85.8%	52.5%	10.8%	88.3%
Jhanwar A.(7)	4.1	100%	36.7%	6.9%	88%
Sudarsan M (12)	2.14	69.26%	39.4%	8.6%	85.47%
Shelat PR	3.38	6.67%	53.6%	20.8%	67.54%
Present study	**3±1.21**	96.93%	71.2%	3%	93.9%

B) PATIENT CARE INDICATORS

		Present study	WHO standard
1.	Average consultation time	**4 ±1.6 min**	15 min
2.	Average dispensing time	**1.1 ±0.31 min**	3 min
3.	Percentage of drugs actually dispensed	87.9%	100%
4.	Percentage of drugs adequately Labeled	100%	100%
5.	Patients' knowledge of correct dosage	80.3%	100%

C) FACILITY INDICATORS

1.	Availability of copy of essential drugs list or formulary	Yes	Yes
2.	Availability of key drugs	Yes	Yes

Averages of 3 medicines were prescribed per prescription, ranging from 1 to 6. In 71.2 %(n=107) prescriptions antibiotics were prescribed, being the most prescribed drugs followed by NSAIDs, Vitamin/tonics & Antacids. Only 3% of prescriptions had injections prescribed in them. Out of all 93.9% of medicines were prescribed according to the facility's essential medicine list. Out of 150 only 16 cases were referred to the higher center, among them 14 were such where the appropriate reason for referral was not mentioned. The average consultation time was only 4 min. (Table 2)

Discussion:

From a total of 150 prescriptions that were audited, the majority had the patient's demographic details such as name, age & sex mentioned. All the prescriptions had details like the date of consultation & OPD registration number noted correctly. However only 6.1 % of prescriptions had mentioned the patient's weight, & those were for pediatric patients, suggesting the importance of mentioning the correct weight to calculate the required dose in them. This was similar to other studies where demographic details of prescriptions were not complete. [1, 15]

The majority 97% of prescriptions were without the doctor mentioning any presumptive/final diagnosis of the patient's illness. This was similar to the study conducted by Sharma M. et. al in north India where it was 29.5% [2]. The reason could be physician avoid writing diagnosis without further investigation lacking clinical judgment of the patient's illness. This was contrary to a study done by Selvaraj N et.al in south India [4] where 83% of prescriptions had a diagnosis mentioned.

The average number of drugs prescribed per prescription was 3, ranging it from 1 to 6, which is higher than the WHO prescribing indicator of 2 (Table 2). Various similar studies suggest from all over India that Polypharmacy is a big concern [2,3,4,5,6] where drugs per prescription range from 3 to 4.5. It reduces patient compliance, as well as increases therapy costs and the chance of adverse drug reaction occurrence. [16] In contrast to this study we have also examples of health care setup where drugs prescribed per prescription were lower or at par with the WHO guidelines e.g. study conducted by Mandal Sudarsan et al. in Kolkata [9] where it was 2.14 suggesting the need for doctors to keep in mind rationality while prescribing.

(Table 1) Of most drugs 96.93% were prescribed by their generic name which was nearly according to the WHO guideline of 100%, the other 3% were prescribed by brand name because medicines were not available in the dispensary of health setup. Similar findings were found from studies done by Thulasiraman et al. in south India [4], Jhanwar A. [6] & Anteneh [10]. However we do have contrary studies also [3,5,8] which result in poor prognosis of patients. This suggests the importance of prescribing drugs with their generic name to avoid sound-a-like drug errors and also reducing the cost of therapy by avoiding high prices of branded drugs, thus supporting government policy.

(Table 1) Almost in half of the prescriptions, drugs were written in the abbreviated form. Look-alike or sound-alike (LASA) medication names may be misleading for each other & it can cause harm to the patient. [20] Regarding the dose of the drug only 35.85% of drugs were prescribed with the dose written. Even pediatric age group only 10 out of 25 prescriptions had a dose of drug written, which is essential for pediatric patients considering the chances of drug toxicity in case of higher doses prescribed. [21] Same way information regarding the time of administration was missing for the most of drugs 89.39%, out of the total 450 dispensed. These are similar findings from studies conducted across India. [8,9,11]

Analyzing more regarding the dosage forms that were prescribed we found that the highest 63.65% were solid dosage forms followed by 33.82% liquid and 2.54% semisolid. Out of all, Tablets were 63.13%, followed by 19.77% eye drops & 12.66% syrups. This was similar to the study conducted by Abidi A et. Al in western UP [11] where most prescribed dosage forms were oral (93.51%) followed by liquid (6.19%). Eye drops were prescribed more in our audit due to the endemic of conjunctivitis at the same period. Injections were only 3% (Table 2),

which is acceptable as per WHO. This was similar to various studies conducted in India [2,4,5,6,7], keeping the hazard of blood-borne diseases away via needles.

(Table 1) In the subscription part of the prescription follow-up advisory, food-drug interaction, drug-drug interaction, & instruction to the patient regarding the next visit was missing similar to various other studies [2,5,7] . They are essential details for better prognosis & patient compliance. [18] Physician details and registration number were also missing from most prescriptions, which could well be grave medico-legal negligence if any such scenario arises later.

(Table 2) Out of all 71.2% prescriptions had antibiotics prescribed, higher than the guideline of <30%. Out of 450 medicines prescribed 116(25.75%) were antibiotics. Regarding the class of antibiotics. highest prescribed was quinolones 50% followed by beta-lactam 33% used mainly for conjunctivitis & respiratory tract infections respectively. The use of antibiotics in other studies ranged from 7 to 55% [1,2,3], which is still less as compared to the present study. Contrary to that where a hospital antimicrobial stewardship program was there & doctors were aware of antibiotic resistance due to overuse, antibiotic prescribing was within the limit, being 7.37% & 19% respectively. [8,11]

In the Legibility and rationality indicator component out of 150 only 107 had legible handwriting, with none of the prescriptions written in capital letters. When compared to other studies conducted in India legibility of prescription ranged from 53% to 92% [2, 5,7], however it should be 100%. Legibility of handwriting is higher when drugs are written in capital letters as per MCI guidelines [13] & electronic prescribing is used. [4,14]

The majority of prescribed medicines were from the essential medicine list (EML) & were available in the dispensary of a general hospital. When compared to similar studies [5, 6, 7] drugs prescribed from EML were 79.2%, 88% & 3.2%. The advantages of prescribing from EML have been better compliance from patients towards treatment and cost reduction in therapy. [19]

(Table 2) Average consultation time & Drug dispensing time has been noted by very few studies. In the present study, they were 4 min & 1 min, compared to the study done by Singh T. et.al in Delhi [1] where it was 2.8 min & 1.2 min, and according to WHO they should ideally be 12 min & 3 min respectively. This could be due to the high patient load in Indian set-ups.

Conclusion

Prescription audit gives us a true scenario regarding current clinical practices whether it is rational or irrational. Also, it gives us a detailed analysis of drugs prescribed in particular health setups. Writing complete & legible prescriptions is as important as treating patients with the correct regimen of medications. Such continuous exercise shall enable us to treat patients in a more proliferous way & fulfill the dream of diseases-free world. Such audit exercise should be conducted in all health setups at regular intervals and results should be discussed and implemented in a positive way keeping it as a quality improvement check.

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Conflict of interest
No financial interest or other conflict of interest.

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Statement of informed consent
All patients were explained the importance of the study and their consent was first taken before auditing their prescriptions.

Ethics approval
The study was started only after getting ethical approval from the Institutional Ethics Committee

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