

Prescription auditing: an important tool for sensitization of resident doctors for rationale prescription and utilization of drug

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ABSTRACT

Background: The main objective of the Maharashtra Health Systems Development Project (MHSDP) is to enhance the quality of care by improving health care; in the hospitals, in the state. Improvement in the prescribing practice of resident doctors working in the hospitals is one of the initiatives taken up, to improve the rationalizing service delivery. A prescription audit may become an important tool for sensitizing resident doctors for rational prescription and utilization of drug.

Methods: An observational study was carried out during the period of March 2017 to May 2017 in tertiary care teaching hospital, Kolhapur. Total 247 first prescriptions written by resident for in-door-patient department were collected, scrutinized and analysed. Prescriptions were evaluated for completeness of prescription format while legibility was graded. Prescriptions were also analysed as per World Health Organization prescribing indicators.

Results: In study 247 prescriptions with 1091 drugs with average 4.42% drugs per prescription, 49.8 % prescriptions wrote the drugs by generic name. We found that 44.1 % prescriptions written with drugs included in essential medicines list while antibiotics prescribed were 27.1%. In prescription format 34% had incorrect dosage, 67% of prescriptions omitted the duration of treatment. Direction for drug use was not mentioned in 25% of prescriptions. Weight was not mentioned on any prescriptions even for paediatric group.

Conclusions: Through prescription auditing, sensitizing resident doctors for rational prescription and utilization of drug can be done to achieve the goal of the MHSDP of enhancing the quality of care by improving health care; in the hospitals, in the state.

Keywords: Prescription, Audit, Resident doctors, Rationale

INTRODUCTION

A prescription is a written communication from a registered medical practitioner to a pharmacist regarding instructions on dispensing prescribed medication. An 'audit' is defined as 'the review and the evaluation of the health care procedures and documentation for the purpose of comparing the quality of care which is provided, with the accepted standards.¹ "Prescribing audit" is that part of the audit in which monitoring, evaluation and if necessary, suggestion for modifications in the prescribing practices given to medical practitioners.² Hence writing a prescription becomes skill after training.³ and quality of

prescription reflects the competence of physician and his attitude towards rationale prescribing.⁴

The quality of life can be improved by enhancing the standards of the medical treatment at all levels of the health care delivery system. A medical audit oversees the observance of these standards.⁵ Prescription Audit offers the most comprehensive overview of performance, detailing parameter as per the check list of prescription audit. The parameters which have to analyse in the process of prescription auditing are, patient demographics, clinical diagnosis, department, prescribing standards, doctors name and signature. During prescription standards, rational drug use emphasizes on

the patients' access over appropriate medication as per their clinical demand, in doses meeting their individual requirement with sufficient period of time being cost effective with them and community.⁶

It is a continuous cycle implementing changes and to develop a new practice and it is a systematic approach which gives a clear and critical review of medical care. Effective prescription audit is important for health care professionals and managers, patients, and the public also supports the health professionals in making sure that the patients receive the best care.

The World Health Organization (WHO) proposed core-prescribing indicators for prescription audit and drug utilization studies.⁷ On this basis, we undertook this study to sensitize and to improve rational use of drug by resident doctors using this important tool.

METHODS

Study setting

The study was designed and carried out as a prospective study at in-door patient Department of D Y Patil Medical College and Hospital, Kolhapur, Maharashtra, India after taking ethical clearance from the Institutional Ethics Committee and concerned medical authority during the period of March 2017 to May 2017. In this observational study first prescription written by resident doctor for in-door patients during treatment were included and studied.

Inclusion criteria

Prescription sheets of patients admitted and first prescription sheet written by the resident doctor for the patient were included. Patients with both sex and all age groups were included in the study.

Exclusion criteria

Prescription sheet written by consultant, patients who were not willing to participate in the study and case paper prescription which are not readable were excluded.

Methodology

A total of 247 first prescriptions written by resident for in-door-patient were randomly sampled from the record room. The details of all the prescriptions were analyzed for prescription format and using WHO core prescription indicators on the following parameters:

Prescription format and its completeness with regards to:

- Patient identifications (name, age, sex, weight, address).

- Prescriber identification (name, department, hospital, registration number, physician initials).
- Writing (start date, strength/dose/product formulation).
- Dosing (under-dosing and overdosing).
- Duration of treatment.
- Directions for administration.
- Follow up advice.
- Allergy status.
- Diagnosis.

*WHO core prescribing indicators which includes:*⁷

- Average number of drugs per prescription: fixed dose combinations were also counted as one drug
- Percentage of drugs prescribed by generic name.
- Percentage of antibiotics per prescription: antibiotics were classified based on the WHO model list for antibiotic classification and included penicillin, other antibiotics, anti-infective dermatological drugs, anti-infective ophthalmological agents and anti-diarrheal drugs or their combinations
- Percentage of injections per prescription: vaccinations were excluded from this list
- Percentage of drugs prescribed from the essential medicines list (EML).

RESULTS

All 247 Indoor case paper prescriptions were analyzed for Prescription format and its completeness and found that in all of them details of the patient such as name, age, sex and address were mentioned. Weight was not mentioned on any prescriptions even for pediatric group. Name of the unit mentioned on all prescriptions and hospital address was in printed format, but doctor's registration number was not written on any prescription and 14% prescriptions did not have the resident's initials. Probable diagnosis was written in 87%. In the inscription part of the prescription, the dosage form such as tab, injection, and topical application clearly mentioned but 34% had incorrect dosage and 67% of prescriptions omitted the duration of treatment Direction for drug use was not mentioned in 25% of prescriptions while follow up advice was written being a first prescription of indoor patient. Allergy status not mentioned on any prescription where it is relevant (Figure 1).

In study 247 prescriptions with 1091 drugs with average 4.42% drugs per prescription, 49.8% prescriptions wrote the drugs by generic name. We found that 44.1% prescriptions written with drugs included in EML while antibiotics prescribed were 27.1%. In prescription format 34% had incorrect dosage, 67% of prescriptions omitted the duration of treatment. Direction for drug use was not mentioned in 25% of prescriptions (Table 1).

Table 1: Data based on WHO prescribing indicators (n=247).

Indicators	N (%)
Age distribution of patients (yrs)	
<16	41 (16.6)
16-60	149 (60.3)
>60	57 (23.1)
Sex distribution of patients	
Male	112 (45.3)
Female	135 (54.7)
Department distribution of patient	
Medicine	71 (28.7)
Pediatric	52 (21.1)
OBGY	48 (19.4)
ENT	10 (4.1)
Orthopedic	08 (3.2)
Surgery	40 (16.2)
Ophthalmology	18 (7.3)
Drugs prescribed by generic and brand name	
Generic name	123 (49.8)
Brand name	68 (27.5)
Generic + brand	56 (22.7)
Prescribing frequency of different group of drugs	
Antibacterial	67 (27.1)
Vitamins and minerals	17 (6.9)
Analgesic	10 (4.0)
Antihistaminic	5 (2.0)
Antiemetic	22 (8.9)
Antimicrobials (other than antibacterial)	35 (14.1)
Antiepileptics/anticonvulsants	15 (6.1)
Cortico-steroids	5 (2)
Hematinic	15 (6.1)
H ₂ blocker/PPI/antacids	12 (4.9)
Antitussive	17 (6.9)
Diuretics	5 (2)
B Blockers/ACEI/CCBs	20 (8.1)
Others	2 (0.9)
Drugs prescribed for children as per WHO EML	
As per WHO EML	109 (44.1)
Not as per WHO EML	135 (55.9)
Use of different routes for drug administration	
Intravenous	80 (32.42)
Intramuscular	42 (17.0)
Oral	90 (36.42)
Topical	30 (12.14)
Others	5 (2.02)
Number of drugs prescribed as per patient	
1 drug	2 (0.8)
2-4 drugs	129 (52.2)
5-7 drugs	113 (45.7)
7-10 drugs	3 (1.3)
Diagnosis status of prescription	
Provisional diagnosis	215 (87.1)
Final diagnosis	25 (10.1)
Not written any diagnosis	7 (2.8)

Continued.

Indicators	N (%)
Prescribing frequency of different antibiotics	
Erythromycin	34 (13.8)
Ofloxacin	20 (8.1)
Ceftriaxone	41 (16.6)
Cefotaxime	43 (17.4)
Cefixime	2 (0.8)
Amoxicillin + clavulanic acid	31 (12.6)
Piperacillin + tazobactam	21 (8.5)
Ampicillin	11 (4.5)
Crystalline penicillin	12 (4.9)
Sulfamethoxazole + trimethoprim	7 (2.8)
Amikacin	15 (6.1)
Doxycycline	4 (1.5)
Vancomycin	2 (0.8)
Clindamycin	3 (1.2)
Linezolid	1 (0.4)
Erythromycin	34 (13.8)
Ofloxacin	20 (8.1)
Ceftriaxone	41 (16.6)

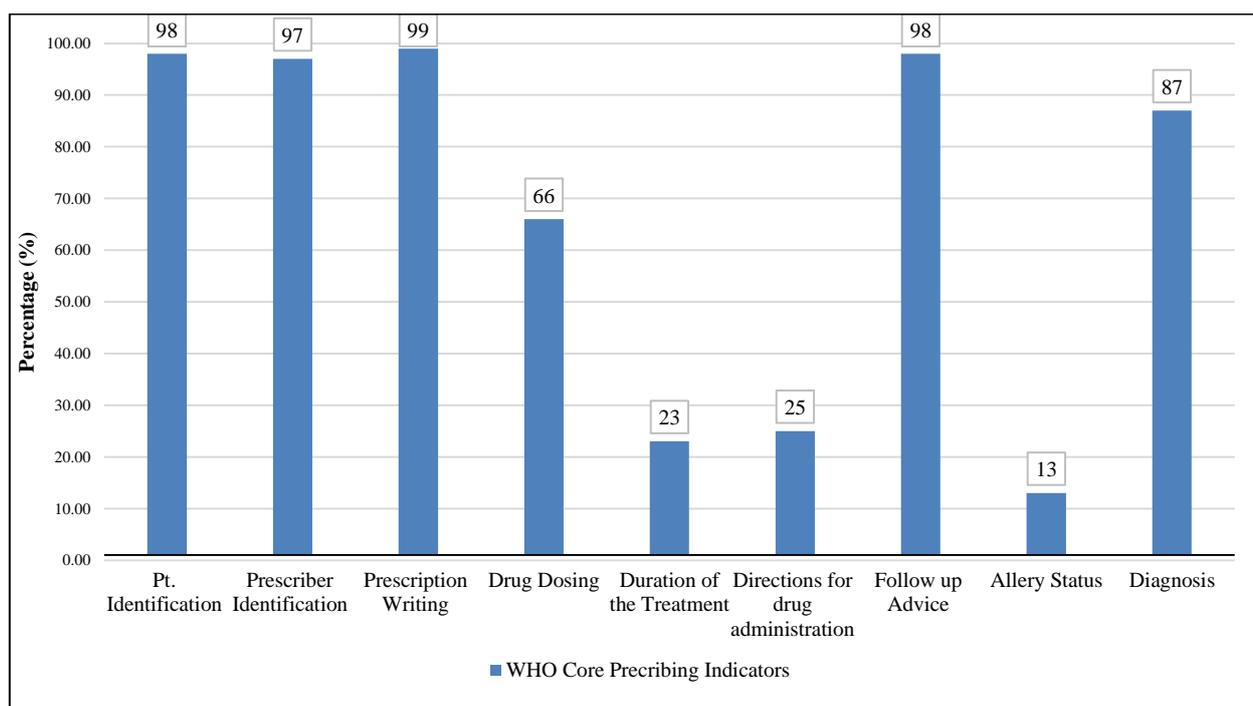


Figure 1: Prescription completeness as per WHO indicators.

DISCUSSION

World Health Organization recommended rational drug prescribing policies to provide and prescribe right medicine to right person at right time in right dose for right duration with right cost. To make this policy effective, it is important and mandatory to implement the sensitization and orientation of resident doctors about

these standards. First and most important step to implement this sensitization and orientation program is investigator or observer should go through prescription auditing to assess the medical, social and economic implications of prescription practices.

In this study we analysed 247 prescriptions with 1091 drugs with average 4.42% drugs per prescription and it is

higher than the recommended 2.02. This increase in number of drugs may increase the risk of drug interactions, undue cost and unwanted side effects.

In our study, we found that 49.8 % prescriptions wrote the drugs by generic name and it is much higher than the study⁸ indicating 4.04% but still need improvement if you compare with other study with 73.4%.⁹ The sensitization to the student during undergraduate curriculum might influence about this prescription habit. Writing drugs by generic name decreases the dispensing errors like misinterpretation.

As per prescription standards essential drugs must be prescribed and in the study, we found that 44.1% prescriptions followed and our results are similar to the study of Mishra et al but lower than the studies reporting 75% and 60%.⁸ Prescribing drugs from EML insure about appropriate use of drugs with minimal side effects and drug interactions.

Antibiotics prescribed were 27.1% which highest among other groups and it is acceptable as compared to 50% as mentioned in Gupta et al study but disappointing as compared to 17.48% as per Mishra's study results.^{8,9} It is necessary to use antibiotics appropriately to prevent risk of emergence of resistance and better to use after antibiotic sensitivity testing.

Resident doctors practiced polypharmacy using 2-4 drugs in 52.2% prescriptions while 45.7% with 5-7 drugs. This practice is dangerous as it increases the risk of drug – drug interactions. The common drug group prescribed was antibacterial drugs (27.1%) followed by 14% antimicrobials (other than antibacterial) i.e., antiviral, antiprotozoal, anti-amoebic etc. were prescribed (Table 1).

CONCLUSION

To achieve the goal of the Maharashtra Health Systems Development Project is to enhance the quality of care by improving health care; in the hospitals, in the state, improvement in the prescribing practice of resident doctors and to improve the rationalizing service delivery can be one of the initiatives.¹¹ A prescription audit become an important tool for sensitizing resident doctors for rational prescription and utilization of drug.

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