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Original Research Article

An audit of prescriptions in general medicine outpatient department in a tertiary care government hospital in Eastern India: a quality improvement project

Luv, Ravikirti, Ratnadeep Biswas*, Vishnu S. Ojha

Department of General Medicine, All India Institute of Medical Sciences, Patna, Bihar, India

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***Correspondence:**

Ratnadeep Biswas,

Email: ratnadeepbis2404@gmail.com

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ABSTRACT

Background: Prescriptions are an important link between physicians and patients. Any medication therapy can become ineffective if not communicated properly to the pharmacist and patient. Therefore, it's important to maintain the quality of prescription-writing. Thus, we conducted a prescription audit in a tertiary-care hospital.

Methods: 413 prescriptions having 1683 drugs were selected by convenience sampling. Adherence to 4 quality parameters, namely mention of date, allergy status, date of next visit, and whether or not the prescription was signed legibly, were observed for each prescription. 5 parameters viz. whether or not the drug was written in capital letters, whether the generic name of the drug was mentioned, and prescription of drug schedule, dose, and duration were evaluated for each drug separately. Frequency tables and appropriate bar plots were created.

Results: Dates were mentioned in all prescriptions. There were 4.07 ± 0.44 (mean \pm SD) drugs per prescription. Using capital letters and generic names was observed for 12% and 21% of the drugs. Dose, duration, and schedule were written for 51.4%, 98.6% & 98.7% drugs respectively. The next visit was mentioned in 61.7% cases. 21.8% prescriptions were signed legibly and only 0.5% prescriptions had allergy status.

Conclusions: A significant scope of improvement was observed in signing the prescription legibly, mentioning next visit, using generic names, writing the drug names in capital letters, drug doses, and mentioning allergy status. Conducting regular audit-feedback-audit loops will improve the quality of health care delivery in a practical manner.

Keywords: Quality of health care, Clinical audit, Prescriptions, Standard of care, India

INTRODUCTION

A prescription is a written medicolegal document issued by a designated individual for the purpose of treating a patient.¹ It is an important link between physicians and patients. Any medication therapy can become ineffective if not communicated properly to the pharmacist and the patient. According to the World Health Organisation (WHO), about 50% of all prescriptions are improper.² Ineffective prescriptions can lead to negative clinical

outcomes, wastage of resources, and financial loss to patients and the community.³⁻⁵ These mistakes are the most frequent category of preventable errors, making it a significant area for improvement.⁶ Every doctor should prescribe medications with generic names, legibly and preferably in capital letters, according to Indian medical council regulation 2002.⁷ Numerous studies reveal that clinicians think that audits are beneficial as they foster better professional group communication, higher knowledge, and professional satisfaction.⁸⁻¹¹ A quality improvement method that tries to enhance patient care

and outcomes by systematic examination of treatment in comparison to predetermined criteria and the adoption of change, a prescription audit is a subset of holistic clinical audit.^{12,13} Auditing prescriptions is an important method of measuring and improving the quality of prescription writing.¹⁴ Therefore, this project was undertaken with the goal of auditing the prescription writing trends in the general medicine department of all India institute of medical sciences (AIIMS), Patna.

METHODS

Study design and duration

Current study was a cross-sectional audit carried out for a period of 2 days (1st & 2nd September 2022).

Audit setting

The audit was conducted in the outpatient department (OPD) of general medicine of AIIMS Patna, which is a tertiary care hospital of national importance, situated in the state of Bihar, India.

Sample size

Considering an error margin of 5%, confidence interval of 95%, and population size as 1400 (which is the approximate average OPD footfall for 2 days (700/day) of the department; an approach recommended by the ministry of health and family welfare (MoHFW), Government of India, the minimum sample size was calculated as 302 prescriptions.⁷

Population and sampling

A total of 1466 patients attended the OPD during these two days, out of which 413 prescriptions were picked up (irrespective of the patient characteristics like age, sex, diagnosis, or number of visits to the department) by convenience sampling and included in the audit.

Audit tool

Total 9 core quality parameters of prescriptions were chosen to be evaluated.⁷ 4 parameters, namely mention of date, allergy status, date of next visit, and whether or not the prescription was signed legibly, were observed for each prescription. The other 5 parameters viz., whether or not the drug was written in capital letters, whether the generic name of the drug was mentioned, prescription of drug schedule, dose, and duration were evaluated for each drug separately.

Statistical analysis

The data was entered in Microsoft Excel, cleaned, and coded. A descriptive analysis was done and frequency tables were made using the Jamovi software.¹⁵ Bar charts

were created to represent the proportion of the adherence for each of the quality parameters.

RESULTS

Among a total of 413 prescriptions audited, an average of 4.07 drugs were there in each prescription. The date of writing the prescription was mentioned in all prescriptions (100%). 91 (22%) were signed legibly. Only 2 (0.5%) prescriptions mentioned the allergy status. 255 (61.7%) prescriptions mentioned the next visit or referral to another department while 158 (38.3%) did not (Figure 1). Among a total of 1682 drugs prescribed, capital letters were used for 202 (12%). Generic names were used for 353 (21%) drugs. 1660 (98.7%) drugs prescribed included drug schedule. Dose and duration were mentioned for 865 (51.4%) and 1658 (98.6%) drugs respectively (Figure 2).

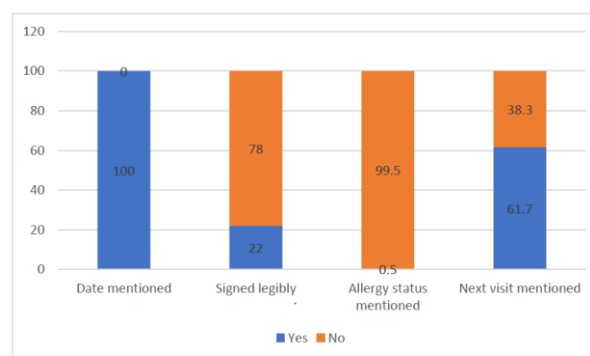


Figure 1: Percentage adherence to quality parameters for prescriptions (n=413).

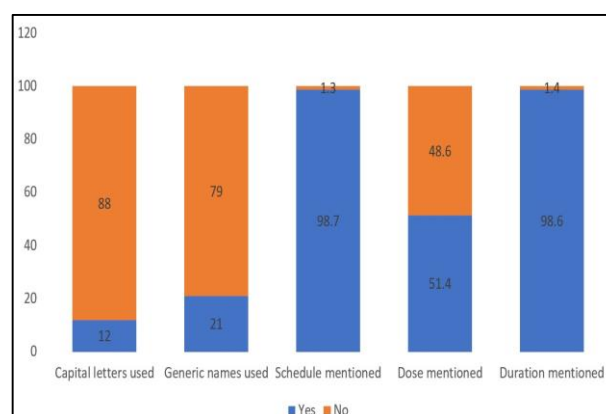


Figure 2: Percentage adherence to quality parameters for individual drugs (n=1682).

DISCUSSION

Good practices were observed in mentioning the date, drug schedule, and duration while very poor practice was observed in mentioning allergy status. A significant scope of improvement was also observed in signing the prescription legibly, mentioning the next visit, using

generic names, and writing the drug names in capital letters and drug doses. The date was mentioned in 100% of prescriptions. The reason is that the departmental office puts a stamp with the date on each patient's booklet before they enter the physician's chamber. It's important that prescriptions should be signed legibly by the physician.

A prescription would be void if the doctor didn't sign it, which would be inconvenient for the patient and the staff.¹⁶ It is also crucial because signed prescriptions can be authenticated for future follow-ups or medicolegal purposes. Approximately, only one-fifth of the prescriptions were found to be signed legibly. Only 0.5% of prescriptions had allergy status mentioned. Knowing and mentioning allergy status in a prescription allows the pharmacist to avoid drugs containing components that may potentially be allergic to the patient. Missing that and administering such drugs can cause minor drug reactions which can increase patient morbidity¹⁴. It can also cause rare but potentially fatal anaphylactic reactions. That's not only dangerous for the patient but can also leave the physician vulnerable to litigation. Mentioning the next visit is very important. It not only increases adherence to medications but also ensures the effectiveness of therapy. Avoiding non-medical prescription drug usage and taking steps to stop a patient's drug abuse from developing into a substance use disorder are two benefits of mentioning the next visit.¹⁷ It was mentioned in 61.7% of cases and needs to be improved as well. The average number of drugs per prescription was approximately 4 in contrast to the recommended 2 drugs per prescription given by the world health organisation (WHO). This may be due to the fact that the institute is a tertiary care center that often caters to chronic patients with multiple comorbidities however there is still a need for closer scrutiny to see if all the drugs prescribed are actually indicated.

Low adherences were observed in writing the drug names in capital letters and using generic names (12% and 21% respectively). Writing the drug names in capital letters increases their legibility. Illegible prescription writing has been linked to a significant proportion of pharmaceutical mishaps.¹⁴ Physicians often have doubts regarding the effectiveness and bioavailability of generic medications, but it is an essential part of drug prescription, especially for patients who lack strong financial resources, as it allows the patients to choose the drug brands which they can afford.

Moreover, not all physicians are aware of all the different brand names for each drug and many brands are area specific which makes inter-physician communication difficult and harder for patients to switch doctors. Another problem is that brand names are not standardized and many of them sound similar and may lead to drug errors. According to the world health organization (WHO), patients must receive medication that is appropriate for their clinical needs, in doses that match

their specific needs, for an adequate amount of time, and at the least expensive possible for them and their community.²

Proper drug duration, schedule, and dosage ensure desirable blood levels of medications and tackle the pathophysiology of disease well. It was observed that they were written for 98.6%, 98.7%, and 51.4% of drugs respectively. The low adherence to writing drug doses may be due to the use of brand names or fixed-dose combinations and prescribing multivitamins for which the doses may not be standardized. The identification of facilities that do not fulfill performance standards is the primary goal of audits rather than the assessment of exact values of indicators in each facility and comparing them with other facilities.¹⁸ Identifying the specific weak spots help us in formulating policies and actions to improve the prescription writing standards and deliver high-quality healthcare.^{19,20}

Limitations

There are certain limitations in this audit that should be considered while conducting future quality improvement projects. The sampling technique used for the selection of prescriptions was non-random, predisposing this audit to selection bias. Due to the inherent subjectivity in assessing the legibility of signatures, there may be a chance of observer bias.

CONCLUSION

There is a huge scope for improving the quality of prescriptions. Since every department has its own challenges like patient load, available resources, etc. so prescription audits should be conducted taking the department as a unit rather than the whole hospital. Results of audits should be used in an encouraging and educational manner for physicians and should be conducted on regular basis. So, conducting an audit-feedback-audit loop will improve the quality of health care delivery in a practical manner.

Recommendations

From the results of this audit, we recommend the following interventions/actions/steps that might improve the quality of prescriptions: multiphasic training sessions for all physicians and residents, initially at their appointment and subsequently at regular intervals during their tenure. Allergy status can be included along with the patient's particulars in the OPD booklet itself so that it can be easily identified by any physician at each visit. Using official stamps by the physicians to authenticate prescriptions to supplement signatures. Conducting regular (6-monthly) audits to check the effectiveness of interventions and identify other problem areas in order to establish a system aiming for continuous improvement.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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