AUDIT OF PRESCRIPTIONS IN A TERTIARY CARE HOSPITAL- A RETROSPECTIVE STUDY

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ABSTRACT

A drug prescription is often the endpoint of a patient’s visit to a medical practitioner. As an instruction from a prescriber to a dispenser, it is considered to be a medico legal document that should be written legibly, accurately and completely. The retrospective study was carried out over one month period in a 1000 bedded tertiary care hospital. Patient and drug data was recorded from out-patient prescription using Systematic Random Sampling. It contained patient particulars, diagnosis, investigations, drug details and information from the prescriber regarding the indication for prescribing agents (both topical and oral), underlying infection, duration of therapy and details of any concomitant medications. 7.1% of prescription showed poor handwriting as a serious problem that might lead to dispensing the wrong medication to the patient with serious or even fatal results.

KEYWORDS: Prescription, Audit, Legibility.

INTRODUCTION

Study of drug utilization is powerful, exploratory tools to ascertain role of drugs in medical practice. They create a sound and economic basis for health care. Studies on the process of drug utilization focus on the factors related to the prescribing, dispensing, administering, and taking of medication and its associated events, covering the medical and nonmedical determinants of drug utilization, the effects of drug utilization, as well as studies of how drug utilization relates to the effects of drug use, beneficial or adverse.

The characterization of drug utilization may be extended linking prescription data to the reasons for the drug prescribing. They include the concept of appropriateness 3 that must be
assessed relative to indication for treatment, concomitant diseases (that might contraindicate or interfere with chosen therapy) and the use of other drugs (interactions).

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Prescribing physicians as well as those involved in the execution of the prescription hold legal responsibility for the prescription.[2] Although the prescription format may vary slightly from one country to another, most countries agree on the core elements that should be included in the prescription order. These are: prescriber’s name, address, telephone number and signature; patient’s name, address, age and weight (important at the extremes of age); prescription date; drug name (preferably generic), formulation, strength, dose, frequency of administration, quantity prescribed, reason for prescribing and instructions for use.[3]

A prescription is a health-care program implemented by a physician or other medical doctors in the form of instructions that govern the plan of care for an individual patient.[1] Prescriptions may include orders to be performed by a patient, caretaker, nurse, pharmacist or other therapist. The term prescription is used to mean an order to take certain medications. Prescriptions have legal implications, as they may indicate that the prescriber takes responsibility for the clinical care of the patient and in particular for monitoring efficacy and safety. As medications have increasingly become prepackaged manufactured products and medical practice has become more complex, the scope of meaning of the term "prescription" has broadened to also include clinical assessments, laboratory tests and imaging studies relevant to optimizing the safety or efficacy of medical treatment.

A prescription should consist of the following seven parts:
1. Date, Identification of the prescriber
2. Name of the patient and information as to age.
3. Superscription or heading.
4. Inscription or main body of the prescription.
5. Subscription or directions to the compounder.
6. Signature or directions for the patient.
7. Prescriber's signature, seal of the prescriber
The cost of drug prescription poses problems in developing countries such as India, which allocates only 0.9% of its Gross Domestic Product (GDP), i.e. Rs. 200 per capita, to health. The allocation for meeting the cost of the drugs is even meager. Moreover, the production of pharmaceutical preparations in India is grossly imbalanced and there is cut throat competition among drug companies, which breeds malpractice. Indian markets are flooded with over 70,000 formulations, as compared to about 350 listed in the WHO essential drug list and pharmaceutical companies encourage doctors to prescribe branded medicines, often in exchange for favors.

Parameters like legibility of any prescription would also studied under the prescription pattern, legibility of any prescription could be score on 3 point Likert scale as follows :-

1. Legible, can read the medication order without consulting other health care professional or references.
2. Legible with effort can read the medication order after consulting with one or more health care professionals and/or references.
3. Illegible cannot read the medication order, despite consultation with one or more health care professionals and/or references. As good quality prescriptions are extremely important for minimizing errors in the dispensing of medications, physicians should adhere to the guidelines for prescription writing for the benefit of the patient.[4]

Proper documentation of prescribing practice allows the identification of acceptable and non-acceptable prescribing habits. Such information is needed to set up continuous medical education programmes to encourage rational prescribing among physicians. It also helps in setting up monitoring systems to ensure good pre-scribing habits and to maintain them. Health professionals may also utilize this information to develop guidelines for safe and cost-effective prescribing.

AIM
To audit current drug prescription patterns for completeness of prescription information.

OBJECTIVES
1. To obtain information on demographic characteristics of the patients selected for analysis.
2. To calculate the percentage of drugs prescribed by generic name and percentage of encounters where antibiotics were prescribed.
3. To Analyze the prescriptions for completeness of information like the presence of OPD number, name, age and sex of patient, diagnosis, name, dose and duration of prescribed drugs.

METHODOLOGY
1. The retrospective study was carried out over one month period in a 1000 bedded tertiary care hospital. Patient and drug data was recorded from out-patient prescription using Systematic Random Sampling.
2. The data was collected in customized Performa in the form of an audit questionnaire.
3. It contained patient particulars, diagnosis, investigations, drug details and information from the prescriber regarding the indication for prescribing agents (both topical and oral), underlying infection, duration of therapy and details of any concomitant medications.
4. Analysis of the prescriptions for completeness of information like the presence of OPD number, name, age and sex of patient, diagnosis, name, dose and duration of prescribed drugs was conducted.

RESULTS AND DISCUSSION
The study was performed to identify the degree to which physicians conform to guidelines for prescription writing during their clinical practice. A total of 3000 outpatient Prescriptions from a tertiary care hospital in Bangalore were screened for the essential elements of prescriptions according to published guidelines. The number of drugs prescribed ranged between 1 and 7 and 90.8% of prescriptions included 3 or fewer drugs. Most commonly prescribed drugs were diabetic and antihypertensive drugs 30.3% and 28.3% respectively followed by analgesic and antimicrobial drugs [Table-1].

Our observations showed that prescriptions were deficient. None of the prescriptions contained the telephone number of the prescriber. These elements should be included according to WHO.[5] However, the hospital does not require that the telephone number and address of the prescriber be included in the prescription. Also, in this case, the address might not be relevant because physicians are required to stamp the prescription. The stamp usually contains the name, title and address of physicians [Fig-1].
Our findings showed that 0.2% of prescriptions deficient in the prescriber name and the prescriber signature. Meyer\cite{6} from a hospital and clinic in Texas mentioned that a survey of outside provider pharmacies requesting information on problems related to prescriptions indicated that 96% of responders believed that failure to print the prescriber name was one of the main problems. Balbaid and Al-Dawood\cite{7} reported that prescriptions from some Ministry of Health hospitals in Jeddah city were deficient in physician’s name and signature in 14% and 16.3% of cases, respectively. Our finding that the prescriber was identified by both name and signature in 99.80% of prescriptions is in contrast to the 7.5% figure reported by Francois et al.\cite{8} from a university hospital in France. Blatt et al.\cite{9} have shown that 20%-30% of prescriptions from a central hospital in Yaounde, Cameroon, did not include the name and the function of the prescriber. Anderson and Beurling\cite{10} from Copenhagen University Hospital reported that among the most frequent errors of omission in prescriptions was inadequate identification of the physician. These deficiencies indicate how things are made difficult for the dispensing pharmacist to contact the prescriber in case of any clarification.
Concerning patient information, our finding that prescriptions were deficient in patient’s name and age in 6.40% and 7.6% of prescriptions, respectively are in contrast with the results of Balbaidand Al-Dawood.\textsuperscript{[7]} However, Bawazir\textsuperscript{[11]}, in a large study from 22 major hospitals from all health regions within Saudi Arabia, reported that patient age was missing in 18.6% of prescriptions, while patient name and sex were missing in 0.2% of prescriptions.

The name of the patient was present on 93.6% of prescriptions, whereas the patient’s age only 92.40% and sex of the patient was not mentioned in any prescription [Table-1]. Of prescriptions that included the patient’s age, 5.2% were for patients <1 year, 13.4% for those aged 1-5 years and 10% for those aged >60 years of age and remaining between 5-60 years of age. The date of the prescription was provided in only 94.20% of prescriptions.

The dose units were not mentioned in almost one-fifth (0.4%) of prescriptions. Most of the prescriptions (94.0%) did not contain the quantity that the pharmacist should dispense. The directions for patient use was complete in only 68.5% of prescriptions, while in 20% of cases prescriptions contained partial instructions either among the drugs prescribed or for certain drugs. The diagnosis within the prescription was filled clearly in 88.0% filled unclearly in 18.9% and unfilled in 15.1% of prescriptions [Table-1].

Makonnen et al.\textsuperscript{[12]} about the quality of prescriptions at a tertiary care pharmacy in Addis Ababa, Ethiopia, where 50% of prescriptions did not contain the sex and age of the patient. The address of the patient is among the elements that should be included in the prescription
according to WHO\textsuperscript{5}, while inclusion of weight is recommended for patients at the extremes of age because of the implication it has on drug pharmacokinetics and pharmacodynamics. Omission of patient address from prescriptions is a serious deficiency when problems in the prescription are discovered and the patient needs to be contacted to correct the problem. This is even more serious when the name of the patient is also omitted.

Our finding showed that 90.1\%, 5.0\% and 4.9\% of prescriptions contained generic names, brand names and both generic and brand names, respectively, is peculiar in the sense that some physicians prescribed drugs within the same prescription utilizing both generic and brand names. However our study found that using generic names in prescriptions gives flexibility to the dispensing pharmacist and may be of economic benefit to the patient.

We found that 0.4\% of prescriptions did not include the strength of medication, the dose units were not included in 0.1\% and the quantity of medications was not included in 0.3\% of prescriptions [Table-1]. Apparently, these parameters are left to the pharmacist to decide upon and the implications for the duration of therapy will be dependent on the individual pharmacist.

The study also showed the prescription was illegible or unreadable in one-third (0.9\%) of prescriptions and 7.1\% legible with effort [Table-2]. Anderson and Beurling\textsuperscript{10} reported that omitting the indication for use was among the most frequent errors in prescriptions.
Also our finding that almost (7.10%) of prescriptions suffered poor handwriting is in contrast with what was found by Balbaid and Al-Dawood\textsuperscript{6} who reported illegible hand writing in only 7.2% of prescriptions. The high percentage of poor handwriting we found could be due to the fact we considered the presence even of a single unclear word or a dose unit as poor handwriting for the whole prescription. Poor handwriting is a serious problem that might lead to dispensing the wrong medication to the patient with serious or even fatal results.\textsuperscript{13} Meyer\textsuperscript{6} found that 15% of prescriptions studied had illegible handwriting. Furthermore, in a survey of outside provider pharmacies, 69% of responders stated that illegible hand writing was one of the main problems they encountered. Makonnen et al.\textsuperscript{12} also reported illegible prescriptions in 15% of cases.

**CONCLUSION**

In conclusion, the prescriptions were viewed suffered from serious deficiencies and were not properly written. The use of capital letters while prescribing drugs by the treating physician can also be implicated for legibility of the prescription. The need for physician education on appropriate prescription writing is obvious and follow-up on the matter is needed for newly qualified physicians. Furthermore, inclusion of tutorials about prescription writing in the final clinical year curriculum of medical students before graduation is necessary. Administrative monitoring of the prescription habits of physicians is needed both to improve the process and to maintain the improvement.

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