

Errors in Prescription Writing: An Audit of General Practitioners

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ABSTRACT:

Objective: To identify the errors in the prescription writing of general practitioners (GPx) from different parts of Karachi.

Materials and Methods: A descriptive study was conducted in the department of Pharmacology at Bahria University Medical & Dental College, Karachi, from 1st January to 30th February 2014. A total of 100 prescriptions were collected 25 each, randomly, from 04 general practitioner's clinics (east, west, central and south districts) of Karachi. Verbal consent of the respective (GPx) was taken few days prior to collection of prescriptions. Patient's consent was taken at the time of obtaining the prescription. All prescriptions were analysed for errors in superscription, inscription, subscription, transcription, signatures and refill information.

Results: A total of 473 errors were identified in 100 prescriptions. 303 errors in superscription, 06 in inscription, 67 in subscription, 34 in transcription, 1 in prescriber's signature, and 62 in refill information.

Conclusion: Errors in prescription writing are found to be common in the prescriptions of general practitioners. Measures should be taken to refresh the prescription writing skills of general practitioners through Continuous Medical Education Sessions (CMEs) and workshops.

Keywords: Errors, Prescriptions, Audit, General Practitioners, Karachi

INTRODUCTION:

According to free medical dictionary a general practitioner (GP) is a qualified doctor whose practice is not oriented to a specific medical specialty but instead covers a variety of medical problems in patients of all ages.¹ GPs are doctors providing the first point of contact for most people in their communities. They help patients by trying to identify problems they may have at an early stage which could be as varied as an infectious disease, cancer or a safeguarding issue. They are the trusted adults to whom patients first turn for advice and support. GPs also try wherever possible to maintain the health of patients through preventive care, timely referrals and hence health promotion.²

A prescription (?) is a health-care program that governs the plan of care for an individual patient and is implemented by a qualified practitioner. The errors of prescribing are the commonest form of avoidable medication errors and are considered to be the most important target for improvement. They occur both in general practice and in hospital, and although they are rarely fatal they can affect patients' safety and quality of healthcare. It is said that 'clinically meaningful prescribing errors occur when there is an unintentional significant reduction in the probability of treatment being timely and effective or increase in the risk of harm when compared with generally accepted practice.³ An average general practitioner signs 13,000 prescription items per year of which approximately 5000 are written during consultations and 8000 are repeats^{3, 4, 5, 6}. In order to cope with this trend much effort has been directed towards rationalizing prescribing, which means patients should receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community^{7, 8, 9, 10}.

A prescription is composed of different parts. Medicinal preparation compounded according to formulated directions consist of four main parts: (1) Superscription: consisting of the word recipe, take, or its sign, Rx (2) Inscription: the main part of the prescription, containing the names and amounts of the drugs ordered (3) Subscription: directions formixing the ingredients and of the form (pill, powder, solution, etc.) in which the drug is to be made (4) Signature and directions to the patient regarding the dose and times of taking the remedy preceded by the word signa, designate, or its abbreviation, S. or Sig¹¹ along with refill information.

It is accepted and a standard worldwide that a pharmacist plays a major role in providing health care alongside a doctor. Pharmacists are responsible for the quality of medicines supplied to patients, ensuring that the supply of medicines is within the law, ensuring that the medicines prescribed to patients are suitable, advising patients

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about medicines, including how to take them, what reactions may occur and answering patients' question. In a nutshell a pharmacist act as a pillar or liaison between the prescriber(doctor) and the patient.¹² However this triad of doctor-pharmacist-patient team work is still not implemented with true spirit in our country. All parts of prescription have valuable information that is vital to provide quality health care to the patient. The prescriber's information, authenticates the prescription before dispensing. As prescription is a legal document, which can be used in the court of law, therefore prescriber's information enables a pharmacist to differentiate between a genuine and a quack's prescription. Patient information, like name, age and gender etc. on the other hand is required at the beginning of the prescription for proper identification of a patient. It is also essential for follow-up of particular patient or to get in touch with the patient in case of prescribing or dispensing errors. It also avoids the misuse of blank prescription pads. Similarly date will validate the prescription and avoid unnecessary refilling of the prescription. The Pharmacist cannot identify an old prescription brought for refill if the prescribing date is not available. Superscription, a sign of practice, makes any written piece of paper a prescription by law. Inscription is the most important part as illegible handwriting and too many confusing similar generic and brand names may cause difficulties to the pharmacist to dispense the drug and thereby may increase chances of errors during dispensing by the pharmacist too. Subscription is also important for dispensing of correct and proper medication to the patient. Patient needs to know the quantity of tablets /capsule / liquid and number of times the medicine needs to be taken. Oral instructions to patients are most of the times forgotten. Written instructions will also enable the pharmacist to counsel the patient.¹³

MATERIALS AND METHODS:

The study after approval from the Research Review Committee and Ethical Review Committee of Bahria University Medical & Dental College, Karachi was conducted as a part of main project "Prescribing pattern among patients" from 1st January to 30th February 2014. The project was carried out by visiting the clinics of four different general practitioners in four different districts of Karachi. A total of 100 hand written prescriptions were collected. Normal bias in working was avoided by keeping the prescribing doctor uninformed about the day of collection of prescriptions. However verbal informed consent was taken from the practitioners after explaining them the objective of the study prior to starting. They were also assured that their names and address of clinic will be kept confidential. All information related to patients was kept confidential. Analysis of the omission was carried out in superscription for the information omitted on patient age, gender, address, date and symbol Rx, in inscription information omitted on drug name, confused drug name, dose and strength, in subscription about information omitted in

directions for use to patient and in transcription for directions to pharmacist, refill information and prescriber's information. Each prescription was checked three times by two analysts, for superscription, inscription, subscription and transcription errors and also for refill information along with prescriber's information.

RESULTS:

A total of 473 errors were identified in 100 prescriptions. 303 errors in superscription, 06 in inscription, 67 in subscription, 34 in transcription, 1 in prescribers' signature and 62 in refill information. Upon analysis 100 prescriptions had a total of 625 drugs. The average number of medications per prescription was found to be 6.25. The highest frequencies of prescriptions were found for NSAIDs and analgesic drugs. The highest omission error in superscription was in patient address 100%, patient gender 100% followed by and patient age 77% (Table 1a). The highest omission error in Inscription was in confused drug name 3% and dosage strength 3% which may lead to dispensing errors (Table 1b). The highest omission error in subscription was related to duration of treatment (Table 1c) 67%. Instruction to the patient were absent in 34% prescriptions (Table 1d), while the refill information was not found in 62% prescription (Table 1e). The cumulative results are shown in Table 2.

Table: 1a
Errors in parts of prescription
N=100

Errors at the level of Superscription

	Patient Name	Patient Age	Patient Gender	Patient Address	Date	Symbol Rx
Present	89	23	00	00	85	100
Absent	11	77	100	100	15	00
% errors	11%	77%	100%	100%	15%	00%

Table: 1b
Errors in parts of prescription
N=100

Errors at the level of Inscription

	Drug Name	Confused Drug Name	Dosage Strength	Dosage Form
Present	100	97	97	100
Absent	00	03	03	00
% errors	00	03	03	00

Table: 1c
Errors in parts of prescription
N=100

Errors at the level of Subscription

	Instructions To Pharmacist
Present	33
Absent	67
Percentage % of errors	67%

Table: 1d
Errors in parts of prescription
N=100
Errors at the level of Transcription

	Instructions To Patient
Present	66
Absent	34
Percentage % of errors	34%

Table: 1e
Errors in parts of prescription
N=100
Errors at the level of prescriber's signature & Refill information

	Prescriber's Signature	Refill Information
Present	99	38
Absent	01	62
% of errors	01	62

Table: 2
Cumulative results
N= 100

Parameters checked	Error	Percentage
Patient Name	11	11 %
Patient Age	77	77 %
Patient Gender	100	100%
Patient Address	100	100 %
Date	15	15 %
Symbol Rx	00	00 %
Drug Name	00	00 %
Confused Drug Name	03	03 %
Dosage Strength	03	03 %
Dosage Form	00	00 %
Instructions To Pharmacist	67	67 %
Instructions To Patient	34	34 %
Prescriber's Signature	01	01 %
Refill Information	62	62 %
Total Errors = 473		

DISCUSSION:

One hundred prescriptions that were examined were found to have a total of 625 drugs. The average number of medications per prescription was found to be 6.25, which is quite a big number termed in the literature as polypharmacy. Prescribing a number of drugs at one time when problem can be dealt with less number of drugs or may be with monotherapy in some cases, has already been described as an impending danger for drug interactions. A Study has documented that more than 8% of older adults were at risk for a major drug interaction in 2005 and 2006 who took at least five prescription medications, but this number increased to about 15% 5 years later¹⁴. Similar findings have been documented by other studies^{15, 16}. Literature suggests that frequency of error increases with an increasing number of drugs^{17, 18}. The highest frequencies of prescriptions were found for

NSAIDs and analgesic drugs, which is similar to the study by Maio¹⁹. This probably explains that symptomatic treatment was prescribed instead of actually treating the main disease. It is also a possibility that the prescriptions had errors because they were probably written in haste in order to see more patients in less time in our settings. The result is very similar to study by Weetman, that suggests that around 9% of UK hospital outpatient prescriptions contain errors. The reason can be challenging times for prescribers, available drug treatments increasing in number and complexity, heavier workloads, and greater expectations²⁰.

In our study the highest omission error in superscription was in patient address 100%, patient gender 100% followed by patient age 77%. Both of these have great impact on medication and follow up²¹. Age is very important in terms of dose and dosage form and our results are much higher than 52.4% of an Indonesian study²⁰. Similar findings are documented by Marwaha who showed most common type of superscription error of omission in age (72.44%) followed by gender (32.66%) which is an important piece of information for dosage recommendation of certain drugs. The names of patients can be taken into account for gender specification but it is unreliable as many names might not give a clue to the patient's gender²¹. In the same study more than 46% of prescriptions were incomplete on direction for use, more than 22% of prescriptions were devoid of information on dose, and more than 23% of prescriptions omitted the dosage forms of prescribed drugs and more than 4% of prescriptions omitted the prescriber's signature. These findings are comparable with our study. The highest omission error in Inscription was in strength 3% and confused drug name 3% both of these may lead to dispensing errors. The highest omission error in subscription was related to duration of treatment 67% which is much higher than the previously reported studies 26%²². Taking drug for shorter period of time and or conversely for longer period of time is not beneficial for patient as it might lead to re-infection and resistance to drug apart from other problems.

Healthcare leaders have called on GPs to work more closely with pharmacists after research has suggested that 5 per cent of items prescribed by GPs were associated with prescribing or monitoring errors^{23, 24}. Prescription errors account for 70% of medication errors that could potentially result in adverse effects²⁵.

Thus our study has shown a high frequency of prescribing errors in a comparatively small number of prescriptions but the good thing is, these prescribing errors are preventable provided proper training and reinforcement of general practitioners is undertaken at individual and more so at the level of healthcare regulatory bodies.

CONCLUSION:

Errors in prescription writing are found to be common in the prescriptions of general practitioners from various districts of Karachi. Future studies with large sample size perhaps as audits may be carried out on regular

basis by the healthcare regulatory bodies to improve the healthcare provision to the patients on the part of general practitioners.

Recommendations:

For patient safety doctor and pharmacist should work together taking on board patient along with them as a team member. This could be achieved by conducting audit of the prescriptions for potential errors through a planned government program at the level of primary health care as practitioners resist such audits if undertaken on individual research based projects. Measures should also be taken to refresh the prescription writing skills of general practitioners through Continuous Medical Education Sessions (CMEs) and workshops so as to brush up their existing knowledge regarding the same.

Limitation of study:

The study had a small sample size on account of resistance encountered from the GPs in study participation. The authors had to fulfil the ethical requirements by taking written informed consent from them before starting the study but it turned into verbal consent only.

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