

Rationality of Prescription Writing

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ABSTRACT

Prescription writing is one of the crucial tasks performed by the health professionals. A prescription is an instruction from prescriber to a patient as well as dispenser. Use of proper format for prescription writing ensures appropriate use of drug and helps in minimizing errors. Health professionals must take account of appropriateness, effectiveness, side effects, contraindications and cost when prescribing any medicine. Special care and precautions are needed in prescribing the drugs with abuse potentials to avoid their misuse. Irrational prescribing may account to professional and legal threat to a prescriber if done injudiciously as it indicates the prescriber's responsibility towards clinical care and safety of patient. Every country has its own standards and regulations for prescription writing. There is no global standard for prescription writing which may suggest a need for introduction of universal guidelines. This article presents a comprehensive and simplified review on prescription writing. It may benefit the readers, especially the budding students to ensure the correct format in prescription writing and other relevant aspects.

Keywords: Components of prescription, prescribing errors, rational use of drug.

INTRODUCTION

The prescription is one of the most important therapeutic transactions between physician and patient.¹ The word 'prescription', derives from 'pre' (before) and 'script' (writing, written), which denotes that it is an order that must be written down before or for the preparation and administration of a drug. Commonly, the term prescription is used to mean an order to take certain medications.¹⁻³

A prescription (℞) is defined as a health-care program implemented by a physician in the form of instructions that govern the plan of care for an individual patient.¹ The fact that a prescription instructs someone to 'take' rather than 'give', makes it clear that it is directed at the patient, and is not directly an instruction to anyone else.

Prescription writing is a crucial task and suggests prescriber's responsibility towards

the clinical care and the safe monitoring of the patient thus also carries legal implications.^{1,3,4-7} It is a written order for the medication to be used for diagnosis, prevention and treatment of specific patient directed by physician.^{8,9}

The art of prescription writing is ancient in origin and had complex prescriptions which were in Latin, recently, it is being greatly replaced by English and the contemporary practices are more simplified and systematic.¹⁻⁴ The prescription symbol (℞) currently in use is an ancient symbol which was established centuries ago. It signifies the specific Latin verb *recipe* of the medication and the directions for taking it.^{1-4,8,9} Many historic stories are associated with prescription symbol which note its similarity to the Eye of Horus or to the symbol of Zeus or for Jupiter and to various gods.^{1,10}

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Objectives of learning prescription writing^{2,7,8,11}

- To learn basic concepts of prescription writing, including terms and abbreviations.
- To be able to apply basic concepts in writing valid prescriptions as per guidelines.
- To encourage 'rational' use of drugs.
- To enhance understanding of use of medications in accordance with scientific knowledge.
- To know how to prescribe unusual dose regimens on a drug chart and a controlled drug.
- To ensure that patient gets 'right medicine' in 'right doses'.
- To get familiar with organization of Physician's Desk Reference (PDR) to help in selecting medications.

Who can write prescriptions?

The prescriber is not always a doctor or the dispenser is not always a pharmacist. National or local (i.e. state or provincial) legislation governs who can write a prescription. Only a registered medical practitioner who has registered with the respective State Council is authorized to prescribe allopathic drugs that include an allopathic doctor, a dentist, and a veterinarian. Some states stipulate that only a dentist can prescribe those classes of drugs directly involved in dental treatment. A nurse, pharmacist, unqualified persons or persons with dubious and unauthorized degrees, not recognized by the government as quacks are not authorized to recommend allopathic prescription medicines. In some countries, the clinical pharmacists, nurse practitioners, medical psychologists and physician assistants who have undergone specialized training in script-writing to prescribe drugs to treat emotional and mental disorders can prescribe medications. Doctors with full registration who hold a license to practice may prescribe all medicines, but not those drugs in Schedule 1 which includes drugs with high abuse potential and may lead to severe dependence such as heroin, marijuana, LSD, mescaline, methaqualone, peyote and psilocybin.^{1,3,5,6,9,12}

FORMAT OF PRESCRIPTION WRITING^{1,4,7-9,11}

The document on which prescriptions are written is called as prescription order or prescription pad or prescription blank.^{8,9} Prescription order is a legal document. It should be clear, concise, accurate and legible. It should include complete information and be written in indelible ink pen especially while prescribing for Schedule II controlled substances that although has accepted medical use show high abuse potential. It includes

drugs as amphetamine, cocaine, codeine, meperidine, methadone, methylphenidate, morphine, oxycodone, pentobarbital and secobarbital.^{3,9,13,14} At some of the places, prescriptions are regulated by state and federal laws and must be properly written with specific information included to avoid the errors and to prevent misuse of prescription information.³

Prescriptions are made for 'prescription drugs, there are 3 categories of drugs as follows^{2,3,8,15}

- *Over-the-Counter (OTC) Drugs:* can be dispensed to patient without a prescription.
- *Prescription medications or Legend Drugs:* may not be dispensed by a pharmacist without a prescription from a physician. Labels on these medications carry the legend: "Caution! Federal law prohibits dispensing without a prescription."
- *Controlled Drugs:* Along with prescription, these drugs require additional safeguards for storage. Both State and Federal government agencies generate regulations regarding these drugs.

Requirements of prescription writing¹¹

Prescription should talk adequately to patients and communicate clearly with pharmacist. Every state has their own requirements for prescriptions but most follow a similar format.¹⁶

There are two methods of describing elements of a prescription¹⁶

The first method is as follows¹⁶

- The heading—includes details of patient.
- Body-R, name of drug, amount to be dispensed, patient directions.
- Closing-Prescribers signature, DEA number, refill instruction.

The second method is as follows^{4,7-9,11,15,16}

- Superscription
- Inscription
- Subscription
- Transcription or Label or Signatura
- Signature

Components of prescription:^{4,7-9,11,15,16}

Superscription

It includes patient's name, address, age, date of birth, date of admission, weight and date of prescription writing and the Prescription Symbol (R).

The patient's medication allergies should be specified in space labeled as allergy box.¹²

Inscription

It is the body of prescription. It is written just below and right to superscription. It consists of drug name and dose form (e.g. tablet, lotion, suspension). It is always recommended to use generic drug names than brand names to avoid confusion as brand names often differ widely in different countries for the same medicine.⁴ Besides, many brand name drugs have less expensive generic drug substitutes that are therapeutically and biochemically equivalent.¹

The use of apothecary or avoirdupois units and symbols of measure such as pints (O), drams (3), and grains (gr) is largely replaced by metric equivalents.¹⁷

Subscription

It should be written a line below the inscription and includes prescriber's direction to pharmacist, that is, dose form and total amount to be dispensed, e.g. Total 28 tablets to be given.

It also indicates for 'Repeat dispensing or Refill instruction', that is whether repeat dose is to be given after this dose gets over or not.¹ 'prn' meaning 'as required' is not a valid refill designation.¹² Repeat dispensing would be appropriate to only patients with chronic conditions and who are on long term medication to avoid to write the repeat prescription.⁶

Prescriptions will also contain instructions on whether prescriber will allow pharmacist to substitute a generic version of drug as "dispense as written" or "substitution permitted".¹

Transcription or label or signatura^{2,4,7,16,18}

It includes prescriber's direction for patient. Signatura from the Latin 'signa,' meaning 'write,' 'make,' or 'label.'² It should always be written in English; the use of abbreviations or symbols should be discouraged. It is to be written as follows:

- Route or method of administration—chew, apply.
- Number of dose forms—1 or 2 tablets, (no trailing zeroes as 5mg NOT 5.0mg). Quantities less than 1g should be written in milligrams (500mg NOT 0.5g, 100micrograms NOT 0.1mg). The term 'milliliter' is abbreviated to ml NOT cc or cm³. The words micrograms, nanograms and units must not be abbreviated.

Frequencies of administration or dosing intervals should be mentioned clearly, instead of 'every 6 hours or 3 times daily', the exact time schedule should be given as 8am, 12pm, 6pm. Avoid abbreviations like tds or 1-1-1. The meaning of abbreviations may change from place to place or country to country.^{16,18}

- Length or duration of therapy that is, for how many days of therapy.
- Purpose—for pain, fever, infection or to relieve itching.
- Special instructions—e.g. shake well, refrigerate.

The instruction, "take as directed," is not sufficient and should be avoided.^{16,18}

Drugs for continuous infusion should be written on an IV Fluid prescription. The drug, quantity, rate of administration and the name of the infusion solution must be specified. Two drug charts are only permitted if the number of drugs prescribed exceeds.⁷

Lastly, handwritten signature, professional degree, DEA (Drug Enforcement Agency) registry number, address of prescriber should be written.

Generally, it is advisable that doctors should prescribe medicines on their own letterhead. Certain precautions and concerns are addressed here while handling the prescription pads. Blank prescription sheets should not have name of a pharmacy or pharmaceutical company imprinted on the forms to avoid appearance of product endorsement.³ Doctors should not loan their prescription pads to anyone and should keep them in secure centralized locations, if misplaced or theft is suspected, the loss or forgery should be reported to pharmacy or the state drug control agency.^{1,3,5,12,19} The personal Drug Enforcement Administration (DEA) registration number with personal 4-digit prescriber code must be included on all prescriptions for drugs classified as controlled substances.^{1,3,12}

ERRORS IN PRESCRIPTION WRITING^{3,7,8,9,11,13}

Errors in prescribing drugs can occur from a variety of reasons, however, most of the errors boil down to human error in prescription writing (Figure 1).^{7,20}

There are two main error types⁷

- **Slips and lapses**, where actions do not go according to plan e.g. intending to write 5mg of a drug but *unintentionally* writing 50mg.
- **Mistakes**, where the plan itself is wrong e.g. writing 50mg of a drug not knowing the usual dose is 5mg.

Commoner mistakes and observations in prescription writing^{3,6-9,11,13}

- no format or no plan.
- no clarity in writing or Spelling mistakes—in confusion, pharmacist may give wrong drug.
- Illegible or Bad handwriting—as a complication, prescription may be misread and misinterpreted.

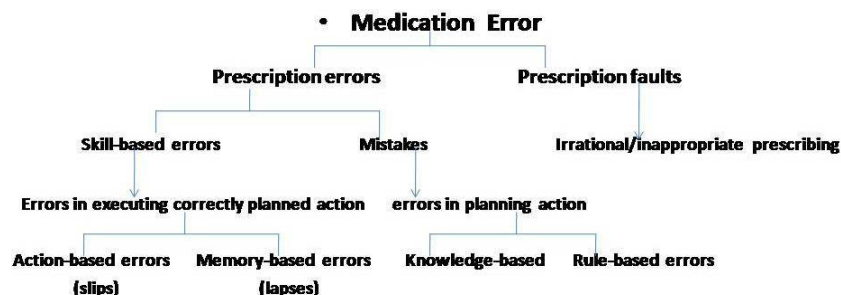


Figure 1: Errors in prescription.

Physician may choose correct drug but pharmacist may read it incorrectly (Figure 2).

- not readable to the patient or not in patients language.
- insufficient information or ambiguous directions to patient or a pharmacist.
- Inappropriate drug or wrongly prescribed drug or drug name written incompletely.
- Sound-alike or Look-alike drugs mix-up—these may get easily substituted for each other because their similarity e.g. Zyrtec and Zantac, Fosomax and Flomax.
- Incorrect Dosage—too much or too little dose or doses are not monitored properly.
- Use of informal ways for dosage or use of abbreviations—hs, qid, bid, sos.
- incorrect information written from memory, rather than from a drug reference or drug name confusion.
- insufficient knowledge of physician or prescribed out of copy of senior doctor.
- too many drugs in a prescription (Figure 3).
- prescribing a contraindicated drug to a person.
- Purpose or diagnosis for which prescription is written is always missing.
- May not be economic, no consideration is given to the cost.
- Drug interactions—It is the duty of the physician to confirm that the drug being prescribed is safe for the patient in terms of interactions with newly prescribed drug, allergies or intolerance.
- Lack in patient's detail, poor history taking or prescribed without examining patient.
- Poor understanding and the 'interruptions' while prescription writing.
- Fatigue and workload may also contribute to the risk of slips and lapses.
- eccentrically written.
- Unsigned or not prescribed on prescription order.
- Mistakes in the prescriptions received through phone calls.
- prescribed as per physicians convenience or simply because patient demand them.

- Prescriptions made in the interest of pharmacist or drug companies or employers' commercial or financial benefit.

Prescribing Controlled Substances or Controlled drugs (CD)^{3,4,7-9,19} Some of the drugs are physically addictive, fallacious prescription may lead to drug abuse or drug addiction. Prescription Drug Abuse is escalating leading to emergencies. The way in which CD prescriptions are written should be clearly defined and must be adhered to.⁷ The prescription must be written entirely in the doctor's own handwriting and must include the patient's name and address (or unit number), drug form (e.g. tablets, liquid), the strength of the preparation, directions and the dose. The total number of dose units to be supplied and all other quantities must be written in both words and figures. Other details such as patient particulars and date should also be filled in carefully to avoid alteration (WHO recommendation).⁷

The Federal Controlled Substance Act (CSA) is the principal federal law regulating the manufacture, distribution, dispensing and delivery of drugs, which have the potential for abuse or dependence.¹⁹ These medicines should be sold strictly only against a fresh prescription of a qualified or authorized doctor.^{1,17}

DISCUSSION

One of the primary communication links between prescriber, pharmacist and the patient is complete, safe, and accurate prescription. Completion of all 'essential elements' using the standardized format of a prescription will assure that it is accurately interpreted and not subject to alteration.¹²

WHO definition of rational uses of drugs (RUD):

"Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, and the lowest cost to them and their community" (WHO, 1985)^{21,22}

Data on irrational drug use show an increasing trend worldwide, leading to adverse health consequences.²³ In

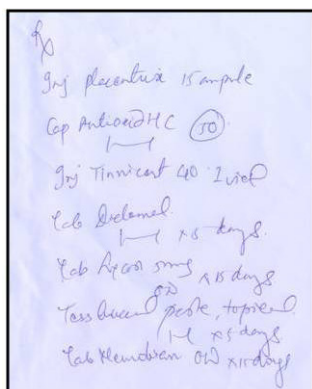


Figure 2: Prescription from a private practitioner with many drugs (polypharmacy).

2010, the World Health Organization (WHO), reported that more than 50% of drugs were not correctly prescribed, dispensed, or sold, and more than 50% of patients took their drugs incorrectly. The situation was worse in developing countries, where the majority of the patients are not treated as per clinical guidelines^{21,23} and only two thirds of the world's population have regular access to medicines.²³ It was observed that only 50% of people with malaria, 50–70% of people with pneumonia and 40% of people with viral upper respiratory tract infection are treated with appropriate antibiotics.²³

Data on trends in medicines use showed that the average number of drugs used increased from 1990 to 2003 from 2.2 to 2.7 per patient.²³ The overuse of antibiotics during the past 70 years has produced many drug-resistant organisms and diseases. There is an increase in anti-microbial resistance upto 70–90% to first-line antibiotics for dysentery, pneumonia, gonorrhoea, and hospital infections.^{22,23} A study reported that 66.2–75.3% of prescriptions at clinics have antibiotics. Over 50% of surveyed populations do not know consequence of irrational use of antibiotics. Over 50% of prescriptions have injections as the rural patients believe that the injection has better effects than oral drugs. Around 54.6–60% of patients can not comply with medical advice to take drugs.²⁴ Similar observations were revealed in study on pediatric patients, the prescription included antibiotics very commonly to treat the illnesses which were not caused by bacteria.²⁵

The problem of antimicrobial resistance was one of the important issues brought up at the world health assembly in 2005.²² Resistance prolongs illnesses and hospital stays. Irrational prescribing add extra burden to national health budgets, Besides, improper and extensive uses of drugs deplete the drug stocks and increase the price of medicines.^{23,26}

Studies were carried out to assess the drug prescribing practices and prescription rationality among the

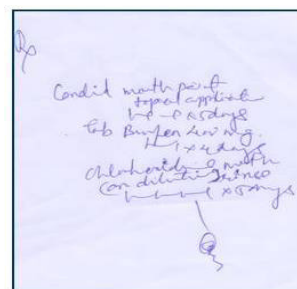


Figure 3: Illegibly written prescription.

practitioners^{27–29} and hospitals.^{30–36} The disparity was found in average number of drugs per prescription, use of generic names of drug, adherence to national essential drug list or WHO drug use indicators, drug interactions, adequacy of prescription format, compatibility of prescribed drugs with the diagnosis according to the national practice guidelines. The issues such as inadequacy of prescription format, polypharmacy and non-adherence to the essential drug list are on hike.^{27–36} In hospital based prescribing practices, it was observed that Fourteenth WHO model list of essential medicines (2005) contains only 18 approved drug combinations, whereas in India, many irrational drug combinations are available and are in use.²²

Factors underlying the irrational use of drugs^{21,22}

There are many different factors which affect the irrational use of drugs, as follows:

- Patients—Drug misinformation.
- Misleading beliefs.
- Patient demands/expectations.
- Prescribers—Lack of education and training.
- Inappropriate role models.
- Lack of objective drug information.
- Generalization of limited experiences.
- Misleading beliefs about drugs efficiency.
- Work place—heavy patient load.
- Pressure to prescribe.
- Lack of adequate lab capacity.
- Insufficient staffing.
- Drug supply—unreliable suppliers system/Drug shortages.
- Expired drugs supplied.
- Drug Regulation—Non-essential drugs available.
- Non-formal prescribers.
- Lack of regulation enforcement.
- Industry—Promotional activities, incentives by pharmaceutical company.
- Misleading claims.
- higher use of injections due to false assumptions of prescribe that it improves patient satisfaction.
- self-medication by patient.

Impact of irrational use of drugs^{21,22}

This can be seen in many ways:

- Reduction in the quality of drug therapy leading to increased morbidity and mortality.
- Waste of resources leading to reduced availability of other vital drugs and increased costs.
- Increased risk of unwanted effects such as adverse drug reactions and the emergence of drug resistance.
- Psychosocial impact, such as when patients come to believe that there is “a pill for every ill”, which may cause an apparent increased demand for drugs.

The dual pressures of increased numbers of patients receiving prescriptions and increased prescriptions per patient compound the opportunities for adverse drug interactions and medication errors.¹⁷

There is growing concern to improve the prescribing pattern and to prevent the prescribing errors. WHO reports that countries have done little to promote rational use of medicines and this has now become a serious global public health problem.²³ It is revealed that only 26% of countries have a national strategy. It is recommended that countries implement national programmes to improve medicines use, scale up successful interventions and implement measures to address community medicines use. It also included setting criteria and policies for ethical drug promotion and prescription, keeping the doctors and prescribers away from financial incentives, and training students in pharmacotherapy and prescription of drugs.^{21,22} There is some evidence that interventions such as short problem-based training course in pharmacotherapy and rational use focused workshops can improve prescription behavior and skills.²⁷

A study emphasizes the need for incorporation of the rational drug prescribing as an integral part in the national practice guidelines for family physicians and in the curricula of medical education at both undergraduate and postgraduate levels. There are hardly any government regulations on antibiotic use in India. In hospitals, the policies for rational use are not strictly implemented, neither are there sufficient penalties for irrationally prescribing an antibiotic.^{22,27,35}

There is a need to strengthen the mechanism for continuing professional development of prescribers through continuing medical education periodically to ensure that they have the necessary knowledge and skills to prescribe rationally and to update about new drugs introduced into market. Medical schools must take the responsibility of training students and young doctors

how to assess new drug combinations more logically. Hospitals should constitute drugs and therapeutics review committee to rationalize prescribing.^{21–27,32}

The misleading claims by the pharmaceutical industry, irresponsibility on the part of the pharmaceutical industry and lack of vigilance of government agencies led to the increased use of irrational drug combinations. This suggests the need to carefully monitor these activities.^{21,35,37,38}

In addition, education and public awareness on proper use of medicines is always helpful to reduce their misuse, especially in developing countries, where most of the drugs can be obtained over the counter and many people including even the medicine dispensers practice irrational therapy.^{21–27}

Pharmacist can play an important role by dissemination of drug information to guide patients, physicians, and policy makers. In pharmacist view point, the irrational use of drugs is due to lack of appropriate cooperation and communication between physicians and pharmacists (39%), pharmacists' low tariff and economic issues (34%), lack of public knowledge about drug usage (45%), and lack of supervisory regulations on pharmacy practice (15.8%). The lack of public knowledge and awareness about appropriate use of medicines was the most important element from pharmacists' viewpoint in occurrence of irrational drug use.³⁷

The failures or ignorance may be, in part attributed to the lack of universal national guidelines for prescription writing.³⁸ There is no global standard for prescription writing, every country has its own standards or regulations hence the prescribing takes many forms.³⁹ Most important requirement is that the prescription be complete, clear and legible.¹¹

The British Medical Association and the Royal Pharmaceutical Society of Great Britain publish British National Formulary (BNF) twice a year. It is designed to be a concise, first-line reference source on the prescribing, dispensing and administration of drugs.⁷ National Institute for Health and Clinical Excellence (NICE) in England & Wales periodically updates with current guidance which may help prescribers in prescription writing.^{4,6,7} Physicians' Desk Reference (PDR) is published annually by Medical Economics Company, with cooperation of drug manufacturers whose products are listed within and is intended primarily as a reference for physicians.¹

Computer generated prescriptions may be used.^{4,39} In such cases, the prescriber must be clearly identified, the prescription should be clearly printed and the format must be safe guarded with password to avoid abuse.⁴ ‘Prescription Pad 3.0’ from Clinician's Assistant & Desk

Management Service is a innovative software for clinician's for prescription writing.⁴⁰ It contains complete prescribing information of more than 50,000 brands of Indian Pharmaceuticals including differential diagnosis, and disease related list of investigations.⁴⁰

Remote prescribing via telephone, email, fax, video link or a website or online prescribing is currently available. In all circumstances, physician must ensure that he has an appropriate dialogue with the patient to guarantee sufficient justification to prescribe the medicines or treatment proposed.^{2,3,6,12}

State regulations prohibit practitioners from self-prescribing or from prescribing or dispensing controlled substances to family members, unless the treatment is immediately necessary to save life.^{6,12}

When prescriptions are written, it may be important to consider the list of the drugs approved by insurance company to cover the drug products under the benefit plan so that the patient does not pay for drugs.^{3,19}

The drug abuse and addiction of controlled prescription drugs e.g. opioids, central nervous system depressants and stimulants have been rising leading to emergencies and unintentional deaths due to prescription controlled substances.^{14,41} The multiple reasons for continued escalation of prescription drug abuse or overuse may be lack of education among all segments, including physicians, pharmacists and the public as well as ineffective and incoherent prescription monitoring programs.^{1,14,42}

RECOMMENDATIONS OR TIPS TO REDUCE ERRORS^{1,5,6,11,12,17,19}

Over the years, prescribers have developed many conventions for prescription writing. This section includes the tips to avoid ambiguities or misinterpretation as follows:

- Illegibility may be avoided using electronic entry devices and pre-printed prescriptions.
- Doctor may sign prescription preferably in black indelible ink.
- Provide concise dosage information. Dose distortions may result from the use of nonspecific abbreviations, antiquated measures and decimal placement confusion.
- Use of metric measures in place of apothecary and avoirdupois measures.
- Directions should be written out in full in English.
- Avoid units such as "teaspoons" or "tablespoons."
- Always specify times (7am, 3pm, 11pm) rather than simply frequency (three times a day)

and especially relationship to meals for orally consumed medication.

- Ensure that the exact quantity to be dispensed is written. Do not write such things as 'Continue....' or 'Take as directed'.
- For refills, the minimum duration between repeats and number of repeats should be specified.
- Provide indication for all prescriptions even when obvious to the prescriber, so that the pharmacist may identify possible errors.
- Numbers should be written in numerals as well as in words
- Never pre-sign a blank prescription.
- Do not make any changes or cross-outs, avoid overwriting.

The amount of information given to each patient will vary according to factors such as the nature of the patient's condition, risks and side effects of the medicine and the patient's wishes where relevant to have better compliance.⁶ Satisfy oneself that the patients have been given appropriate information in a way they can understand how to take the prescribed medicine and the patient is able to take the medicine as prescribed.^{6,11}

There is a bloom of new drug releases and reformulations in the marketplace, hence doctor needs to keep one-self updated and to be cautious in approaching the medication names. If possible write limited number of medications on a single prescription, since multiple drugs and overlap may confuse the pharmacist.

Patients implicitly expect or are privileged for undivided physician attention and caution when prescribing medications. However, modern physician-patient encounters are increasingly marked by limited physician attention. Disruptions and distractions may account for errors such as erroneous substitutions of whole medication regimens and other severe errors, approximately three quarters of transcription errors can be traced to distractions.¹⁷ One of the strategies used for reducing distractions may include separating the cognitive activities from secondary tasks.^{17,43}

Steps to improve patient adherence to treatment^{4,11}

- It is a medico legal document.
- Meant for an individual.
- Information in simple language.
- Listen to the patient, establish good rapport with the patient.
- Spend time explaining the health problem and the reason for the drug.
- Prescribe a well-chosen treatment, keep treatment regimens simple.

- Encourage patients to bring their medication to the clinic, so that tablet counts can be done to monitor compliance.
- Encourage patients to learn the names of their medicines, review their regimen with them and write notes for them.
- Review the prescription to make sure it is correct.
- Communicate with other health care professionals to develop a team approach and to collaborate on counselling and helping the patient.

Attention to detail when writing prescriptions will reduce patient delays. The prescription may not be dispensed by the pharmacists if the pharmacy has any doubt about the prescription such as suspicion of misuse or forgery, overwriting, prescription written by an unqualified person or the medicine/s prescribed are of unduly large quantities.^{1,12,17}

CONCLUSION

Prescription writing is a fundamental task performed by health professionals, incorrect prescription may lead to fatal consequences including death.

The present article is an attempt to gain insight into thoughtful and deliberate way of prescribing to prevent medication errors. The condition for error-free prescribing must be warranted. While writing the prescriptions, it must be ensured that it is appropriate and is in the best interests of the patient. It is often assumed that once the appropriate drug is chosen, the prescription correctly written and explained, that it will be taken correctly by patient.⁴ As 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.

What and how the prescription is written shows the diagnostic acumen and therapeutic efficiency of physician. Prescription becomes useless unless it communicates clearly with patient and the pharmacists. Drug prescription errors may be largely preventable. Proficiency at writing a prescription order accurately and speedily requires practice. Additionally, the motivational prescription writing programmes, patient understanding, pharmacist education and periodic prescription audits may encourage the error-free prescribing.

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REFERENCES

1. Medical prescription/Wikipedia, the free encyclopedia.mht
2. Davis T. Prescription Writing and the PDR.htm, updated 8/30/2005.
3. Donnelley RR. Principles of Prescription Writing and Other Pharmacotherapeutic Considerations, China, June 9, 2008.
4. Mercy ships bringing hope and healing. An essential medicines dosing guide based on the WHO model formulary 2008-Prescription writing guidelines.
5. Proposed guidelines for prescription writing & handling for drugs having misuse or abuse potential, proposed by FDA, Goa at the stakeholders meeting held on 23rd September, 2009.
6. Good practice in prescribing medicines - guidance for doctors.mht, General Medical Council, September 2008.
7. Fox A. Safer Prescribing, p1–23. Workbook-Section 1, Prescription writing.
8. Benet LZ. Goodman and Gilman's Principles of Prescription order Writing and Patient Compliance Instructions. The pharmacological basis of therapeutics. In: Gilman AG, Rall TW, Nies AS, Taylor P. 8th ed, vol II, New York: Pergamon press, 1991, 1640–49.
9. Lewis VA. Prescription writing and Drug regulation. Pharmacology and Therapeutics for dentistry. In: Yogiela JA, Dowd FJ, Neidle EA. 5th ed., India: Mosby Publishers, 2005, 865–79.
10. Dukoff AB. "Did You Know Where Rx Came From?". Endomail.com. <http://www.endomail.com/articles/ad13rx.html>. Retrieved 2010-01-22.
11. Prescription Writing. Dept. of Pharmacology, GMC Amritsar, p1–19, 14th – 17th June 2006.
12. Guidelines for Complete, Safe, and Accurate Discharge and Outpatient Prescription Writing, PTNews Virtual Hospital.htm, P&T News: August 2003.
13. Torrey T. Why Do Prescription Drug Errors Occur? About.com Guide, Updated April, 2010.
14. Manchikanti L. National Drug Control Policy and Prescription. Drug Abuse: Facts and Fallacies. Pain Physician 2007; 10:399–424.
15. A645 Prescription & Non-Prescription Drug Guidelines Manual, Prescription & Non-Prescription Drug Guidelines.mht
16. Google Image Result for http://www.softchalk.com-lessonchallenge09-lesson-Pharmacology-MC-pharmacy_medsManager_winter07_rxproof_1_.jpg.htm, created with SoftChalk LessonBuilder
17. Teichman PG, Caffee AE. "Prescription writing to maximize patient safety". Fam Pract Manag 2002; 9:27–30.
18. Mikota SK, Plumb DC. Elephant Formulary. Abbreviations Used in Prescription Writing, Published by Elephant Care International - <http://www.elephantcare.org>, 2003–06.
19. University of Florida College of medicine Jacksonville resident Manual. Prescription writing guidelines, reviewed 04/2007.
20. Aronson JK. Medication errors: what they are, how they happen, and how to avoid them. QJM 2009; 102, 8:513–52.
21. Shtrestha S. Irrational prescription: A hurdle to quality health. The Lancet 2013.
22. Kadam A. Rational Drug Use A Concern for Healthcare Professionals. Pharmainfo.net, 2009; 7: 4.
23. Khor M. Irrational drug use causing rise of anti-microbial resistance, TWN Info Service on Health Issues No. 9, May 2005.
24. Sun Q, Yin J, zuo G, Meng Q. The irrational use of drugs in rural china: evidences from two provinces. Center for health management & policy, Shandong university, 2009.
25. Moorthi C, Paul P, Shrinivasan A, Sethilkumar C. Irrational use of antibiotics in pediatric prescription. A pilot study in Community pharmacy in Erode city. Der Pharmacia Lettre, 2011; 3, 3:171–177.
26. Aina B, Tayo F, Taylor O. Cost implication of irrational prescribing of chloroquine in Lagos State general hospitals. J Infect Developing Countries 2008; 2, 1:68–72.
27. Vijayakumar T, D. Sathyavati, Subhashini T, Grandhi S, Dhanaraju M. Assessment of Prescribing Trends and Rationality of Drug Prescribing. Int J Pharmacol 2011; 7:140–143.
28. Alkot M, Shaheen H, Hathout H. Prescribing Patterns and Errors in Family Practice; a Retrospective Study of Prescribing Records. Journal of American Science, 2011; 7; 11.
29. Patel V, VaidyabR, Naik D, Borkar P. Irrational drug use in india: A prescription survey in Goa. J Postgraduate Med 2005; 51:9–12.
30. Okoh A. An assessment of rational drug use in public tertiary hospitals in endo state, Nigeria. Geneva Health Forum, 2012.
31. Najmi M. Hafiz R, Khan I, Fazli F. Prescribing practices: An overview of 3 reaching hospitals in Pakistan. JPMA 1998; 48:73–77.

32. Poudel A, Palaian S, Shankar PR, Jayasekera J, Izham MIM. Irrational fixed dose combinations in Nepal: Need for intervention. Kathmandu University Medical Journal 2008; 6, 3:Issue 23, 399–405.
33. Salman MT, Akram MF, Rahman S, Khan FA, Haseen MA, Khan SW. Drug Prescribing Pattern in Surgical Wards of a Teaching Hospital in North India. 2008; 5, 2, 4 pages.
34. Mohammad H, Beegum I, Perumal P. Prescribing Pattern of Analgesics in a Tertiary Care Hospital. International Journal of PharmTech Research, 2011, 3, 3, 1521–1529.
35. Chandy S, Mathap E, Thomas K, Faruqui A, Holloway K, Lundborg C. Antibiotic use and resistance: perceptions and ethical challenges among doctors, pharmacists and the public in Vellore, South india. Journal of Medical Ethics 2013; X, 1: 20–27.
36. Sharma R, Khajuria B .Prescribing Practices of Doctors in Rural and Urban India. J Clin Diagnostic Res 2009; 3:1480–1482.
37. Soleyami F, Ahmadizar F, Meysamie A, Abdollahi M. A survey on the factors influencing the pattern of medicines use: Concerns on irrational use of drugs. J Res Pharm Pract 2013; 2:59–63.
38. Kripalani M, Badanapuram R, Bell A. Audit on inpatient prescription writing guidelines. J Psychiatr Ment Health Nurs 2007; 14: 6, 598–00.
39. Aronson J. prescription for better prescribing. Br J Clin Pharmacol 2006 May; 61(5): 487–491.
40. PrescriptionPad - An Ultimate Prescription Writing Software, E-Prescription, Indian Prescription.htm, 2009.
41. "What lurks in your medicine cabinet?" USA Weekend. 2002-12-01. http://www.usaweekend.com/02_issues/021201/021201healthsmart.html.
42. The Development and Role of Prescription Monitoring Programs, Prescription Monitoring Programs.mht
43. Leape LL, Bates DW, Cullen DJ et al. Systems analysis of adverse drug events. JAMA 1995; 274:35–43.