



From A to Z Comprehensive Review: Prescription Processing Practices, Management and Considerations in the Health Care System

Bushra Nasir^{1*}, Babiker M EL-Haj² and Heyam Saad Ali³

¹Department of Pharmaceutics, Bahauddin Zakariya University, Multan, Pakistan

²Department of Pharmaceutical Sciences, College of Pharmacy and Health Sciences, University of Science and Technology of Fujairah, Fujairah, UAE

³Pharmaceutics Department, Pharmacy College, University of Khartoum, Sudan

***Corresponding Author:** Bushra Nasir, Department of Pharmaceutics, Bahauddin Zakariya University, Multan, Pakistan.

DOI: 10.31080/ASPS.2022.06.0876

Received: March 23, 2022

Published: April 29, 2022

© All rights are reserved by **Bushra Nasir, et al.**

Abstract

An order written by a physician, dentist, veterinarian or RMP to a pharmacist to compound and dispense specific drug, is simply a prescription. Traditionally, it is composed of superscription, inscription, subscription and signature. The format falls into seven main parts. It must be carefully and thoroughly prepared with full revision of issues regarding patient information, medication strength and dosage form to be dispensed as well as the pattern in which drug is to be administered. Accuracy and legibility are quite essential. The related work shows the importance of the professional link between prescriber, pharmacist and a patient. Completion of all essential elements using a standard format will assure its accuracy and not subjected to alteration. The present article highly deliberate the best prescribing practices and dispensing to be considered and to prevent medication errors.

Keywords: Physician, Dentist; Health Care

Prescription

Prescription designated as a formal order or a direction usually from a licensed and registered health care person eg Veterinarian, Dentist etc. that instruct a pharmacist to dispense a required medicine to a specific patient.

Prescription order

It serves as a communication source linking a patient, physician and a pharmacist, aimed at evaluating as discussed under:

- To provide high quality prescription orders that meet necessary need of patient.
- To provide appropriate guidance and information in order to ensure patient compliance.

- To give advice regarding drug sensitivities that a patient may experience before in using the same medication eg adverse drug reaction (ADRs).

Therefore the pharmacist must maintain:

- High level of practice skills must be maintained.
- Keep suitably appropriate records (patient history and health status).
- Develop a competent and efficient relationship among other professionals related to health care.
- Initiate a good level of trust among patient and prescribers (concerning guidance being issued and nature of specific illness).

Classification of medication

- Prescription only medicine, POM
- Over the Counter medicine, OTC

Means of prescription dispensing

The prescriptions may be entered as an electronic record system and transmitted to pharmacy electronically. Alternatively, it can be written or printed, assembled to pads or similar forms using a computer or even on a paper according to the circumstances. However in some of the cases, prescription is transferred to a pharmacist by a physician orally using a telephone, having the contents including name and the address of prescriber and legal requirements like the registration number. Unique for every prescription is the patient name. Each prescription is dated and jurisdictions may be added, like time limit.

Major components of proper prescription**Prescriber office information**

The process starts at the health clinic by mentioning full name and telephone number of prescriber.

Patient information

Patient involvement is necessary to provide quality care and includes full name, address for identification and to deliver and contact in future. In case of controlled drugs, registration number of related prescriber is also a part of prescription. A place for insertion of updated information related to patient age, weight, BSA is added that can better assist in interpretation and checking the dose.

Date

Record and filled dates are important in order to have an accurate record so that unusual delay, between dates was written and brought to notice.

Symbol or superscription

An essential part for prescriber, originally a contraction of Latin word, meaning to take thou, that they must aware which they are going to write up.

Inscription or prescribed medication

The major body that have the names and quantities of ingredients present. In case of ant complex written order, having several

ingredients, the inscription is divided into the active medication required to produce therapeutic efficacy, adjuvant to enhance the action and vehicle used to dissolve.

Subscription or direction to pharmacist

The instruction deliver to pharmacist consisting of short sentence, nowadays, i very few of the prescriptions are compounded so these directions are not frequent.

Signa to be placed on label

The prescriber instructions for patient, how to use the medication is called as signature. These directions must be printed or handwritten by a duty pharmacist on the label of medication container. The pharmacist need to ensure these directions to the patients, outlining the proper way to use the medication, the suitable and suggested time and its importance towards the adherence of prescribed schedule given.

Refill, labelling or other instructions

These are the instructions regarding authorized refill. A section in prescription blank have a section that contain the information indicating, refill may be limited to 1 year after original prescription was written. The pharmacist refill the prescription on the demand of prescriber, only with the frequency consistent with the given directions.

Hospital medication order

It consists of written directions by a practitioner to administered a specific medicine to the individual, also this order can be delivered verbally to a licensed person.

Reducing medication error

Medication errors, which include inappropriate prescribing, patient noncompliance, dispensing errors and medication administration errors, are critical issues affecting the purpose of drug therapy and patients therapeutic outcomes. The risk of medication errors is greatest in the pediatric and geriatric population and when drug with narrow therapeutic index are prescribed for patients. An important role of a pharmacist in providing pharmaceutical care is to anticipate and prevent medication errors from occurring to the patient.

Processing the prescription order by pharmacist

It refers to proper procedures for receiving, reading, numbering, dating, labeling, packaging, delivering, counseling, filling, recording and finally pricing of prescriptions. The very first part is to receive a proper prescription by physician, after reviewing it is important to check that the desired dosage is available or not. There are many ways by which a pharmacist may get this written order. It may be by a voice call of prescriber, hand-in order, and fax. The most popular form of this is to use of E-prescription with a huge revolution in technology, especially in post covid locations where desired medicines are shipped to the patient doorstep after reviewing by a pharmacist using this technology.

Translating of prescription is yet another crucial step to be done. Many of the physicians use specific medical codes and language while prescribing. Those prescription need to be translated into much simpler language understood by all technicians and related pharmacists available to front desk. Furthermore, foreign doctors can also send and suggest medications by E-prescription which are to be easily translated before processing. Translated prescription then entered to a database system to check the relative availability; if available the patient details and insurance details are recorded for further processing.

Next step to be taken is to fill the prescription, validating the insurance policy and suggesting the most affordable and effective medicine use. Once the prescription is filled and all the data is updated, you can then frequently asked for refilling of your online prescription.

Patient counseling the most recommended step of processing of prescription. Proper counseling of each and every patient regarding medication dosage, diet plan, side effects and alternative in case of an emergency must be explained so a patient cannot quit the medicine use.

The sources of information used by a pharmacist includes file cards, package inserts, AMA drug evaluations, drug facts and comparison, hand book of clinical drug data, pediatric handbook and most of computer software programs.

Numbering of prescription is the legal requirement and numbers are assigned consecutively by use of computers or even manually. The same number is stamped clearly and neatly on the pre-

scription order, label, record book as desired. The dating on the prescription is a legal part also in order to determine appropriate refilling frequency and patient compliance.

Labeling, may be type written using the information placed in the record that may affect readability of prescription label which are appreciable if type font and boldness is adopted. The appearance of a label indicates a finished prescription; quality label stock should be used. The size of the label must be in accordance with the container to be used and name and address must be mentioned, along with a telephone number. The label should contain the directions to the patient for taking up a medication as clear as possible. A prescription must have professional-appearing label and contain directions to the patients for taking the medication as clear and complete as possible. The pharmacist indicates renewal status on the primary label, with lot number occasionally mentioned for the dispensed medication to help in rapid identification of medicine. Auxiliary labels are helpful to emphasize various aspects of medication, like shake well is indicated on the label of prescription containing material that may get separated on standing in case of emulsions, lotions and mixtures. Advice should be given in case of medication needs to be taken with certain food stuff or avoiding some activities such as driving.

Packaging

Packaging of prescription medicines is pivotal in maintaining the quality of medication until it is ready to use with all relevant patient information and medication information. It provides multi-fold ways for protection, including;

- Preserving medication from exterior elements that may alter medication.
- Identifying correct information of the medications.
- Ensuring that the packaging do not effect each other adversely.

The various forms of safe packaging are, the primary packaging, having a direct contact with the medicine eg bottles and vials. The secondary one that is not in a direct contact with medication eg caps and boxes. Lastly the unit dose, packing of each dose individually eg blister pack or medication strips. During preparing of prescription the validation is a key step by completing cross-checking the name of patient showing the identity. Reviewing to ensure the needed elements to fill are correctly done. After packaging apply

complete label to protective cover having a name of patient, its identification number, name and the dosage, quantity, description, storage information, usage, address where the medication is dispensed and pharmacy relevant information.

Package insert that has complete information about proper use, side effects, interactions, storage conditions and the expiry of a product must be placed in.

Storage requirements suggesting cool and dry environment is also a part of it.

Counselling by the pharmacist

Pharmacist has immense responsibility in counseling with adequate knowledge, making use of non-verbal and verbal communication. Development and implementation of full plan is needed to monitor patient progress.

Patient must be educating appropriately on the following;

- Name and class of drug it belongs.
- Direction for use of drug devices.
- Storage requirements.
- Drug-drug or food-drug interactions.
- Side effects associated.
- Monitor the therapeutic response.
- Monitor the progress of the patient.

Counseling provided at the time of patient discharge improves medication adherence to patient and regular follow-up consequently helps to improve clinical outcomes. Always make a direct offer to counsel the patient and if it is refused, refusal must be documented by the pharmacist. The counseling can be done keeping in mind patient privacy and confidently. In situations where direct counseling is not possible it can be done on phone, covering all important points any problem related to drug, need to be resolved with collaboration of practitioner, patient and pharmacist. Never assumed that patient is not in a need to counsel in refill prescriptions as they have been using it so long, consider as;

- Previously patient has not been adequately counsel.

All the points have not been clearly understood by a patient

In previous counsel patient may not remember all the points, any chance of error in the medication need to be counsel immediately eg substituting generic for brand, substituting different dosage strength and quantity consumed. It is always the last chance to resolve any potential error of dispensing and leads to motivate the patient to keep adhere to the medications.

Recording and filling of prescription

A record of medication dispense is maintained by hard copy of prescription and in the computer system and pharmacist can access anytime from anywhere a patient record to refill a prescription to be dispensed at some other place.

- Original record is always voided and shows that previous copy has been issued having the particular date of issue.
- The location and number of original is noted.
- Copy shows the dates including, insurance, last renewal date and remaining number of renewals.
- The procedure however is not applied to scheduled 2 drug.
- The copy must be well written, typed or preprinted.
- For control substance transfer original prescription is possible one time only.
- The entire original and transfer prescription order maintained for only 2 years from date of renewal.

Patient compliance

Compliance is, extent up to which patient behavior in terms of diets, taking medication and life style coincide with health advice. It should be understood in context of drug delivery and as well as individual responsibility. The patient adherence with the medication schedule has been a very important source of concern for pharmacist and patient, when;

- Patient is delaying the medication to get started.
- The wait observed if they feel better before prescription to be filled.
- Premature discontinuation of medication.
- The use of excessive dose to get better faster.
- To take medication at inappropriate and non-regular intervals.
- Pharmacist determine the compliance well by simply comparing dosage units to be dispensed versus the dosage units altogether used or taken over the entire period of therapy.

- The pharmacist gain useful information related to compliance by simply describing a patient how to take medicine on daily basis.
- The usefulness of computer system is considered to refill the prescription on phone and assisting the patient to keep adheres to the therapy. The special container have individual compartments for daily use up and hold up a weekly supply to continue the entire cycle.

Pharmacy computer system

Using technology in the pharmacy profession in terms of computer system not only reduces time and expenditure but also provide long lasting records. It is effective to keep a patient profile, database management, monitoring drug interaction, material management, patient counseling, purchasing and billing. The bar codes placed on the containers allow the pharmacist to record compounds and drugs that have quantities mentioned on them, to further confirm the right product use to deliver, stored, retrieved and dispensed. It can not only store patient information but facilitates electronic prescribing. The prices of medication and the possible substitutes is update automatically.

The computer based system is helpful in locating items by different means, brand name, category, product code, supplier and generic name with updates information. The pharmacy automation system totally transformed the healthcare landscape and enhances the productivity it proves to be a major time saver and customer do not have to wait long for receiving medication. It eliminates the dispensing errors and offer high security. Many prescriptions planed and insurance require online verification and internet can be used easily to download and obtain disease related information.

Label preparation

When the basic information related to the prescription is entered, error free label is generated by computer. The consecutive numbers are then assign by the computer and problems like duplication is eliminated virtually.

Price calculations

The computer system accommodate multiple pricing methods, individual cost plus professional fee, cost plus the mark up or more complex formulas. The pharmacist specifies formula desired and the computer calculates the dispensing on drug cost information maintained in files.

Receipt preparation

It is simply to prepare receipt of amount paid for the individual prescription and be important for insurance purpose. As the prescription is processed, initial of dispensing pharmacist, cost of dispensed product added on the patient request and this information is used by the system in the process of renewal.

Renewal processing

The staff members work to process the renewals in order to have a steady medication supply. It is essential to ensure patient to make them remain adherent to their prescribed therapy. It is almost an automatic process and computer prepares renewal and receipt if prescription indicates its need, recalculates the price on the basis of current cost.

Patient label information

The important information which is computer printed included proper use and drug administration, precaution and possible side effects, purpose of medication and what to do if dose get missed. Sometimes the picture of the dosage form is generated. It is important to develop handout to educate the patient, evaluate the commercial education resource, develop a system to facilitate appropriate for patient learning and awareness of emerging technologies [1-37].

Conclusion

All the aspects related to distribution, manufacturing, possession are controlled by federal law and state regulations. The licensing of pharmacy is regulated by all the authorities within the country.

Bibliography

1. American Society of Health-System Pharmacists. "ASHP guidelines on the pharmacy and therapeutics committee and the formulary system". *American Journal of Health-System Pharmacy* 65 (2008): 1272-1283.
2. American Society of Health-System Pharmacists. "Principles of a sound formulary system". Bethesda, MD: American Society of Health-System Pharmacists; 2000 (2006).
3. American Society of Health-System Pharmacists. "ASHP statement on the pharmacy and therapeutics committee and the formulary system". Bethesda, MD: American Society of Health-System Pharmacists (2008).

4. Linda F, *et al.* "Handbook of prescription drugs: an interactive approach self-care". 17th Ed. American Pharmacists Association (2012).
5. Leon S, *et al.* "Comprehensive Pharmacy Reviews". 8th Ed. Lippincott William and Wilkin (2012).
6. N M Hamoudi, *et al.* "Pharmaceutical Consultation in UAE Community Pharmacies". *Indian Journal of Pharmaceutical Sciences* 73.4 (2011): 404-408.
7. Blenkinsopp A. "Symptoms in the Pharmacy. A Guide to the Management of Common Illness". 6th Ed. Blackwell publishing (2009).
8. Cipolle RJ, *et al.* "Pharmaceutical Care Practice: The Patient-centered" (2012).
9. Shargel L, *et al.* "Comprehensive Pharmacy Review". Seventh edition: Lippincott Williams and Wilkins (2009).
10. Clinical Pharmacy and Therapeutics; by Roger Walker and Cate Whittlesea. 5th Edition, Churchill Livingstone (2011).
11. Textbook of Therapeutics: Drug and Disease Management; by Richard A. Helms and David J. Quan. 8th Edition, Lippincott Williams and Wilkins (2006).
12. HS Ali, *et al.* "Patients' Perspectives on Services Provided by Community Pharmacies in Terms of Patients' Perception and Satisfaction". *Journal of Young Pharmacists* 11.3 (2019): 279.
13. Mary Anne Koda-Kimble, *et al.* "Koda-Kimble and Young's Applied Therapeutics: The Clinical Use of Drugs". Wolters Kluwer Health/Lippincott Williams and Wilkins; Tenth edition (2012).
14. Clinical Pharmacy and Therapeutics; by Roger Walker and Cate Whittlesea. 5th Edition, Churchill Livingstone (2011).
15. Mohamed Alshakka, *et al.* "Perception of community pharmacy personnel towards patient counseling and continuing pharmacy education programs in Aden, Yemen". *The Journal of Middle East and North Africa Sciences* 3.10 (2017): 43-49.
16. The Theory and Practice of Industrial Pharmacy, Lea and Febiger, 3rd Ed, Philadelphia, USA. J.L (1986).
17. Taylor K, *et al.* "Sociology for Pharmacist: An Introduction". 2nd ed Revised CRC press (2004).
18. Mohammed Alshakka, *et al.* "Adverse drug reactions and medication errors: A quantitative insight in Aden, Yemen". *Journal of Young Pharmacists* 11.1 (2019): 82-87.
19. Lloyd VA. "The Science and Practice of Pharmacy". 21th ed, Lippincott Williams and Wilkins, Philadelphia (2013).
20. Kimberly AG. "Developing clinical practice skills for pharmacists". 2nd Ed. American society of health system pharmacists. Bethesda, Maryland (2006).
21. Robert SB. "Communication skills in pharmacy practice". 6th ed. Lippincott William and Wilkin (2012).
22. Ahmed Ahmed, *et al.* "Well-being of Patients through Consideration of Ethical Principles in Healthcare Settings: Concept and Practices". *Systematic Reviews in Pharmacy* 11.5 (2020): 643-648.
23. Karen JT. "Clinical skills for pharmacists, a patient focused approach". 3rd Ed. an affiliate of Elsevier Inc (2012).
24. Text books 1. Cipolle RJ, *et al.* "Pharmaceutical Care Practice: The Patient-centered Approach to Medication Management". 3rd revised edition: McGraw Hill. 2. Shargel L, *et al.* (2009) Comprehensive Pharmacy (2012).
25. Ewles L. "Key Topics in Public Health- Essential Briefings on Prevention and Health Promotion". 1st Ed, Elsevier Churchill Livingstone (2005).
26. Handbook of Nonprescription Drugs. 11th ed. American Pharmaceutical Association. Washington (1996).
27. Strom BL, *et al.* "Pharmacoepidemiology". 5th edn, New York: Wiley-Blackwell. 2. Hartzema AG, Tilson HH and Chan KA. (2013).
28. Warshany K, *et al.* "Medicare annual wellness visits conducted by a pharmacist in an internal medicine clinic". *American Journal of Health-System Pharmacy AJHP* 71 (2014): 44-49.
29. Basic and Clinical Pharmacology, 11th Edition (LANGE Basic Science) by Bertram Katzung, Susan Masters and Anthony Trevor McGraw-Hill Medical; 11 edition (2009).
30. Delgado O, *et al.* "Advancing the pharmacy practice model in a community teaching hospital by expanding student rotations".

American Journal of Health-System Pharmacy AJHP: Official Journal of the American Society of Health-System Pharmacists 71 (2014): 1871-1876.

31. Adam B Woolley, *et al.* "Potential cost avoidance of pharmacy students' patient care activities during advanced pharmacy practice experiences". *American Journal of Pharmaceutical Education* 77 (2013): 164.
32. SA Yousuf., *et al.* "Attitudes and practices of community pharmacists and barriers to their participation in public health activities in Yemen: mind the gap". *BMC Health Services Research* 19.1 (2019): 1-8.
33. Rickles NM., *et al.* "Cognitive memory screening and referral program in community pharmacies in the United States". *International Journal of Clinical Pharmacy* 36 (2014): 360-367.
34. Kheir N., *et al.* "Pharmacy education and practice in 13 Middle Eastern countries". *American Journal of Pharmaceutical Education* 72 (2008): 133.
35. M Alshakka., *et al.* "Medication Safety Beyond the Hospital and Role of Pharmacists in Ambulatory Medication Safety Process". *Medicine* 3.2 (2017): 43-47.
36. Parthasarathi G., *et al.* "TextBook of Clinical Pharmacy Practice: Essentials Concepts and Skills".
37. "The Patient-centered Approach to Medication Management". 3rd revised edition: McGraw Hill. 2. Shargel L, *et al.* *Comprehensive Pharmacy* (2009).