

ISSN 2311-4673

Journal of Pharmacy and Pharmaceutical Sciences
(Volume 2, Issue 1, 2014)

Compounding and Dispensing Practices in Karachi's Hospital Pharmacy

Amber Nawab¹, Najaf Farooq², Javeria Rahat³

¹Faculty of Pharmacy, Jinnah University for women,- Karachi, Pakistan.

ABSTRACT

This study is performed to analyze compounding process and dispensing practices in hospital settings in Karachi and also focused on the services that should be conducted by any hospital pharmacy ensuring good compounding and dispensing practice. A survey based study is conducted in different large and small hospitals of Karachi by using questionnaire and compared compounding and dispensing practices held in these large and small hospitals and determine that how much hospitals meets the requirements of these practices and how much are not following the criteria of these services. Statistical analysis is performed for the compounding and dispensing practices offered in large and small hospitals and shows the percentage of followers and non followers of compounding and dispensing practices in hospitals of Karachi.

Result of this study revealed that practices of compounding and dispensing practices in Karachi's hospitals are not well developed and pharmacists are mostly present for performing these services but still violates the law. Large hospitals may follow the good practices of compounding and dispensing but small hospitals widely violates these practices which leads to malpractice in hospital settings and cause many problems for public sector and consumers.

Keywords: Compounding Practice, Dispensing Practices, Hospital Pharmacy, Small and Large Hospitals.

INTRODUCTION

Hospital

The hospital is a complex organization utilizing combination of intricate, specialized scientific equipment, and functioning through a corps of trained people educated to the problem of modern medical science. These are all welded together in the common purpose of restoration and maintenance of good health. [1]

Hospital Pharmacy

The department or service in a hospital which is under the direction of a professionally competent,

*Corresponding author: danamber2011@hotmail.com

legally qualified pharmacist, and from which all medications are supplied to the nursing units and other services, where special prescriptions are filled for patients in the hospital, where prescriptions are filled for ambulatory patients and out-patients, where pharmaceuticals are manufactured in bulk, where narcotic and other prescribed drugs are dispensed, where injectable preparations should be prepared and sterilized, and where professional supplies are often stocked and dispensed.[2]

Hospital should has strong leadership , a clear strategic vision and the governance and controls assurance necessary to ensure patient get the best

from their medicine.[3]

Services of hospital pharmacy:

1. Compounding: is an integral part of pharmacy practice and is essential to the provision of health care.[4] Compounding is defined in USP 795 as follows;

"The preparation, mixing, assembling, altering, packaging, and labeling of a drug, drug-delivery device, or device in accordance with a licensed practitioner's prescription, medication order, or initiative based on the practitioner-patient-pharmacist-compounder relationship in the course of professional practice. [5]

The pharmacist is responsible for compounding preparations of acceptable strength, quality, and purity, with appropriate packaging and labeling in accordance with good pharmacy practices, official standards, and current scientific principles. [4] Pharmacists should continually expand their compounding knowledge by seminars, current literature, and discussion with other medical professionals.

Compounding in a legal frame work:

Compounding has long been recognized as a legal and vitally important core component of traditional pharmacy practice. In 1938, the USP had already been providing compounding instructions. Compounding occupied such an important role in U.S. pharmacy practice in the early 20th century that a number of state pharmacy practice acts not only regulated compounding but specifically included the term compounding. Before 1938, states considered every location where compounding occurred and where drugs, medicines, or chemicals were sold or dispensed to be a pharmacy. In other words, wherever compounding took place, the facility was termed a pharmacy and was thus subject to that state's pharmacy practice act. [6]

The Compounding Process

The steps to be followed before, during, and after compounding can be grouped into five categories:

preparatory, compounding, final check, sign-off, and cleanup steps.

Preparatory

1. Judging the suitability of the prescription in terms of its safety and intended use and the dose for the patient, do calculations of ingredients, select proper clean equipments and cleaning of compounding area and equipments, if necessary.

Compounding

2. Compounding the prescription according to the formulary record or the prescription, using techniques according to the art and science of pharmacy.

Final Check

3. Checking, as indicated, the weight variation, adequacy of mixing, clarity, odor, color, consistency, and pH.

4. Entering the information in the compounding log.
5. Labeling the prescription.

Sign-Off

6. Signing and dating the prescription, affirming that all of the indicated procedures were carried out to ensure uniformity, identity, strength, quantity, and purity.

Cleanup

7. Cleaning and storing all equipment and the compounding area. [7]

2. Dispensing: refer the process of preparing and giving medicine to a named person on the basis of a prescription .it involves correct interpretation of the wishes of the prescriber and the accurate preparation and labeling of the medicine for use by the patient. It is one of the vital element of the rational use of medicine. [8]

Dispensing process

Consist of the following steps:

1. Receive and validate prescription
2. Understand and interpret prescription (pt.

medication dose)

3. Prepare and label items for issue

4. Make final check

5. Record action taken

6. Issue medication to the patient with clear instruction and advice [8].

3. Counselling: pharmacist shall be available to participate in patient education. Pharmacist should help to ensure that all patients are given adequate information about the medications they receive in order to help patient. Participate in their own health care decisions and encourage adherence to medication regimens patient. Education activities shall be coordinated with the nursing, medical, and other clinical staff as needed. Medication related materials developed by other services and depts. As well as commercial sources should be reviewed by the pharmacy staff for accuracy, currency, literacy appropriateness, and completeness. If necessary, interpretative language services (written or oral) should be made available to the patient. [9]

4. Patient Assessment: pharmacist–patient consultations shall be available to confidentially enhance patients’ knowledge and adherence to prescribed medication regimens[9]. Patient care maintain through medicines reviewed by a clinical pharmacist to ensure that their medicines are clinically appropriate, and to optimize their outcomes from their medicines.

5. Labelling: Medicines dispensed or prepared are labeled for safety in line with legal requirements.

6. distribution and storage: Medicines are safely and securely distributed from a pharmacy and stored in a secure and suitable environment prior to administration.[10]

7. Monitoring patients’ outcomes: Patients’ outcomes

from and experiences of treatment with medicines are documented, monitored and reviewed. An ongoing program for preventing, monitoring, resolving, and reporting adverse drug events shall be developed. [11]

METHODOLOGY

We have performed the survey on 18 hospital pharmacies (large hospitals n=9 and small hospitals n=9) of Karachi. We took compounding and dispensing practices of hospital pharmacies and analyze different services regarding these practices in Karachi’s hospitals including number of pharmacists, extemporaneous compounding, method of dispensing, prescription checking, prescription reviewing and patient counseling etc. We have statistically analyzed our results and plotted graph which show percentage of followers of practice in hospitals(both large and small hospitals) as well as comparison of small hospitals vs large hospitals in term of offering their compounding and dispensing practices.

RESULTS AND DISCUSSION

Result

The questionnaire based survey results show that pharmacists are present in only 44% of small hospitals and average dispensing assistants present in small hospitals are 3/hospital. The methods preferred for distribution of medicine is envelope(77%) and basket (22%)(as shown in figure:1). 66.6% of small hospitals are dealing with more than 50 prescriptions/day and prescription checking , which is the most important work of pharmacists as done by only 22.2% of hospitals, unfortunately none of the small hospital does reviewing of prescription. Only 44.4% of hospital does labeling of medication. 100% hospitals dispensed medicine 24 hourly,77.7% counsel the patients and 33.3% does extemporaneous preparation (figure:3). Whereas the survey result of large hospital shows that pharmacists are present in all hospitals but only 66.6% hospitals has greater than 5 pharmacists and average dispensary assistants present are 13/hospital. The methods preferred for distribution of medicines are trolley (55.5%), envelope (44.4%)

and basket (22.2%)(as shown in figure 2). 88.8% of hospitals are dealing more than 100 prescriptions/day and prescription checking is done by 88.8% of hospitals, prescriptions are reviewed by 88.8% of hospitals. 88.8% of hospitals does labeling of medication, 77.7% dispensed medicine 24 hourly while 33.3% dispensed through unit system. 66.6% counsel the patient and 55.5% does extemporaneous dispensing. (as shown in figure:4)

DISCUSSION

Pharmacists are that professional holder persons which have greatest responsibility on their shoulder. They are known as custodians of drugs. They are involved from beginning i.e. making of medicine till end i.e. dispensing of drug or medicine to the patient. Whereas, pharmacy is the place where patients are interact with pharmacist and fulfill their requirements and also get information about their medicine through community pharmacy. It is the responsibility of pharmacists to dispense drug in correct doses, to guide the patient.

In this survey we have checked the compounding and dispensing practices in different hospitals of Karachi. Unfortunately, dispensing practice in most of the small hospitals is not justified, whereas the large hospitals are following good compounding and dispensing practices.

In a comparative study of small and large hospitals, we have observed that majority of small hospitals had no pharmacists so dispensing practices are not well established but in large hospitals pharmacists are present. Checking of prescription is done in both categories, but reviewing of prescription is negligible in small hospitals, which is an important work of pharmacist. Patient counseling is done by both large and small hospitals but is not according to good compounding and dispensing practices. (figure:5) In small hospitals there is only three dispensary assistant/hospital whereas it is 13/hospital in the hospitals of large category.

So, we can say that unfortunately this profession is not justified in Karachi, because the dispensing

practice in most of the hospitals are not well established but some large hospitals are working hard to improve the functioning of pharmacies as the duties are efficiently performed by the pharmacists in these hospitals

CONCLUSION

We conclude that majority of the pharmacies in small hospitals are not following good compounding and dispensing practices but most of the pharmacies of large hospitals are working hard to meet the standard of good compounding and dispensing practices, development of good compounding and dispensing practices of hospital pharmacies is one of the need of Karachi’s hospitals for the improvement of health care facilities and betterment of public sector.

Table 1: Compounding and dispensing practices in small hospitals

small hospitals (n=9)				
Practices	followers	% of followers	Non followers	% of non followers
total number of pharmacist (> 5)	(<5)4	44.4	5	55.5
dispensary assistants (> 10)	2(10),7(2-3)	22.2, 77.7	-	-
prescription dealing (>50)	6	66.6	3	33.3
checking of prescription	2	22.2	7	77.7
reviewing of prescription	-	-	9	100
distribution of medicine	7(en), 2(b),	77.7, 22.2	-	-
labelling of medication	4	44.4	5	55.5
method of dispensing	9(24hr)	100	nil	-
patient counselling	7	77.7	2	22.2
extemporaneous preparation	3	33.3	6	66.6

Table 2: Compounding and dispensing practices in large hospitals

large hospitals (n=9)				
Practices	followers	% of followers	non followers	% of non followers
total number of pharmacist (> 5)	6	66.6	3	33.3
dispensary assistants (> 10)	5	55.5	4	44.4
prescription dealing (>100)	8	88.8	1	11.1
checking of prescription	8	88.8	1	11.1
reviewing of prescription	8	88.8	1	11.1
distribution of medicine	5(0),2(b),4(env)	55.5, 22.2, 44.4	nil	-
labelling of medication	8	88.8	1	11.1
method of dispensing	7(24hrs),3(unit)	77.7, 33.3	nil	-
patient counselling	6	66.6	3	33.3
extemporaneous preparation	5	55.5	4	44.4

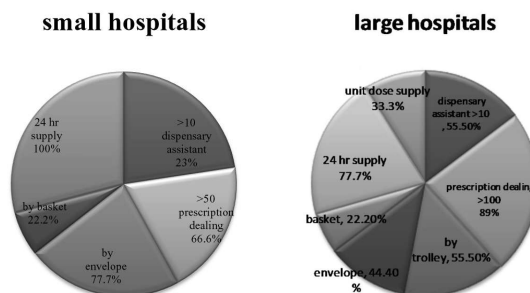


Figure 1: dispensing practices in small hospitals

Figure 2: dispensing practices in large hospitals

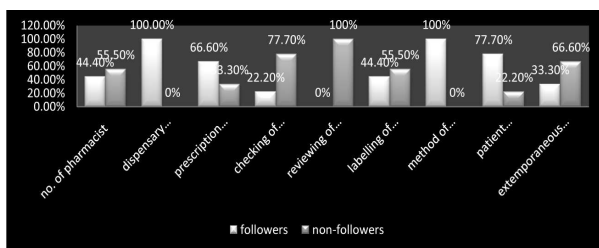


Figure 3: percentage analysis of dispensing practice followers and non-followers in small hospitals

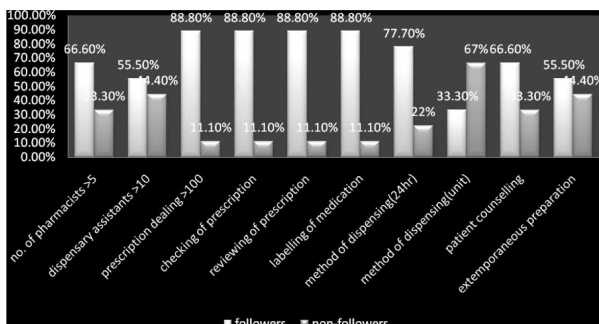


Figure 4: percentage analysis of dispensing practice followers and non-followers in large hospitals

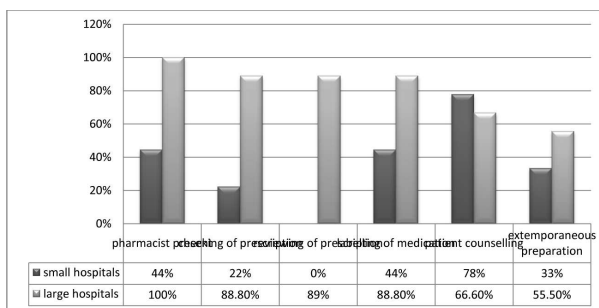


Figure 5: comparison between small and large hospitals

REFERENCES

1. William E. Hassan, JR. Hospital Pharmacy Fifth Edition Lea and Febiger, Philadelphia 2;36 (1986).
2. William E. Hassan, JR. Hospital Pharmacy Fifth Edition Lea and Febiger, Philadelphia 1;1 (1986).
3. Royal Pharmaceutical Society. Professional Standards for Hospital Pharmacy Services. 18 (2012).
4. Pharmaceutical Compounding Expert Committee. Pharmaceutical compounding. In: United States Pharmacopeia 34/National Formulary 29.

Rockville, Md: United States Pharmacopeial Convention; (2011).

5. Good compounding practices applicable to state-licensed pharmacies. In: Model State Pharmacy Act and Model Rules of the National Association of Boards of Pharmacy. Park Ridge, Ill: National Association of Boards of Pharmacy, C.1–C.5 (1993).

6. Houck LK. Compounding: a well-established practice in 1938. *Int J Pharm Compound.* 9 (5):364–7 (2005).

7. Allen, L.V. jr., The art, science and technology of pharmaceutical compounding, Washington D.C: American pharmaceutical association edition 4th, 1; 2,10 (2002).

8. Ensuring good dispensing practices.(MD-3:managing access to medicine and health technology) Essential medicines and health products information portal A world health organization resource. *Edi 3, 30; 30.2, 30.5* (2012).

9. American Society of Health-System Pharmacists. ASHP guidelines on pharmacist-conducted patient education and counseling. *Am J Health-Syst Pharm.* 54:431–4 (1997).

10. Royal Pharmaceutical Society. Professional Standards for Hospital Pharmacy Services. 16 (2012).

11. American Society of Health-System Pharmacists. ASHP guidelines on adverse drug reaction monitor-ing and reporting. *Am J Health-Syst Pharm.* 52:417–9 (1995).