The observational study of various pharmacy services, its organizational structure, planning considerations and managerial issues in Hospital Pharmacy in a Medical College in Punjab, India

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Abstract

Introduction: The pharmacy is one of the most extensively used therapeutic services of the hospital. The study was conducted to assess and analyze the type of hospital pharmacy services and drug distribution system; the planning considerations for hospital pharmacy, the various policies and procedures involved and associated managerial issues.

Materials and Method: The study was conducted in the hospital pharmacy of 600- bedded hospital of Gian Sagar Medical College & Hospital, Patiala, Punjab, India in September 2016 for 4 weeks. Multiple on-site observations were done over the staff of the pharmacy and their environment.

Conclusion: The Gian Sagar pharmacy though running good has scope of improvement. The staffing, equipment and the organizational structure are satisfactory but the procurement of drugs is too slow resulting in many out-of-stock items. Moreover, the staff development is important because of continual changes in expectation of the quality of pharmacists, social needs and the new information technique in education.

Keywords: Pharmacy, Planning, Organizational structure, Pharmacists, Storage

Introduction

The pharmacy is one of the most extensively used therapeutic services of the hospital. Pharmacy services in a hospital can be defined as premises licensed for the retail sale or supply to the hospital out patients department and/ or inpatient areas of drugs which have qualified licensed persons and indulge in compounding of drugs.(1) The hospital is a complex organization utilizing combination of intricate scientific equipment, and functioning through a corps of trained people educated to the problem of modern medical science. These all work for restoration and maintenance of good health.(1,2)

All parts of pharmacy should be consistent with the Central and State laws and regulations.

Role of pharmacy: The American Society of Hospital Pharmacists defines the objective of a pharmacy as to provide the benefits of services of a qualified hospital pharmacist to patients and health care institutions.(3) The various pharmaceutical functions rendered by the hospital pharmacy are: demand estimation, compounding, quality control, supply of drugs to hospital, dispensing for outpatients, maintenance of formulary system, furnishing drug information to physicians and other professional staff, in-service training, teaching and research and clinical trials, patient education, drug use review.(4)

Types of pharmacy services: The pharmacies services can be: OPD pharmacy, IPD pharmacy, or both. The pharmacy services were earlier viewed as solely compounding and dispensing drug products for patient use. These services have changed dramatically since early 1960s and today, the pharmacy is viewed as a clinical department that can serve as a bridge between the clinical and financial aspects of drug therapy.(2,4)

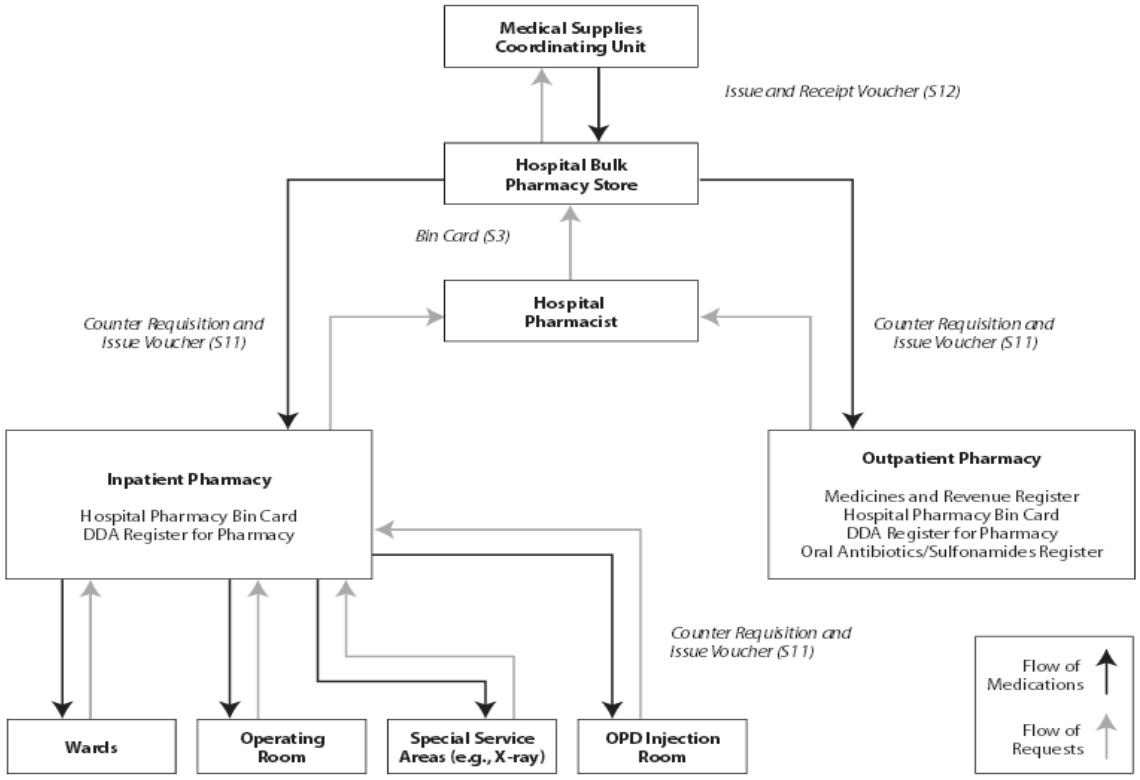
Organization of hospital pharmacy services: In organizing hospital pharmacy services, both the way in which the staff is organized and the physical layout of the building must be considered. The staffing is divided into three levels: the management (the chief Pharmacist); the professional staff (qualified pharmacists who procure, distribute, and control medications); and the support staff: (trained pharmacy technicians, clerical personnel, and messengers). The role of a pharmacist and his technician are receiving written prescriptions, verifying and preparing the prescription, ordering and stocking prescription and over-the-counter medications, assisting with drug studies, tracking and reporting errors.(3,5)

The physical layout involves planning of administrative offices, bulk storage, narcotic or dangerous drug locker, manufacturing and repackaging, dispensing, medicine information resource center, after-hours pharmacy.(5) Furniture and equipment: Drug stock cabinets with shelves and drawers for assortment of drugs should be labeled.(5)

Policies and Procedures: The head of pharmacy services develops policies with the cooperation of pharmacy committee of the hospital. The policies state the selection of pharmaceuticals to be stocked, procurement, storage and use of drugs, purchase procedures, system of record keeping.(6,7)

The Pharmacy and Therapeutics Committee: This committee usually consists of a physician, surgeon, Pharmacist, nursing supdtt, the medical supdtt as the Chairman. Its functions are to serve in an advisory

capacity to the clinicians and the hospital administration in all matters pertaining to drug usage, to develop drug formulary, to review adverse drug reactions and to assure quality standards.[2,8] The pharmacy committee should evaluate the functioning of the service and is responsible for the control and evaluation and maintenance of the hospital pharmacy. The hospital formulary is a compilation of pharmaceuticals.[9,10,11]



Source: Ministry of Health, Government of Kenya, 1994.
DDA = Dangerous Drugs Act.
Note: Forms and registers for wards, operating room, special areas, and outpatient department (OPD) injection room are the same as for the central pharmacy system.

Drug distribution system:[10,12,13] The various types of drug distribution system are:

1. **Floor stock method:** The nurse removes the drug from its bulk container and administers to the patient. It is labor intensive for nursing and lacks controls.
2. **Individual patient drug order system:** Nurse writes a special request for each drug needed. The pharmacist fills the order with a multiple day supply (3-7 days) that the nurse administers to the patient. Still medication errors and the delay in supply happen.
3. **Unit dose method:** Pharmacists receive a direct copy of the physician's order. Drugs are given as single use containers and dispensed in ready to administer form. A less than 24hr supply is dispensed. It is safer, better, efficient, economical and allows efficient use of resources.

Managerial issues: The important managerial issues are related to the control of drug costs, effective staff utilization, human relations and consumer satisfaction, drug pilferage.[14] The pharmacy services maintain ledgers, indent file, report file, stock verification file, hospital formulary.[15] The narcotic drugs should be kept separate, under lock and key. Proper record keeping is must.[9,16] Although the need for medications is continuous, many hospitals will close pharmacy at night. An on-call pharmacist or a nursing supervisor can dispense medications during closed hours.[17,18]

Computerization in pharmacy: The computerization of the pharmacy department makes it possible for the staff to participate in patient education programs, control inventory, research programs, communicating new product information to hospital personnel etc.[19,20,21]

Therefore, the aim of this study was to assess and analyze the type of hospital pharmacy services and drug distribution system, the planning considerations for hospital pharmacy, the various policies and procedures involved and associated managerial issues.

Materials and Method

Research site: The study was conducted in the hospital pharmacy of 600- bedded hospital of Gian Sagar Medical College & Hospital, Patiala, Punjab, India in September 2016 for 4 weeks. Multiple on-site observations were done.

Research population: All the staff of the pharmacy: The

pharmacists and the supporting staff, aged 20-45 years and both sexes.

Research design: The research was designed as the qualitative design to analyze the functioning of pharmacy.

Type of study: The study is qualitative and descriptive in nature and most of the data is based on secondary sources of survey data. Such an approach is adopted in the study, as the area of research is very broad.

Data collection strategies: Research methods included literature evaluation, in-depth interviews of pharmacists, head of the department, incharge pharmacy and the chief pharmacist.

Data analysis: The responses were noted down separately for each individual and these responses were analyzed.

Semi-structured interviews were conducted and for the analysis of the different inefficiencies. The analysis of data is totally objective and unbiased of the interviewer. These inefficiencies were then discussed, validated, and compared in order to capture systematically their relative importance across the participants.

The data was collected and then, analyzed without any bias. General issues and problem areas were noted separately.

Results and Discussion

Type of pharmacy: The Gian Sagar Pharmacy is of OPD and IPD combination type of pharmacy that is: caters to both OPD patients and IPD patients. The IPD part of pharmacy runs as 24-hour pharmacy on the ground floor of the hospital.

Physical layout: The hospital pharmacy is located at the ground floor near the entrance/exit of the hospital that provides quick and easy flow of patients, material and user departments. The total carpet area of pharmacy is 1500 sq feet. The main pharmacy is around 1100 sq feet with an attached 400 sq feet of pharmacy store. The pharmacy area is near to OPD area, which is very convenient to the out patients. There are separate counters for the OPD and IPD indents. The pharmacy has neat, well-placed shelves with provision for the storage of drugs and other items in a neat manner, protected from dust, moisture, excessive light and at prescribed temperature.

Furniture and equipment: Drug stock cabinets for proper shelves and drawers for assortment of drugs are done. The drugs are assorted alphabetically as tables/capsules, injectable, drops, ointments, surgical items (gloves, IV sets) and kept in separate cabinets/ shelves.

Organizational structure

Staffing: The staffing involves the head of the department (1), Incharge pharmacy (1), chief pharmacist (1), OPD and IPD incharge (1 each), 12 pharmacists (5 for IPD and 7 for OPD). There are 3 delivery boys to deliver drugs to IPD.

Educational qualification of the staff: The pharmacists are registered pharmacists with either Bachelor in Pharmacy (B.Pharmacy) or Diploma in pharmacy (D.Pharmacy). The B.Pharmacy is a 4-year course and D. Pharmacy is a 2-year course.[22] The head of the pharmacy has an additional MBA degree and the Incharge pharmacy has 12 years of experience in pharmacy. The pharmacists are having 2-3 year's experience in running the pharmacy.

Fig. Organizational Structure of Gian Sagar Pharmacy

The Pharmacy and Therapeutics committee: The committee is composed of three physicians, a pharmacist, a nurse, and an administrator. The dean of the college appoints committee members. The Chairman is an ENT specialist with a clinical pharmacologist as secretary. The other members of the committee are the heads of medicine, psychiatry, pediatrics, orthopedics, and dentistry department. The non-doctors are the head of pharmacy, incharge pharmacy and the nursing suppdt. The committee invites to its meetings persons within or outside the hospital who can contribute specialized or unique knowledge. An agenda is prepared and circulated, the committee meets bimonthly and minutes are prepared and maintained. The recommendations of the committee are presented to the medical supdtt or CEO of the hospital for adoption or recommendation.

Policies and Procedures: For effective control and evaluation of pharmacy services, the Pharmacy committee in conjunction with the management has laid down policies and procedures for the pharmacy department. The return of drugs from patients is allowed within 3 days of purchase. Regarding the indoor patients, the return is allowed till before the patient gets discharged from the hospital. There is an approved hospital formulary, which is regularly updated every year. (The last update on 10/2/16)

Control and evaluation: The procurement section is separate from the issue and distribution section. The main pharmacy store located in the basement of the hospital stores all the items in bulk. The pharmacy sale store at the entrance/exit in ground floor does the sale.

The entire pharmacy is reviewed periodically. The chief pharmacist carries out verification of stock every 6

months (internal audit) and an independent authority carries out annual verification of stock (external audit).

Various problem areas: Through a thorough content analysis of the comments of the 18 participants, the following main issues were identified:

1. **Incorrect inventory management**: It is essential to maintain adequate inventory levels that ensure zero stock outs. The hospital pharmacy must hold enough medicines to guard against fluctuations in demand, to take advantage of bulk discounts and to withstand fluctuations in supply and, as a result, the pharmacy stocks higher levels of pharmaceuticals than necessary, even if medicines can become obsolete. An inappropriate inventory management can produce over- and under-procurement, out-of-stock, medicine shortage and multiple and unnecessary storage locations such as storage in care units or in the physicians' and nurses' offices.
2. **Excessive losses**: Expiry of drugs, drug pilferage, breakage/spill of drugs should be prevented/ minimized for better efficiency of the pharmacy.
3. **Lengthy procurement cycles**: The patients are affected if their medication doses cannot be delivered in time to the care unit.

Computer software: The software in the pharmacy is hospital information system (HIS) based on Akhil Systems Pvt Ltd.

Concept to develop staff of pharmacy: The staff development is important because of continual changes in expectation of the quality of pharmacists, social needs and the new information technique in education.

Conclusion

Efficiency: The Gian Sagar pharmacy has not yet developed satisfactory solutions to the problem of efficient and effective pharmaceutical services. The hospital should have a clear laid down policy regarding the extent and type of drugs and other items to be dealt with by pharmacy services and the written policies should specifically cover the schedule for quality of drugs, therapeutic usage, rates and charges.

The expiry drugs are a vast source of wasteful but preventable expenditure for the organization. It can be minimized by FIFO (First in first out) method. Secondly, the slow moving drugs can be purchased in low quantity and ordered as and when needed. This does not hold good for emergency drugs, which must be present in sufficient quantity at all times.

The drug distribution system must ensure that the drugs are provided to other areas of the hospital, e.g. emergency, OTs. These areas should receive increased pharmacy attention.

Managerial issues: The cost of drugs can be controlled by administrative strategies like reducing drug procurement cost, inventory management, value analysis, use of appropriate drug distribution system, computerization and use of therapeutic equivalents in the hospital formulary. To prevent the supply of sub-standard drugs, hospital should follow standard purchase practices and routine and/ or random qualitative analytical testing of drugs should be done, supervised by Pharmacy Committee.[23]

The non-availability of drugs can cause embarrassment to the hospital, especially; availability of emergency drugs is to be ensured based on appropriate inventory control techniques.[24] Stamping the packages, strips, and bottles with hospital name stamp should prevent the drug pilferage. The procurement section should be separate from the issue and distribution section. The effective staff utilization depends on an appropriate mix of pharmacists, pharmacy technicians and other support staff. Pharmacist should not be used for functions that can be performed by other support staff.

The human relation in pharmacy is important. Consumer satisfaction is an important issue of this service, especially in OPD Pharmacy, which is generally the last place to be visited by the patients coming to the OPD, and when they reach there, they are tired and expect a quick and courteous service from the pharmacy.

Control and evaluation

The complexity of systems necessary to provide pharmacy services in a hospital would mandate a continuous and on-going control and evaluation system to develop a quality assurance program for the service. The hospital therapeutic committee has an important role in control and evaluation function.[22,25]

For effective control and evaluation of pharmacy services, criterion has to be developed on the basis of department's policies and procedures. The procurement and distribution should be clearly laid down.[26] The entire pharmacy should be reviewed periodically and an independent authority should meticulously carry out annual verification of stock.[27,28]

Education and Training: The pharmacists' knowledge of clinical pharmacology should be assessed and improved periodically and they should be given increment after they clear the tests.[17,28] The pharmacist should conduct, participate in, and support medical and pharmaceutical research appropriate to the goals, objectives, and resources of the pharmacy and the institution.

Acknowledgement

We are highly thankful to all the staff of the Gian Sagar pharmacy and the hospital management, for their co-operation and active interest in the conduct of the study.

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