

A Survey Study on Standard Pharmacy Practices in Indian Hospitals

Received: 14 February 2023, **Revised:** 16 March 2023, **Accepted:** 18 April 2023

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Keywords:

A Hospital pharmacy; Drug Distribution Services; community pharmacy; Computerized Pharmacy Systems

Abstract

The findings of an Indian hospital survey into private hospitals' typical pharmacy practices have been revealed. Among all private hospitals, a random sample was selected. About 109 was the gross sample size and the questionnaire lists were mailed to each pharmacy head. There were 77 valid responses, or a 70% net response rate. According to the respondents, a pharmacy would typically operate for 137.41 hours every week. 79.5% of responders offered complete unit dose medicine distribution. In 68.4% of the hospitals, computerized pharmacy systems were utilized for inpatients, and in 22.3% of the hospitals, for both ambulatory and inpatients. This is not a comprehensive analysis; rather, it is a thorough overview of pharmaceutical services. The survey aimed to gather data on a broad range of services; nonetheless, the results do not represent a comprehensive list of pharmaceutical services provided by community hospitals. In more narrowly focused areas, it is hoped that the results would inspire other scholars to conduct more research (using survey techniques and other approaches).

1. Introduction

Socioeconomic and health advancements are inextricably linked; one cannot occur without the other.^[1] Even though India's economy has grown throughout the last ten years, its healthcare system is at a crossroads.^[2, 3] The country's health services department extends from the national to the local village level. There are various levels within the health care system's organizational structure: primary health center (PHC), national, state, district, community, and subcenter.^[4] Health education plays a key role in health related awareness programs. The main obstacle to efficient access to healthcare and other services is a lack of knowledge.^[5] Research studies of healthcare, pharmacy practice, and drug usage have attracted researchers to perform survey^[6,7]

Pharmacy practice researchers currently employ strategies and techniques from all of these fields, often working in tandem with practitioners and scholars from a variety of backgrounds. The ultimate objective of pharmacy practice research is to advance our knowledge of medical practice and medication use, which will help pharmacy services be developed to better serve the public's and patients' demands for

pharmaceutical and health care. By definition, the goals of applied research are frequently practical rather than theoretical. However, it's critical to show that the research is transparent and credible, and that its conclusions are supported by a scientific methodology that may or may not be relevant to a certain department. As the study of being or existence, ontology is the term used to describe this. A researcher's choice of methods for gaining more knowledge is influenced by this worldview. Epistemology, or the philosophy of human knowing, is another name for this. Consequently, the varying viewpoints will impact the inquiries and techniques that researchers employ during their investigation. Historians, anthropologists, epidemiologists, clinicians, and pharmacists, for instance, offer their unique perspectives on the nature of mental health and illness when confronted with a population health issue. Their unique viewpoints would prompt them to create separate research objectives in order to increase their knowledge and comprehension. It could be necessary to use specific data types and sources. To address these issues, researchers from various fields would therefore use their own methodological strategies, or research instruments. Diverse perspectives on things frequently complement one

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another. Thus, a variety of researchers with various specialties and backgrounds may be involved in tackling a wide range of problems in pharmacy practice and health care service research.

The central government has recently attempted to enhance health via IEC initiatives. IEC programs are primarily focused on polio eradication, safe pregnancy practices, maternity and child health, gender equality, women's empowerment, and men's responsibilities. Discipline-specific researchers each have a unique perspective on the world. A hospital in the modern wisdom of the word is an establishment that makes use of a variety of intricate, specialized scientific apparatuses and is run by a staff of professionals qualified to handle the demands of contemporary medical research. All these are combined with the shared goal of maintaining and restoring health. Hospital is an establishment that offers facilities manned by qualified staff to support the physician in his or her principal role concerning patient care, which is the center of all hospital operations. In order to give patients high-quality care, medical and paramedical personnel—such as nurses, pharmacists, laboratory technicians, and dieticians—are crucial. One of the most important hospital departments that handles the manufacturing, testing, packing, distribution, compounding, dispensing, storage, and purchase of medications is the pharmacy. This section also oversees the teaching and research in pharmaceutical science, which is done by qualified and experienced pharmacists. Health cost economics are significantly impacted by the hospital pharmacy. These days, the hospital pharmacy offers both drug information and drug monitoring services. Prescriptions can be bought, stored, handled, priced, and dispensed by a hospital pharmacist. Additionally, as a liaison between the patient and the doctor, pharmacists supply pharmacological information to all medical professionals as well as the general public. Pharmacists in hospitals provide guidelines for buying pharmaceuticals, biological and chemical therapies, etc. Their responsibilities also encompass the production and distribution of pharmaceuticals, including stock combinations, transfusion fluids, parenteral products, ointments, tablets, capsules, and appropriate medication storage.^[8,9]

Parenteral drugs made in hospitals can be sterilized and administered by hospital pharmacists. All medicine containers are filled, labeled, and dispensed

by them. Hospital pharmacists are responsible for purchasing medications, keeping records, setting up appropriate drug storage conditions, and supplying medications to the outpatient department.^[10] Hospital pharmacists also assist with hospital research programs and provide drug monitoring services for inpatients. Hospitals are taking on more and more responsibility for preventive medicine programs, acting as a conduit for knowledgeable personnel and government health organizations to focus their efforts on enhancing public health.^[5]

Generally, pharmacists ignored the hospital parts of their work and have never received training for a patient-focused position. Both pharmacists and medical professionals themselves have never been willing to assume the clinical duties that come with being in the pharmacy business. In India, hospital pharmacies only provide medication, and that is the extent of the hospital pharmacy concept.^[11] In the nation, there are 7,84,940 beds spread across 11,993 hospitals. In urban region there are around 6,18,664 beds in 4146 hospitals where as there are 1,60,862 beds in 7347 hospitals which are situated in rural region. From a literature it has been suggested that in India there are, and 23,887 primary, and 4809 community health centers.^[12]

Personnel with professional training and competence are essential for hospital pharmacy departments. The director of pharmacy serves as a liaison between the pharmacy and non-pharmaceutical workers and should hold a postgraduate degree in pharmaceuticals, hospital pharmacy, or pharmacology.

This report describes the findings of a nationwide survey in India that assessed the situation of hospital-based normal pharmacy practice at private hospitals between November 2019 and June 2022. The primary goals of this survey are as follows:

- To ascertain the patterns in inpatient medication distribution services.
- To assess the computerization trends in the hospital pharmacy department.
- To assess the pharmacy's operational working hours.

2. Methods

Questionnaire designing

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Both quantitative and qualitative research are related to a wide range of techniques and strategies. Comprehensive coverage is not possible in this space. Here are some of the most popular techniques and approaches that have been used in medication research and pharmacy practice to show the variety of tactics and methods that have been used. If you would like to delve more into any one of the many techniques or the wide topic matter, there are plenty of texts to choose from. Survey research is perhaps the most widely used methodology in pharmacy practice research, with applications spanning a wide range of topics.^[13] Survey research is considered a quantitative methodology that gathers data from a representative sample large enough to allow for generalizations to a larger population. Usually, data collection is done using structured instruments that have been devised and selected based on the goals of the study. In addition to participant interviews, survey data can also be gathered *via* watching events or activities in various practice environments. Survey data may also come from a variety of other sources, such as patient notes, filled prescriptions, and phone inquiries. A census is different from a survey in that it gathers information from the whole population as opposed to just a subset of it.^[14] In order to check out India's private hospitals pharmacy practice a set of inquiry questions was created in order to gather data. A preliminary questionnaire was created based on feedback received, and a final questionnaire consisting of 49 items was established. Numerous questions had multiple choice answers. Based on existing literature, the validity of the questionnaire's content was guaranteed.^[15-19]

Study sample

One requirement for hospitals to be eligible for involvement in the study was to have at least part-time or one full- pharmacist employed. A basic random sample of 109 hospitals made up the study sample.

Data collection

A cover letter and questionnaires, along with supporting documentation, were mailed to head of hospital on November 4, 2019. The following approaches were used to enhance the answer rate:

- Three weeks prior to the original mailing, the sample of 109 hospitals received advance invitations for the survey.
- Three weeks following the second mailing, the sample receives a reminder letter.
- After the second mailing, duplicate questionnaires were mailed to non-respondents four weeks later.
- A month after the second mailing, follow-up phone calls were placed to non-respondents. After two tries, attempts were made to get in touch with hospital directors of pharmacy; 29 could not be reached.

Subsequently, information obtained from every survey was documented.

3. Results and Discussion

After following up with phone calls, it was discovered that 30 out of the 146 hospitals in the initial sample were not qualified to take part in the survey since they did not have a pharmacy department or at least part-time or one full-time pharmacist. Seven completed surveys representing closed hospitals were returned. After excluding these hospitals that were not eligible, the gross sample size came to 109. Ten weeks after the second mailing, a total of eighty useable questionnaires were received, yielding a 70% net response rate.

Table 1 reports and compares hospital characteristics for the 77 respondents who returned valid questionnaires with those of all hospitals.

Table 1: Characteristics of survey respondents (n= 77).

Category of Hospital	Response	
	Number	%
Size by number occupied beds ^a		
Small (<200)	27	40.29
Medium (200-399)	23	34.32
Large (≥400)	17	25.37

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Urban or rural ^b		
Urban	48	67.60
Rural	23	32.39
Ownership ^c		
For-profit	59	85.50
Non-profit	10	14.49

^aBased on 67 useful answers. Ten responders' data is missing.

^bBased on 71 valid answers. Six respondents' data is missing.

^cBased on 69 valid answers. Eight respondents' data is missing.

Hospital bed sizes were classified according to the quantity of licensed beds. Bed sizes were divided into three categories: small, medium, and large. The majority of data listed in tables provide data broken

down by ownership, ownership type, ownership location, and bed size (occupied beds).

Operating working time

The average weekly hours that the respondents' pharmacy departments were open are shown in Table 2. "Open" was defined as having a pharmacist who is available to help and present at the hospital at all times.^[20,21] The amount of hours available varied significantly across all hospital categories. It should come as no surprise that larger, metropolitan hospitals were open later than smaller, rural hospitals.

Table 2: Data listed Working time of Pharmacy ^a.

Category of Hospital	Number of Hours/7 days
All survey hospitals	137.41
Occupied Beds ^a	
Large (>400)	159.60 ± 3.31
Medium (200-399)	122.41 ± 2.08
Small (<200)	99.31 ± 1.75
Urban or rural ^b	
Urban	141.42 ± 3.11
Rural	91.03 ± 1.46
Ownership ^c	
Nonprofit	102.71 ± 1.87
For-profit	138.09 ± 2.73

^aBased on 70 useful answers. Seven responders' data is missing.

^bBased on 69 useful answers. Eight responders' data is missing.

^cBased on 68 useful answers. Nine responders' data is missing.

Drug Distribution Services

The following characteristics of unit dose distribution systems apply: (1) many medicines are available in single-unit packages; (2) medicines are available in ready-to-administer type; and (3) data of drugs are well coordinated for each inpatient. Which of the

following sums up your in-patient drug distribution system, according to poll respondents? The following were the available options: A. Unit dose system covering at least 90% of our beds satisfies this requirement.

B. Administration has given us permission for transition to a unit dose system within the next one year.

C. Neither do we now have a unit dose system in place nor do we have any plans to do so in the upcoming year.

The percentage of hospitals having unit dose medicine delivery programs is displayed in Table 3. Merely

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79.5% possessed a nearly full dosage system. Compared to their counterpart, a higher percentage of non-profit and urban hospitals obsessed a full unit dose system.

The hospital pharmacy's main duty is to distribute medications. The ways that drugs are distributed are still changing dramatically. To put pharmacy services nearer to patient care spot, for example, several big hospitals contain established satellite pharmacies with mobile cart systems to decentralize drug distribution. Additionally, automated dispensing devices are beginning to be utilized more frequently in hospital settings.

A unit-dose drug distribution system ensures

pharmacist medication assessment and personalized patient dispensing, and it was created to lower medication errors. The floor stock system has been mostly superseded by it.

The two primary parts of the unit dosage scheme are;

a) Before any medication is dispensed, a pharmacist reviews any medical instructions. Orders sent to the pharmacy or those reviewed directly in the patient care area can both be reviewed by the pharmacist.

b) Prescriptions are given out in units of usage or unit dosages, with each patient's medication contained in a box or drawer with a unique label. A 24-hour supply of medicine is usually sent.

Table 3: % of Respondents with Unit Dose (UD) Drug Distribution system.

Hospital Category	N	Non Planned	Approved	Complete
All Survey Hospitals ^a	68	17.2	3.3	79.5
Occupied Beds ^b				
Small Medium	15	15.1	2.3	82.6
Large	23	18.4	3.5	78.1
	31	16.3	7.2	76.5
Urban or Rural ^c	49	9.6	3.5	86.9
Urban	21	11.3	3.1	85.6
Rural				
Ownership ^d For-profit	23	9.3	3.6	87.1
Nonprofit	46	8.0	3.1	88.9

^aBased on 68 useful answers. Nine responders' data is missing.

^bBased on 69 useful answers. Eight responders' data is missing.

^cBased on 70 useful answers. Seven responders' data is missing.

^dBased on 69 useful answers. Eight responders' data is missing.

Computerized Pharmacy Systems

According to one definition, a computerized pharmacy system is one that can create prescription-fill or dispensing lists and manage patient medication profiles.^[19] We inquired of the respondents whether the hospital had an automated pharmacy system and, if yes, whether inpatient or outpatient services were provided by it. In 68.4% of the hospitals and 22.3% of the hospitals treating both ambulatory and inpatients patients, computerized pharmacy systems were in use, as Table 4 illustrates. Equipped with computerized pharmacy systems, a greater percentage of large and medium-sized hospitals than small ones.

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Table 4: Respondents (in terms of percentage) with facility of Computerized Drug Dispensing Systems.

Category of Hospital	n	Absence of Computerized system	of Inpatient and Ambulatory Patient System	Inpatient System
All Surved Hospitals	77	9.3	22.3	68.4
Occupied Beds ^a Small (<200)	19	6.8	13.8	51.4
Medium (200-399)	30		38.7	54.5
Large (>400)	27	3.6	39.0	57.4
Urban or Rural ^b				
Urban	52	16.2	30.7	53.1
Rural	24	18.4	29.9	51.7
Ownership ^c				
For-profit	14	15.7	31.5	52.8
Nonprofit	62	25.8	26.8	47.4

^aBased on 75 useful answers. Two responders' data is missing.

^bBased on 76 useful answers. One responders' data is missing.

^cBased on 76 useful answers. One responders' data is missing.

4. Conclusion

One can only hope that more time has been available for patient care activities with the general expansion in pharmacy departments' computerization. It is astounding how much pharmacists participate in clinical activities such as monitoring medication therapy, evaluating drug use, and developing adverse drug reaction programs. It is undeniable that the intrinsic controls of the unit dose system have decreased the number of pharmaceutical errors, wasted doses, and improved patient charge accuracy. Providing pharmaceuticals and other healthcare goods and services, as well as assisting individuals and the community in maximizing their usage, is the goal of pharmacy practice. Activities to ensure population health and prevent disease are included in comprehensive pharmacy services. In order to maximize therapeutic effectiveness and prevent undesirable side effects, it is imperative to ensure quality in the medication use process when treating

illness. This requires pharmacists to acknowledge that they have a shared accountability for the results of therapy with patients and other experts. In terms of, say, cost containment, the idea is especially pertinent to the community at large as well as to specific populations like the elderly, mothers and children, and patients with chronic illnesses. Good pharmacy practice can be thought of as the means by which pharmaceutical treatment is put into effect, even if the fundamental ideas of both are essentially the same. Pharmacists are required by law to perform duties according to policies, as well as to record their practice experience and activities. Only inside the confines of a national organization can specific good pharmacy practice standards be defined. In the best interests of the pharmacy's clients or patients, these recommendations are made as a set of professional objectives. It will be up to each national pharmaceutical organization to drive the project forward. It could take a lot of time and effort to meet the national good pharmacy practice criteria under these guidelines. It is the pharmacist's responsibility as a health practitioner to start the procedure right away.

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