

Research Article

# “Drug Information Service as Pharmaceutical Care; Provided by Clinical Pharmacists’ in a South Indian Government Hospital”

Sushanta Kr Das<sup>1</sup>, Souvick Acharya<sup>2</sup>, Anand Vijayakumar PR<sup>3</sup> and Saurabh Gupta<sup>4\*</sup>

<sup>1</sup>Department of Pharmacy, CMR College of Pharmacy, Kandlakoya (V)-501 401, Hyderabad, India

<sup>2</sup>Department of Pharmacy, Fortis Escorts Hospital, Amritsar-643 001, Panjab, India.

<sup>3</sup>Department of Pharmacy Practice, JSS College of Pharmacy (Off Campus JSS University), Ootacamund-643 001, Tamilnadu, India

<sup>4</sup>Department of Pharmacology, Indore Institute of Pharmacy, Rau pithampur road-45331, Indore, Madhya Pradesh, India

**\*Corresponding author:** Dr. Saurabh Gupta, Department of Pharmacology, Indore Institute of Pharmacy, Opposite IIM institute, Rau pithampur road, Indore-45331, Madhya Pradesh, India

**Received:** July 03, 2014; **Accepted:** Aug 04, 2014;

**Published:** Aug 08, 2014

## Abstract

**Background:** Clinical pharmacy services are aimed at better patient care to provide pharmaceutical care to patients by supporting other health care providers. Drug information service are one this, which leads to better patient care.

**Aim:** Aim of this study was ‘identification and response various drug information in a Government hospital as a part of pharmaceutical care. Objectives were to receive & respond various drug information queries and categorise & document them to obtain result.

**Methods:** In this prospective study drug information queries were received through various way viz; query box, direct access, e-mail and telephone from Government headquarters Hospital, Ooty, between April 2010 and January 2011. All the queries were responded by using standard and authentic reference within stipulate time period and documented & categorize after receiving feedback from questioners.

**Result:** A total of 210 drug information queries were received, responded, feedback obtained, documented and categorized. Out of 210 queries, 122 queries were received by direct access followed by query box. Nursing students and nurses were highest among the enquirer followed by pharmacist and doctors. Most of the queries were asked for up-gradation of knowledge (154) than better patient care (56). To respond, 25 were immediate, 13 within 2-4 hours, rest next day to within a week. Web based drug information data bank were maximum used (176) to respond queries followed by tertiary, secondary and primary reference resource. Feedbacks were obtained for entire response and shows the service was accepted by enquirers.

**Conclusion:** Drug information service in the hospital was found to be beneficial as queries were based on mainly to update the knowledge which ultimately helps in better patient care only.

**Keywords:** Drug information; Clinical pharmacist; Pharmaceutical care

## Introduction

Concept of clinical pharmacy service was introduced in middle of the twentieth century by pioneers like Prof. Youngken Jr. and L. W. Rising at University of California. In India although clinical pharmacy is yet in infancy, challenges are to develop and provide clinical services to patient and other health care provider in all size of hospitals and pharmacy set up, so that health care role of pharmacist can be recognized both by health care community as well as patients. In contemporary clinical pharmacy service, professional responsibilities are to ensure that right drug dose and dosage form are administered to the patient at right time with right cost. Clinical pharmacy services provided by clinical pharmacist in the hospital include drug dispensing & distribution, drug information, pharmacy vigilance, medication reviews, academic detailing and sterile & non-sterile manufacturing [1]. Drug use is a complex process which leads to increase number of drug-related problems at various levels involving; prescribers, patients, pharmacist, pharmaceutical industry and government. In response to growing need for enhancing the

effectiveness, safety, potency and preciseness of drug therapy, profession of pharmacy required to evolve new functions and responsibility for pharmacy practitioners in order to promote rational drug use [2]. The term “clinical pharmacy” was coined to describe the work of pharmacists whose primary job is to interact with the health care team, interview and assess patients, make specific therapeutic recommendations, monitor patient responses to drug therapy and provide drug information. Clinical pharmacists’ work primarily in hospitals and clinical care settings and provide patient-oriented rather than product-oriented services [3-5]. Clinical pharmacy has been defined as ‘those services provided by pharmacists in an attempt to promote rational drug therapy that are safe, appropriate and cost-effective’. The Society of Hospital Pharmacists of Australia (SHPA) says that, all patients should have access to appropriate clinical pharmacy services as part of hospital based care because these services reduce the incidence of adverse drug events [3,5]. In 1988 WHO consultative group recommended the role of pharmacist in the health care system, that clinical pharmacy should be promoted as a hospital

discipline to ensure rational use of drug and reduction of costs and should play an active part in patient care by making their expertise available to other disciplines and departments [6]. In an increasingly complex health care environment, it has become difficult to compare the effectiveness of different treatment [7]. Clinical pharmacists should assume that all patients require pharmaceutical care until they have been assessed to exclude drug therapy problems. However, due to limited resources, this step is not always possible and a systematic approach may need to be adopted to facilitate the targeting of care [3].

## Methodology

This prospective study, conducted at Government headquarters hospital, Ooty, India, between April 2010 and January 2011, after obtaining the approval by Institute Ethics Committee, JSS College of Pharmacy, Ooty, India (JSSCP/DPP/IRB/006/2010-11). This service was available with direct access during ward rounds, telephone and e-mail. An innovative drug information query box were prepared and kept in outpatient and different inpatient wards along with query request form & detail contact number in hospital for receiving queries. For mailing query e-mail address was also written on query box. All the queries were received, responded, documented and categorized by using structured documentation forms. Drug information request were evaluated and answered according to modified systemic approach. Original research work publication was used as primary source of reference, full text articles was used as secondary source, standard text books was used as tertiary source and validated internet medicine data bank were used as other (web) source. Query response feedback was also obtained by using structured feedback questionnaire and the service was categorized as; good, satisfactory, need improvement and un-accepted. All the obtained data were categorized based on various parameters and final result was made.

## Results

A total of 210 drug information queries were received, the entire query were responded missing any single & feedback were obtained and categorized within study period.

Table 1 represents the distribution of query received throughout the study period. It shows an almost equal distribution of query throughout the period except for the month of May which shows a double in the number of queries.

Table 2 represents the distribution of mode of request of query. It shows direct access as the highest mode of request with 122 times followed by query box. Least was seen with e-mail and telephone.

Table 3 represents the professional status of enquirer, both nursing student and nursing staffs were high in number with 96 and 48 respectively followed by pharmacist. Drug information query asked by the doctors were least in this study.

Table 4 represents the purpose of query, in this study updating knowledge were more (154) than better patient care (56).

Table 5 represents the time taken for respond the query. 25 queries were asked with immediate response and 13 were within 2-4 hours. 69 queries were asked to respond on next day rest within a day and wit in a week.

Table 6 represents the reference source used to respond the

queries. Primary and secondary resource were 04 and 08 respectively, 21 tertiary resource and 176 web based drug information data bank were used.

Table 7 represents the feedback status of the responded queries, the entire query requests were responded and feedback obtained. All most all the response shows use fullness as 146 were good and 55 satisfactory. Only 7 were recommended to improve and 02 were not accepted by the enquirer.

## Discussion

From this study we found that, steady inflows of drug information query were there throughout the period. This is mainly because of drug information service provided by clinical pharmacists' in the

**Table 1:** Month wise distributions of queries (n=210).

Month	Frequency	Percentage (%)
April 2010	21	10
May 2010	44	21
June 2010	15	07
July 2010	13	06
August 2010	15	07
September 2010	21	10
October 2010	23	12
November 2010	17	08
December 2010	19	09
January 2011	22	10

**Table 2:** Distribution of queries based on mode of request (n=210).

Mode of request	Frequency	Percentage (%)
Direct access	122	59
Query box	76	36
E-mail	07	03
Telephone	05	02

**Table 3:** Distribution of queries based on mode of request (n=210).

Enquirer's professional status	Frequency	Percentage (%)
Nursing student	96	46
Nurse	48	23
Pharmacist	42	20
Doctors	24	11

**Table 4:** Distribution of queries based on purpose of enquiry (n=210).

Updating knowledge (n=154)		
Enquirer's professional status	Number of Queries	Percentage (%)
Nursing Students	82	53
Nurses	17	11
Pharmacist	40	26
Doctors	15	10
Better patient care (n=56)		
Nursing Students	14	25
Nurses	31	55
Pharmacist	02	04
Doctors	09	16

**Table 5:** Distribution of queries based on time taken for response (n=210).

Response time	Frequency	Percentage (%)
Immediately	25	12
Within 2 - 4 hours	13	06
Within a day	69	33
Within 1- 2 days	71	34
Within a week	32	15

**Table 6:** Distribution of reference sources used for response (n= 210).

Reference	Frequency	Percentage (%)
Primary sources	04	02
Secondary sources	08	04
Tertiary sources	21	10
Others (web)	176	84

**Table 7:** Distribution of feedback for response (n=210).

Feedback of response	Number	Percentage (%)
Unacceptable	02	01
Need improvement	07	03
Satisfactory	55	26
Good	146	70

hospital were found to be accurate & unbiased which has helped the health care provider for improve their knowledge regarding vast range of drugs which are available which is similar to previous work by Das SK, 2011 [8]. Direct access was the main mode of receiving the queries as because clinical pharmacists were present in the hospital throughout the day, same was reported previously by Raal A, 2006 [9]. An innovative method to receive queries was 'query box' which has shown a well come approach from the enquirer as they were able to put queries whenever they need irrespective of presence of clinical pharmacist. Query through e-mail was less as its time consuming and such facility may not be available at all the time. In terms of enquirer's professional status, nursing student and nurses of the hospital used it maximum than pharmacist and doctors. This may a reason that nurses are at the forefront of patient care and accurate & unbiased drug information will ultimately help them with proper discussion making for better patient care which is our main target as pharmaceutical care same was reported earlier by Thompson C, 2004 [10]. Though the number of queries from doctors were less but their participation in this study proves that, pharmaceutical care plan in the form of drug information plays a vital role. Though the main purpose of drug information service is to improve patient care by optimizing the drug therapy but there was a steep hike in update the knowledge than that of better patient care same was reported previous by Vijayakumar TM, 2011 [11]. However, updating knowledge will also ultimately lead to better patient care. In this study we found that, a great number of queries were asked to respond immediately or within 4 hours of time. This clearly indicates the importance of drug information service for better patient care. Present study shows that, tertiary sources and validated internet medical data bank were most useful to respond the queries which are similar to the early findings of Devi P, 2008 [12]. Feedback response from this study clearly demonstrate that, quality of drug information was at per as almost all the response were good or satisfactory, only a few were directed to improve and not accepted which is similar to the previous report of George B, 2005 [13].

## Conclusion

From this study it was concluded that, drug information service in the hospital was found to be beneficial for all health care providers as queries were based on mainly to update the knowledge which ultimately helps in better patient care only. This study also demonstrates that drug information service provided by clinical pharmacists' was proved to be as a part of pharmaceutical care also.

## Acknowledgement

Authors whole heartedly convey their regards to the JSS College of Pharmacy (off Campus, JSS University), doctors, nurses, pharmacists and nursing students of Government head quarter hospital, Ooty, Tamilnadu for their kind support and participation in this study. The authors are also thankful to Dr. Vineet Gupta, Postdoctoral fellow, Md Anderson cancer center, Clinical cancer prevention department, Houston, Texas, USA for his valuable inputs in writing this manuscript.

**NB:** 1<sup>st</sup> author was a faculty of Department of Pharmacy Practice, JSS College of Pharmacy, Ooty and supervisor of this study.

## References

1. Tipnis HP, Bajaj A. Clinical pharmacy. Career Publications; 1<sup>st</sup> edn. Maharashtra, India.2002; 1-4.
2. Parthasarathi G, Hasan KN, Nahata MC. A Text Book of Clinical Pharmacy Practice. Orient longman private limited; 2004. 3rd ed. Chennai, India: p. 222, 242, 272-274, 424-426.
3. Parthasarathi G et al. A Textbook of Clinical Pharmacy Practice, Essential Concepts and Skills; 2004. 1<sup>st</sup> edn. Anna Salai, Chennai, India.
4. Report of a 3<sup>rd</sup> WHO consultative group on the role of the pharmacist; Vancouver, Canada, 27-29 august 1997.
5. The Society of Hospital Pharmacists of Australia. Practice standards. SHPA Standards of Practice for Clinical Pharmacy. Journal of Pharmacy Practice and Research. 2005; 35: 122-146.
6. Role of pharmacist in health care system. Unpublished report of the WHO consultative group meeting held in 13-16th December, New Delhi, 1988.
7. Karin W, Rob SS, Clare AM, Andries GSG, Marthe E. Developing Pharmacy Practice A Focus on Patient Care; Hand Book-2006 edn. WHO Department of Medicines Policy and Standards Geneva, Switzerland. In collaboration with International Pharmaceutical Federation. The Hague, The Netherlands, 2006.
8. Das SK, Sarkar D, Devipriya S, Acharyya S, Vijayakumar PRA. Evaluation of drug information service provided by clinical pharmacists in a south Indian hospital. NSHM Journal of Pharmacy and Healthcare Management. 2011; 02: 93-97.
9. Raal A, Fischer K, Irs A. Determination of drug information needs of health care professionals in Estonia. Medicina (Kaunas). 2006; 42: 1030-1034.
10. Thompson C, Cullum N, McCaughan D, Sheldon T, Raynor P. Nurses, information use, and clinical decision making--the real world potential for evidence-based decisions in nursing. Evid Based Nurs. 2004; 7: 68-72.
11. Vijayakumar TM, Poovi G, Dhanaraju MD. Opinion on Drug Information Services Provided In a Multi - Specialty Teaching Hospital. Archives of Pharmacy Practice. 2011; 2: 57-59.
12. Devi P, George J. Drug information needs of physicians treating diabetic nephropathy in a tertiary care hospital. Kathmandu Univ Med J (KUMJ). 2008; 6: 23-27.
13. George B, Rao PGM. Assessment and evaluation of drug information services provided in a South Indian teaching hospital. Indian Journal of Pharmacology. 2005; 37: 315-318.