

## **Evaluation of Drug Information Services in a South Indian Tertiary Care Teaching Hospital**

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### **Extended Abstract**

#### **INTRODUCTION**

As the number of drugs available and exposure in the past was less, the necessity for drug information was limited. But now, the situation has come a long way with vast number of drug and new modes of therapy being available. It is not possible to cope up such large information on drugs. Hence, it is very important to retrieve specific unbiased information to face challenges in the field of pharmacy. In such cases, a clinical pharmacist who is legally competent and professionally trained has come into role, to provide drug information, which is also a key role of their daily activities. The concept of rational drug use is yet a long way to go in India. Lack of unbiased drug information and lack of time are the major factors that make the physicians unable to update their knowledge about drugs which is resulting in an increasing demand for unbiased and independent information about drugs for better patient care. It is important, to periodically evaluate the mode of functioning and quality of the services provided by the center, so that necessary modifications can be made for better functioning.

#### **Aim and Objective**

To assess and evaluate the drug information from enquirer prospective

General objectives

1. To provide an organized database of specialized information on medicines and therapeutics to meet the drug information needs of practitioners. To educate pharmacy students to serve as effective providers of medicines information.
2. To provide accurate and unbiased medicines information service to the pharmacists, physicians and other health care professionals in the hospital and community.
3. To promote patient care through rational use of medicines.

#### **Specific objectives**

To asses and evaluate, the mode of receipt of query, professional status and specialty of enquirer, purpose of enquiry, category of enquiry, Time frame for reply, sources used for information, such as primary, secondary and tertiary resources.

#### **Methodology**

##### **Study Site**

Drug Information Centre at Konaseema Institute of Medical Sciences (KIMS) hospital. Which is a 1200 bedded tertiary care multi-specialty teaching hospital with 215 teaching clinicians, 318 staff nurse, 10 pharmacists, and 80 postgraduate students? The Drug Information Centre is the part of department of pharmacy practice which was established in 2011. The centre is well equipped with trained staff and library consisting of text books. Medical journals, computer and internet facility with a electronic database, i.e. MICROMEDEX and also LEXICOMP. The centre is managed by 4 faculty members and 30 Pharm.D internship students of the pharmacy practice department. The service is provided between 9am to 1pm and 2pm to 5pm on all days except on sundays and general holidays. The drug information service can be accessed by direct access, and also during ward rounds. Drug information request forms were available at Drug Information Centre and at various wards of the Hospital. The information queries were evaluated and answers were provided according to the systematic approach. The drug information requests and answers were documented and maintained at department of pharmacy practice.

This service was available with direct access during ward rounds. 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 or receiving queries. For mailing query e-mail address was also written on query box.

### Study Duration

The study was carried out for a period of 9 months.

### Study Design

#### Inclusion Criteria

- Drug information service (DIS) includes the activities of a clinical pharmacist to provide accurate, unbiased, factual information on any aspect of drug use received from healthcare professionals primarily in response to patient-oriented drug problems received from various members of the healthcare team which supports to deliver high quality drug use and also an integral part of Pharmaceutical Care
- Drug information was provided by using the three sources like primary sources, secondary sources and tertiary sources and services were provided between 9am to 5pm in week days except in Sunday and government holidays
- These forms were evaluated prospectively and retrospectively on various parameters like medical speciality of enquirer, professional status of enquirer, mode of request of receiving queries, purpose of receiving query, time frame to reply the queries, mode of reply of queries, type of queries receive, reference used to answer the queries.
- Assessment of the quality of services from receivers perspective by providing feedback questionnaire circulated, which comprised of questions on awareness, utilization, ease of contact, and quality of services provided by the DIC.
- We also collected the suggestions from the requestors for the further development of clinical pharmacy department.
- Evaluation of the di services provided in a south Indian teaching hospital

#### Questionnaire Design

A query request form was given to the query requestor which included

- Query number
- Professional status of the enquirer
- Mode of request received
- Purpose of receiving query
- Time frame to reply the query

Later, a feedback form was given to the query requestor which included

- Are you aware of the availability of drug information services in our hospital?
- Have you utilized the drug information service anytime?
  - If yes, have you received the answer in time?
  - Have you received the answer in time?
  - If no, what was the reason?
- Are you aware of the online drug information system in our Hospital?
  - If yes, have you utilized this facility?
- Do you think the drug information services provided by the department are useful and helpful in providing better patient care?
- How do you rate the drug information services provided by the department?

- Any suggestions and comments to improve the drug information services provided by the department

**Study Procedure:**

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

**Data Collection**

Both the query and feedback forms were collected and drug information service provided by the department was analyzed

**Data Analysis**

The collected data was analyzed in a prepared proforma, entered into Microsoft excel and analyzed for percentages wherever applicable

**Results**

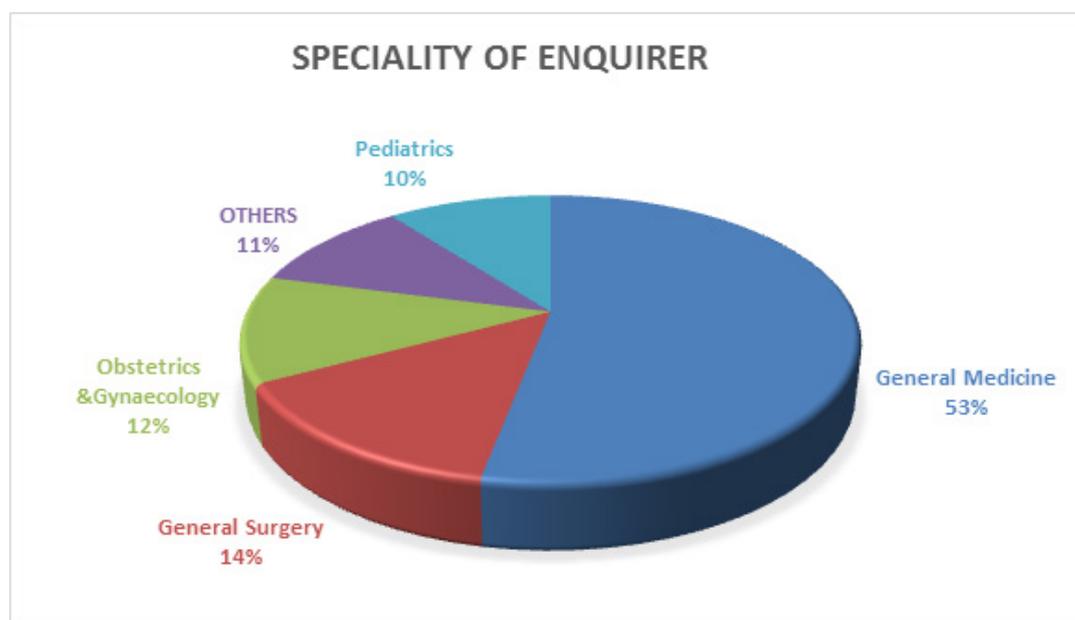
During the study the query request & feedback forms were collected and drug information service provided by the department was assessed and the results were as follows:

**Medical Speciality of the Enquire**

Out of 593 queries registered, 282(53%) were from general medicine, 75(14%) were from general surgery, 64(12%) were from obstetrics & gynecology, 55(10%) were from paediatrics' and 60(11%) were from other departments

Speciality	Number of queries	Percentage
General Medicine	282	53%
General Surgery	75	14%
Obstetrics and Gynaecology	64	12%
Others	60	11%
Paediatrics	55	10%

**Table -1:** Department wise registered queries



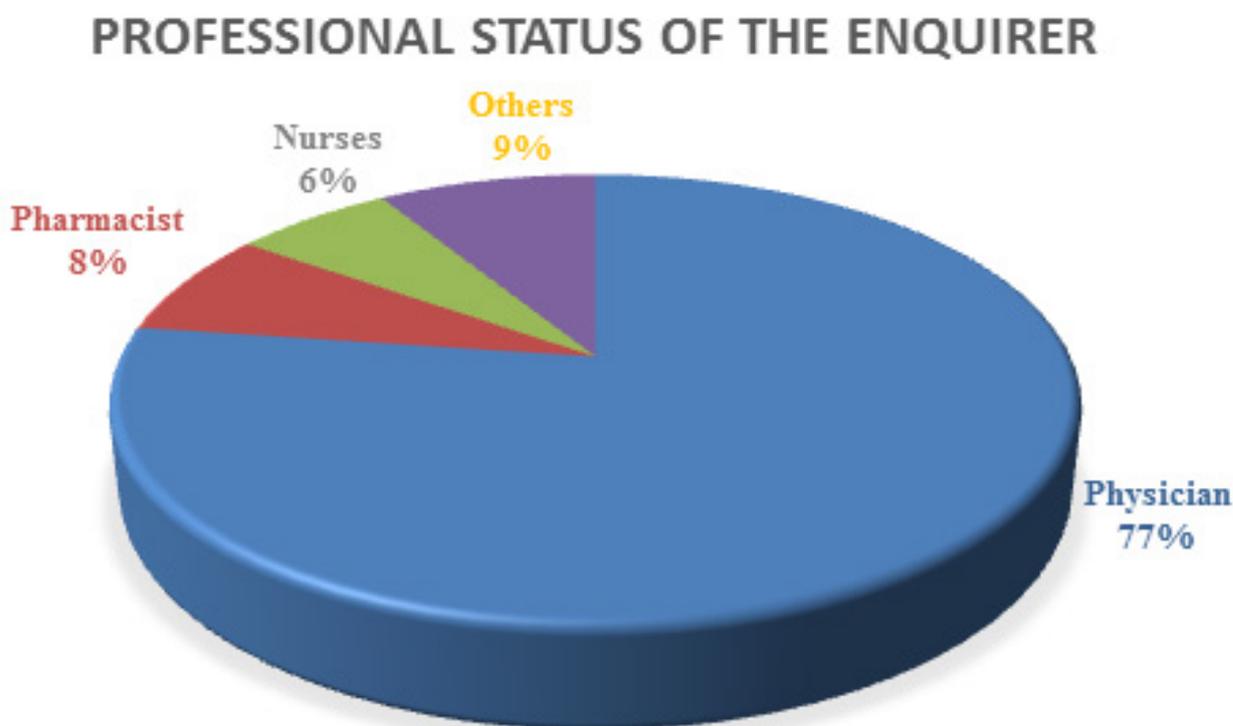
**Figure No-1:** Speciality of Enquirer

**Professional Status of the Enquirer**

In this study from a total of 593 enquirers, 457 (77.06%) were physicians, 45 (7.58%) were pharmacists, 38 (6.40%) were nurses and 52 (8.76%) were others like students

Profession	Number of participants	Percentage
Physician	457	77.06%
Pharmacist	45	7.58%
Nurses	38	6.40%
Others	52	8.76%

**Table -2** Profession of the enquirer



**Figure No-2:** Profession of the enquirer

**Mode of Request of Receiving Queries**

In figure 3 Out of 593 queries, 539 (90.89%) were accessed through direct mode and 53 (8.93 %) queries were accessed during ward rounds

Mode	Number of queries	Percentage
Direct Access	539	90.89%
During Ward Rounds	53	8.93%

**Table -3:** Mode of receiving queries

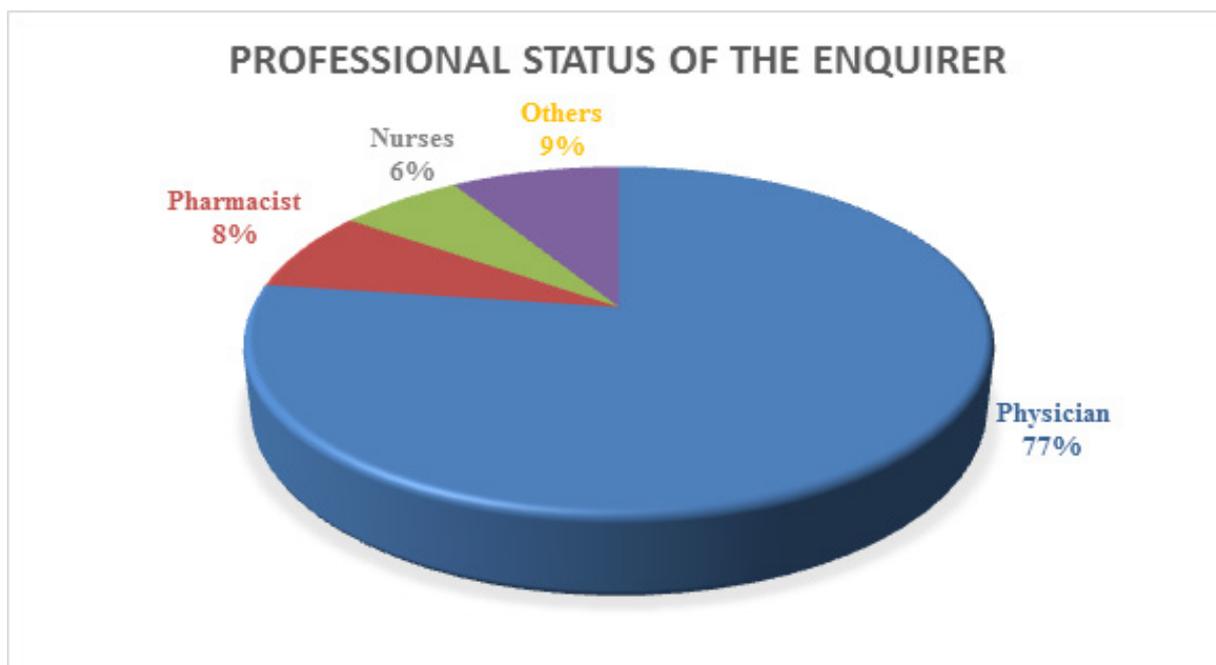


Figure No-3: Mode of receiving queries

**Purpose of Receiving Queries**

A total of 593 queries registered in the study, of them 404(68%) were registered on purpose of updating knowledge, 123(21%) for better patient care, 54(9%) for education and academic purpose and 11(2%) for all the above

Purpose	Number of queries received	Percentage
Update of knowledge	404	68%
Better patient care	123	21%
Education or Academic	54	9%
All the above	11	2%

Table -4: Purpose of receiving queries

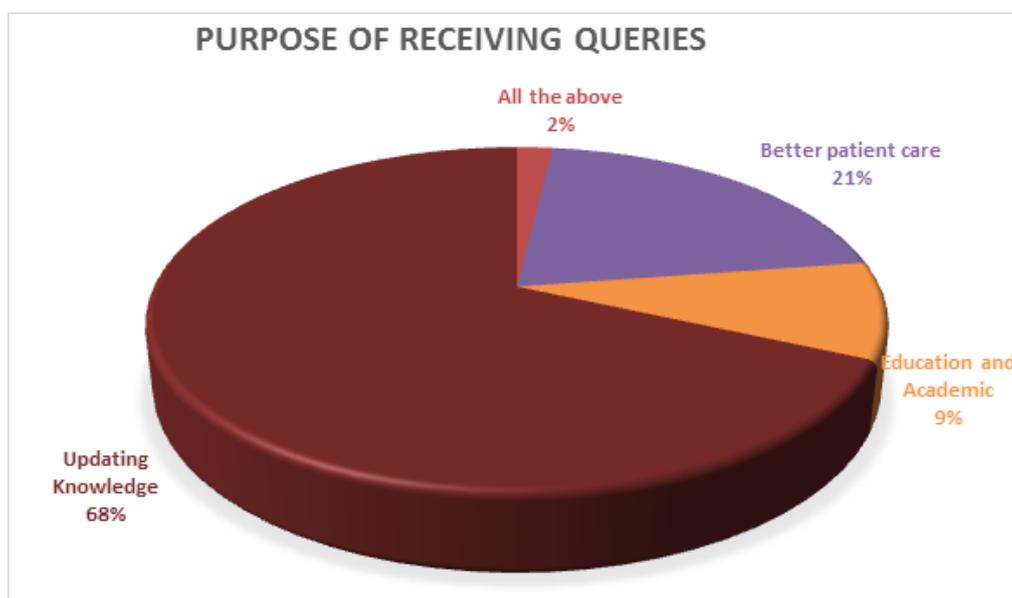


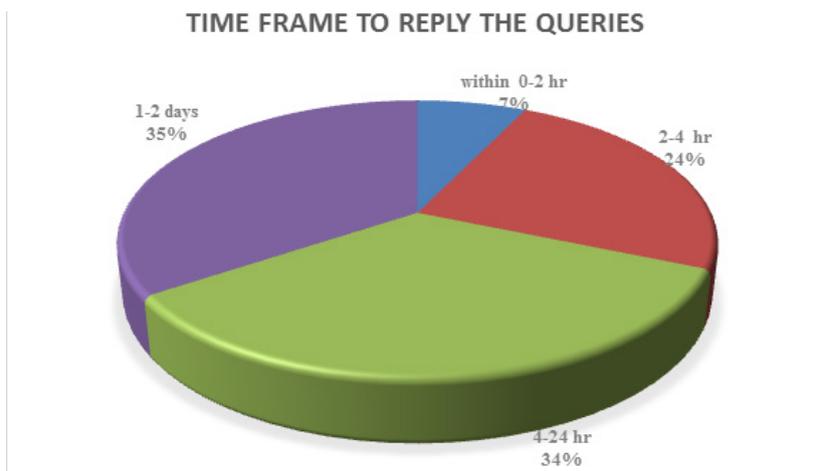
Figure No-4: Purpose of receiving queries

**Time Frame to Reply the Queries**

The drug information center received a total number of 593 drug information queries during the study period, 42 (7.08%) were requested within 2 hrs of time frame, 204 (34.40%) were requested within 1-2 days, 144 (24.28%) were requested within 2-4 hrs, 202(34.06%) were requested within 4-24 hrs of time frame.

Time	Number of queries	Percentage
Within 0-2hr	42	7.08%
1-2 days	204	34.40%
2-4 hours	144	24.28%
4-24 hours	202	34.06%

**Table -5:** Time Frame to Reply the Queries



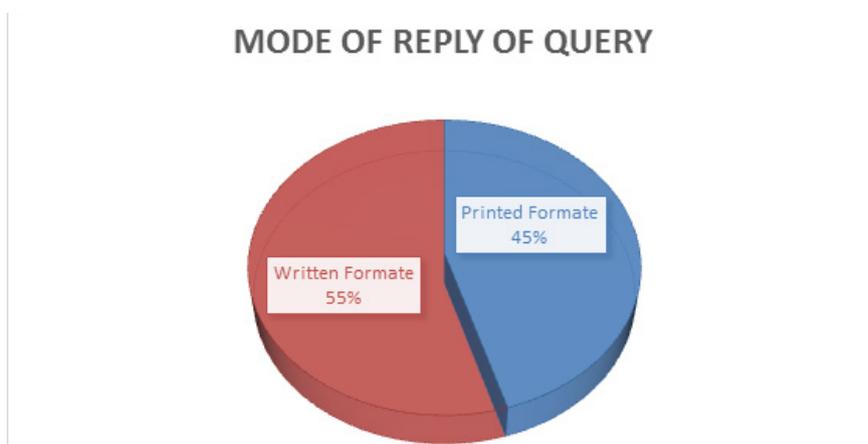
**Figure No-5:** Time frame for reply the queries

**Mode of Reply of Queries**

Within 593 queries received by the Drug Information Center, 268(48.22%) were in printed format and 324(54.63%) were responded in written format.

Mode	Number of queries	Percentage
Printed format	268	48.22%
Written format	324	54.63%

**Table -6:** Mode of Reply of Queries



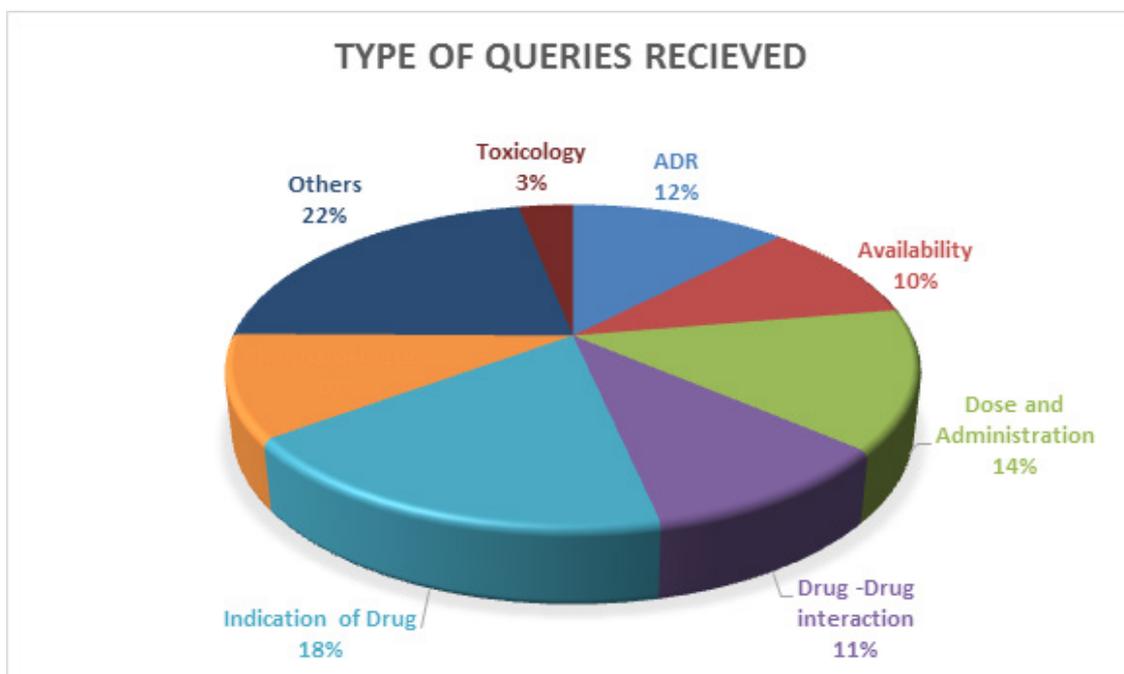
**Figure No-6:** Mode of reply

**Type of Queries Received**

A total number of 593 queries were received to the drug information center, 83(13.99%) were registered on dose and administration of drug, 72(12.14%) were on adverse drug reaction,60(10.11%) were on availability,61(10.28%) on drug - drug interactions,108 (18.21%) were on indication of the drug,61(10.28%) were on pharmacokinetics,18 (3.03%) were on toxicology and 129(21.75%) were on other drug related queries.

Type	Number of queries	Percentgae
Dose and administration of drug	83	13.99%
Adverse drug reactions	72	12.14%
Availability	60	10.11%
Drug and drug interactions	61	10.28%
Indication of the drug	108	18.21%
Pharmacokinetics	61	10.28%
Toxicology	18	3.03%
Others	129	21.75%

**Table -7:** Type of queries received



**Figure No-7:** Type of queries received

**Sources used to Answer the Queries**

From the study of 593 enquiries, 45(7.58%) were responded using CIMS,162(27.31%) were responded using LEXICOMP,150 (25.29%) were responded using MICROMEDEX, 38(6.40%) were responded using research articles,84(14.16%) were responded using text books and 113(19.05%) were responded using websites

Type of Sources	Number of queries	Percentage
CIMS	45	7.58%
Lexicomp	162	27.31%
Micromedex	150	25.29%
Research articles	38	6.40%
Text Books	84	14.16%
Websites	113	19.05%

**Table -8:** Sources of data

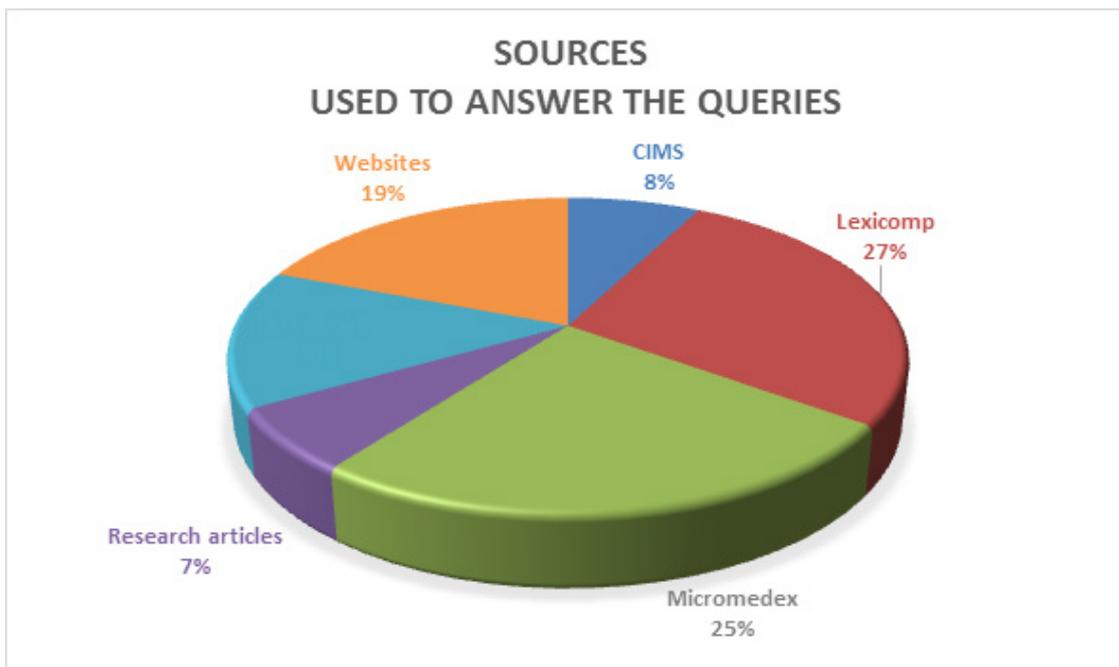


Figure No-8: Sources of data

**Are you aware of the availability of the Drug Information services in our hospital**

During the study period the drug information center received 593 queries, 580 (97.80%) were aware of availability of drug information services in the hospital before and 13(2.19%) were not aware of the drug information services provided.

	Number of queries	Percentage
Yes	580	97.80%
No	13	2.19

Table -9: Awareness on availability of drug information services in hospital



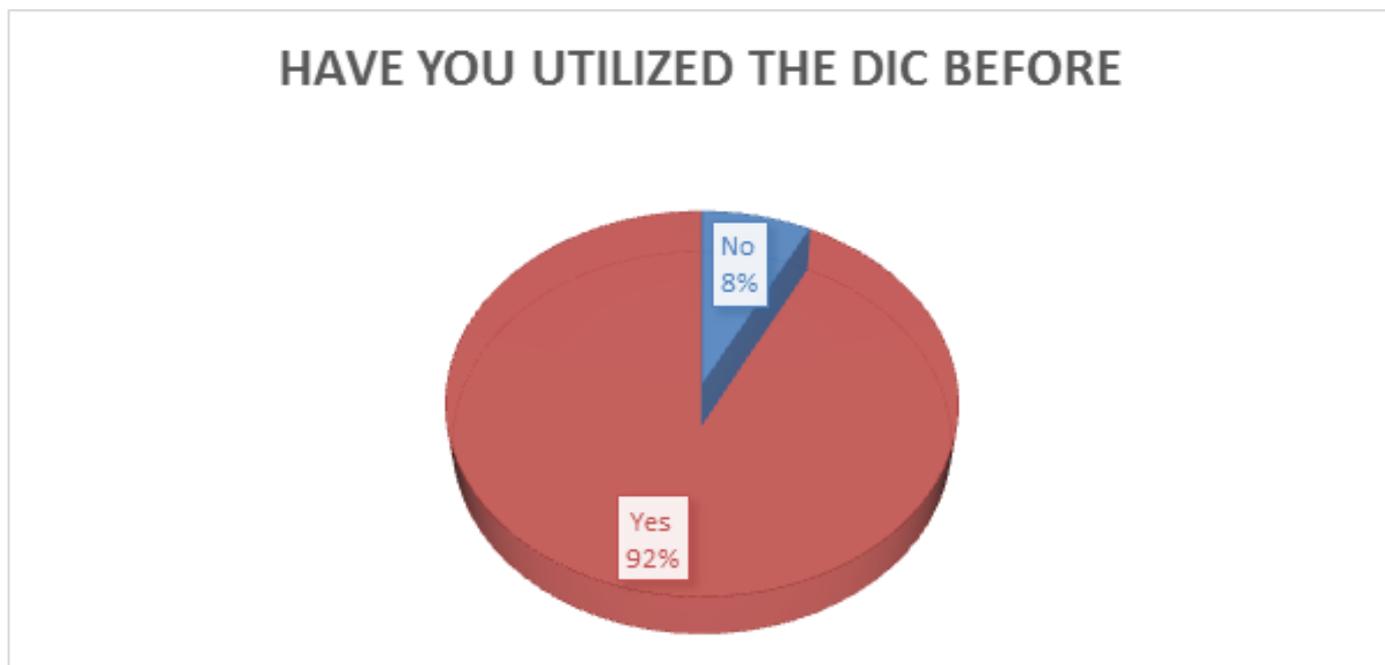
Figure No-9: Awareness on availability of drug information services in hospital

**Have you utilized the Drug Information services before?**

In figure 10 Out of 593 requestors in the study, 547 (92%) utilized the drug information services before and 46 (8%) requestors were newly participated in the drug information services.

	Number of queries	Percentage
Yes	547	92%
No	46	8%

**Table -10:** Utilization of drug information services before



**Figure No-10:** Utilization of drug information services before

**What was the reason for not utilizing drug information services**

Type of Sources	Number of queries	Percentage
CIMS	45	7.58%
Lexicomp	162	27.31%
Micromedex	150	25.29%
Research articles	38	6.40%
Text Books	84	14.16%

**Table -11:** Reason for not utilizing drug information services

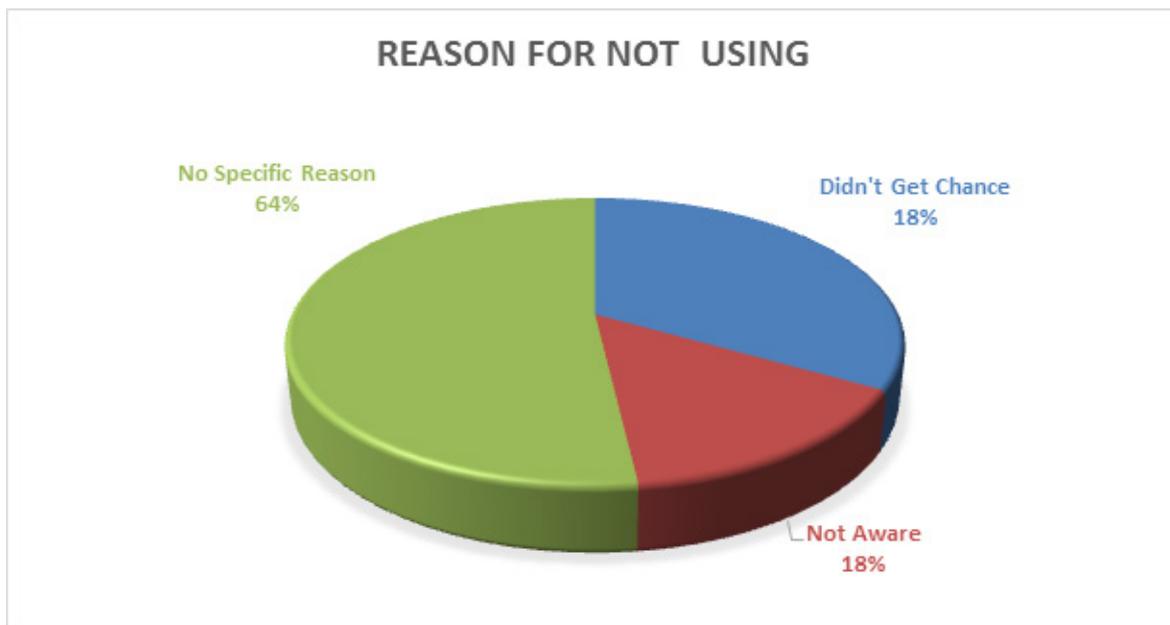


Figure No-11: Reason for not utilizing drug information services

**Have you received answer in time?**

A total number of 593 queries were responded, out of which 571 (96%) were responded within time frame and 21(4%) were submitted after the given time frame.

	Number of queries	Percentage
Yes	571	96%
No	21	4%

Table -12: Was response received in time

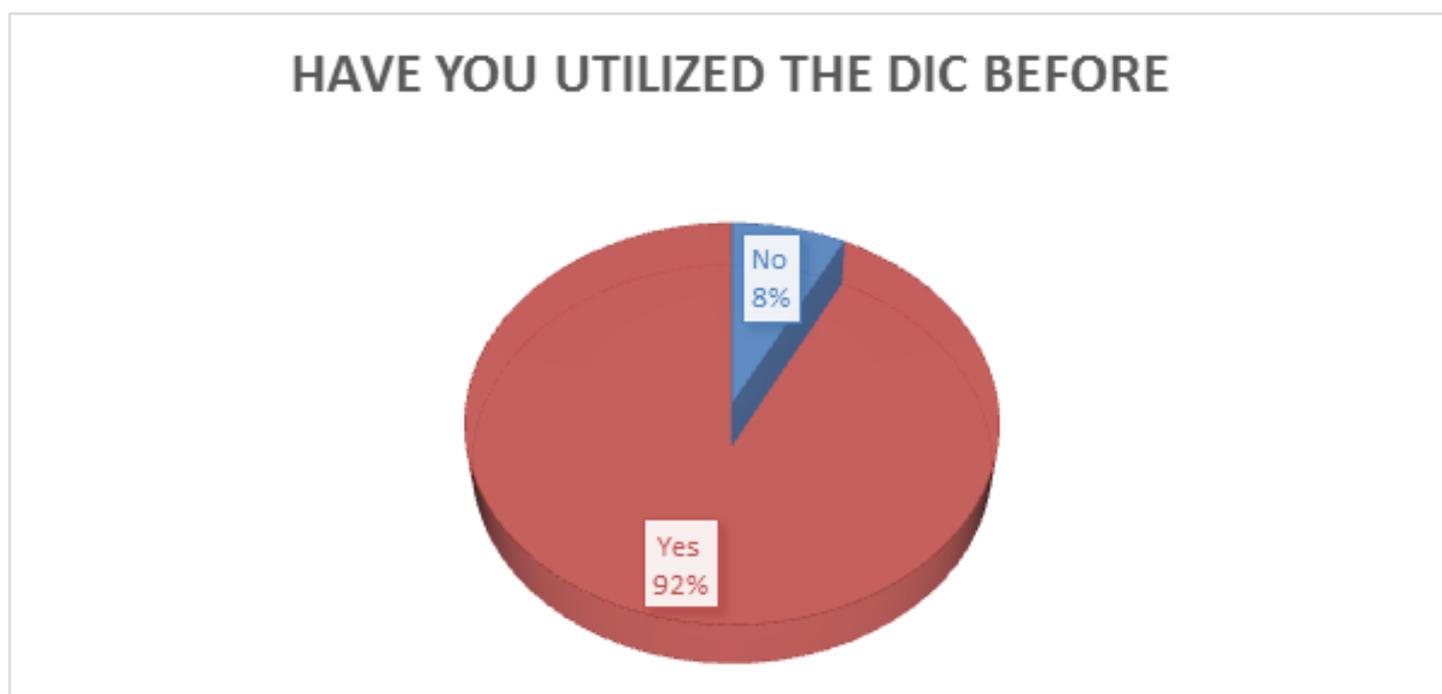


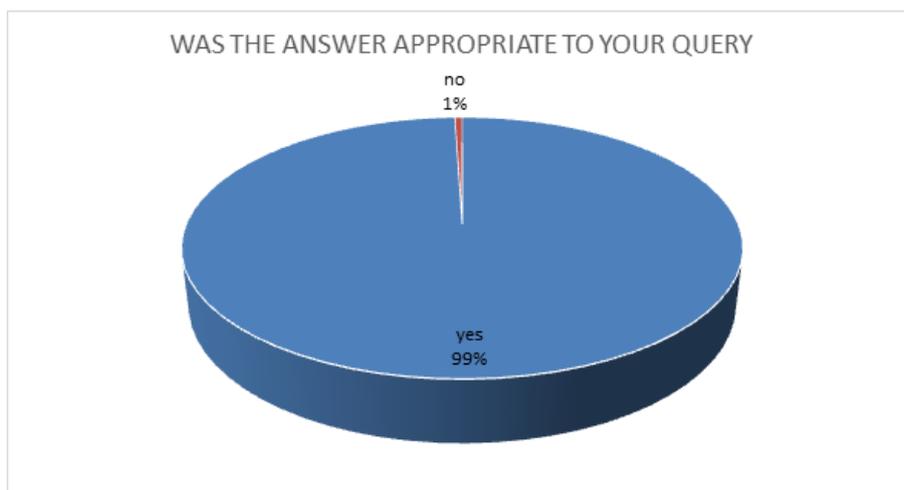
Figure No-12: Was response received in time

**Was the answer appropriate to query**

A total number of 593 queries were recorded by the drug information center, 590 (99.49%) were recorded as appropriate and 3 (0.5%) were recorded as inappropriate.

	Number of queries	Percentage
Yes	590	99.49%
No	3	0.5%

**Table -13:** Was response appropriate to query



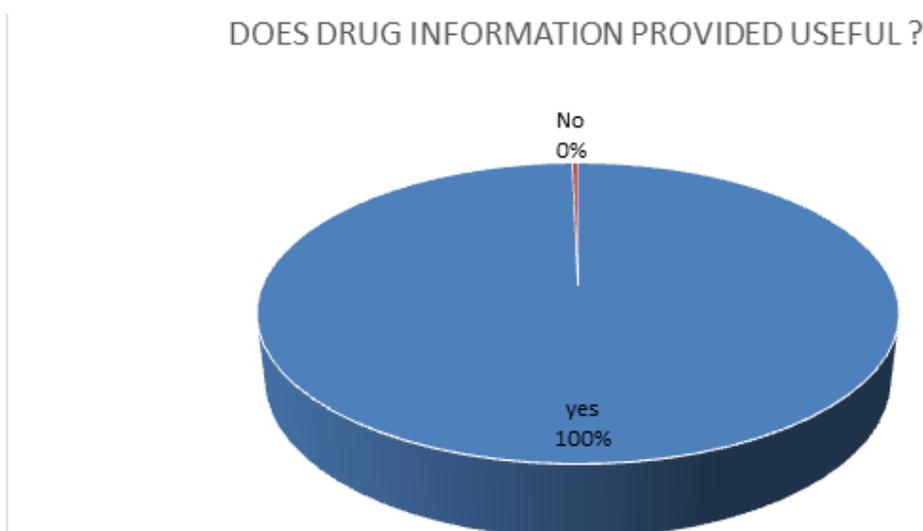
**Figure No-13:** Was response appropriate to query

**Does drug information service provided by the department is useful & helpful in providing better patient care**

In this study from a total number of 596 queries, 591(99.66%) were recorded as helpful for better patient care and 2 (0.33%) were recorded as not as much useful.

	Number of queries	Percentage
Yes	591	99.66%
No	2	0.33%

**Table -14:** Was information provided helpful in better patient care



**Figure No-14:** Was information provided helpful in better patient care

A total of 593 drug queries responded through the drug information center, 179 (30.1%) were rated as excellent, 290 (48.9%) were rated as good, 121 (20.40%) were rated as satisfactory and 2 (0.33%) were rated as needs improvement.

	Number of queries	Percentage
Excellent	179	30.1%
Very Good	290	48.9%
Satisfactory	121	20.40%
Needs improvement	2	0.33%

Table -15: Rating of drug information services

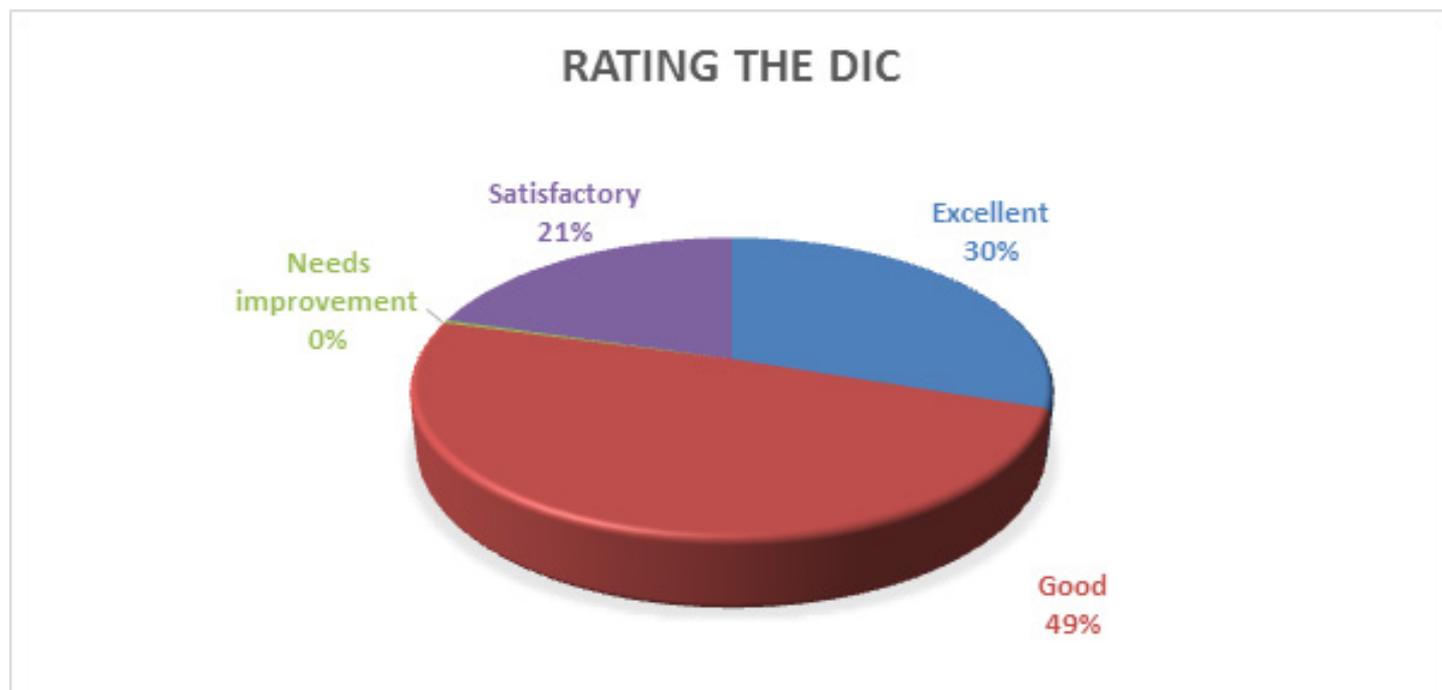


Figure No-15: Rating of drug information services

**Discussion**

When our work was compared with the other regarding the departments from which the queries were received, all of them were similar to this work by having a maximum number of queries from General Medicine (53%) i.e.,. Jayasutha J et al (53%), M D Dhanaraju et al (26.9%), Rajanandh et al (52.6%), Mudigubba et al (77.87%). While comparing the professional status of the enquirer, most of them were found to be physicians in our study (77.06%) which was the same in the case of Jayasutha J et al (88%), M D Dhanaraju et al (39.4%), Mudigubba et al (71.31%), whereas in Rajanandh et al the professional status of the maximum number of queries (44.7%) was found to be interns. In our study the mode of request was by direct access (90.89%), which is similar to Rajanandh et al (80.7%), and in contrast the mode of request in the first and second studies was found to be during ward rounds with 70% and 40.9% respectively. The purpose of the query in our work went maximum for updation of knowledge (68%) , in which similarity was seen in Mudigubba et al (69.67%), and contrast in Rajanandh et al (48.4%) for better patient care. Our queries were mostly answered within 1-2 days (34.40%), whereas they were mostly answered on the same day in Jayasutha J et al ( 86%) and Rajanandh et al (49.4%). We replied to the queries mostly in written format (54.63%) while Jayasutha J et al (76%), M D Dhanaraju et al (60.6%) answered in printed format. Rajanandh et al mostly answered the queries through verbal format i.e.,. 57.8%. In our study we answered the queries using Electronic databases i.e.,. LEXICOMP and MICROMEDEX which were 27.1% and 25.29%. Jayasutha J et al also used electronic databases like MICROMEDEX and IDIS with 49% and 30% respectively whereas M D Dhanaraju et al used books as a reference with 41.3%. At last after our hard work our Drug Information Centre was rated Very Good (48.9%) by many enquirers while Rajanandh et al was also rated very good (77.4%)

**Conclusion**

In this study, where drug information services provided by pharmacy practice department in a tertiary care, teaching hospital were evaluated, the feedback forms collected from the query requestors reveals that the quality of services provided by the drug

information services was appreciable by majority of its users. Study reveals that majority of the queries were collected from general medicine (53%) followed by general surgery (14%) ,obstetrics &gynaecology (12%) ,others (11%) and paediatrics (10%) , most of the requestors participated were physicians (77.06%) ,others like students (8.76%),followed by pharmacists (7.58%) and nurses (6.40%), this indicates that more awareness and encouragement to be given to nurses and pharmacists to participate in utilization of drug information services to ensure and promote better patient care in the hospitals. On the whole, most of the queries requested for the updating knowledge (68%) followed by better patient care(21%) and education & academics(9%), this indicates that the drug information services provided by the pharmacy department were of great use and appraisal for better patient care, which ensures quality services in the hospital. Thus, the drug information services provided by the pharmacy department were useful and helpful in the providing better patient care in the hospital. However, the pharmacists and nurses who play a major role in the healthcare department must be encouraged to utilize the drug information services and proper awareness must be created among them to promote better patient care at that level.