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Research Article

# QUALITATIVE ASSESSMENT AND EVALUATION OF DRUG INFORMATION SERVICE IN A TERTIARY CARE TEACHING HOSPITAL, KRISHNAGIRI, TAMIL NADU.

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## ABSTRACT

The drug information centre provides authenticate, unbiased drug information to healthcare professionals; provide counselling and drug information to patients / consumers as well as monitor and document adverse drug reactions. The service should include collecting, reviewing, evaluating, indexing and distributing information on drugs to health workers. This allows access to clinical experience, research facilities and educational activities for the PHARM D students. The main objective of our study is to evaluate the various drug information queries received and to assess the quality of services provided by the drug information centre of the Pharmacy Practice department of Padmavathi College of Pharmacy, Dharmapuri, Tamil Nadu. Assessment and evaluation of drug information services were carried out in Government District Head Quarters Hospital (GDHQH), Krishnagiri, Tamil Nadu. It is a hospital which is comprised more than 544 beds. A total of 1980 drug information queries were collected during the study period from January 2016 to March 2019 .Out of 1980, only 1280 queries were included in this study. A great number of queries were from General medicine department (34%). Most of the queries were received during ward round participation (62%). Our study suggests that increase awareness about such a facility to the health care professionals.

**Keywords:** Drug information centre, Drug information service and Queries.

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## INTRODUCTION

Drug information service is a specialized service provided by pharmacists to enhance drug knowledge, empower rational prescribing and reduce medication errors [1]. One of the most important aspects of drug information is to be unbiased in its contents [2]. DIC works towards in promotion of safe, effective, rational, economic use of drugs by the health professionals and patients [3].

In 1962, the first drug information centre was initialized at the University of Kentucky Medical Centre and it was intended to be utilized as a source of selected, comprehensive, drug information for the health care professionals to allow them to evaluate and compare drugs [4]. In the past, number of drugs available was less and thus, the need for drug information was limited. But now the scenario has come a long way with new modes and many more number of drug products. Hence, it is very important to find out specific unbiased information. In India, the concept of rational drug use is yet a long way to go. Lack of time and some other factors that make the

physicians unable to update their knowledge about drugs which have resulted in increasing demand for unbiased information about drugs for better patient care [5]. Recognizing the need to provide organized drug information to health care professionals as well as consumers, the WHO India Country Office in collaboration with the Karnataka State Pharmacy Council (KSPC) is supporting the establishment of 5 drug information centres. These centres have been established in Haryana (Sirsa), Chhattisgarh (Raipur), Rajasthan (Jaipur), Assam (Dibrugarh), and Goa (Panaji). The Karnataka State Pharmacy Council (KSPC) established its Drug Information Centre (DIC) in August 1997 to disseminate unbiased drug information to healthcare professionals. In India, this was the first independent DIC started. The centre is registered with IRDIS, an International Register of Drug Information Services [6].

In 2016 a Drug information centre (DIC) was established by Padmavathi College of Pharmacy at GDHQH Krishnagiri, Tamil Nadu and it is utilised as a source of drug information provided to the practicing physicians, pharmacists and other health care professionals. This DIC is the connecting bridge among health care members by providing proper updated drug information for better patient care. This type of service is not get used in Krishnagiri district locality of Tamil Nadu, India. On the go, recognising the need of providing information DIC in GDHQH Krishnagiri performed various activities such as awareness programmes, publishing Newsletters, DUE and proper reporting of ADR.

The present study was aimed to evaluate drug information queries received by the clinical pharmacists and to assess the quality of services provided by the DIC of Pharmacy Practice department of Padmavathi College of Pharmacy, Dharmapuri. A clinical pharmacist is professionally trained and legally competent to provide drug information.

## AIM OF THE STUDY

The drug related information, demand, pattern of enquiry, functionality and improvement of existing DIC are studied in GDHQH Krishnagiri, Tamil Nadu. This is the study to evaluate drug related queries prospectively in GDHQH Krishnagiri, and to assess the quality of services provided by the DIC of Pharmacy Practice department of Padmavathi College of Pharmacy, Dharmapuri.

## METHODS

### STUDY SETTING DESIGN

GDHQH Krishnagiri, Tamil Nadu is a teaching tertiary care hospital that serves for above 1.9 million people in the locality of Krishnagiri district and comprised more than 544 beds for admitted patients. This DIC is a part of Pharmacy Practice department of Padmavathi College of Pharmacy, Dharmapuri, and it was established in 2016 at this hospital. The hospital has various departments such as General medicine, OB&G, Surgery, Emergency care, Orthopaedics, Ophthalmology, Oncology, Paediatrics and Pharmacy. The DIC in GDHQH is well equipped with a library of textbooks, national and international Journals, computer, internet facility along with MICROMEDEX. The DIC is run by both clinical pharmacist and PHARM D students under the supervision of clinical preceptor.

This retrospective observational study was conducted from January 2016 to March 2019 at the DIC of GDHQH Krishnagiri, Tamil Nadu. Most of the queries were obtained during the ward round participation.

## DATA ANALYSIS

A statistical analysis was performed using the graph pad prism version 6.

## RESULT

The DIC received total of 1980 queries during the study period, with an average of 51 queries per month. Among these, 1280 queries were included in the final analysis.

## ORIGIN OF QUERIES

The greater numbers of queries were from General medicine department (34%).Queries also obtained from other clinical departments such as Paediatrics (17%), OB&G (11%), Cardiology (13%), Orthopaedics (12%), Oncology (10%). Physicians utilised the service to the greater extent (29%) followed by Intern/PG students (25%), Pharmacists (20%), Nurses (13%) and Surgeons (06%) to the lesser extent. Most of the queries were received during ward round participation (62%) followed by direct access (28%).Queries through phone/mobile was to the lesser extent as shown as in the Table 1.

## TYPE OF DRUG INFORMATION REQUEST

The category of questions most frequently asked were regarding drug therapy (26%).Which is followed by ADR (16%) and pharmacology of drugs (15%) as shown as in Table 1. Price (07%), dose and dosage forms (05%) and administration (05%) queries were reported to the least asked category.

## TYPES OF RESOURCES UTILIZED

Electronic based resources like MICROMEDEX (35%), Websites (20%) and textbooks (33%) are the commonly used references to help with the queries. Journals are used to the lesser extent as in Table 2.

## CHARACTERISTICS OF THE REPLIES

Around 43% of the total replies were delivered immediately. 28% and 22% of the replies were provided within 2-4 hours and within a day respectively. Very less

percentage (07%) of responses took 1-2 days to reply as shown as in Table 2.

Moreover most of the medium of reply was by orally (46%) though most of the queries were arisen during ward round participation. Which is followed by written (27%), Printed literature (17%) and Email (10%) to a very lesser extent.

**Table 1: Qualitative assessment of the drug queries**

| Categorisation | Number of queries (n=1280) | | | Percentage (%) |
|---|---|---|---|---|
| | 2016-2017 | 2017-2018 | 2018-2019 | |
| **SPECIALITY** | | | | |
| General medicine | 215 | 130 | 82 | 34 |
| Paediatrics | 88 | 92 | 42 | 17 |
| Cardiology | 86 | 62 | 18 | 13 |
| Oncology | 51 | 54 | 24 | 10 |
| Obstetrics-Gynaecology | 46 | 61 | 28 | 11 |
| Orthopaedics | 55 | 82 | 15 | 12 |
| Other | 19 | 19 | 11 | 03 |
| **STATUS OF ENQUIRER** | | | | |
| Physician | 189 | 128 | 50 | 29 |
| Pharmacist | 101 | 127 | 34 | 20 |
| Intern/PG students | 110 | 114 | 90 | 25 |
| Nurse | 88 | 53 | 23 | 13 |
| Surgeon | 52 | 12 | 8 | 06 |
| Other | 20 | 60 | 15 | 07 |
| **MODE OF REQUEST** | | | | |
| Direct access | 180 | 120 | 63 | 28 |
| Ward round participation | 346 | 321 | 129 | 62 |
| Phone/Mobile | 34 | 59 | 28 | 10 |
| **PURPOSE OF ENQUIRY** | | | | |
| To update knowledge | 276 | 193 | 98 | 44 |
| For better patient care | 196 | 183 | 68 | 35 |
| Education | 88 | 124 | 54 | 21 |
| **QUESTION CATEGORY** | | | | |
| Drug therapy | 180 | 97 | 51 | 26 |
| ADR | 80 | 86 | 36 | 16 |
| Pregnancy | 36 | 89 | 20 | 11 |
| Drug interaction | 68 | 72 | 31 | 13 |
| Pharmacology | 89 | 81 | 24 | 15 |
| Price | 27 | 45 | 18 | 07 |
| Dose and dosage forms | 39 | 10 | 14 | 05 |
| Administration | 29 | 18 | 20 | 05 |
| Other | 12 | 2 | 6 | 02 |

**Table 2: Categorisation of evaluation of drug information services**

| Categorisation | Number of queries (n=1280) | | | Percentage (%) |
|---|---|---|---|---|
| | 2016-17 | 2017-18 | 2018-19 | |
| **REFERENCE** | | | | |
| Textbooks | 156 | 194 | 77 | 33 |
| MICROMEDEX | 258 | 130 | 57 | 35 |
| Websites | 116 | 84 | 59 | 20 |
| Others (Journals) | 30 | 92 | 27 | 12 |
| **TIME FRAME FOR REPLY** | | | | |
| Immediately | 260 | 206 | 87 | 43 |
| Within 2-4 hours | 159 | 124 | 69 | 28 |

| | | | | |
|---|---|---|---|---|
| Within a day | 126 | 112 | 45 | 22 |
| Within 1-2 days | 15 | 58 | 19 | 07 |
| **MODE OF REPLY** | | | | |
| Oral | 278 | 214 | 90 | 46 |
| Written | 167 | 105 | 81 | 27 |
| Printed literature | 96 | 96 | 30 | 17 |
| Email | 19 | 85 | 19 | 10 |

## DISCUSSION

The drug information service provision could be an effective model for teaching evidence based health care to the PHARM D students to equip them with the necessary practical skills and knowledge and shape the students for the future role as a clinical pharmacist. However students could acquire practical skills and drug knowledge while performing Drug information service during ward rounds in their academic activities. The drug information service can also helps to detect the drug related problems such as ADR, Drug interactions and irrational use of drugs.

While analysing the queries we can see that physicians maximally utilised the drug information queries which comprise 29% of total volume compared to Pharmacists, Intern/PG students, Nurses and other health care professionals. Hence, there is a high occurrence of immediate response (43%), which was delivered orally (46%) at greater extent. This shows similarity towards to the results of study conducted by Subash Vijaya Kumar et al. in 2013 [7].

Intern/PG students also utilized it to second greater extent (25%), hence 44% of the total replies were to update knowledge which is followed by 35% of the replies to better patient care. Our study shows that most of the queries were arisen during ward round participation. This could be due to the less feasibility for direct access. These results are contraindicated to the study done by Ann Varsha Peter et al. in 2017 [8].

Among all the queries obtained during this study period, a great percentage of queries were from General medicine department (34%). This would be due to the greater number of PHARM D students attending ward rounds. This was similar to the results of the study conducted by Padma GM Rao et al. in 2005 [9].

To answer the questions primary, secondary and tertiary sources were used. Among them most of the queries were answered by using MICROMEDEX (35%). These findings show a contrast to the study done by Yonas Gateya Tefera et al. in 2019, where they only used 19% MICROMEDEX. Rather than that they preferred websites for about 31.4% [10].

Availability of recent and relevant information in MICROMEDEX makes clinical pharmacist to use it as a major source of providing drug information. In addition to the electronic data bases, textbooks were also used up to 33%. Most frequently used text books are,


- Stockley IH, editor. Drug interactions. 8th ed. London: Pharmaceutical press; 2008
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- Stuart H. Raltson, Ian D. Penman Mark W. J. Strachan, Richard P. Hobson .Davidson's Principles and Practice of Medicine . Elsevier. 23rd edition.


- While analysing the categories of queries most of the queries were regarding drug therapy (26%) and ADR (16%). It shows a clear cut contrast from the study done by Himanshu Patel et al. in 2015, where they had 21.59% of queries from dose and administration category [11].

## CONCLUSION

Drug information service provided by the Pharmacy Practice department is accepted by Physicians, Pharmacists and Intern/PG students. Our study suggests that spread more awareness of such facility in the hospital. In future it is better to facilitate the usage of electronic devices like mobile/phone, Email to receive queries from the health care professionals and to enhance the quality of drug information service. It would be better to change the position of DIC near the wards to increase the feasibility for enquirers.


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## ABBREVATIONS

1. ADR : Adverse drug reaction
2. AJPCR : Asian Journal of Pharmaceutical and Clinical Research
3. DIC : Drug information centre

4. DIS : Dug information service
5. DUE : Drug utilization evaluation
6. GDHQH :Government District Head Quarters Hospital
7. KSPC : Karnataka State Pharmacy Council
8. OB&G :Obstetrics and gynaecology
9. PG : Post Graduate
10. PHARM D :Doctor of Pharmacy
11. WHO :World Health Organisation

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