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Research Article

Assessment on the Pattern of Drug Information Queries in a Tertiary Care Hospital, Chennai

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Abstract

The drug information services help to assist healthcare workers to address patient-specific drug-related needs and promote rational drug use. The objective of the study is to assess the pattern of drug information queries in a tertiary care hospital from the Physician, Nurses, Pharmacists, Students, and other healthcare professionals. In one year, the drug information queries have been received, documented and retrospectively analyzed for various parameters including the professional status of the requestor, mode of receipt and reply, type and purpose of query, and reference details. Out of 588 queries received, the majority were answered by Physicians (n=468; 79.59%), followed by Pharmacists (n=55; 9.35%), Nurses (n=15; 2.55%), also Technicians (n=9; 1.53%), Students (n=21; 3.58%), Patients (n=3; 0.5%) and other health care professionals (n=17; 2.90%). The secondary resources (Micromedex/Medscape) were used majorly, followed by Textbooks (n=117; 19.89%), Internet (n=103; 17.51%), Journals (n=23; 3.9%) and others (n=5; 0.85%). The most common drug-related query was Pharmacological drug profile (n=149; 25.34%) and including Product identification (n=132; 22.44%), Product Information (n=84; 14.28%), Adverse Drug Reactions (n=74; 12.58%), Therapeutic uses (n=55; 9.35%) and others (n=94; 15.98%). Drug Information Services has been developed to promote rational prescribing patterns among prescribers, reduce medication errors and provide better clinical outcomes.

Keywords: Drug Information Centre (DIC), Query, Drug Information Services, Patient care, Tertiary Care Hospital, Clinical Pharmacist.

INTRODUCTION

Drug Information Centre (DIC) provides information about drugs to healthcare professionals in response to a request received from any health-care professionals, committees, organization, patients or members of the public. Drug Information Services provide accurate, unbiased, and updated information. DIC improves the quality of evidence-based practice, promotes patient care and patient outcomes when properly functioning.[1]

In the early 1960s, Pharmacy Practice had a specific section for drug information. The first formal drug information centre was opened by The University of Kentucky in the United States in August 1962.[2] The DIC is framed for several purposes at The University of Kentucky, their major goals include "support, and influence current and future healthcare providers which eventually results in appropriate patient-specific drug selection.[3] Supplementary DICs were set up in the period from the 1960s to 1980s after the success of The University of Kentucky.[4] In the 1980s, Drug Information centres were raised in the US which was operated by Pharmacist. However, in 1986, it began to shut down due to a lack of budget,[5] availability of electronic medication information resources and changes in pharmacy practice.[3] From 1990 to 2012, out of so many queries, drug interaction-related queries were more common.[6]

Over the past three decades, the number of DICs has been altered. In a survey conducted in 2003, 21 out of 54 DICs existed.[5] However in 2017, only 75 DICs were operational. Currently, existing DICs are finding ways to develop and expand their services.[3] Most developing countries suffer from a lack of drug information. In various parts of India, after improving the drug information centres, Clinical Pharmacists can involve in patient care by making interventions, reducing medication errors, and enhancing patient compliance.[7] Thus pharmacists have been increasingly involved in prescribing so they should provide unbiased, evidence-based information.

Worldwide, the number of discoveries of novel drugs and dosage forms has been increased which is challenging for the selection of drugs and delivery systems.[8] Independent drug information centres serve as a major component to promote rational use of drugs, says WHO and DICs are mainly based on Hospitals and Communities.[9]

This Retrospective study was conducted in a tertiary care teaching hospital to analyse the pattern of drug information queries. The aim of our study was to assess the purpose and type of queries which were asked commonly. The information provided will distinctly improve the quality of services.

MATERIALS AND METHODS

A retrospective study was carried out at a Tertiary care hospital, in Chennai, Tamil Nadu. It is a 350+ bed tertiary care teaching hospital with 15+ medical departments. The Department of Pharmacy Practice provides clinical pharmacy services to healthcare professionals also drug information as part of its service. The DIC is equipped with well-trained staff, computers, and internet facilities along with electronic databases such as Micromedex and Medscape. The centre is managed by qualified and trained people. It provides several services like drug profile, drug interaction, adverse drug reaction, patient counselling, toxicological profile, and contraindication.

The drug information queries were received retrospectively during a period of one year in a tertiary care hospital. Totally, 588 queries were received, assessed and analyzed. Data were collected for parameters like professional status of the enquirer, medical department, mode of request, mode of reply, the purpose of enquiry, classification of the questions and the references used. Finally, analysis of data was carried out through Microsoft Excel.

Drug information service is given by a Pharm.D interns with the help of staff and the clinical pharmacy team in our DIC who routinely participates in ward rounds with doctors and frequently receives drug enquiries. The service is provided through telephone, during ward round participation, and direct access. The drug information queries are documented in a designed drug information documentation form and maintained in a documentation file (Appendix 1 & 2).

RESULTS

A total of 588 queries were answered during the study period. This corresponds to 40-50 queries approximately per month. Among these queries, Physicians were the major group with 468 (79.59%) followed by the Pharmacist (n=55; 9.35%). Most of the queries were received directly in-person (n=305; 51.87%) and during ward rounds (n=265 (45%). In reply, 397 (67.51%) were answered directly in-person as most of the requestors were easily available and felt convenient with this mode.

The purpose of queries stated includes Patient Care, Self-Education, Research and Others. Out of this, Self-Education (n=304; 51.7%) topped the list followed by patient care (n=194: 32.99%). The time frame for an authentic reply ranged from min to 24 hr. A maximum of (n=459) 78.06% answered in 24 hr. References were chosen carefully as it will directly impact the patient health. It was broadly classified and analysed. The Secondary resources like MICROMEDEX/MEDSCAPE were the choice of reference for the majority of queries (n=340; 57.82%) The complete details of the drug information query (demographics of the study) are given in (Table 1).

Table 1: Details of the drug information query (Demographics of the study)

Details of the drug information query			
Sl. NO	**Characteristics**	**Number**	**Percentage (%)**
Professional status of the requestor			
1.	Physician	468	79.59%
2.	Nurse	15	2.55%
3.	Pharmacist	55	9.35%
4.	Technician	9	1.53%
5.	Other health care professionals	17	2.90%
6.	Students	21	3.57%
7.	Patients	3	0.5%
MODE OF RECEIPT			
1.	Phone	13	2.21%
2.	In-person	305	51.87%
3.	E-mail	5	0.85%
4.	Ward rounds	265	45%
MODE OF REPLY			
1.	Phone	13	2.21%
2.	In-person	397	67.51%
3.	E-mail	7	1.1%
4.	Written information	171	29.08%
DURATION OF RESPONSE			
1.	15-30 min	92	15.64%
2.	24 hr	459	78.06%
3.	Within a week	37	6.29%
PURPOSE OF QUERY			
1.	Patient care	194	32.99%
2.	Self-Education	304	51.7%
3.	Research	48	8.16%
4.	Others	42	7.14%
REFERENCES			
1.	Internet	103	17.51%
2.	Micromedex/Medscape	340	57.82%
3.	Textbook	117	19.89%
4.	Journal	23	3.91%
5.	Others	5	0.85%

A greater percentage of queries were from General Medicine department (n=94; 15.9%) followed by other departments. Queries from various departments are given in (Table 2).

Table 2: Query from various departments

Query from departments			
Sl. NO	**Name of the department**	**Number**	**Percentage (%)**
1.	Cardiology	55	9.35%
2.	Clinical pharmacist	3	0.51%
3.	Endocrinology	2	0.34%
4.	Gastroenterology	52	8.84%
5.	General medicine	94	15.9%
6.	Hepatology	47	7.99%
7.	Nephrology	31	5.27%
8.	Neurology	48	8.16%
9.	Gynaecology	53	9.01%
10.	Oncology	35	5.95%
11.	Orthopaedics	33	5.61%
12.	Paediatrics	34	5.78%
13.	Pharmacy	20	3.40%
14.	Psychiatry	15	2.55%
15.	Pulmonology	66	11.22%

One of our objectives were to identify the major type of query being asked in the tertiary care teaching hospital. Pharmacological Drug Profile (n=149; 25.34%) was the frequent drug information needs of the requestor followed by Product identification, 132 queries (22.44%). Toxicological Profile of a Drug is important to be known by the Prescribers as it is important to maintain the steady state of a drug in plasma to produce better clinical outcome. But in our study, the least number of queries (n=2; 0.34%) was from Poisoning/Toxicological Profile details. Distribution of type of queries among requestors are shown in (Table 3).

Table 3: Distribution of Type of Queries

Distribution of type of queries			
S. N.	**Type of query**	**Number**	**Percentage (%)**
1.	Product identification	132	22.44%
2.	Dose/ schedule	26	4.42%
3.	Drug of choice/ Therapeutics	11	1.87%
4.	Alternative/ Therapeutics use	55	9.35%
5.	Product information	84	14.28%
6.	Drug use in special population	0	0
7.	Administration	14	2.38%
8.	Compatibility/Stability/ storage	0	0
9.	ADR	74	12.58%
10.	Drug interaction	19	3.23%
11.	Pharmacology/ drug profile/PK-PD	149	25.34%
12.	Monitoring parameter	1	0.17%
13.	Contraindication/ precaution	0	0
14.	Poisoning /toxicology	2	0.34%
15.	Others	21	3.57%

DISCUSSION

In this retrospective study, we aimed to assess the pattern of queries which are received in the DIC and also for the use of DIC as a referral service by healthcare professionals in a tertiary care hospital. The assessment of the pattern of drug information query is essential to improve the quality of a drug information centre. On a whole of 588 queries, information about pharmacological drug profiles formed the bulk of queries. In similar studies,[10,11] queries related to drug interaction concerning patient care were the commonest. Physicians were the primary users of this service followed by the Pharmacists and other health-care professionals. This finding is correlated with similar studies conducted by SK S et al (2018).,[7] Andreassen LM et al (2021).,[12] and George B et al (2005).,[13] at drug information centres and is quite different from the multi-centred study conducted in Ethiopia[14] where Pharmacists were the primary drug information users. Most of the queries were received and responded through in-person as DIC is more accessible to everyone. Queries received through ward rounds were high when compared with Telephone and E-mail because more Clinical Pharmacists were involved in providing the services in wards. Similarly, reply through E-mail was less when compared to other modes of reply.

On evaluation, it was found that most of the queries were received from the Department of General Medicine similar to certain studies[7,13,15] while other departments like Pulmonology and Cardiology also received a similar number of queries with slight variation. It may be due to general physicians dealing with patients with multiple diseases thus the requirement for drug-related information. Most of the queries took 24 hr to complete the literature search and respond to requestors. About 6.29% of queries took a period of 1 week to provide a reply although, all of the enquirers received the appropriate answers within an acceptable time. This shows the Physicians of the institute use DIC as a referral service, only for the queries that they were unable to find answers by themselves. The majority of the queries were intended to educate themselves and update knowledge followed by patient care. The preferred resources used for the references were MICROMEDEX/MEDSCAPE. Followed by World Wide Web sources (Internet- 17.51%) including licensed drug information websites were utilised since it is easy to assess and retrieve the drug information answers. In our study, factors like queries from different departments and duration of response to specific queries were included additionally. DIC has been instrumental in the dissemination of drug-related information to health-care professionals. The majority of the service's users were found to be doctors and postgraduate students from the department of medicine and most had used the services to provide improved patient care, according to an analysis of the Drug Information Query. The examination of the feedback form revealed that the majority of the requestors were satisfied with the standard of the services offered by the drug information centre.

Drug Information Centre acts as a bridge between health-care professionals and patient care. Novel initiatives such as providing therapeutic drug monitoring services, identification of illicit substances, and post-mortem toxicology are being tried to be implemented. Future studies could focus on user satisfaction also.

CONCLUSION

In a tertiary care hospital, DIC can be used as a referral service like other specialties, if it is used properly by other clinicians. It is essential to bring awareness about DIC in hospitals and to encourage healthcare professionals to utilise the services for better patient care. Government and Private hospitals should

step forward to establish more DICs to provide high-quality patient care. The major burden in healthcare system is Therapeutic failure which may be due to a lack of updated information regarding drugs to healthcare professionals. Besides, more awareness programs should be conducted frequently to promote and encourage the full utilisation of drug information services.

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Conflict of Interest

The authors declare that there is no conflict of interest

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DRUG INFORMATION REQUEST FORM

Date& time: Received by:

Requestor's information:

Name:

Address:

Phone number: Email:

Requestor's identity:

☐ Physician ☐ Surgeon ☐ Pharmacist ☐ Nurse ☐ Intern

☐ Dentist ☐ Physician Assistant ☐ Patient ☐ Others

Mode of request:

☐ Direct Access ☐ During ward rounds ☐ Telephone ☐ E-mail

Preferred method:

☐ Phone ☐ E-mail ☐ Print out

Detailed drug information query:

APPENDIX 1

Patient information:

Age: Gender : M/F Height: Weight:

Allergies:

Food:

Drug:

Diagnosis/Disease:

Past medical and medication history:

Current medication:

Other details:

If pregnant: ☐ First trimester ☐ Second trimester ☐ Third trimester

If breast feeding: Age of the infant ☐

Priority of information required

☐ Immediate ☐ within 2-4 hrs ☐ within a day ☐ within 1-2 days

Purpose of enquiry:

☐ Update knowledge ☐ Better patient care ☐ others

Name &Signature of the enquirer Name & Signature of the Pharmacist

APPENDIX 2