Assessing the scope for setting up a drug information center in the district-level hospital to improve the clinical outcomes for the patients.

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Master of Business Administration in

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Assessing the scope for setting up a drug information center in District level hospital to improve the clinical outcomes for the patients** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

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CERTIFICATE

This is to certify that the dissertation Assessing the scope for setting up a drug information center in a District level hospital to improve the clinical outcomes is a record of the research work undertaken by Tavvala Sai Yashoda Krishna (0279) in partial fulfillment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

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ABSTRACT

Drug information is to provide unbiased information to all branches of healthcare focusing mainly on the physicians, nurses, and pharmacists who mainly revolve around patient care. Implementing the service will help in making the field of pharmacy service towards novel approaches of collaborating pharmacy field near to patient service rather limiting themselves to dispensing the dose.

DIC centers are well developed in abroad countries while in India it is in its juvenile stage of shaping itself. Many centers in India can be tagged as a hospital which is more advantageous than community or industry-based DIC. As per WHO, DIC can act as a service that can help in improving patient-centric goal treatment by improving techniques of Pharmacoeconomics and therapeutics and reporting centers like ADR, poison information center, and enhance research programs.

The results obtained in the study explains that DIC needs to be implemented widely in the hospitals which can help in developing evidence base medicine resource and setting up DIC, identifying its functions of it accordingly by taking response from Healthcare practitioners. The study even identifies the challenges faced in Implementing the services of DIC

Key Words: DIC, Healthcare team, Resources, Clinical pharmacists, Enquirers, Quality assurance

ACKNOWLEDGMENT

In the accomplishment of this project many people best owned upon me their blessings and heart pledged support. I am taking utilizing to thank all people who have been concerned with the project.

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Then I would like to thank my family who has helped me with their suggestions and guidance and have been very helpful in various phases of the completion of the project.

T Sai Yashoda Krishna

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ABBREVIATIONS

- DIC – Drug Information Center
- ADR – Adverse Drug reporting

- PIC- Poison Information center
- QA- Quality assurance
- WHO- World Health Organization
- DI- Drug Interaction
- PV- Pharmacovigilance
- EML- Essential Medical List
- CME- Continuing Medical Education
- EBM -Evidence-Based Medicine

Chapter1 Introduction

Drug if taken in prescribed form acts as a medicine and the same acts as poison if taken in excess. A comprehensive analysis of drug information needs to be done for the proper medical care of the patient and developing quality in bringing transformation. Drug information is to provide unbiased information to all branches of healthcare focusing mainly on the physicians, nurses, and pharmacists who mainly revolve around patient care. On mere estimation from the World health organization, it is proposed that

more than half of all medicines are having prescription errors, dispensed wrongly, or sold inappropriately (11). This irrational pattern leads to serious health hazards. Drug information can be accessed readily through many sources however providing it verbally about the drug therapy, from a knowledgeable person is the best strategy for best clinical outcomes. Drug information also means providing information on a single drug to an individual patient or multiple and also providing the best general information about its users to the patient. It is the provision of written and or verbal information about drugs and drug therapy in response to a request from other healthcare-providing organizations, committees, patients, and the public community. Enhancing drug information is as important as giving complete patient-focused treatment because the information given should be evidence-based. There are many ways information can be given but to determine that the information given is of being muchly responsible there should be a systematic purpose and evidence-based review of the information provided. EBM determines the quality of the information provided and if the quality of service provided is poor, it impacts the reputation of hospitals, and public health hence there must be a proper setup for the information provided.

It is termed to be a drug information center when the place consists of trained, experienced, and knowledgeable healthcare professionals in that place. This person who is trained in clinical pharmacology, and pharmacotherapeutics, is best suitable.

The drug information centers can be again of two types healthcare centric and public centers. In the healthcare centric information can be switched between resourced person to the enquirer (doctor, pharmacist, or nurse) but in public centric, there are more challenges. Disseminating drug information need to be done in a controlled and limited manner with proper documentation. Hence information retrieved can be used for reporting and also reviewing and also for research.

Internet is readily available for most of the drug knowledge and is acting as a reference link for information. Most clinicians recite this as a trusted reference but the highest quality of information is not achieved and it requires a lot of value-added resources which should be based on obtaining standard resources and databases which need to be commercialized. Information sources are categorized into three types basically like primary, secondary, and tertiary. However, the information needed to differ from the first with the latter because the primary sources most possibly have the information

about medical and therapeutic journals which are strongly having requirements of a strong editorial process. To depend mostly on the resources, we need to be much more precise about the methodologies used.

1.2. Background

WHO has stated that independent drug information centers can bring rational use of medicines and it has initiated many rural development programs to develop drug knowledge in India. (5)

In India first DIC was established in Tamil Nadu, JSS Ootacamund, Maharastra State Pharmacy Council, Thiruvananthapuram Medical College, Kerala, and Karnataka state pharmacy council. Supporting to Karnataka state pharmacy council there enhanced to setup DIC services to meet the needs of drugs & their essentiality there have been five more centers collaborated with the initiative of WHO at Rajasthan (JAIPUR), Goa(Panaji), Haryana(sisra), Assam (Dibrugarh) and Chattisgarh(Raipur).

There are only a few independent DIC operating centers in India(9)

- ✓ CDMU documentation center, Calcutta.
- ✓ DIC, Maharastra State pharmacy council, Maharashtra.
- ✓ Andhra Pradesh, state pharmacy council, Bengaluru, Karnataka
- ✓ JSS Ooty
- ✓ Pharma information center, Tamil Nadu, Chennai

Less than 20 hospital-attached drug information services with clinical pharmacy services are available in India.

Table 1.2.1 Depicting list of Hospital attached DIC

S.NO	HOSPITAL NAME	PLACE
1	JSS	Mysore, Karnataka
2	JSS	Ooty, Tamil Nadu
3	Jawaharlal Nehru medical hospital	Belgaum, Karnataka
4	Poison Information center	AIIMS, Delhi
5	N.R.S Medical hospital	Calcutta, West Bengal
6	Department of Toxicology, Amrita Institute Medical Science Research	Cochin, Kerala

7	Toxicology and IMCU unit, Government general hospital	Chennai, Tamil Nadu
8	Kempegowda Institute of medical sciences	Bengaluru, Karnataka
9	Sri Ramakrishna Mission Hospital	Coimbatore, Tamil Nadu
10	Christian Medical College Hospital	Vellore, Tamil Nadu
11	Drug information center (Karnataka state pharmacy council)	Bengaluru, Karnataka
12	Trivandrum Medical college	Trivandrum, Kerala

1.3 Objectives of DIC-

1. To provide the patients with quality medication by reducing drug-related errors & providing rational use of medications.
2. To bridge the gap between patient enthusiasm to understand drug regimen and prescriber quality time of educating patient
3. To provide evidence-based knowledge to the healthcare team and patient for better outcomes.
4. To meet the essentials of WHO for rational use of medicines by proper strategy and monitoring, health professionals & consumers.
5. To design and develop structured and functional roles for continuing DIC services by including them in educational institutions and bringing professionals from it.
6. To serve healthcare professionals by providing unbiased medical information.
7. To promote pharmaceutical services and develop the profession by promoting the approaches of DIC.
8. To build the pharmacy sector towards approaches to clinical services and gain the trust of medical and nurses who feels the role of the pharmacist is limited to doses.
9. To involve and encourage pharmacy graduates in the field of clinical practice by enhancing therapeutic approaches
10. To collaborate and coordinate decentralized systems which deal with multiple departments with the common aim of transforming healthcare into a centralized system of drugs in centers on centers so that research and findings can be improved better.

1.4 Functions of DIC:

1. In India maximum amount of drug information is received from the medical representatives of pharmaceutical companies or through promoters hence this makes the information to be biased and also poor reliability on it and also research cannot be contributed properly because of poor literature, hence Establishing DIC provides accurate updates and knowledge about drug information center.

2. Drug information centers provide novel drug lists which entered the market to health care professionals so that time updating self-education can be done.
3. Clinical pharmacy services like Drug therapeutic review, managing medication, and prescription errors can be enhanced by DIC.

4. Appropriate patient counseling can be done by answering patient questions related to drug interactions, identification, availability, etc.

5. Documentation of drug-related problems, adverse drug reports, and drug interactions can be done by liaising with the pharm vigilance department. This creates evaluating risk mitigation strategies, developing new therapeutic guidelines, and developing protocols on restrictive usage of various drugs which are newly released on the market.

6. Therapy advice on the regimen prescribed can be based on knowledge obtained from factors such as maximum dosage concentration, route and time of administration, and medication adherence to disorders and chronic diseases.

7. Involving DIC centers in activities like Research on statistical data on drug usage, and epidemiology studies will enhance the quality of information regarding drug usage.
8. Dissemination of information can be done easily with DIC centers in the form of monographs, bulletins, blogs, and journals.

CHAPTER 2 REVIEW OF LITERATURE

1. Access to drug information working group, pharmacy information section, FIP prepared a draft on requirements of drug information center where they summarized service of DIC, recommended requirements of DIC by taking entitlements required from WHO. The requirements provided are essentials that

index facilities, resources, research scope, and staff personnel required for DIC setup.

2. SHPA Standards of Practice for Drug Information Services designed by Societies of hospital pharmacists of Australia developed to guide practitioners and managers in DIC setup and guidance on extending its level of service.
3. Drug Information Centers – Need of the Hour by Kalra M, Pakhale S P published in International pharmaceutical science has concluded that the conventional method of obtaining drug information is through the medical reps, and the information provided is biased. Hence establishing DIC can be attached to a hospital which is more beneficial than other types like industry or community-based. A good resource setup is needed and they suggested running DIC is challenging in India.
4. Martha E.joy, Carlos J, Arana, and Gary R. Gallo have conducted a study on the Use Of Information Sources At a University hospital drug information service have concluded that the 10 most frequently used information sources and considered that accessibility of Service and suggested the biomedical library for deciding which reference to purchase.
5. Theeesha p, Monica k, Promo Kumar adusumilli, Sri Harsha C conducted a study Overview of drug information center -Functions and challenges in India suggest that developing countries like India need to focus mainly on this service where the center can receive many queries and responds to drug interactions, newly available drugs in the market and contributes for appropriate impartial drug information to the health care team and also to patients.
6. Mudigubba Manoj Kumar, Sowmya B, Dinesh R, Karthik M, Alpesh Kumar Nagar published an article Evaluation Of Performance Of drug information center Providing Quality of information services to healthcare professionals in a tertiary care teaching hospital of south India proposed that DIC acts as beneficial to health care professionals for better patient care and also update knowledge of recent advancements. The study also suggests many clinicians' feedback.
7. Jennifer Gershman, published a paper on 6 tips for managing Drug information centers that have concluded that pharmacists play an important role in can contribute to biomedical literature, educating health care professionals, and providing drug information to consumers and the study provided 6 tips for advertising and managing DIC.

8. A textbook of clinical pharmacy practice by G Parthasarathy and et.al provides many learning objectives and essentials about the Scope of drug information center and its contribution to patient care, lists the skills required for providing DIC suggestions to healthcare professionals, nature of resources and types of them with the standard process of approaching to a systematic review of inquiries and queries. Provided a suggestion for developing a report form for collecting data.
9. Subash Vijaya Kumar and Vijayalaxmi Chakilam conducted a study on the quality of services provided by the drug information center of the pharmacy practice department in a tertiary care teaching hospital have conveyed that type of queries a DIC frequently gets and most of the purpose about it is to use it for better patient care. The documentation process and procedures done in different departments are explained.
10. Nitesh Chauhan, Sabeeya Moin, Anushree Pandey, Ashu Mittal, and Umakant Bajaj have conducted that Indian aspects of drug information resources and impact of drug information center on community have conveyed the objectives, resources, global scenario, and Indian scenario of drug information centers, different databases available with an illegal drug information center. It concludes that clinical pharmacists and drug information centers can work to locate the quality in the community.
11. Sapan Kumar Behera, Alphienes Stanley Xavier et. al have done a study on Drug information Center as referral service in a south Indian tertiary care hospital conveyed that proper use of DIS and clinicians' awareness about DIC as well as service. They found DIC as a referral service if utilized by clinicians and clinical pharmacologists where collaterally both can improve the quality of patient care through DIS. Promoting CME can be done through DIC or internet service and running 24 hours service for DI.
12. Promoting Rational use of medicines: core components. Geneva: WHO policy Perspectives on medicines; official paperwork of the world health organization provides 12 key interventions to promote rational use of drugs and the goals to execute the main elements of achieving therapeutically and cost-effective use of medicines by health care teams and public and private sectors.
13. Amol N. Patil, Biswa Mohan Padhy, S Krishna Prasanthi, and Rachna Rohila have conducted a study on Drug information centers in India: overview,

challenges, and prospects presented in their article about the workflow of the Drug information centers, organizational structure, resources, and functioning of the drug information center, challenges in establishing a drug information center in India, evaluation of the performance of drug information center by developing case report forms and prospects.

14. Alex a.Cardoni conducted a study on drug information centers: meeting future needs for drug information found in their study involvement of clinical pharmacists as a key role in developing DIC service centers, Effect of social, economic, and technological, training required for DI pharmacists .relationship between pharmacist and consumers

CHAPTER 3. METHODOLOGY

3.1 AIM

To assess the scope for setting up a DIC at BramhaReddy hospitals & social organizations to improve the clinical outcomes for patients

3.2 Goals

- Provide unbiased information to those working in the hospital and community field.
- Provide an organized database of specialized information on medicines and therapeutic information.
- Promote patient care through the rational use of medicines.
- To improve the quality of patient care.
- To develop DIC as a patient benefit service by educating them in participating patient counseling centers conducted by Bramha Reddy hospital and social nonprofit organizations under the People Service Organization trustee, Kurnool, Andhra Pradesh

3.3 Problem Statement

I. Define what services the center will contribute.
II. Suggest a location for the center on the hospital premises which is easily accessible to all categories of patients
III. Define the infrastructure and manpower requirements for running the center
IV. Define the workflow

3.4 BENEFITS

I. Promotes safe and effective usage of medicines by identifying DRP in prescription.
II. Minimizes misusage of drugs
III. Reduces time consumption by healthcare practitioners in reviewing drug information by increasing pharmacy productivity
IV. Reduces self-medication and improves drug cost management by decreasing drug abuse
V. Increases patient satisfaction

3.5 Study period: 21st March 2022 to 18th June 2022

3.6 Study Design & area: Prospective cross-sectional Descriptive web-based study. V. Bramha Reddy hospital, Kurnool, Andhra Pradesh is a district-level 200 bedded hospital established in 1985 with a motto to provide evidence-based knowledge of healthcare practice to patients with lower cost and quality promised treatment. Dr. bramhareddy is a Guinness book record holder for conducting 58 hernia operations in 24 hours and also runs a nonprofit social welfare organization 'JANAVIGNANA VEDIKA'. Hospital is well equipped with nurses, doctors, and pharmacists

3.7 Data collection

web-based survey.

3.8 Data analysis tool

Ms. Excel & google form

3.9 Data collection tool:

Google form

Inclusion criteria: Data is shared only who are continuing education in the health care field like clinical pharmacists, pharmacologists, doctors, nurses and hospital pharmacists, and hospital-associated DIC.

Exclusion Criteria: Industry-based DIC, Non- registered practitioners, academics associated with DIC.

CHAPTER 4. RESULTS

A total number of 86 responses came in a survey raised for drug information center setup scope and for attaining preliminary knowledge on resources and suggestions required about drug information provision knowledge. The questionnaire raised was sent to all hospital-associated DIC, doctors, nurses, and students of pharmacy, medical and nursing colleges for retrieval of perfect data needed for suggestions.

Figure 4.1 depicts the location from where DIC response came from so that it helps in building the vast existence of difference obtained from various geographic localities building strength to suggestions made with the study results obtained.35.5 % of responses are from Maharashtra,32.3 % are from Andhra Pradesh,11.3 % of responses are from Gujarat,4.8% from Karnataka and Uttar Pradesh,3.2% from Tamil Nadu, and 1.6% from Rajasthan.

Figure 4.1 depicts the location from where DIC

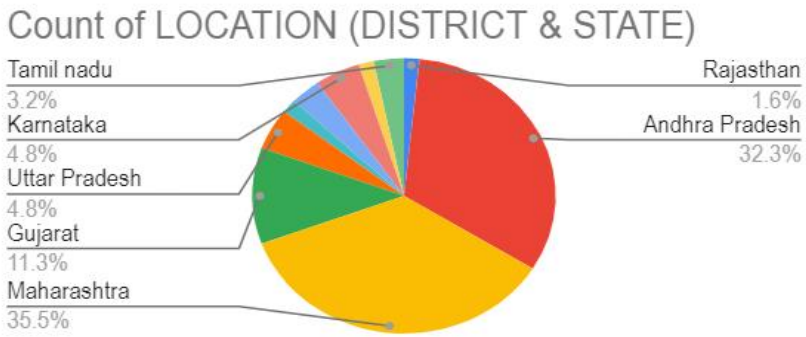


Figure 4.2 assess pooling out the specialists and professionals who filled the questionnaire

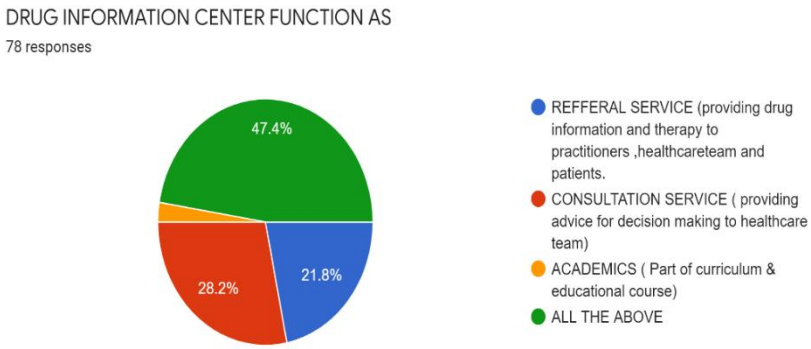


Figure 4.3 depicts that will be establishing DIC improve the quality of healthcare services.

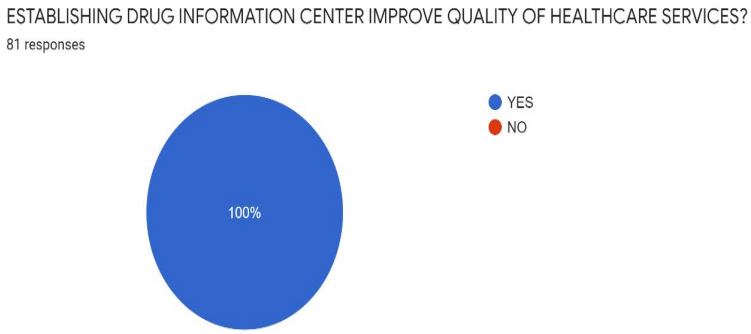


Figure 4.4, shows the response of major function of drug information center setup and how it is useful in the healthcare sector

Figure 4.5 depicts the access of information provided about resources being cumulative.

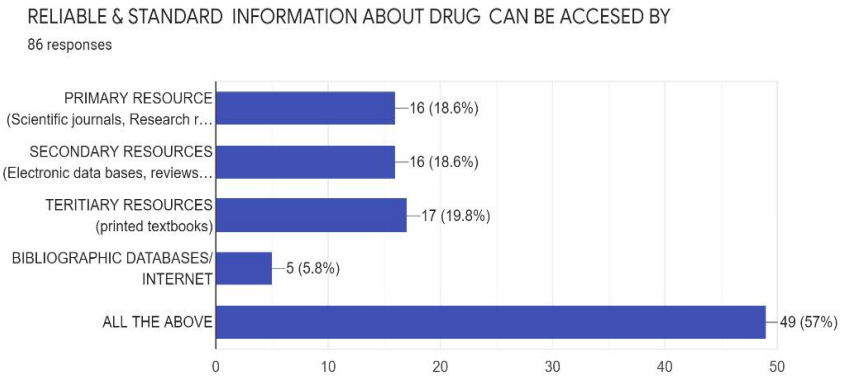


Figure 4.6 depicts the respondent's view of suggesting the electronic database suggestion for the project survey.

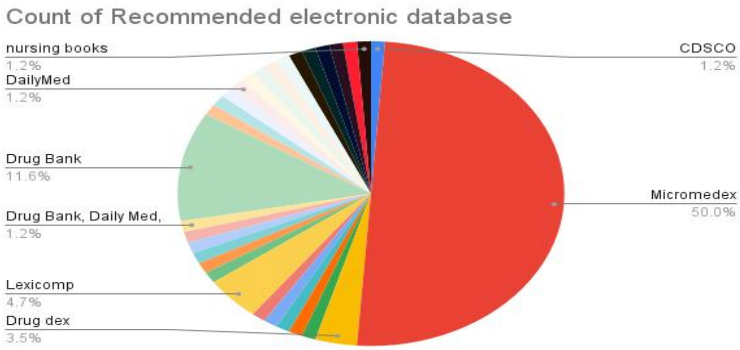


Figure 4.7 Depicts the respondents providing basic facilities and equipment required for DIC setup.

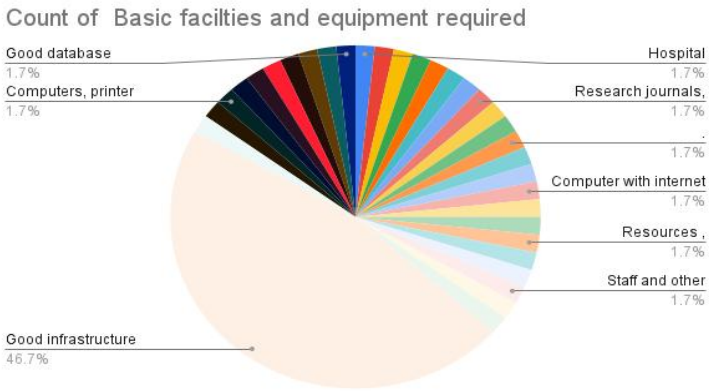


Figure 4.8 Below depicts a feasible location for the DIC setup.

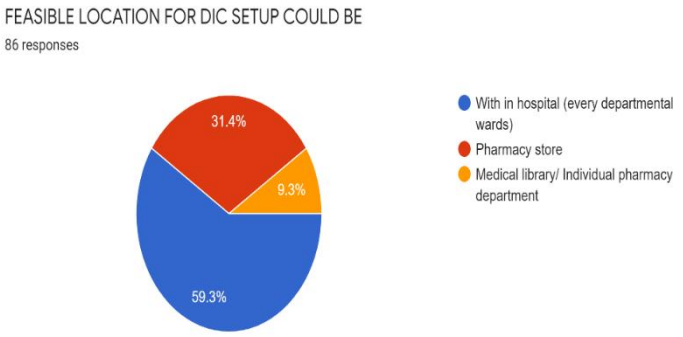


Figure 4.9 Below depicts the quality assurance in DIC

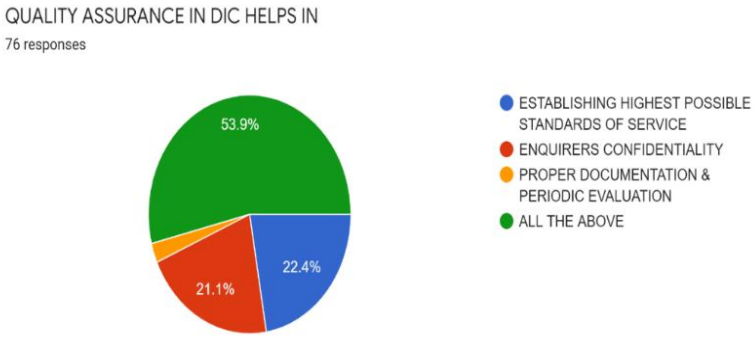
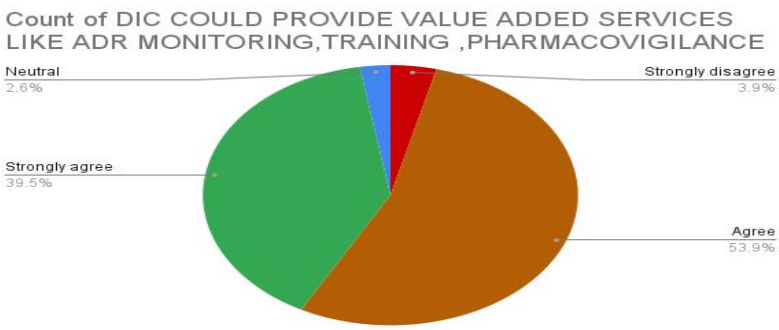


Figure 4.10 depicts how DIC provides value-added services ADR monitoring, Training, and Pharmacovigilance.



CHAPTER 5 DISCUSSION

A descriptive web-based analysis was conducted to assess the scope of the DIC setup and recommend its outcomes in a district-level hospital for improving the quality of patient treatment. All the data were collected from a questionnaire form raised by surveying google forms and recommendations about the DIC knowledge and what can be expected from service are given based on observations, and suggestions collected between the period from March 25 to June 18. A total of 86 responses were collected during the study period. The initial data collected belongs to location which helps in finding dispersion of questionnaire to multiple regions which helps in bringing various DIC setting knowledge and how they can organize the setting. Most of the data obtained are from Maharashtra and Andhra Pradesh which depicts the respondent's interest in DIC.also most of the hospital-associated with DIC were well established in areas of Maharastra, Andhrapradesh, Gujarat & Karnataka. The results of survey findings nearly coincide with the study conducted by Nitesh Chauhan and et.al conducted a study of Indian aspects of drug information resources and the impact of DIC on the community where it states that regional disc runs at the state level were mainly developed in Maharashtra, Andhrapradesh, Rajasthan, Chattisgarh, and Karnataka. The analysis performed in the survey report has shown most of the respondents of the questionnaire were students who are practicing clinical pharmacy services and Doctors from various hospitals with clinical pharmacologists, pharmacy s, and head nurses. This response has shown clinicians' interest in evaluating service study DIC. A study conducted by Vijaya Kumar & Vijaylakshmi et.al concluded that the status of enquirer was from physicians and pharmacists which is in line with our survey conducted.

Survey has shown that establishing drug information service improve the quality of healthcare service and is accepted widely by most healthcare team. It is the most valid questionnaire which depicts the scope of the need and the hour of drug information services in the public domain. In comparison with the surveys, figures 4.2 and 4.3 it is observed that most of the respondents were doctors and students who found that established hospitals attached DIC provided quality to the health care team. The DIC services mostly included patient education and counseling, therapeutic knowledge and dosage corrections, evaluating interactions, and ADRs. Mudigubba & et al have found

in their study of evaluation of the quality of drug information center in a hospital where 65% of the healthcare team were aware of DIC services.

Sapan Kumar & et al found DIC as a referral service which is a contrast to our survey conducted where it shows that the drug information center functions as a round service for being part of the referral, consultation, and academic-oriented center. The least response was concluded to academics but surprisingly when compared to figure 4.2, most of the respondents to the survey are students which when compared to figure 4.4 conveys DIC as a round service of referral, consultancy, and academic service. However, the referral service function is to provide drug information and therapy to practitioners, healthcare teams, and patients which is in bit distinct from the study of Sapan and et. Al where there were departmental queries received on different modes of data collection.

Figure 4.5 Depicts the suggestion of resources needed for setting up a drug information center. Most of the respondents suggested for use of resources that consists of total primary, secondary and tertiary resources along with bibliographic databases. primary resources account for recent journals and scientific research papers which account for producing clinical first appearance and understanding the needs of how research needs to be done. Secondary resources are well known for databases that have electronic knowledge systems and are considered sources that provide rapid response to clinical questions. Tertiary resources are most probably considered as a sum-up of primary and second resources. Drug information when practiced and need to be more evident it is considered to refer to tertiary resources as a first and quick reference whereas secondary and primary as in detail reference. The SHPA Standards of practice for Drug information services suggested for DIC setup with some minimum requirements of a secondary retrieval system and grants of access to primary literature, medical library, and computer-based secondary resources.

In the same context as the suggestions for resource suggestions in Figure 4.6, most of the respondents suggested the best electronic databases as Microme dex, drug bank, Lexicomp, drug den, and cisco. The same has been closely found to be seen in the study of Subash Vijaya Kumar et al where most of the electronic database resources commonly used was Micromedex.

Patil, et al evidence-based medicine from DIC suggested a budget for establishing and running Drug information center services with few basic nonrecurring and recurring equipment. The requirements suggested by the study include office space, furniture, computers, printers, journals annual and monthly subscriptions, drug bulletins, and telephone bills. Most of the respondents in the survey suggested Good infrastructure computers with internet, printers, and resources which co-relate with the Patil et. Al study.

Location is a major component of DIC access and also contributes to important succession in making decisions on hospital-related queries. The respondents of the survey majorly considered DIC set up in hospitals, pharmacy stores, and medical libraries/individual pharmacy departments. In hospitals the queries most often involved might be emergency drug medicines queries, prescription auditing, and dose calculation, finding medication errors during rounds, and hence most respondents found DIC as a value-added service to the hospital. This also helps for elaborating branches of hospital services like pharmacovigilance and clinical toxicological findings in departments with intensive fields as laydowns. The same if found in pharmacy stores can enhance patient counseling, establish a good relationship with callers, and with communication, development can record better patient track recording of treatments undergone. Establishing DIC medical library can provide in-service programs to health care professionals by providing continuing medical knowledge of the drug. Patil et al study found that the location of DIC within the hospital is more advantageous than different departments of patient care areas and hospital pharmacies.

Quality assurance programs are an important integral part of drug information center set up because it helps in achieving the quality of medicines used by providing appropriate information about drug and their usage. This also helps in forming regulatory bodies which help in checking the rationalization of information provided by various DIC centers and review the performance of established DIC centers & with this assurance of staff, review of the nature of answers provided by staff provided Feedback of the service can be done by the authorities to make potential improvement in advancement of established DIC. From figure 4.9, it is seen that DIC enhances quality assurance by providing rational service to respondents in form of establishing the highest standards of services to respondents with confidentiality &proper documentation, and periodic

evaluation. This can be done by proper networking of limited resources and increase in the service of DIC with the practice of setting in different locations and cultures.

Skills required for DIC setup would be most probably personals who have wide knowledge in clinical pharmacy services and drug therapeutic knowledge. The Indian government in the year, 2008 established a course Doctor of pharmacy for providing or developing pharmacy services in the field of hospital or healthcare services and not restricting to dispensing fields. In the survey conducted most of the respondents suggested the staff in personals as Doctor in pharmacy to use the knowledge of the personals. Most of the skills needed are therapeutic advice like dosage efficacy and optimization, interactions such as drug-drug, drug-food, etc, providing a route of administration, medication errors, and pharmacoeconomic & epidemiological studies of drugs so that prevalent knowledge of drug-disease can be traced out. A study conducted by Kalra et. Al (9) conveyed a detailed description of requirements for establishing information canters with personnel who are full-time clinical pharmacists and pharmacologists and skills like pharmacy literature analysis, editing, and library management. Suggestions made to the hospital after reviewing respondents' replies to queries are to manage the center with medical and nonmedical specialists as advisors for part-time with secretarial assistance and supporting staff for maintaining equipment and cleaning. Hierarchical structure needs to be done with professional staff having well-trained knowledge in the advancement of developing the scope of the central establishment.

For ages, the pharmacist has been limited to dispensing field but this is a lot of value-added services that are regarded as most essential for the current Indian scenario. In the survey form, most of the respondents replied utilizing clinical pharmacists in DIC because they are trained in the areas of toxicology, pharmacology, patient counseling, and vigilance which helps in enhancing services like ADR monitoring, reporting ADR and side effects, pharmacoepidemiology, and for gaining value with better management of supply of drugs. Figure 4.10 depicts establishing DIC as a value-added service and most of the respondents strongly agreed with it.

Workflow Suggestion of DIC

Pharmacist /Resident receives query in detail in **case record form**

Source Evaluation through resource or modern databases

Formulate and providing response by consulting DIC faculty/ in charge.

Pharmacist on call is taught right method of literature search with follow up and proper documentation

Quality evaluation of provided response, networking by sharing the knowledge.

On average nearly about 6000 to 7000 articles have been published in all articles and medical journals which means this is not even humanly possible for healthcare clinicians to follow all these in their limited busy schedule and hence a team of specialists with the aim of patient-oriented service along with professional attributes need to support the problem of providing evidence-based medicine. There is a strong need of providing unbiased information with accurate, safe drug therapy to patients for evidence-based knowledge, and in the thought came DIC. However, designing the workflow of DIC is essential as it can help in managing better ways with systematic quality assurance programs. Case record form gives the information of query raised with the mode of inquiry, investigations made, and reference from which the information is taken which help in making proper access to information provided with rational standards.

(Table 5.1 Sample case report form)

Case Report Form

Patient ID: xxxxxx Enquiry no. XXXX

Drug Information Center, Dr.B.R hospital & society

Profession:

Date of Query: Date of response:

Time of Query: Time of response:

Name of inquirer: Type of Enquiry:

Level of urgency- urgent/ routine Contact No.

Enquired via:

Query: objective / subjective (question details)

Patient related information

Age/ Sex: Diagnosis

Relevant investigations:

Treatment received:

Generic/ prosperity name of drug:

Form of reply: Written/verbal/phone/Email.

Reference:

Source used for literature search:

JR/SR: Consultant:

Information provided is: Excellent. satisfactory. Non-satisfactory. poor

The approach to answering DI queries has special mannerism to provide accurate knowledge, patient-friendly understanding requirements, and unbiased drug information to respondents. Hence the Case record form should have proper knowledge of analysis of the type of information being provided to respondents, require the real need of physician understanding and better approach to queries. Documentation of information provided is needed to be done after the statement is given.

Drug information inquiry at first consists of resource generation in which the center should mainly provide inquiries about future related aspects such as quality assurance review, ADR reporting bulletins /pamphlets, treatment charts, and medical literature of commercial databases which are available through reports and journals.

The standard inquiry form normally consists of requester details like name, occupation, and if he is a doctor or healthcare team it has to add the in-detail profession of enquirer with legally and ethically responsible by himself, date and time, past and present medication history, relevant laboratory results. preparation of a response to ensure an approach with a better search strategy is followed by literature review and documenting of the reply records. Replies given can be communicated in two forms one is a verbal and written process. However, the documented procedure must be confidential and respected. The reporting of negative findings must be valued as important as positive and the response should include an introduction, findings, and comments. Quality improvement can be done by providing therapeutic effectiveness, providing appropriate disease counseling with better medication review, and noting the clinical importance of the suggestion provided whether it is life-threatening, patient compliance, etc. Also involving automation services in drug information services is the best approach for documentation and involving quality assurance tests. Maintaining proper electronic data (12) bases will assist in accessing pharmacists with easy findings of past inquiries and can help in maintaining a proper catalog of responses provided.

A list of websites that are working as databases in India is Prescription drugs, Drugs control, A-z Drug information, CIMS India, Oxfam India, National library of medicine, and Inteli health.

Financial support is the most important element of DIC setup. For DIC setup funding from the pharmaceutical industry which is neutral in attaining the DIC objectives and functions is the best essential component that needs to be done. Financial aspects which

represent the solitary power of DIC should be able to convey response individually, all the costs of management of DIC need to be done individually to maintain up-to-date resources which also ensure the long-term functioning of DIC.

Proper training of staff with knowledge of all available literature and resources with critical analysis of writing skills and ability to summarize novel trends need to be done as a part of standard procedure for continuing best practices and techniques used specifically in drug information.

WHO also suggests in its twelve core interventions for promoting rational use of medicines with public education of people with medicines which is also a concern and role of the Drug information center. (11). under this, we can incorporate patient education schemes about drugs, ensure the regulation of the counter drugs and provide accurate knowledge about ESSENTIAL MEDICAL LIST (EML) which brings an essential contribution to developing formulary. Continuing medical education is also a part of DIC which enhance involving medical and pharma professionals in developing updated prescription patterns and also provides knowledge of new drug molecules developed for prescribes by involving biomedical and research personnel.

Suggestions provided by physicians while conducting the study are

Involving students of clinical and therapeutic knowledge inwards of the hospital so that service provided by them can be beneficial for inpatients and the nursing department.

Awareness of the importance, and functionalities of DIC to patients by encouraging rationality in medicines especially adherence to antibiotics.

To provide any new drug information in the market along with clinical pharmacokinetic and dynamic knowledge to the doctor and compliance with the patient.

Bridge the gap between the health care team and pharmacists by exchanging knowledge interpersonally.

By this, we can find that physicians in hospitals are satisfied with the services provided and the information gave is according to quality limits. Chief Doctor’s response was

also found to be satisfactory and this shows that DIC is widely accepted and need of the hour concept

Chapter 6 CHALLENGES IDENTIFIED FOR RUNNING DIC

Though DIC setup has many benefits in Addressing patient benefit and quality improvement considerations there are a lot of challenges in its acceptance and amendment, especially in developing countries.

1. lack of clinical management skills and very low recognition in achieving the goals of DIC with understaffing and uninterested to accept the service offerings

2. For establishing DIC it should be independently given the financial aid of not being biased while providing information to the organization. Independent DIC should have proper funding for better resource development.

3. In India there are very few hospitals attached to DIC and when it comes to its arrangements most of the DIC is attached for academic purposes with ill-defined quality assurance parameters also developing countries grant very fewer budgets to these centers

4. Trained professionals are very low among hospital academic professionals and hence the drug-related information quality is challenging in its acceptance.

5. Managerial hierarchy design is lagging in setting up DIC. This setup helps in maintaining responsible symmetry in providing responsible information and quality determined service.

6. while maintaining a DIC it is the one who is responsible for being ethical and responding to a query should be ethical with respecting the privacy of the patient so that relationship between clinician and patient is not breached, for this academic clinical practice need to be added so that the personnel can be trained from basic level with all the ethical considerations.

7. For running the DIC quality assurance program is a must for ensuring proper updates of information given, conducting reviews of the same with continuing education by specialists, and conducting committees for monitoring the process is challenging in hospital-associated DIC.

8. In India DIC is associated with College HOD, and academics leading to less practice of the service but it is suggested to remain near physicians, pharmacists, and other health care professionals who can deal better with the promotion of rational drug use.

9. community pharmacists need to be skilled and updated for building the services of DIC, this bridge the gap between people and pharmacist as the science is confined to only dispensing.

Chapter 7 Future Prospects and Recommendations

Although DIC has existed long back, it is not explored long back properly and if the above-mentioned challenges are processed properly the Limited centers in India become more productive. In India, if the branch of science collaborates with AYUSH science and alternative medicines the scope of service can be enhanced with novel initiatives like Toxicological studies, TDM services, ADR monitoring center, and forensic studies. Evidence-based medicine is best practiced with the rational use of drugs and in the Indian setting, it yields the best practice in the pharmacy field.

Conclusion

DIC in India has a very bright future of meeting health care needs in terms of quality, management, and administration. Almost all the respondents find it very useful and essential in adding its services to the healthcare team. The government and private sector need to organize more DIC centers to provide better patient care and more awareness programs need to be held frequently to encourage the utilization of information services provided by DIC.

CHAPTER 8 REFERENCES

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APPENDIX

Assessment and evaluation of setting up DIC were found by using the following questionaries'. Initially, requesters were asked about location and profession so that the data obtained is very rational and evident. later questions related to DIC have been kept for assessing the requester's knowledge on the subject. Then suggestions about DIC workflow setup, and resources has been put up to get in detail data and suggestion from different disciplines.

Questionnaire form

Location (district & state)
Profession
Establishing a drug information center to improve the quality of healthcare services?
The drug information center function as
Reliable & standard information about drugs can be accessed by
Kindly suggest the best electronic database for the provision of drug information.
Suggest the basic facilities & equipment required for effective functioning of dic.
A feasible location for DIC setup could be
Skills required in personnel for effective dic management
Kindly suggest the staff required for effective dic functioning.
Quality assurance in dic helps in
Dic could provide value-added services like adr monitoring, training, pharmacovigilance