

A DESCRIPTION OF THE DRUG INFORMATION CENTRE IN INDIA INCLUDING ITS FUNCTIONS AND CHALLENGES

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Abstract:

The provision of drug information involves the dissemination of data regarding the pharmaceuticals utilised within the health-care system. In addition, it encompasses the administration of appropriate doses, the monitoring and management of adverse drug reactions (ADRs) and side effects, the study of pharmacokinetic characteristics, the education of healthcare personnel, the handling of drug shortages, the identification of alternative treatments, and the creation of alternative protocols for limited use. The objective of medication information is to provide authentic, accurate, relevant, unbiased drug information to patients, nursing staff, practicing physicians, chemists, and other healthcare professionals. Drug information frequently addresses inquiries from patients and healthcare providers. The drug information centre regularly gets inquiries from hospital personnel and patients, and provides responses regarding adverse drug reactions (ADRs), drug interactions, pharmacokinetic properties of medications, and information on newly available drugs in the market. Drug information services contribute to enhancing patient safety, reducing drug-related complications for the patient, and promoting the judicious utilisation of medications by both healthcare providers and patients. Drug information services offer clear and precise information with the assistance of a highly skilled and licenced clinical chemist. The majority of wealthy nations are effectively utilising this service. These centres in highly developed nations promptly deliver precise and current drug information to healthcare practitioners. Nevertheless, it is imperative for emerging nations such as India to prioritise the enhancement of their service sector. The material contained in this paper not only provides insights into drug information services, but also highlights future considerations that must be addressed.

Keywords: Drug information services, Hospital pharmacist, Drug-related queries, Clinical pharmacy.

Introduction:

Drug information refers to the provision of information on drug therapy and drugs in response to requests from various healthcare providers, patients, organisations, committees, and the public community. This information can be provided either verbally or in written form. The basic function of drug information services is to furnish chemists with precise and comprehensive information regarding drug use [1]. The drug information centre (DIC) serves as an impartial and comprehensive resource of vital medication information for healthcare practitioners, including chemists and physicians [2].

The illogical drug use in India can be attributed to the absence of impartial and fair drug information as well as inadequate drug regulation. The DIC section is intended to receive, gather, analyse, and offer impartial, precise, and current information about pharmaceuticals and their utilisation [3,4]. Given the scarcity of information on current drug therapy, it is imperative to advocate for the sensible utilisation of drugs in 40% of healthcare services, where a significant percentage of the expenditure is allocated to medications [5]. The inaugural Drug Information Centre (DIC) was established in 1962 at the University of Kentucky medical centre. Its primary objective is to furnish dentists, staff physicians, and nursing personnel with a discerning and all-encompassing repository of drug-related information. This enables them to effectively assess and appraise different medications [6].

An essential determinant for ensuring the safe and efficient use of medication therapy is the provision of precise and prompt drug information to healthcare providers [7]. The primary objective of conducting DIC is to facilitate rational medication therapy by offering impartial, up-to-date, and precise information [8]. The centre also offers pertinent information to physicians and teachers of the medical academy upon their request regarding evidence-based medicine. If the acts of the centre are autonomous from the government and pharmaceutical industry, Drug Information Centres (DICs) should not only offer high-quality information but also have the potential to enhance patient outcomes [9]. The World Health Organisation (WHO) advocates for the establishment and advancement of autonomous DICs as a fundamental component.

The inclusion of national health-care programmes is essential for ensuring high-quality health care and encouraging the appropriate and efficient use of medications [10,11]. Several studies have indicated that patients most frequently rely on physicians and chemists as their primary sources of drug information (DI) [12-15].

The ongoing developments in medical sciences are consistently yielding substantial information concerning treatments and ailments. Regrettably, the progress in pharmacological therapy is generating a lack of information for healthcare professionals and patients. This primarily contributes to the abuse of drugs. Hence, drug information services aim to assist those requiring up-to-date and crucial evidence-based information [15].

Traditionally, pharmacists have been primarily focused on the production and distribution of medications. However, there has been a recent shift in the role of pharmacists towards providing direct patient care as part of clinical pharmacy services. This serves to bridge any potential communication gap between physicians and patients during the process of prescribing

medications [16]. Therefore, chemists were solely responsible for supplying drug information as part of their professional obligations [17].

When providing clinical pharmacy services in DIC, chemists must handle the extensive and up-to-date information on various formulations and new medications entering the market [18]. Drug misuse is prevalent in India, resulting in antibiotic resistance, adverse drug reactions (ADRs), drug interactions, and other drug-related issues [19]. In India, the government policies prioritise the interests of the industry rather than the health sector. The DIC serves as a repository for current scientific publications on medications used in the diagnosis, prevention, and treatment of diseases [20]. Hence, it is crucial to disseminate information regarding the diverse range of services offered by DIC [21].

This article provides insights into the many operations that need to be performed at a DIC (Development and Innovation Centre) and the specific precautions that should be taken while setting up a DIC in the context of India.

INFORMATION SOURCE AND SEARCH STRATEGY FOR IDENTIFYING RELEVANT STUDIES:

In order to do a thorough research analysis on the topic, we conducted searches utilising specific phrases such as medical subject headings and key text words, including "DIC's," "DIC," and "drug info." Therefore, the abstracts of published publications containing pertinent information on the DIC were identified. These terms were employed both separately and in conjunction to guarantee a comprehensive literature search. Articles that were pertinent were chosen and organised according to the overall aim of the review. This was accomplished by doing a comprehensive search of databases, such as SCOPUS, Web of Science, and Embase. Using this standard approach, researchers recognised and condensed their discoveries and conclusions in this ultimate review.

The aims of DIC are:

1. The purpose is to fulfil the requirements of health-care practitioners by offering a structured database as a source of information about specialised drugs.
2. The objective is to offer impartial medical information to chemists, physicians, and other healthcare workers employed in both hospital and community settings.
3. The purpose is to assist community-based health-care practitioners by providing answers to their inquiries regarding drugs.
4. The purpose is to acknowledge and provide guidance on the significance of evaluation, as well as to oversee the quality of pharmacological information.
5. The objective is to provide education and guidance to pharmacy graduates, enabling them to become proficient providers of medical information [22].
6. The purpose is to outline the fundamental criteria for implementing DIC at different levels.

7. The objective is to provide a learning facility that focuses on enhancing the drug knowledge abilities of student chemists, residents, and other health sciences students [23].
8. The objective is to support the promotion of clinical pharmacy health-care services by providing drug information services across the entire state.
9. 9. The objective is to enhance the recognition and reputation of the pharmacy profession in other health-related domains [21].
10. 10. The objective is to support patient care by implementing evidence-based practice and ensuring the judicious utilisation of medications [24].

The roles of DIC are:

1. In situations where there is little time for thorough study, this resource offers valuable information to health-care professionals, helping them stay up-to-date with drug-related knowledge.
2. Sustain and create practices that are grounded in scientific evidence of efficacy and wellness, Pharmacoeconomics, and elements relevant to the institution.
3. In order to enhance the results for patients The DIC (Drug Information Centre) supervises and supports a range of programmes focused on population-based pharmaceutical practices. These programmes include the establishment of recommendations for pharmacotherapeutic, evaluation criteria for therapeutic usage, and procedures for therapeutic interchange.
4. Implements many initiatives to reduce medication errors and adverse drug effects, such as monitoring and maintaining institutional adherence to risk evaluation and mitigation measures, as well as overseeing reporting and analysis programmes (e.g., MedWatch).
5. The monitoring and assessment of medication safety alerts are conducted by the Food and Drug Administration (FDA), drug makers, and other sources.
6. Drug information is disseminated to a range of healthcare experts, those who are afflicted with medical conditions, and individuals who offer care to those in need. In addition, it expanded its services to include the coordination of investigative services through the evaluation of protocols and participation in institutional review board committees.
7. Analyse and oversee alternative therapies for different diseases listed in the approved pharmaceutical list, and provide guidelines for limited use of drugs.
8. This role involves creating and refining clinical decision aids, such as order sets, dosage procedures, and order entry alerts.
9. Pharmacy students, overseas professionals, and residents receive comprehensive instruction and training on advanced medication information.
10. DIC practitioners actively engage in providing valuable free services such as formulary support, database building, and training programmes for clients.
11. Drug information bulletin materials and other media are used to develop and deliver information on therapeutic medicines to health professionals [24-32].

12. The DIC produces a range of educational materials, such as brochures and newsletters, to provide patients and healthcare professionals with information on the effective use of drugs.
13. Regularly assists in delivering educational services to healthcare professionals.
14. Engages in research initiatives focused on improving quality development and does analysis on drug costs.
15. Contributes to peer review research efforts and biological literature [32,33].

Benefits of Drug Information Services:

1. Enhances the safe and efficient utilisation of medications by recognising any issues related to the prescription.
2. By fostering effective clinical care practices, it reduces the occurrence of drug-related problems in patients, therefore making a substantial contribution to reducing the global burden of drug misuse.
3. This organisation establishes medication-use rules and assists in their growth, while also effectively communicating this information to different healthcare experts.
4. Enhances chemists' productivity by reducing the time healthcare practitioners spend reviewing drug information.
5. Enhance patient adherence to medicine by improving patient compliance and patient safety, resulting in increased medication adherence.
6. Enhances pharmaceutical cost control by mitigating medication misuse
7. Utilising drug information services enhances both physician and patient satisfaction [23].
8. The provision of DIC services has significantly enhanced the quality of patient treatment.
9. This intervention decreases the common occurrence of self-medication and drug interactions resulting from multiple factors that indicate the increasing availability of medications in the market [34].

CLASSIFICATION OF DIC:

It can be classified into three types it includes:

The hospital-based Drug Information Centre (DIC):

The hospital-based Drug Information Centre (DIC) performs several key activities, including receiving and responding to in-house calls from requestors, participating in formulary decision making and providing service education, contributing to drug use evaluation, publishing newsletters, reporting adverse drug reactions (ADR), assisting in investigational drug activities, and collaborating with the Pharmacy and Therapeutic Committee [34,35,36].

Industry-specific digital image correlation (DIC):

Drug information centres (DICs) in the industry possess comprehensive access to a wealth of detailed knowledge. This includes information on the development of drugs, published literature, unpublished documentation, records of usage in unique situations, and most importantly, access to relevant experts. Users have the ability to contact the company via phone calls during busy periods. The telephone recording machine is cleared every hour. If additional information is needed, users can reach out to the medical information staff [37].

Decentralised Information Centre (DIC) that operates within a community:

Community-based Directly Observed Therapy (DIC) seeks to modify patient behaviour by utilising pharmacological interventions, enhancing patient compliance, and thus resulting in enhanced healthcare quality. To obtain further health information, people can proactively search for consumer health information that addresses their specific needs. Patients are able to generate their own content and disseminate health-related information on the internet using mobile technologies via social media platforms [38].

Indian situation:

The concept of DIC was initially introduced in India at Tamil Nadu JSS Ootacamund and Maharashtra State Pharmacy Council.

The institutions mentioned include Thiruvananthapuram Medical College in Kerala and the Karnataka State Pharmacy Council. The WHO India Country Office, in partnership with the Karnataka State Pharmacy Council, is assisting in the establishment of five Drug Information Centres (DIC) to provide organised drug information to healthcare professionals and consumers. The centres have been created in Rajasthan (Jaipur), Goa (Panaji), Haryana (Sisra), Assam (Dibrugarh), and Chattisgarh (Raipur) [2].

The Karnataka State Pharmacy Council created its medication Information Centre (DIC) in August 1997 to provide impartial medication information to healthcare practitioners. In India, it was recognised as the inaugural autonomous Drug Information Centre (DIC) to be officially registered with IRDIS, the International Register of Drug Information Services. There are 15 independent DICs in India that offer clinical pharmacy services. The Pharma Information Centre, an independent facility, offers information only to drug producers. The hospitals in Chennai and Coimbatore also provide a similar programme [39].

Here are some examples of independent District Information Centres (DIC) in India [40]:

- The CDMU Documentation Centre is located in Calcutta.
- The DIC is the Maharashtra State Pharmacy Council in Maharashtra.
- The Andhra Pradesh State Pharmacy Council is located in Andhra Pradesh.
- The Karnataka State Pharmacy Council is located in Bengaluru, Karnataka.
- JSS, Ooty
- Pharma Information Centre, located in Chennai, Tamil Nadu.

Table 1 listed some of the hospitals that were associated with DIC.

Challenges:

While the construction of DICs provides advantages in terms of resolving the knowledge gaps of healthcare workers and enhancing patient care, there are numerous problems that must be overcome during the setup of these centres.

1. The several factors that impact the effective operation of a Drug Information Centre (DIC) in developing nations include insufficient staffing, obsolete drug information sources, lack of acknowledgement, poorly defined quality assurance programmes, inadequate working facilities, and absence of clinical and administrative expertise [41].
2. In poor countries with inadequate resources, the main obstacle to creating a DIC is the lack of funding. In order to effectively establish and operate DIC services, it is necessary to have a sufficient amount of both regular and non-recurring budgets [42].
3. DICs in hospital settings are typically associated with clinical pharmacology or pharmacy departments, and the costs are typically covered by the department's budget. Given the existing limited finances in Indian academic departments, the expenses involved may discourage the creation of an independent DIC. The number 43 is enclosed in square brackets.
4. Furthermore, the Drug Information Centre (DIC) might offer additional services, including toxicity information, adverse drug reaction (ADR) monitoring, and training for postgraduate students in related fields. These services would help to explain the DIC's funding needs. The number 44 is enclosed in square brackets.
5. Ensuring the provision of accurate and reliable drug-related information necessitates the utilisation of knowledgeable and proficient personnel in the Drug Information Centre (DIC). Nevertheless, there is a scarcity of such persons within university hospitals.
6. One possible solution to address the shortage of educated workers and ensure 24/7 services in Drug Information Centres (DICs) in India is to introduce drug information residency/fellowships for postgraduate students.
7. The World Health Organisation (WHO) suggests implementing independent Drug Information Centres (DICs) as a crucial part of national programmes to encourage the sensible use of pharmaceuticals. This is because one of the reasons for the ineffectiveness of DICs is that their director has additional duties.

8. In most Latin American nations, DICs are situated within pharmacy colleges and are overseen and operated by a professor or Head of Department from the same institution. This has the potential to result in an incorrect methodology. It is important for DICs to be located in close proximity to physicians, chemists, nurses, and other healthcare professionals. They possess superior abilities in promoting reasonable drug use.
9. Quality assurance of DIC's services should be regularly monitored and compared to high standard resources [45,46].
10. Monitoring key processes, such as the number of queries answered per year, questions answered within 24 hours, user satisfaction, bulletin publication, participation in drugs committees, updating drug information sources, and continuing education by drug information specialists, poses challenges for drug information practitioners.
11. The National Prescribing Service (NPS) is an autonomous organisation in Australia that receives government funding. It offers a toll-free telephone service to primary care practitioners and consumers. The aim of this service is to enhance the quality of medicines used in patient care and to educate consumers. Additionally, there is a service provided for offering guidance and information about psychotropic drugs. Subsequently, the DICs expanded their range of operations to include more advanced activities in many nations, thereby posing a significant threat in India [47].
12. By the conclusion of 1973, a comprehensive survey had found a total of 54 Drug Information Centres (DICs) in the United States of America. As to a 1995 estimate, there are approximately 120 fully operational pharmacists-run Drug Information Centres (DICs). The expansion of DIC services is seen as a significant issue for India.
13. Ensuring ethical standards is a significant challenge in managing DIC. When addressing a question, the drug information practitioner must carefully evaluate multiple ethical concerns. When responding to concerns, it is important to consider some ethical issues. These include upholding professional ethics, safeguarding patient privacy, and avoiding any breach of the patient-physician relationship [48].
14. In order to evaluate the performance of DIC, it is necessary to regularly carry out a quality assurance programme. The quality assurance department at DIC determines the services to be offered, assesses the effectiveness of the services given, and takes corrective actions if the services do not meet the desired standards, in order to assure satisfactory services in the future. In underdeveloped nations such as India, the number of DICs is scarce and their effectiveness is hindered by a shortage of skilled personnel, financial resources, and restricted availability of up-to-date material. This indicates the necessity for regular assessment of the operational methods and the standard of services offered by DIC.
15. The drug information centre serves as a means to enhance drug therapy outcomes and achieve a zero-defect rate in medication errors. Hence, it is imperative for all chemists and healthcare professionals to collaborate and demonstrate proficiency in order to effectively operate a successful DIC. Pharmacists who are engaged in drug information services should demonstrate a firm commitment and unwavering dedication to the service provided by their superiors.

Analysis of Future Prospects and Recommendations:

Despite the existence of DICs since the 1960s, their complete capabilities have not been thoroughly investigated, particularly in poor nations. If the aforementioned obstacles are effectively resolved, the future expansion of DICs will become more efficient and improved. DICs can also offer data on complementary and alternative medications, which would particularly benefit developing nations with a significant proportion of patients using these treatments. In India, academic centres can partner with the existing in-house department of complementary and alternative medicines, known as AYUSH (Ayurvedic, Yoga and Naturopathy, Unani, Siddha, and Homoeopathy), to give information through DICs (Digital Information Centres).

In Denmark, successful initiatives have been implemented, including the provision of therapeutic drug monitoring service, adverse drug monitoring, collaboration with forensic scientists for the identification of illicit substances, forensic pharmacology, post mortem toxicology, and providing expert testimony. These initiatives can be replicated in India as well [49]. Additional activities, such as online or offline academic detailing, involve highly trained pharmacists/pharmacologists with extensive knowledge of medications interacting with physicians to disseminate the most effective prescribing practices. These activities are considered a method of promoting evidence-based medicine practices and the appropriate use of drugs. Engaging in such activities in an Indian context may also produce favourable outcomes [3,29,50-54].

Conclusion:

The DIC practitioners, in conjunction with healthcare professionals in hospitals, work together to guarantee the safe and efficient use of medications. Therapeutic failure is a significant challenge in the health-care system, primarily caused by a dearth of current and accessible pharmacological information for health-care practitioners. In order to address this issue, it is imperative that drug information practitioners receive comprehensive training, particularly in the field of clinical practice, to ensure the delivery of top-notch drug information services. Pharmacists are expected to offer precise, well-supported, carefully assessed, up-to-date, and impartial information to health-care professionals. Both private and government health-care institutions should collaborate to establish a greater number of Diagnostic Imaging Centres (DICs) in order to deliver exceptional patient care. In addition, it is essential to regularly organise awareness programmes at different health-care institutions to enhance and incentivize the complete utilisation of drug information services.

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