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Drug information services - An emerging practice in India

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India is a country with significant medication and prescribing challenges. Irrational and unnecessary prescribing is common and antibiotic resistance is widespread. These problems are a result of a variety of factors. The most important of these include:

- the lack of awareness about the importance of drug information centers;
- the availability of 80,000 plus formulations;
- an industry focused rather than health focused national drug policy;
- the lack of awareness of the principles of

rational drug use among doctors and pharmacists;

- the widespread sale of the illegal prescription drugs over the counter;
- and a high level illiteracy and poverty among patients¹.

The term 'drug information' developed in the early sixties. In 1962, the first drug information center was opened at the University of Kentucky Medical Center in the USA, in which a special area separated from the pharmacy was dedicated to providing drug information. The center was to be "a source of selected, comprehensive drug information

for staff physicians and dentists to evaluate and compare drugs," as well as a resource for the drug information needs of nurses. The center was expected to take an active role in the education of health professional students including medicine, dentistry, nursing, and pharmacy. A stated goal was to influence pharmacy students in developing their role as drug consultants². With similar intention the Drug information centers are started in India.

Need for drug Information

In the past, the smaller range of available

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In India the provision of drug information is the new emerging concept, and this article focuses on the development of drug information and clinical pharmacy services since 1992 in various parts of India. At present there are 16-17 drug information centers providing clinical pharmacy services in India. Few information centers are independent, not attached to hospitals. They provide Drug information to many hospitals in their area. When compared to number of hospitals and the population to be served in India, the number of information centers is far below what is needed. More hospitals should implement this form of clinical pharmacy practice to promoter outcome among patients. This review article focuses on the *modus operandi* and other activities of Indian Drug information centers.

drugs limited need for drug information but now many new drugs and new modalities of treatment are being introduced. There are more than 20,000 biomedical journals available and more than 6,000 articles published every day. It is a Herculean task for health care professionals to keep up to date with the available information³. In addition, most developing countries like India suffer from lack of adequate drug information due to limited availability of current literature and also poor documentation and poor funding¹. The lack of unbiased drug information services in India poses problem, and doctors in general get their information from medical representatives who obviously are partially biased towards their product. In India, the low income levels of the population, the multiple healthcare systems, and the lack of awareness about the risks and benefits of drug therapy make good clinical pharmacy practice all the more relevant and important. Due to the increasing population and the limited number of Indian doctors, their practices are loaded and that creates too much stress. As a result, the quality suffers. There is potential for clinical pharmacists to fill this gap^{4,5}.

The start

In collaboration with the Repatriation Government Hospital Adelaide in Australia, The Jagadguru Sri Shivaratheshwara Swamigal (JSS) College of Pharmacy brought the concepts of clinical pharmacy and drug information concept to India. A fac-

Table 1: List of Indian Drug Information centers & clinical pharmacy Departments.¹⁰

Independent Drug Information Centers	Hospital attached Drug Information Center with Clinical Pharmacy Services
- CDMU Documentation Center, Calcutta - Drug Information center, Maharashtra State Pharmacy Council, Maharashtra - Andhra Pradesh State Pharmacy Council, Andhra Pradesh - Karnataka State Pharmacy Council (KSPC), Bangalore, Karnataka - JSS, Ooty, Tamilnadu - Pharma Information Center, Chennai	- Poison Information Center, All India Institute of Medical Sciences (AIIMS), Delhi* - Trivandrum Medical College, Trivandrum, Kerala - JSS, Mysore, Karnataka - Drug Information Center, (KSPC), Victoria Hospital, Bangalore, Karnataka - Drug Information Center, (KSPC), Bowring Lady Curzon Hospital Bangalore, Karnataka - Kempagowda Institute of Medical Sciences (KIMS), Bangalore, Karnataka - Kasturba Medical College (KMC), Manipal, Karnataka - JSS, Ooty, Tamilnadu - Sri Ramachandra Hospital, Porur, Chennai - Jawaharlal Nehru Medical College Hospital (JNMC), Belgaum, Karnataka - Christian Medical College Hospital Vellore, Tamilnadu. - Department of pharmacy practice, Chidambaram, Tamilnadu - Sri Ramakrishna Mission Hospital, Coimbatore, TamilNadu - Department of Pharmacy Practice, National institute of Pharmaceutical Education and Research (NIPER), Chandigarh

* Provides only poison information.

ulty exchange program was developed and thus clinical pharmacy training was given to Indian pharmacists at JSS.

Then the postgraduate course in clinical pharmacy practice was started in this center. The center now provides clinical pharmacy services and monitors ADR for 750-bedded hospital and 2-3 nearby hospitals. Similarly, at Tamilnadu, the same management has a similar setup and disseminates information to many hospitals of Ootagamund, Tamilnadu and gives postgraduate courses in clinical pharmacy practice¹.

The Drug information center Karnataka State Pharmacy Council (KSPC) initiated an independent drug information center on 1997. This center provides unbiased drug information to more than 30 to 40 hospitals and general practitioners of Bangalore city and some hospitals in Karnataka. The centre also monitors ADRs⁶. In co-ordination with the Delhi Society for Promotion of Rational Use of Drugs (DSPRUD, which is supported by WHO-India) the Karnataka center produced Standard Treatment Guidelines (STG), and an Essential Drugs List (EDL) for the state of Karnataka^{7,8,9}.

Overview of the current situation

Table 1 shows the different drug information and clinical pharmacy centers in India.

The poison information center at the All India Institute of Medical Sciences provides poison information around the clock to hospitals of Delhi and other parts of India. The institutes monitors Adverse Drug reaction (ADR) and reports to Uppsala monitoring center in Sweden^{11,12}. Although it is the only dedicated poison information center for the country, other drug information centers also provide some amount of poison information to their hospitals.

India joined the WHO-ADR monitoring in 1998¹¹. Most of the centers mentioned in this article monitor ADRs in their hospital. Centers at JSS, and AIIMS send their reports to Uppsala. Few other centers such as NIZAMS at Hyderabad or the center at KSPC, Bangalore retain their reports with them.

Most of the hospitals surveyed in Bangalore, Karnataka did not have an ADR monitoring system in place, according to a study conducted by Lakshmi et al.¹⁷. There is a need for proper co-ordination of all centers

in collecting the reports, and there is a need for a national monitoring center that then can report to the WHO.

In 1999, the Trivandrum medical college at Kerala started clinical and community pharmacy services and now provides all services to their state through their clinical pharmacists. The department is also in the process of establishing a 24-hour toxicological centre (poison control center) in the hospital to answer specific poison queries¹³.

The centers at Andhra and Maharashtra State can start any day now; The Karnataka state pharmacy council helped setting up these independent centers.

The Pharma Information Center (PIC) started in 1999 with help of Karnataka state pharmacy council, and it provides information to drug manufacturers. The hospitals at Chennai and Coimbatore also have similar program¹⁴.

The Kempagowda Institute of Medical Sciences is a medical school with 1000-bed hospital. It recently started a clinical pharmacy department with a post graduation program in pharmacy practice. This department is in budding stage.

The Kasturba medical college and hospital is a premier medical college at Manipal, Karnataka, and 2 years ago started a clinical pharmacy department. It provides a post graduation program in clinical pharmacy services¹⁵.

The Department of pharmacy practice at NIPER, Chandigarh was recently funded (2002) and has started a postgraduate course in clinical pharmacy practice. The faculty was trained in the United Kingdom. There is a collaboration program between this department and schools of pharmacy in the UK through the British council¹⁶.

In Bangalore, the Karnataka State Pharmacy Council (KSPC) has both an independent center (which is not attached to hospital) and hospital-attached center. The first serves all the hospitals of Bangalore and the latter serves 4 hospitals situated in the Victoria hospital campus^{6,17}. The second hospital based drug information center was started in Bowring & Lady Curzon Hospital Bangalore. The drug information pharmacist at KSPC trained the hospital pharmacists here, and those pharmacists provide the information¹⁸. The other centers in India provide clinical pharmacy services to their own hospital only.

Pharmacists man almost all the centers, except a few that are overseen by a doctor. Most of the centers publish bulletins to provide the latest pharmacotherapy updates to educate doctors. Except for a few, the other

centers mentioned above are in preliminary developing stage and only one or two years old; some are yet to procure good databases and tertiary references.

Most of these departments provide drug information and ADR monitoring services. Some further developed centers are involved in other clinical pharmacy services like Therapeutic Drug Monitoring (TDM), Drug Utilization Review (DUR), medication error detection, and clinical interventions.

Modus operandi and resources

Most of the centers operated by pharmacists use IDIS (Iowa drug information service), Medline, and Drugdex (from Micromedex). In independent centers, Micromedex was found to be very useful for the provision of information. Most of the centers are open between 9.00 to 17.00h for 6 days a week. In comparison to other drug information centers abroad, there are no much differences in use of secondary and tertiary references. In comparison to 1993, internet access has greatly improved and most of the centers have Internet facilities.

A comparative study of all the centers reveals that the centers receive anywhere between 40 to 300 queries/month. The number of reported ADRs was 10–25 per month. The independent center (KSPC) sends and receives the questions mostly by email. Other hospital-attached centers receive questions during ward-rounds, and reply by phone or through the ward pharmacists. All the centers provide information free of cost. Most of the centers try to get feedback from enquirer by sending a printed feedback form. But the average number of feedback received ranges from 20–30%⁶.

As for other activities of Drug Information Centers, KSPC prepares EDL, STG, a Formulary and the center conducts drug use evaluations for the state of Karnataka. To be able to perform these RDU activities for the state, WHO SEARO India funded the drug information pharmacist at KSPC to attend a Promotion of rational Drugs Use (PRDU) course in Pakistan (2004)⁷. This center also publishes books for doctors and pharmacists in e.g. the area of drugs use in special populations, counseling information on more than 1000 drugs, or community pharmacists against tobacco.

Most of the centers in India are on the International register of drug information services (IRDIS)¹⁹.

Enquirer's category

Most of the centers receive queries from doctors, pharmacists, nurses and patients. Most

frequently, the questions come from pediatricians and gynecologists. The center at KSPC⁶ and Pharma information center at Chennai provide information to Pharmaceutical Industry¹³.

Training

The proper running of the drug information center requires constant updating by means of training of the personnel involved in the provision of information. Hence the institution should send their pharmacists to other developed countries using various funding agencies such as Pharma Bridge etc., KSPC trained its pharmacist at ARMC (Austin Repatriation Medical Center) Melbourne, Australia⁶ and another pharmacist from KSPC was trained in US through PharmaBridge program²¹. The pharmacists from the other centers in Bangalore, Mumbai and Chennai make use of help from KSPC in handling queries.

Funding

Most of the centers are self-funded. The fees, which are collected from the students, are used to run the department. Some of the independent centers receive financial support from their parent organizations⁶.

Conclusion

Clinical pharmacy and drug information services are well established in most developed countries. This is not the case in developing countries like India where lack of funds, lack of trained pharmacists, irrational prescribing and poor economics are barriers in establishing well-equipped Drug Information Centers (DICs)¹.

The practice of Drug Information is currently being developed in India, as can be seen from the table. Successful DIC implementation is the result of better participation from trained pharmacists and the support of medical professionals.

The responsibility of individual pharmacists for the provision of drug information has increased substantially over the years. And several other factors are also stimulating the evolution of the pharmacist's as a drug information provider, including information technology changes, knowledge of drug therapy, changing philosophies of pharmacy practice, the education of pharmacists, and a more knowledgeable patient. The sophisticated drug therapies offer opportunities to the pharmacists to demonstrate their expertise in providing the appropriate drug information

India has approximately 14,000 full-fledged hospitals, 810,538 hospital beds, and

22,243 primary health centers which are all government owned^{22,23}. So it is clear that the number of drug information centers developed so far is not enough to serve all hospitals and clinics in India. This situation calls for the networking of DICs, in order to avoid duplication of cost, and enable exchange of personnel, and organizing joint group trainings²⁴. Thus, many hospitals can benefit of the existing facilities.

The world health authorities such as the WHO should fund such centers to promote the rational use of drugs through providing drug information. Such stimuli are essential for developing countries like India.

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