

Original Research

Situation of Drug Information Centers and Services in Costa Rica

Victoria HALL, Carolina GOMEZ, Fernando FERNÁNDEZ-LLIMÓS.

ABSTRACT*

PAHO establishes guidelines that must be met by drug information centers (DIC) and the drug information services (DIS).

Objective: To describe the operations, activities, and resources of the DICs and the DISs affiliated with public institutions of Costa Rica, and their adjustment to the provisions set forth by the PAHO. **Methods:** Descriptive study conducted in May 2003.

The officers in charge of each of the seven public DICs or DISs in Costa Rica were interviewed, and inquiries were made regarding aspects of the structure and process of their centers.

Results: In Costa Rica there are seven public drug information units, that is, four DICs and three DISs. One of the DICs is located in this university, and the remaining six centers and services are in located in hospitals. Five of the centers do not have the primary sources required by the PAHO. Fifteen out of the 36 tertiary sources recommended are not available in any of the centers. 100% of the information units carry out four main activities: answering inquiries from the hospital community, answering inquiries from users outside the hospital, implementing education programs for patients and risk groups, and rotation programs for student training.

Conclusions: The activities developed by the DISs and the DICs in Costa Rica are similar to each other; they respond not only to the PAHO's guidelines, but they also have similarities with the activities and operations of other DICs worldwide. Primary, secondary, and tertiary bibliographical support must be strengthened.

Keywords: Drug information services. Costa Rica.

RESUMEN

La OPS establece unos lineamientos los cuales deben ser cumplidos por los centros de información de medicamentos (CIM) y los servicios de información de medicamentos (SIM).

Objetivo: Describir el funcionamiento, actividades y recursos de los CIM y SIM pertenecientes a instituciones públicas de Costa Rica, y su ajuste a lo estipulado por la OPS.

Métodos: Estudio descriptivo realizado en Mayo de 2003. Se llevó a cabo una entrevista a los responsables de cada uno de los siete CIM o SIM públicos de Costa Rica, indagando aspectos de estructura y de proceso de su centro.

Resultados: En Costa Rica existen 7 unidades de información sobre medicamentos públicas, 4 CIM y 3 SIM. Uno de los CIM está en la Universidad, y los otros 6 centros y servicios son hospitalarios. 5 de los centros no poseen las fuentes primarias que indica la OPS. 15 de las 36 fuentes terciarias recomendadas no están disponibles en ninguno de los centros. El 100% de las unidades de información desarrollan 4 actividades primordiales: atención de consultas de la comunidad hospitalaria, atención de consultas de usuarios fuera del hospital, implementación de programas de educación a pacientes y a grupos de riesgo y programas de rotación para formación de estudiantes.

Conclusiones: Las actividades desarrolladas por SIM y CIM en Costa Rica son semejantes entre sí, y no solamente responden a los lineamientos de la OPS, sino que tienen similitudes con las actividades y funcionamiento de otros CIM a nivel mundial. El soporte bibliográfico, tanto primario como secundario y terciario debe ser fortalecido.

Palabras clave: Servicios de información sobre medicamentos. Costa Rica.

(English)

INTRODUCTION

Drug Information is defined as a system of knowledge and techniques that allows the transfer of knowledge about drugs, in order to optimize therapeutics for the benefit of patients and of society.¹

A Drug Information Service (DIS) is a formal unit with a series of resources and a professional team engaged in providing information about drugs.²

*Victoria HALL. MSc. National Drug Information Center, Universidad de Costa Rica
Carolina GOMEZ. BSc (Pharm). National Drug Information Center, Universidad de Costa Rica
Fernando FERNÁNDEZ-LLIMÓS. PhD. PharmD. Pharmaceutical Care Research Group, University of Granada (Spain)

The Pan-American Health Organization (PAHO) defines Drug Information Center (DIC) as an "operational unit that provides technical and scientific information about drugs in an objective and timely manner, thus constituting a strategy for addressing particular information needs".^{2,3} It also defines Drug Information Service as a formal unit with a series of resources and a professional team engaged in providing information on drugs.²

The general objective established by the PAHO for a DIC/DIS is to promote the rational use of drugs through objective, updated, timely, and pertinent technical and scientific information, which is duly processed and evaluated.²

Sources of information constitute the operating instrument for those who work in a drug information center or service. For this reason, sources that adapt specifically to the needs of the person or the institution must be selected. Presently, medical information can be found in different media or formats, such as books, journals, newsletters, microfiches, CD-ROM, and computer systems, among others.⁴ Regardless of the medium used, sources are classified as follows:

- Primary: These are sources that gather original data that may be published in scientific journals.^{2,5,6}
- Secondary: It is a heterogeneous group consisting of compilations, indexes, databases, and microfiches, which provide access to the primary sources.⁴⁻⁷
- Tertiary: They include textbooks, compendia, manuals, and pharmacopoeias.^{2,4,5,7}

In Costa Rica, aside from the DIC of the Universidad de Costa Rica, there is a Commission for Drug Information and Patient Education (COIMEP) with which the DICs/DISs of the Caja Costarricense del Seguro Social are affiliated. However, there is little information about their current state, the activities they perform, the resources that are available to them, and their productivity.

The objective of this paper is to describe the characteristics of the public Drug Information Centers and Services in Costa Rica, and to contrast their activities, objectives, and functions with those specified by the PAHO.

METHODS

Observational, Descriptive Study. The population covered by this study was the Drug Information Centers and Services in Costa Rica that are affiliated with the country's social security system (Caja Costarricense del Seguro Social or CCSS) or to public universities.

An evaluation instrument was developed based on the PAHO's drug information guide. Each and every officer in charge of each service or center were interviewed in May of 2003.

The following are the variables that were evaluated: general and specific objectives, year of

establishment, physical space, computer resources and office materials, human resources, bibliographic sources, manual of standards and procedures, activities developed, elements contained in the inquiry form, inquiry inflow, amount of inquiries received, type of users, and financing.

RESULTS

There are seven drug information units in the public health sector of Costa Rica: four DICs and three DISs.

- National Drug Information Center – School of Pharmacy, Universidad de Costa Rica. CIMED
- Drug Information Center, Hospital Calderón Guardia. CIM-HCG
- Drug Information Center, Hospital México. CIM-HM
- Drug Information Center, Hospital San Juan de Dios. CIM-HSJD
- Drug Information Service, Hospital Nacional Psiquiátrico. SIM-HNP
- Drug Information Service, Hospital Max Peralta. SIM-HMP
- Drug Information Service, Hospital San Rafael. SIM-HSR

The main objective of all the DICs and DISs is to promote the rational use of drugs through objective, updated, timely, and pertinent technical and scientific information, as duly processed and evaluated. Some of them also have other specific objectives, such as answering inquiries and providing patients with suitable information. Only the CIMED includes among its objectives the "Pharmaceutical care and Pharmacotherapy Follow-up activities in Costa Rica, at the levels of professionals and students". Table 1 presents the activities carried out in each information unit.

In regard to their year of establishment, the National Drug Information Center (CIMED) is the oldest; it was founded in 1983. It is followed by the DIC of the Hospital San Juan de Dios in 1991, and the DIC of the Hospital Calderón Guardia in 1992. In regard to the DISs, the DIS of the Hospital San Rafael was opened in 1995, and those of the Hospital Nacional Psiquiátrico and the Hospital Max Peralta were created in 1998. Out of all the DICs and DISs in Costa Rica, the newest is the one in the Hospital México, which was created in the year 2000.

Out of the seventeen journals that the PAHO requires as necessary, only two DICs have direct access to a maximum of six journals (Am J Hosp Pharm, Br Med J, Drugs, Technical Reports of the WHO, Lancet, and the New Eng J Med); the remaining five DICs and DISs do not have access to any of the journals set by the PAHO. The only database present at the time of this study is the IDIS (Iowa Drug Information System), and only CIMED has it updated from 1964 to the present. Out of the list required by the PAHO indicating thirty-six basic tertiary sources for a DIC, fifteen of them are not available in any DIC or DIS in Costa Rica.

Table 1. Activities developed by the DICs and DISs in Costa Rica. May 2003

Activities	CIMED	CIM-HCG	CIM-HM	CIM-HSJD	SIM-HNP	SIM-HMP	SIM-HSR
a. Answering of inquiries from the hospital community	X	X	X	X	X	X	X
b. Answering of inquiries from users outside the hospital	X	X	X	X	X	X	X
c. Preparation of technical reports for hospital committees	-- a	X	X	X	--	--	X
d. Support of the specialized pharmaceutical services to be developed in the hospital	-- a	X	X	X	--	X	X
e. Research studies on drug use	X	--	X	X	--	X	X
f. Research studies on adverse reactions to drugs	X	--	X c	--	--	X	--
g. Identification of problems associated to drugs and the corresponding advise	X	X	X	--	X	X	X
h. Development and participation on pharmacological supervision	--	X	X	X	--	--	--
i. Organization and participation in lectures, seminars, and classes in general	X	X	X	--	X	X	X b
j. Participation in activities of continued education on drugs addressed to members of the health team	X	X	X	X	X	X	--
k. Implementation of education programs for patients and high risk groups	X	X	X	X	X	X	X
l. Preparation of a bulletin	--	X	X	X	X	X	X
m. Divulgation of scientific articles, papers on drugs and information booklets	X	X b	X	X	X	--	X b
n. Rotation programs for training students or update programs for practicing professionals	X	X	X	X	X	X b	X b
o. Instruction of undergraduate students in the effective use of information sources	X	X	--	X	--	X	X
p. Preparation of the written guides on drug use for the health team	X d	X	X	--	X	--	--
q. Divulgation of their services by means of letters, newsletters, notices and brochures	X	X	X	--	--	X	X b

Note: X indicates the existence of the item in the DIC or DIS.

a This type of activities does not apply to the CIMED, since it is within the university scope, and not a hospital.

b Not all the specified activities in the boxes are carried out; only a few of them.

c The DIC of the Hospital México does not conduct any studies, but it collects notices of the RAM of the hospital

d In the case of the CIMED, the guides that they prepared are not protocols per se, but they are rather a collection of all the doses and active principles reported by the literature.

In regard to the personnel of the DICs and DISs, all of them have at least one pharmacist, and the DIC of the Hospital San Juan de Dios also has a general physician who teams-up four hours per day. Six pharmacists work in the CIMED, completing altogether a workload of 3.25 full-time pharmacists.

About their operating regulations, five of the seven DICs and DISs have regulations in writing. Another DIS is currently developing its own regulations (the DIS of the Hospital San Rafael de Alajuela), and only the DIS of the Hospital Nacional Psiquiátrico does not have this manual.

In regard to the number of inquiries served by each Drug Information Center and Service, the CIMED and the SIM-HNP receive an average of 151-200 inquiries/month, the CIM-HCG and the SIM-HMP receive between 101-150 inquiries/month, the CIM-HM and the SIM-HSR receive less than 50 inquiries/month, and the CIM-HSJD receives more than 200 inquiries/month.

About the funding of the DICs and DISs, each one of them presents a different pattern: the CIMED is funded jointly by the Universidad de Costa Rica and by the sale of services; the DICs and DISs of public

hospitals are funded indirectly by the CCSS, using the line item of the pharmacy for DIC/DIS services.

DISCUSSION

Just like in other countries, such as the United States, where more than 80% of the DICs are located in hospitals or medical centers, and only 7% are located in Faculties of Pharmacy⁴, Costa Rica presents a similar pattern where out of the seven existing DICs/DISs, 85% is located in hospital centers and only 15% is located in a Faculty of Pharmacy. This environment allows the student being trained in drug information to combine training and teaching.⁴

Pharmaceutical care⁸ is not adequately internalized yet in 85% of the DICs and DISs in Costa Rica. This is different, for example, in the DICs in Spain where educational activities include courses on Pharmaceutical Attention and collaboration for its implementation, such as the DIC in the provinces of A Coruña, Lleida and Álava.⁹⁻¹²

The supply of primary sources of the DICs and DISs in Costa Rica is totally inadequate. While each of the DICs and DISs has its own library, it is important

to be close to another larger library with greater documentation capacity and inflow. In the case of the DICs and DISs in the country, all of them have access to the library of the hospital where they are located, the Library, Documentation and Information System of Universidad de Costa Rica and the National Library of Health and Social Security (BINASSS). In the case of the DIC of the Hospital San Juan de Dios, the lack of primary sources is balanced by being closer than any other DIC or DIS to the BINASSS. Since the CIMED is affiliated with the IDIS database, it has access to more than 200 international periodicals.

The difference of supply of information sources also occurs in other richer countries. Thus, in Spain, the DIC of Lleida reports having only the BOT; the one of A Coruña has Medline; the one of Girona has the BOT and the IDIS. On the other hand, the DIC in Barcelona is exceptionally well supplied with secondary sources such as the BOT, the IDIS, Micromedex, and Drugdex.^{9-11,13,14}

The tertiary sources available in the DICs and DISs are, at least, basic. However, they do not correspond to all the sources listed by the PAHO since the available sources are different for the different areas of the world. The PAHO must be asked to update the information sources necessary for the different regions of the world, in order to allow, considering the health context of each region, having a minimum and viable list of the bibliographic sources necessary to provide quality, updated service in a timely manner. Another option is to

define a policy on drug information to be implemented in all private and public DICs/DISs to allow cooperation among all its members.

When comparing the activities carried out by the DICs/DISs in Costa Rica to those in other countries, some similarities are observed. Participation in hospital committees, answering of inquiries, production of brochures and newsletters, and development of courses and lectures are shared by DICs in Italy, Iran, and Argentina¹⁵⁻¹⁷; another activity such as training of students is shared, for example, by the CIMF of Argentina.¹⁵

One of the most important aspects to develop in a DIC or DIS is documenting or recording; therefore, it is important to have an inquiry log to record all the aspects that are deemed pertinent for each institution. All the DICs and DISs have a form to record inquiries, including the basic elements listed by the PAHO and other additional elements. The basic elements to be recorded are the consecutive number of inquiry, date and time of inquiry, type of inquirer, type of inquiry, question, answer or comments, time used to answer the inquiry and references used. Other important elements that are included in such forms of the DICs/DISs in Costa Rica are the type of answer (oral or written), data on the patient, type of contact, institution of origin, key words, and person answering the inquiry.

Table 2 shows a comparison of the inquiries received by the DICs/DISs in Costa Rica and other places in the world and similarities are noted.^{3,14,18-21}

Table 2. Number of inquiries received by DICs and DISs worldwide	
DIC	Average Inquiries/Month
Costa Rica (2002-2003)	
_28.6%	Less than 50
_28.6%	101-150
_28.6%	151-200
_14.2%	More than 200
DICs in Brazil (1997)	24
CEBRIM in Brazil (2003)	81
CIMF in Buenos Aires, Argentina (1988-1991)	77
DICs in Italy 2001)	
_50%	Less than 50
_37%	50-200
_12.5%	More than 200
DICs in USA (1976)	
_21.%	Less than 50
_56%	50-200
_23%	More than 200
DICs in USA (1995)	
_16%	Less than 50
_49%	50-200
_35%	More than 200
DICs in USA (2001)	200 with a range of 35-930

In regard to users of the centres and services, some of them do not have the exact data on the percentages of inquiries of each category; but, in general, it can be stated the inquirers are community and hospital pharmacists, physicians, patients and their relatives, students, mass media, and other health professionals.

For a DIS to become a DIC or for the latter to improve its functions more and more, it is necessary to have more pharmaceutical staff and

equipment/furniture that allow carrying out management tasks, drug information, pharmaceutical attention, research and teaching.

CONCLUSIONS

The activities developed by the DISs and DICs in Costa Rica are very similar to each other, and they respond not only to the guidelines set by the PAHO, but they are also similar to the activities and

operations of other DICs worldwide. However, it is evident that the primary, secondary and tertiary

bibliographic support must be strengthened with specific item lines that are permanent in time.

References

- 1 García G, Alberola C. Información sobre medicamentos. *Rev AEFH*. 1984; 4:5-18.
- 2 D'Alessio R, Busto U y Girón N. Serie de Medicamentos esenciales y tecnologías 5.4-Guía para el desarrollo de servicios farmacéuticos hospitalarios: Información de Medicamentos. Organización Panamericana de la Salud, Organización Mundial de la Salud. 1997.
- 3 Silva CD, Coelho HLL, Arrais PSD, Cabral FR. Drug Information Center: Contribution for rational use of drugs. *Cad. Saúde Publ.* 1997.13 (3): 531-535.
- 4 Malone P, Wilkinson K, Kier K, Stanovich J. *Drug Information: A guide for pharmacist*. 2 edición. USA. McGraw Hill. 2001.
- 5 Herrera J. *Manual de Farmacia Clínica y Atención Farmacéutica*. España. Elsevier. 2003.
- 6 Millare M. *Applied Drug Information: Strategies for information management*. USA. Applied Therapeutics, Inc. 1998.
- 7 Solá N, Correa V. *Uso de Fuentes de Información sobre Medicamentos*. Curso de Postgrado: Introducción Práctica a la Atención Farmacéutica. Barcelona: GIAF de la Universidad de Granada; 2001.
- 8 Consenso sobre Atención Farmacéutica. Ministerio de Sanidad y Consumo, Dirección General de Farmacia y Productos Sanitarios. Madrid, España. 2001.
- 9 Anónimo. Actualidad en los Centros de Información de Medicamentos: Provincia de Álava. *Panorama Actual Med* 2001; 25(246): 802 – 805
- 10 Anónimo. Actualidad en los Centros de Información de Medicamentos: Provincia de Lleida. *Panorama Actual Med* 2001; 25(248): 1000-1003.
- 11 Anónimo. Actualidad en los Centros de Información de Medicamentos: Provincia de A Coruña. *Panorama Actual Med* 2001; 25(241): 235-237.
- 12 Aguas Y, De Miguel E, Fernández-Llimós F. El seguimiento farmacoterapéutico como innovación en las farmacias comunitarias de Badajoz (España). *Seguimiento Farmacoterapéutico* 2005; 3(1): 10-16
- 13 Anónimo. Actualidad en los Centros de Información de Medicamentos: Provincia de Girona. *Panorama Actual Med* 2001; 25(249):1123-1125.
- 14 Anónimo. Actualidad en los Centros de Información de Medicamentos: Provincia de Barcelona. *Panorama Actual Med* 2001; 25(240): 137-138.
- 15 Scala D, Bracco A, Cozzolino S, Cristinziano A, De Marino C, Di Martino A, Gonzalez E, Mancini A, Romagnuolo F, Zeuli L.. Italian drug information centers: benchmark report. *Pharm World Sci* 2001; 23 (6): 217-223.
- 16 Alberti P, Bertrand NC, Castelli M et al. CIMF: cuatro años de actividades en Argentina. *Rev OFIL* 1993; 3(2): 88-94.
- 17 Nikfar S, Abdollahi M y Cheranghali A. Cada vez más fuerte – Servicio de Información sobre Medicamentos y Tóxicos del Irán. *Boletín de Medicamentos Esenciales*. 2000; 28-29: 30-31
- 18 Rosenberg JM, Fuentes RJ, Starr CH, Kirschenbaum HL, McGuire H.. Pharmacist-operated drug information centers in the United States. *Am J Health-Syst Pharm* 1995; 52: 991-996
- 19 Erbelle S, Heck A, Blankenship. Survey of computerized documentation system use in drug information centres. *Am J Health-Syst Pharm* 2001; 58: 695-697.
- 20 Crabbe S, Wordell C y Hopkins L. Fee-for-service activities provided by drug information centers. *Am J Hosp Pharm* 1988; 45: 1115-1117
- 21 Silva EV, Castro L; Bevilaqua L et al. Centro Brasileño de Información de Medicamentos (CEBRIM): caracterización del servicio y estudio de opinión de los usuarios. *Rev OFIL* 2003; 13(2): 55-6.