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Original Article

Drug Information Services in Resource-Limited Settings: A Case of Drug Information Center in Gondar University Hospital, Northwest Ethiopia

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ARTICLE INFO	ABSTRACT

Objective: The main objective of this study was to evaluate the drug information queries received by the drug information center of Gondar University Hospital in Northwest Ethiopia. **Method:** A retrospective review of drug information queries received by the drug information center (DIC) from November 2014 to October 2015 was done. Sociodemographic details, mode of receiving and replying drug information query, types of query, and references used for providing drug information, etc. were retrieved. The obtained data were analyzed by using Microsoft Excel for Windows 8.1. Descriptive analysis was done for ease reporting using frequency and percentages, and the results were presented in tables. **Findings:** During the study period, a total of 111 drug information queries were received, majority were through telephonic communication (47.7%), followed by direct walk-in to DIC (28.8%), and written format (11.7%). Nearly 40% of the queries were from general practitioners (38.7%), and 22.5% from nurses. **Conclusion:** To make the services more effective, drug information center should be evaluated based on feedback of the enquirers and assessment should be done for economic and clinical outcome of the services provided. Further, there is a need to publicize the importance of drug information services among health care professionals and to the society for promoting the rational use of medicine.

Keywords: Drug information center, Pharmacist, Gondar, Ethiopia

1. INTRODUCTION

In 1960s the concept of drug information came to lime light and successively the first drug information center was established at the University of Kentucky medical center in 1962 [1]. World Health Organization (WHO) defined Drug information center (DIC) as an independent center that is accessible to any health professional regarding all queries about drugs [2]. With

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the increase advent in drugs and therapeutics, obtaining updated scientific information for effective treatment is very difficult for clinicians, due to lack of time and access to vast literatures coming day-to-day [3]. The DIC serves as a place for providing updated evidence-based factual information with scientific literatures related to drugs used for diagnosis, prevention, or treatment of disease [2]. Accessing to the drug information is often granted in developed countries. Due to financial constraints, although established then limited availability of current literatures and dissemination of little available information is observed in most of DIC's in low and middle income countries (LMICs) [4]. Due to absence of these services, the national health care system committees are unable to update the current drug lists and information related to proper use of drugs as well as other drug related consequences are still a common issues [3,5]. Although, several guidelines were issued for establishing drug information in LMICs, only few centers had managed to sustain themselves [4,6]. The provision of drug information to the patient is still not yet fully initiated in many LMICs like Ethiopia. In addition, shortage of pharmacies, hospitals, poverty, literacy and remote rural population are still exists in many LMICs [2, 3, 6].

Provision of drug information is one of the most fundamental role of pharmacist's working in hospitals or in community pharmacies as a part of their job responsibilities. The pharmacist in DICs seek to provide authentic and unbiased drug information (DI) to healthcare professionals; provide patient specific tailored counseling and adequate DI to the patients as well as to monitor and document adverse drug reactions (ADRs) within the hospitals. To provide well-trusted DI, access to the scientific literatures such as Journals and databases such as Micromedex, Lexi-comp, IDIS and AHFS drug information etc. are needed [7].

Drug Information Service in Ethiopian Context

The first formal DIC in Ethiopia was established in Addis Ababa University (AAU) with the help of "Howard-Addis Ababa University Twinning Partnership." The main objective of this partnership was to promote pharmaceutical care by emphasizing the role of pharmacist [8]. In addition, The Drug Administration and Control Authority (DACA) is also providing drug information throughout the country by means of bulletin, posters, brochures, and radio. The language of the contents is prepared in Amharic and English, under the heading "Zena Medhanit" and "Drug information bulletin". These informations are distributed quarterly to the health professionals and to the needy. Further, radio is also used as a mode of for delivering information on drug use to the public. However, the above mentioned modes of drug information's were not carried in a well organized manner, due to poor DIC infrastructure and lack of guidelines in Ethiopia.

Realizing the importance for the provision of drug information to health care professionals and to the society in a systematic way for promoting rational use of drugs, Food medicine, and health care administration and control authority of Ethiopia (FMHACA) framed a country level guideline for establishment and operation of DIC in Ethiopia. According to the guidelines there is a provision for establishment of national, regional, and institutional drug information center. Further, the guidelines also provides detailed activities of DICs such as education and training to the health care professionals, conducting research and involving in drug use evaluation studies [9].

Case of DIC in Gondar University Hospital (GUH)

GUH established it's DIC on December 2012 with the technical assistance from organizations such as United States agency for international development (USAIDS)

and System for improved access to pharmaceutical system (SIAPS). Having a mission to provide unbiased drug information to healthcare professionals or to the needy and ultimately to promote rational use of drugs. Although it was established in 2012, but due to lack of manpower, trained staffs to supervise and resources it was almost non-functional up to mid-2014. In 2014, GUH recruited six clinical pharmacists for providing clinical pharmacy services in wards (five) and one clinical pharmacist is assigned in DIC as a drug information officer to provide fulltime DI service. DIC is functional from Monday to Friday for eight hours during working days and provide services from trained clinical pharmacists from both School of Pharmacy and Hospital Pharmacists**.**

Available resources and facilities

The center has various resources for DI such as, a library comprise of important referral books and electronic database for providing comprehensive pharmaceutical care. The DIC is equipped with computers, telephonic connection, printer, and have accesses to internet. Further, the pharmacists underwent special training to serve the DIC.

The study was aimed to evaluate the drug information queries received by the drug information center (DIC), Gondar University Hospital (GUH) in Northwest Ethiopia

2. METHODS

A retrospective evaluation of drug information queries received from November 2014 to October 2015 was conducted in GUH-DIC. Modified systematic approach was followed for answering and documentation of drug information query [10]. DI queries and documentation forms were evaluated based on various aspects like, demographics of the enquirer, qualification of enquirer, mode of receiving queries, category of query, references used. The drug information queries were received by direct walk in, telephone and written format.

Operational definitions

Drug Information Centre: A center that is accessible to any health professional or publics regarding all queries about drugs.

Drug information query: A query related to any aspect of drug asked by the needy.

Direct walk-in: Means an enquirer can directly approach to DIC to get the answer of his query.

Written format: It is a specially designed drug information request form based on FMHACA guideline, which is distributed to various wards of hospital to get the query from the health professionals.

Data analysis:

The obtained data were analyzed by using Microsoft Excel for Windows 8.1. Descriptive analysis was performed for ease reporting using frequency and percentages, and the obtained results were presented in Tables.

Ethical Clearance

Institutional ethical review board of School of Pharmacy, University of Gondar approved the study protocol and confidentiality was maintained throughout the study by not disclosing any personal information of the study participants.

3. RESULT

A total of 111 drug information queries were received by the DIC during the study period. Among the enquirers, eighty-one (72.9%) were males and twenty-seven (24.3%) were females. Majority of queries were given by general practitioners (43;38.7%), Nurses (25;22.5%), Pharmacists (20;18.0%), others (11;9.9%), Druggist (5;4.5%) and a few from specialist (4;3.6%) and students (4;3.6%) [Table 1].

Most of the queries were received via telephone (53;47.7%), through direct walk-in to DIC (32; 28.8%) and written format (13;11.7%). A few queries were

received through email (4; 3.6%). Most of the queries were related to patient specific (79;71.1%), others (27;24.3%) then to update the knowledge (15;13.5%). Mode of responding the queries were mostly by Oral (53; 47.7%), printed format (43;41.4%) and telephone call (12;10.8%) [Table 2].

Table 1: Sociodemographic characteristics of the enquirers (N=111)

Gender	N (%)
Male	81 (72.9)
Female	27 (24.3)
Qualification	
General Practitioners	43 (38.7)
Nurses	25 (22.5)
Pharmacists	20 (18%)
Druggists	5 (4.5)
Specialists	4 (3.6)
Students	4 (3.6)
Others	11 (9.9)

The types of queries asked were pertaining to availability (48; 43.2%), interaction (14;12.6%), therapy (12;10.8%), Pharmacology (9;8.1%), Administration (8;7.2%) ,Others (7;6.3%), Pharmaceutical (6;5.4%), Pregnancy (4;3.6%), Adverse drug reaction (4;3.6%), Pharmacokinetics (3;2.7%). The references used were, textbook (43;38.7%), package inserts (25;22.5%), Internet resources (16;14.4%), In-house data base (15;13.5%), Others (12;10.8%) [Table 2].

Table 2: Drug information queries responded by GUH during the study period 2014-2015

Variables	Number	Percentage
Queries received		
Oct-15	12	10.8
Sep-15	10	9.0
Aug-15	7	6.3
Jul- 15	5	4.5
Jun-15	30	27.0
May-15	8	7.2
Apr-15	16	5.4
Mar-15	0	-
Feb-15	6	5.4
Jan-15	3	2.7
Dec-14	6	5.4
Nov-14	7	6.3
Classification of queries		
Availability	48	43.2
Interaction	14	12.6
Therapy	12	10.8
Pharmacology	09	8.1
Administration	08	7.2
Others	07	6.3
Pharmaceutical	06	5.4
Pregnancy	04	3.6
ADR	04	3.6
Pharmacokinetics	03	2.7
Mode of receiving queries		
Walk-in	32	28.8
Telephone	53	47.7
Written Form	13	11.7
Email	04	3.6
Type of queries		
Patient Specific	79	71.1
To upgrade Knowledge	15	13.5
Others	27	24.3
Time taken to answer queries		
0 - 5 minutes	58	52.2
5 - 30 Minutes	42	37.8
30Mins-1Hr	3	2.7
1 - 4Hrs	2	1.8
4 - 8Hrs	2	1.8
Source of information		
Reference books	43	38.7
Internet resources	16	14.4
Package inserts	25	22.5
In-house database	15	13.5
Others	12	10.8
Mode of response		
Oral	53	47.7
Printed Format	46	41.4
Telephone call	12	10.8

4. DISCUSSION

In our study the number of query received (111) were less as compared to other studies [11, 12]. The reason may be attributed to the fact that, the DIC is newly established and has less publicity among health care professionals as well as to the publics. Further the DIC was fully functional from mid-2014 due to lack of trained manpower.

It was found that, majority of the queries were from general practitioners and nurses from the wards. This is similar to the findings of other studies [13]. It might be due to the employment of clinical pharmacist specifically in the internal medicine and other wards of hospital have created awareness about DIC among the health care professionals.

In our study majority of queries were related to availability of drugs. Unlike other studies predominant queries were related to ADR, administration and therapy of drugs [14,15]. This might be due to limited availability of various drugs in Ethiopian setup. In this study it is found that the tertiary sources such as textbooks and internet resources were the most frequently used resources to answer the queries. This is similar to the other studies [14]. Most of the studies used Micromedex® as a resource for providing instant drug information, which was not same in our study due to its high cost of subscription [16]. Moreover our center has subscription to few journals due to lack of fund. Further to have quick access to the information about drugs internet was widely used as an alternative resource for drug information. Most of the queries were responded in stipulated time. The Drug information services are well practiced in most of the developed countries. On other hand countries like Ethiopia, due to lack of trained pharmacists, funds, and poor economy contributes to barriers in establishment and smooth functioning of a drug information center (DIC). Although having many fold barriers, Drug information services are evolving in Ethiopia under the preview of the guidelines provide by FMHACA.

Limitations

As the Gondar University drug information center is a newly established center, so there were many limitations in our study. Firstly, the feedback of the enquirer related to their satisfaction and quality of service was not obtained during the process. Next the economic and clinical outcome of the service was not evaluated due to lack of proper designing of operational procedure of the DIC.

5. CONCLUSION

To make the services more effective, DICs should be evaluated based on feedback of the enquirers and assessment should be done for economic and clinical

outcome of the services provided. In addition, there is a need to publicize the importance of drug information services among health care professionals and to the society for promoting the rational use of medicine. Further, there is a need of external support from the developed countries to improve the infrastructure, professional development, and training for sustainable DIC.

6. ACKNOWLEDGEMENT

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