

# Evaluation of drug and poison information center in Saudi Arabia during the period 2000-2002

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## ABSTRACT

**Objectives:** To evaluate the profile of the requestors, the number and content of questions which were received during the period of May 2000 - December 2002.

**Methods:** A total of 1967 requests were evaluated. The questions were sorted according to source of callers, caller identification, the content of the questions, search data and time required to answer the questions. All data analysis were performed using the Statistical Package for Social Sciences Version 9.0.

**Results:** The questions were received from different places, including Riyadh (90.1%), overall the Kingdom (8.9%) and gulf countries (1%). The Drug and Poison Information Center (DPIC) provides information to pharmacists, community, employee of King Saud University, physicians, nurses, dentists and others. The type of requests most frequently inquired about were drug related, health related, article/information, and poisoning. Requested data include information about therapeutics uses, drug identification, articles, adverse effects, dosage/administration, drug interactions, poisoning, with very few questions about availability, pregnancy and lactation, and IV incompatibilities. The most common resources used were Drugdex and internet, reference books, Iowa Drug Information Services (IDIS), PubMed and Poisonsindex. The time devoted to the service is varied ranging from 5 minutes to weeks.

**Conclusion:** This study emphasizes on how important to document type of the activities of the DPIC to be used as a vital quality assurance tool. It also revealed the need to stimulate more requestors particularly physicians by advertising the drug information activities or possibly by establishing a website for the DPIC.

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The enormous drug products available worldwide and complexity of the current drug literature made the selection and use of correct drugs in an appropriate manner is a challenging and difficult task. This in turn, motivates the health care practitioners and providers to seek new type of services from pharmacists in the field of rational therapeutics. In order to meet this demand a number of drug information centers were established nationally<sup>1</sup> and worldwide. Eventually, these centers were utilized by the pharmacists in their daily practice as a resource to provide the best possible care for the patients by facilitating the rational use of drugs.<sup>2,3</sup> The use of electronic media (namely computer) was also facilitating the provision of this service. Several studies have been conducted to ascertain and assess the activities and workload of drug and poison information centers in order to improve the quality of their services.<sup>4-10</sup> In addition, standards and guidelines were developed and implemented to help pharmacists establishing and strengthen the capabilities of these centers.<sup>11</sup> The objective of this study was to evaluate the profile of the requestors, the number and contents of questions which were received during the period of May 2000-December 2002.

The Drug and poison information center (DPIC) at the college of pharmacy, King Saud University was established in 1978.<sup>12</sup> The DPIC provides free of charge information for health care professionals: physicians, nurses, pharmacists, students and employee of the King Saud University as well as the community. In addition, the center is involved in teaching DPIC courses and in training pharmacy students and pharmacists as well. Also communicate medical information about drug and poison by publishing bimonthly newsletter and participate in various activities such as exhibitions and symposia. The center is not

affiliated with any particular hospital as the University Hospitals are served by their own DPICs. It is staffed with two pharmacists and accepts inquiries from 7:30 a.m. to 6.00 pm Saturday through Wednesday and from 7:30 a.m. to 12.00 pm on Thursday. A standard drug information form was used to document caller's request received by DPIC. On this form, profession and questions were recorded as details relating to drug indication, administration/dosage, interactions, availability of products, incompatibility, side effects, toxicity and pregnancy and lactation, as appropriate. The sources used and the time required for each response was also recorded and evaluated. The number of requests received varied during the day, which comes from all over the kingdom and outside the country. Pharmacists on duty reply the questions. According to emergency the questions can be answered by phone or sent by mail or faxed in written form. This type of answer includes statements and explanation based on cited relevant literature sources. It is also possible to send the answer by e-mail.

**Methods.** The requests received during the period of May 2000-December 2002 were evaluated. This study was a college-based center at King Saud University, Saudi Arabia. The questions were sorted according to source of callers, caller identification, the character of the questions, search data and time required to answer the questions. All data gathered were statistically evaluated in terms of frequency and distribution using version 9.0 (SPSS Inc., Chicago IL).

**Results.** A total of 1967 requests were received during the period of May 2000 - December 2002. The highest number of questions received was observed during the year 2000-2001. According to the distribution of questions per year or month, most of them were received in April (n=185), September (n=112), October (n=104) and February (n=106). In the last year, there was a decreasing trend of the interest for drug information provided by the DPIC. With regard to the source of the callers the majority of the questions (90.1%, n=1772) were received from Riyadh region and from all over the kingdom (8.9%, n=175). Only 1% (n=20) of questions were received from outside the kingdom particularly from the gulf countries. Most of the questions were received from pharmacists (65.5%, n=1289), community (17.5%, n=345), employee of the King Saud University (13.5%, n=262), physicians (2.5%, n=49), dentists (0.3%, n=5), nurses (0.3%, n=5) and others (0.4%, n=8). Types of topics answered were drug related (77.8%, n=1531), followed by questions concerning health related topics (9.4%, n=148), questions about poisoning (3.6%,

n=70) and 180 (9.2%) questions related to Article/information request. The 10 most common categories of questions asked were therapeutics 21.7% (n=427), drug identification 20.40% (n=401), review articles 14.6% (n=288), adverse effects 13.3% (n=262), dosage/administration 7.5% (n=148) drug interactions 7.3% (n=144), poisoning 4.9% (n=96), availability 4.2% (n=83), pregnancy and lactation 3.3% (n=65) and IV incompatibilities 1.8% (n=35). Approximately, 43.5% (n=856) and 17.6% (n=346) of the questions were answered using Micromedex, and internet, respectively, and 8.6% (n=170) using textbooks, whereas, 2.8% (n=54) of the questions concerning poisoning were answered using Poisonsindex. Only 4.9% (n=97) and 4.1% (n=80) of the questions were answered from Iowa Drug Information Services (IDIS) and PubMed. No specific source was identified to answer 18.5% (n=364) of all inquiries. Among all inquiries, one call generated 4 questions, 18 calls produced 3 questions and the rest contains one question. Almost half of the questions required an answer immediately. Over half of these questions (n=948), were answered within 5 minutes, 900 questions (45.8%) within 6-30 minutes, 57 (2.9%) within 31-60 minutes 18 questions (0.9%) within the same day and only 8 questions (0.4%) within a week.

**Discussion.** The system of the work in the center is operated in a manner similar to that of other centers in foreign countries with many years of experience.<sup>13,14</sup> The decreasing tendency in the number of questions in the last year during the survey was considered as a negative trend, which can be attributed to numerous factors: including increased availability of drug information centers in a large amount of hospitals, decreased interest caused by lack of time.<sup>15</sup> In addition, some hospitals physicians may have the opportunity to consult the local pharmacists instead of DPIC. Despite this fact, however, the healthcare professionals represented the largest group of individuals who requested drug information. This group was followed by community and employee of King Saud University. Among healthcare professionals hospital pharmacists represented the major benefactors of drug information services, followed by physicians. On the other hand, nurses who make use of our DPIC facilities were very minimal. This finding was consistent with results reported in other studies.<sup>16,17</sup> Nurses have been reported to rely more on reference books rather than requesting pharmacists for drug related problems.<sup>18</sup> Likewise, the relative small number of asking physicians could be attributed to the inaccessibility of the DPIC to many physicians as it is located in college setting as well as the existence of similar centers in most of the hospitals in the kingdom. This finding is confirmed by a similar study by Gajdosik et al,<sup>19</sup> who found out that

relatively fewer physicians used the information services of the DPIC. Furthermore, the relatively large number of community who utilized the DPIC services may be due to the fact that the DPIC is promoted to non health professionals and refraining of many DPIC in the hospitals to receive calls from community because of the ethical questions they usually hoist.<sup>15</sup> With regard to resources used to answer the drug inquiries the study showed an increase in the trend of utilizing full-text computer databases as the main tertiary resource. This may be reflected in the high usage of Micromedex databases and internet. In contrast, a decrease was noticed on the use of textbooks as reference resources. Despite this fact, however, a support for updated references and specialized texts are still needed in order to maintain the continuity of the services. Because the DPIC is not selective in its service neither supported by library services, it frequently do provide similar to library work. This tendency was revealed from the frequent use of IDIS and PubMed to retrieve of most of desired reprint of primary literature. These reprints are either used for research purpose or for responding to written request or kept in a file.

In conclusion, this study evaluated the drug information services provided in college-based drug and poison information center. It highlighted on how important to document such type of activities which can be a vital quality assurance tool in the assessment of the functional requirement of the DPIC. It is also necessary to increase the interest of health care professionals for the services of the DPIC. This can be achieved by advertising the drug information activities. Another possible way to improve the interest for the DPIC services is the establishment of a website for the DPIC. This could be a good alternative in current era of increased use of electronic communication in health care system.

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