Evaluation of Drug Information Service provided by Clinical Pharmacy Department based on Provider and Enquirers' Perspective
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Abstract
Drug Information service is an important role of clinical pharmacist and drug information service provision by clinical pharmacist is slowly being adopted in our country. There is a need to evaluate the quality of services provided by the drug information centers. This study was aimed for evaluating the services provided by a drug information center of a tertiary care hospital in South India. The quality of the service was evaluated based on providers as well as enquirers' perspective. Providers' perspective was evaluated based on a tool developed by DSE / WHO Seminar. Enquirers' perspective was evaluated by survey questionnaire. Evaluation results showed that both judgmental and non-judgmental queries had rating of very good or above. When enquirers' perspective was evaluated, around 70% of clinicians used services of the center and around 70% of the people felt that services were very good. 98% of surveyed physicians opined that there is a need for drug information center in the hospital. Evaluation of quality of service of drug information center based both on providers as well as enquirers' perspective showed that they were of good quality.

INTRODUCTION
Drug information centers (DICs) provide mainly healthcare professionals and general public with information about all aspects of drugs. Drug information may also be needed for academic or research purposes. According to the Society of Hospital Pharmacist Australia (SHPA), among the different clinical pharmacy services provision of drug information is one of the most important services. The goal of clinical pharmacist involvement in the provision of drug information is to contribute to patient care and to optimize drug therapy. Clinical pharmacist involvement will help clinicians to understand about new drugs for which little information is available. In the past, drugs were few in number and generally of low potency. However, in the present situation due to therapeutic explosion more than 60,000 formulations are available in the market. Moreover, due to information explosion, vast availability of literature and lack of time; health care professionals are not in a position to update their knowledge. Though there are prescription and non-prescription drugs; the free availability of drugs, irrational drug use, iatrogenic diseases, antibiotic Resistance, adverse drug reactions and events are very common in India. These factors have resulted in an increasing demand for independent, unbiased information about drugs for a better patient care.

Rosemary Sharp, a missionary from UK, started first “Drug Information Center” in India at Christian Medical College, Vellore in early 1970's. This center provides information on drugs to doctors, nurses, pharmacists, and other staff like research personnel of various departments. The first officially recognized department of Hospital and Clinical Pharmacy Services in a government institution was started in Medical college Hospital, Thiruvanathapuram in November 1992 as a new department of College of Pharmaceutical Sciences. In 1997, JSS Institutes of Mysore & Ooty started clinical pharmacy services along with drug information services. Because of the success of their clinical pharmacy activities, in 1998-99 many institutions in south India started clinical pharmacy services and drug information centers. Quality assurance of services provided by drug information center is one of the important tasks to be performed by personnel involved in the activity. Quality Assurance of the drug information center is aimed to identify the key areas of drug information practice and establish indicators for these key areas like structure, process and outcome. There is also a need to establish minimum acceptable levels of performance for these indicators and review performance against these...
Indicators. As a result of this quality assurance process, there is scope for identifying opportunities for improvement. Quality of the service provided by the drug information center can be evaluated based on provider and enquirer's perspective to get the complete information. This approach avoids the one sided evaluation and thereby resulting in better appraisal of the services. The present study was aimed at evaluating drug information services of the author's institute from both providers and as well as enquirers' perspective for the period of 2006-07.

**METHODOLOGY**
The study was conducted in a hospital in South Indian state of Karnataka, which is a 1472 bedded tertiary care multi-specialty teaching hospital. The Pharmacy Practice department located in this hospital provides drug information to all health care professionals. The study period was between August 2006 and February 2007. The provider's perspective of the evaluation was carried out using suitably designed Quality assurance forms (Fig.1). These quality assurance forms were based on the guidelines developed in the DSE/WHO seminar on evaluating the quality and effectiveness of a drug information center. In these guidelines, responses to queries have been categorized as judgmental and non-judgmental type. Based on the total number of judgmental and Non judgmental queries, sample size of the queries to be evaluated is fixed on the basis of anticipated proportion method. For Non Judgmental queries, the sample size was fixed as a minimum of 22. Therefore, 25 samples were fixed and equal number is fixed for Judgmental queries also. Therefore, total of 50 queries of 25 each of the judgmental and non-judgmental type were selected from the total queries handled during the study period. Sample of queries were evaluated according pre-determined, explicit and objective criteria using separate scales for judgmental and non-judgmental responses with a rating from 1 to 5. All relevant documentation pertaining to the query was considered for evaluation. The enquirer's perspective was evaluated by a feed back questionnaire (Fig.2). The questionnaire comprised of questions that reflected the awareness, utilization and quality of drug information services. Finally, suggestions from clinicians on DIC were also solicited. These questionnaires were distributed to physicians, postgraduate interns and other health care professionals who are utilizing the services of Drug Information Center. Towards the end of this study, filled questionnaires were collected back.

**RESULTS**
The study was a prospective observational study. During the study period, a total of 322 queries were handled by the drug information center. Out of these queries, 25 judgmental and 25 non-judgmental queries were randomly selected for evaluation using quality assurance form. When Non-judgmental queries were evaluated, 52% of the queries were rated as 5 which were the highest rating and 48% of the queries were rated as 4. None of the queries received rating less than 4. When judgmental queries were rated, 92% of queries were rated as 5 and only 8% of queries rated as 4. The results showed better rating for judgmental queries than non-judgmental queries. A total of 100 questionnaires were distributed and 75 completed questionnaires were collected back from clinicians. For a question on the awareness about the drug information center, 74% of them responded positively. Regarding the usage of drug information center, 54% of respondents opined positively. For a question regarding the frequency of usage, 91% of users opined that they used drug information center at least few times. When they were asked about the appropriateness of the information provided by drug information center, 95% of clinicians opined as appropriate. For a question on non receipt of answers for their queries, 15% responded that they did not receive an answer. For a question. On use of other resources, around 60% replied that they used other resources for references. For a question on the quality of the drug information center, around 60% rated it as very good, 30% rated it as satisfactory, 4% rated it as excellent and 6% rated it as poor. Around 70% of clinicians rated communication skills of clinical pharmacist as excellent. 98% of the respondents have opined that there is a need for drug information center at the hospital. 37% of respondents felt that the performance of the DIC can be improved further. Some of the suggestions given by respondents were 24 hour drug information service and need for awareness program in hospital.

**DISCUSSION**
When a sample of documented queries were randomly selected in the category of judgmental and Non judgmental types, most of the queries were above the minimum required rating score for adequacy of documentation and questionnaire handling. One problem observed especially in case of non-judgmental queries was use of single reference to answer a query rather than multiple sources. This might be because of ready availability of Micromedex (Computerized Drug
Fig.1.a. Quality Assurance forms

EVALUATION OF ASSURANCE FOR ENQUIRY ANSWERING
(Judgmental-Type)

Query #: Date: Assessor:

DEMOGRAPHIC DATA:
Was the following information received noted?
100% of answer should be yes

Yes No

Patient specific information
- Medical history
- Family history
- Diagnosis
- Current disease state
- History of complications
- Time frame

Search Strategy
Were the following procedure carried out in search strategy?
100% of answer should be yes

Yes No

All relevant references were used
Review at least two appropriate tertiary sources
Review at least two appropriate secondary sources if necessary
Retrieved the primary literature if necessary
Consulted expert advisory if necessary
LITERATURE EVALUATION

Was the literature evaluated in the following manner?
100% of answer should be yes

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- Various data sources used
- Researchers reviewed and evaluated the data (highly summarized)
- Literature and relevant conclusion were read
- Reference were in full detail, i.e. title, year, author, cite, volume, page number
- Indication made with relevant outcomes
- Review stated where literature contributed to the response
- Authors and their works identified succinctly
- Other information identified where not given. If this exists in the evaluation
- Personal knowledge can be substantiated by the literature

RESPONSE

Was the following criteria met when response was given?
100% of answer should be yes

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<tr>
<th>Yes</th>
<th>No</th>
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- Literature was correctly identified
- All reference used by the author reference
- Opinion identified as such
- Literature used as tool
- Question asked has been answered
- Recommendation made are appropriate
- Relevant information is not given
- Level of reply is appropriate to the question
- Information is given in logically understandable way
- Complex information adequately explained
- Conclusions given
- Relevant given

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- Full information given
- Data already in given
- Name and status of the person reporting the reply
- Reply has been checked by the authorized person were necessary
- Reply represents the authorized analyst only
- Conclusive
- Courteous
- Professional
- Confidential
- Customized
- Consistent with current response (if necessary)
### DEMOGRAPHIC DATA

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
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<td>Full name</td>
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<td>Location</td>
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<td>Profession</td>
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<td>Date received</td>
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<td>Time received</td>
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<tr>
<td>Time needed</td>
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<tr>
<td>Name of person who received</td>
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<td>Category</td>
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### BACKGROUND INFORMATION

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<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>Time spent for entry</td>
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<tr>
<td>Reason for the question</td>
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<td>Context of question</td>
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<td>Clarification to the question that the question has been understood</td>
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### SEARCH STRATEGY

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tr>
<td>All relevant references were used</td>
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<tr>
<td>Reviewed at least two appropriate tertiary source</td>
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### LITERATURE EVALUATION

<table>
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<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Various data sources not used</td>
<td></td>
<td></td>
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<tr>
<td>Logical and coherent conclusion were reached</td>
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<td>References were cited where the data was taken from the reference</td>
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<td>Indication used where abstracts were used</td>
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<td>Relevant study used where literature considered inadequate</td>
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<td>Analysis and/or interpretation identified</td>
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<td>Older information identified and reason given for its inclusion in the evaluation</td>
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<tr>
<td>Personal knowledge can be substantiated by the literature</td>
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RESPONSE

Was the following criteria met when response was given?

100% of answer should be yes

Yes  No

1. Significant deficiencies made the consultation unacceptable for use. The response was incorrect, inadequate, biased, poorly documented.

2. Significant deficiencies with regard to documentation comprehensiveness, timeliness writing or other important aspect of the consultation existed, but the response was basically adequate.

3. This is the minimum acceptable level for judgmental analysis. The consultation was good but minor problem with documentation comprehensiveness, timeliness, writing or other important aspect existed.

4. Other than a minor problem with documentation, comprehensiveness, timeliness, writing or other important aspect, the response was very good.

5. The response was excellent, comprehensive and well documented and timely. For some question, an integration of data obtained from several references may be necessary to formulate a response.

OVERALL RATING: A minimum range of 3 should be obtained for either response
Regarding the question on rating of the drug information center among the clinicians who did not know about its existence and need to encourage them to use the services for better patient care. For a question on the appropriateness of the answer provided by the drug information center, 95% have told that the answers were appropriate. Regarding the question on rating of communication skills of clinical pharmacist and performance of drug information center, majority of the responders have rated both as very good. This shows the functional capability of Drug information center as well as the clinical pharmacists working there. But, some physicians have rated the performance of DIC as poor and some have rated it as satisfactory. This aspect has to be looked into and care has to taken to find out lacuna and rectify it. This study showed that the results were comparable to a study reported by Beena G et al from the same center in the past. This shows that the center is...
Consistently maintaining the quality of service. This study shows that usefulness of evaluation of drug information service from the providers and enquirers perspective acts as non biased valuable tool in quality assurance of the services.

**CONCLUSION**
The evaluation of the quality of the drug information center based on providers and enquirers perspective showed that the service provided by the drug information center of the study hospital was of good quality. This method of dual perspective can be considered in quality assurance of patient oriented services provided by clinical pharmacists in hospital settings.

**ACKNOWLEDGEMENTS**
Authors wish to express their sincere appreciation to all clinicians who participated in the study.

**REFERENCES**