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Quality Assurance of Drug Information Services in a Tertiary Care Hospital

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Abstract

Introduction: The concept of drug information by clinical pharmacists in our setting is still in growing phase. Lack of awareness on pharmacists' role, late installation of clinical pharmacy education and service, shortage of skills and poor acceptance of such services by clinical pharmacists among health care sector are some major factors contributing to the same. Often the poor quality of such services also has a marked effect on the perceptions by health care professionals and patients. Considering these facts, it is essential to assess the quality of such services provided by pharmacists and find scope for improvement.

Material & methods: A prospective cross-sectional design was used to appraise the quality of drug information services (DIS) provided by the clinical pharmacist at a pilot drug information centre set at SAL Hospital and Medical Institute. The quality assurance procedures were carried out in two steps: step one quality compliance against the standards by internal and external experts and step two was user satisfaction survey.

Result: The quality assurance audit by experts reported a total score of 46 (0-60). In user satisfaction survey, the feedback was collected from all the users using a self-designed checklist. The results indicated that even though the receipt and response to queries were good, there is a need to improve the way of utilizing drug information resources and answering the queries.

Conclusion: The presented audit results described the current level of standards in the services offered and suggested areas of improvement. Such attempts to determine the quality of services is essential to improve and strengthen clinical pharmacy services across the country.

Keywords: Drug information services, Drug information centre, Feedback, Quality Assurance

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1. Introduction

The term "drug information service" (DIS) refers to the work of specially qualified professionals known as "drug information pharmacists," who are responsible for providing accurate, objective, and factual information, mainly in response to patient-oriented drug problems that are brought to the attention of different members of the healthcare team. Less number of drugs, complexity of information, limitation of human to remember vast information and irrational use of drug in society is evident. Therefore, retrieving specific, objective information is crucial. A clinical pharmacist is professionally trained and legally competent to provide drug information through hospital, community pharmacy and information centre. Numerous published works have examined the role that clinical pharmacists play in offering drug information services. Since medication information is a vital component of healthcare services, it is essential to keep an eye on its quality. (1)

The aim, objectives and goals of any quality assurance (QA) program in health care is to optimize the patient care. A QA program makes sure that a service is provided consistently and to an acceptable standard in an assigned organization, which is meant to boost staff satisfaction and service use. Most of quality assurance services are evaluated on to Donabedian's model (2) i.e. examining the structure, process or outcome of patients. Number of accreditation standards and quality assurance Programme set and exercising in the different health care aspects and services. Many hospital pharmacies have comprehensive

quality assurance programs of national and international standards in health care more precise to pharmacy services too. Developed countries like the United States of America, the United Kingdom, Western European countries and Australia already have well-established medicine information services.

However, the concept of drug information by clinical pharmacists in our setting is still in growing phase. Time to time Published literature in the area of information evident information services in health care emphasing information services by pharmacist. Few studies have been published in literatures emphasizing quality assurance of drug information service, explores process part i.e. nature or type of query and compliance to predefined check list assured by experts involved/ appointed in the quality assurance. (3-5) No information found on outcome i.e. utilization of information, acceptance, feedback from inquirer to ensure quality assurance on responses provided by pharmacist. This is because many hospitals with or without pharmacy practice do not have drug information centre (DIC). This may be due to lack of awareness on pharmacists' role, late installation of clinical pharmacy education and service, shortage of skills and poor acceptance of such services by clinical pharmacists among health care. Therefore, considering the fact, a drug information service has been established in our setting, it is essential and advised to routinely assess information services like drug information service in order to ensure competency of clinical pharmacist. Evaluation by means of assuring quality of service can help in organizing processes which in turn strengthen the practice. This paper describes the development of an QA program for the drug information responses in DIC at SAL Hospital, a 300 -bed tertiary care teaching hospital in Ahmedabad city, Gujarat State India.

2. Materials and Methods

A prospective cross-sectional study was carried out to assess quality assurance of drug information services in a tertiary care hospital. The drug information centre was a pilot project established in 2020 as a part of department of pharmacy practice, SAL Institute of Pharmacy. A degree of PharmD or M. Pharm in Pharmacy Practice were determined as qualifications for Drug information pharmacist (In alignment with Pharmacy Practice regulations 2015 and its amendment in 2018 by the Pharmacy Council of India.). Before installation of functions of drug information centre and setting a quality assurance indicator, minimum standards were referred and then set after reviewing national and international standards.

The drug information centre intends to serve healthcare providers, patients and their care takers. PharmD students were considered to be trainee pharmacists who would be posted in different hospital wards and was assigned to collect queries from the requestors. The queries were received, assessed and answered promptly with the direct supervision from the drug information pharmacist or academic supervisor. The quality assurance procedures were carried out in two steps: step one quality compliance against the standards by internal and external experts and step two was user satisfaction survey.

In step one, The quality assurance audit was carried out by a panel involving atleast 2 members. An internal and external audit has been conducted. The panel involve a senior clinical pharmacist. In order to assess quality of the DI, a quality assessment checklist was designed based on extensive literature review and existing guidelines. A few points were highlighted and made mandatory throughout the quality assessment process.

- 100% queries should be evaluated.
- All the details present should be reviewed before grading.
- The quality assesment will be done based on the quality assurance checklist.
- The signature of the quality assurance team members and date should be documented while reviewing.The quality assurance form should be complete and documented.

The quality assurance checklist performance indicators draft was evaluated by the experts and suggestions were taken for improvement. The following indicators were used to determine quality assurance of drug information centre:

- Number of queries per time(day/week)
- Time (receipt and answering)
- Quality of documentation as perceived from documents available.

Based on the final draft quality assessment was performed and based on the score obtained from checklist each evaluated drug information at different quality level: Excellent; Good; Fair; Poor and needs strict improvement.

3. Results and discussion

A total of 100% queries were evaluated and suggestions were taken for improvement. A total of 158 queries were received at the DIC during the duration of 2020 June-2023 June (3 years). The professional status of the enquirers who had requested for queries varied greatly from general practitioners to patients and caregivers. The maximum number of queries were contributed by general practioners (38,24.05%) followed by patients/ caregivers (28, 17.72%). Further allied health care professionals and dialysis nurses also contributed to a major fraction of queries during the period. Since the drug information services were largely employed for renal failure patients and nephrology department, queries were limited in numbers from other departments. Out of the total 157 queries, the maximum number of queries were related to the indication of the drug (n=36, 22.7%) followed by drug- drug interactions (n=26, 16.4%) and adverse reactions or side effects of the drug (n=16, 10.1%) [Table 1]. Similarly majority queries were reported belonging to

dosage/ administration followed by adverse reactions.(6,7)

Table 1. Categorisation of queries received at drug information center

Categorization of the query	General Practitioner (38)	Specialist Physician (13)	Dispensing Pharmacists (12)	Dialysis Nurse (22)	Nursing staff (21)	*Allied health care (23)	Patients and care givers (28)
Indication	0	0	2	3	4	15	12
Substitute	0	0	4	4	0	1	7
Pediatric	8	0	0	0	3	0	3
Availability/cost	0	0	0	5	2	0	6
Dosage	0	0	0	0	5	4	0
Drug Interaction	6	8	0	8	4	0	0
Administration	0		6	2	3	3	0
Pharmacokinetics	5	1	0	0	0	0	0
ADR/SE	16	0	0	0	0	0	0
Poisoning	0	1	0	0	0	0	0
Vaccine Safety	7	3	0	0	0	0	0

*Allied healthcare includes ward pharmacists, dialysis technicians, phlebotomist and physiotherapist.

Most queries were given direct face to face (56, 35.5%) at drug information centre or to the clinical pharmacist followed by ward rounds. The requested queries were mostly patient specific (93, 59.23%). The large quantum of medications needed in renal failure often makes it difficult to titrate regimen along with bypassing the ill effects of the therapy. There fore most questions were patient or therapy specific and to update knowledge. Most queries were answered in a day (88, 56.05%) and most queries were answered verbal plus written (84, 53.50%) format followed by written and printed form [Table 2]. This was similar to results presented by *Rajnandh etal.* (8,9) who reported most queries were to update knowledge and most queries were answered on the same day or one day. The study site in the latter was a teaching medical hospital and therefore the maximum queries were from interns whereas our study focussed on a tertiary care non teaching hospital and therefore the queries were mostly patient oriented. Even though there were no emergency queries, we had queries which were answered in 3 hours to 24 hours in verbal format. These queries were later on documented and saved at the DIC for future references.

Table 2. Nature and needs of queries recieved

Mode of Request	Number of queries	Percentage
Ward rounds	34	21.6560
Direct- face to face	56	35.6687
Telephone	35	22.2929
E-mail	32	20.3821
Need of Queries		
Patient Specific	93	59.23567
Update Knowledge	28	17.83439
Academic research	24	15.28662
Others	12	7.643312
Time taken to answer		
In an hour	3	1.910828
Within a day	88	56.05096
Within 2 days	51	32.48408
Within a week	15	9.55414
Mode of receipt of answer		
Verbal	12	7.643312
Verbal plus Written/typed	84	53.50318
Written/typed	33	21.01911
Printed	28	17.83439

To assure quality of queries , a quality assurance audit was conducted by the external experts (2 members). The quality assurance of drug information was done after a period of 3 years from establishment of drug information centre. The following criteria were taken into account for quality assurance.

a. Space and resources
b. Activities
c. Drug information services

The quality assurance audit reported a total score of 46 (0-60). The space and resources were reportedly adequate. A score of 13(0-15) was obtained for the same. The sources of information were reportedly present but was suggested to improve in numbers and quality as well as to maintain a master list of the same. Activities pertaining to drug information were adequate with an overall score of 7(0-12). The activities of DIC was suggested to be in liaison with hospital committees. The drug information queries were handled adequately at the centre and the professional skills for services upon evaluation had a total score of 19 (0-24) and 07 (0-9) respectively. The systematic approaches were suggested to follow to ensure completeness of search. The documentation was reported to be casual and was suggested to modify for further improvement [Table 3].

Table 3. Quality assurance audit results of drug information queries.

Criteria	Total Score (60)	Score Obtained (46)
Space Requirement: Hospital or academic attached with min 20m^2	03	03
Resources: Hardware, software, sources of information, staff	12	10
Activities: Policy, publication, education, liaisons	12	07
Drug Information Services: approach, appropriateness and completeness to search, accuracy, timeliness and documentation of response	24	19
Professional skills: communication, quality and documentation	09	07

In the step 2, a user satisfaction survey was carried out as a part of quality assurance audit. The feedback was collected from all the users using a self-designed checklist. The results indicated that even though the receipt and response to queries were good, there is a need to improve the way of utilising drug information resources and answering the queries. There is a considerable fraction of users who are not satisfied with the accuracy and clarity of answers. Appropriate follow up of the query can reduce such dissatisfactions and improve the services to greater extents [Table 4].

Table 4. Results of user satisfaction survey.

Statements	Agree, n (%)	Disagree, n (%)
My queries were received appropriately at the drug information center	157 (100%)	0
I have received prompt answers to my queries	142 (90.44)	15(9.55)
I had received clear concise and accurate answers for my queries	125 (79.61)	32(20.38)
I have received information within the specified period	149 (94.90)	8(5.09)
I have received answers in the mode I have requested for.	156 (99.36)	1(0.6)
None of my queries remain unattended.	157 (100)	0
Appropriate follow up was conducted for my queries	138 (87.89)	19 (12.1)

The user satisfaction survey was evaluated for all the years separately to assess the performance of DIC. It was seen that there was a significant improvement in the performance of DIC over the years. The improvement in performance could be attributed to increased working hours of DIC and dedicated pharmacists for the service.

Table 5. Performance of DIC based on user satisfaction survey

Parameter	2020	2021	2022	2023
Number of queries	04	39	70	44
Mean score after internal QA audit	5.25+0.5	5.025+0.62	6.57+0.73	6.72+0.70
Significance	0.0001*			

*p value was calculated using one way Anova and post hoc test (Tukey test). P value < 0.05 was considered significant.

4. Conclusion

Even though drug information services are initiated in many hospitals across India, its quality assurance still remains unexplored. There should be standards to determine the quality of such services to improve and strengthen health care systems across the country. With proper training of professionals, there can be better services of DIC which indirectly could result in acceptance of DICs and emerging role of drug information pharmacists over in future.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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