

Accreditation status of hospital pharmacies and their challenges of medication management: A case of south Iranian largest university

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ABSTRACT

Considering the importance of accreditation for hospital pharmacies, this study was to determine the challenges of medication management in hospital pharmacies affiliated with Shiraz University of Medical Sciences, Iran. The study was a mix-method research conducted in two qualitative and quantitative phases during the years 2014–2015 in Shiraz, Iran. National Accreditation Standard checklist for hospitals was used for data collection in the first phase, and Delphi method was applied in three rounds to achieve the most challenges of medication management and the related solutions. Results indicated a medium status of accreditation for all three dimensions in the above hospital pharmacies (3.53, 42.15 and 7, respectively). Lack of clinical pharmacists, nonparticipation of the pharmacy director in annual budgeting, lack of access to patient information, discontinuity of pharmaceutical care for patients discharged, defects in pharmacy staff training, lack of legislation in support of pharmacists and lack of adequate access to physicians' prescriptions, shortages in reporting medication errors, and lack of evidence related to microbial contamination are the most challenges extracted from the second phase. It seems that the studied hospital pharmacies encounter numerous problems regarding accreditation, pharmaceutical care as well as appropriate medication management and supply chain. Attempts to solve these problems can play an important role in improving the efficiency and effectiveness of pharmacies in Iran.

Key words: Accreditation, hospital pharmacy, Iran, medication management

INTRODUCTION

Medication is considered as one of the important technologies and the latest link between the patient and the health system, so its management determines the success of the health system.^[1] Furthermore, one of the most important factors in determining the quality and quantity of health

services provided in hospitals is procuring pharmaceuticals and medical equipment in a way that in many cases, lack of the critical medication items and medical equipment or occurring medication errors in hospitals questions the effectiveness of treatment.^[2]

Moreover, statistics indicates that an average of 20–30% of the costs of an inpatient is associated with medication and medical equipment, and over 95% of treatment processes are related to medication and medical equipment.^[3] This evidence puts further emphasis on the importance of

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medication and pharmacy management, especially for hospitals in a way that lots of managers currently see the performance scope of hospital pharmacy as the critical pulse of success in the healthcare system.^[4]

According to the role of hospital pharmacies in providing high-quality services and ensuring the effectiveness of patient care, it seems that it is necessary for hospitals to be somehow able to monitor the performance of pharmacies. In other words, it is essential to use the right tools such as "accreditation standards" to evaluate the current activities of pharmacies and the challenges of hospital pharmacy management.^[5]

This standard is considered as one of the most important strategic tools at individual and organizational levels which identifies the strengths, weaknesses, and opportunities for improvement and pays attention to the management of all hospital units including medication management and considers its various aspects such as staff training and empowerment, pharmacy action plan and its conformity with hospital strategies, working manner, shifts to provide services, patient education, medication errors, etc.^[6] In this regard, Sack *et al.* emphasized that accreditation is a key factor in improving total quality management in hospitals and has a great impact on patient satisfaction.^[7]

Iranian ministry of health and medical education imparted the accreditation standards for hospitals in 2011 to all medical universities across the country and assigned it as the responsibility of the Treatment Deputy Department of universities^[8] while the philosophy of accreditation is to measure the access level to the standards prescribed by healthcare organizations which is conducted by a group of independent external peer evaluation at the organizational level to be more effective.^[9]

In this respect, the study by Tahviliyan *et al.*, on pharmacies in 17 hospitals showed that despite the good ranking of these hospitals in the evaluation of Treatment Deputy Department, only 23% of hospitals had enough space for medication storage and the counseling offices in the hospital pharmacies were inadequate, other findings indicate on a significant difference between the status of hospital pharmacies in Iran and universally accepted standards.^[10] Therefore, considering the importance of accreditation for hospital pharmacies, this study was to determine the challenges of medication management in hospital pharmacies in one of the largest universities in southern Iran.

METHODOLOGY

This was a mix-method research conducted in two qualitative and quantitative phases consecutively during the years 2014–2015 in Shiraz, Iran. The first phase (quantitative)

was to evaluate the status of accreditation standards in all the hospital pharmacies affiliated with Shiraz University of Medical Sciences (13 hospitals). To collect data in this phase, a National Accreditation Standard checklist for hospitals^[8] was used and the data were collected through census method with referrals to hospital pharmacies. This checklist was set in three dimensions of "management and organization," "management and human resources empowerment," and "quality improvement and data collection." Furthermore, as a supplementary tool, the pharmaceutical care regulations of the university were employed to determine the current status of these pharmacies and their challenges. Data collected in this phase were analyzed through IBM SPSS Statistics for Windows, Version 21.0. (IBM Corp., Armonk, NY, USA) via descriptive statistics.

In the second phase (qualitative) of the research, the Delphi technique was employed to extract the most important management challenges of pharmacies surveyed. To this end, 11 professionals in the domains of medication and pharmacy management involved in the central office of the Food and Drug Deputy Department of the University and Faculty of Pharmacy were selected purposefully to participate in the Delphi. The criterion of willingness to participate in the research and having patience and accuracy during the study process was used to select the study samples according to the homogeneity of population.

To conduct the Delphi technique after selecting the experts, the checklist of current status and problems of pharmacies summed up at the first phase of the research were electronically submitted to individuals to comment on any item and if they considered any new item as a new challenge for pharmacies, they could add them to the checklist to be further discussed in Stage II of Delphi technique. After returning the checklists of Stage I, the whole answers and the reasons given by the experts were studied and summarized. This report was sent again via e-mail to experts and they changed their responses on the basis of the report results, and finally, the results of Stage II were re-evaluated. This process was conducted to reach consensus in comments provided by the group. In the last Stage III, after obtaining the responses sent from the selected participants, the final scoring was performed, and the three stages of the Delphi technique were completed; the coefficient of agreement by 70% was used for consensus.

RESULTS

Quantitative phase

In the dimension of "management and organization" with five-related standards, the mean score of hospitals was 3.53 out of 5 indicating moderate status. However, one hospital (H) in this dimension had a minimum score of 1,

and two hospitals had obtained 3. The rest of the hospitals in this dimension had earned good status with score 4.

In the dimension of “management and human resources empowerment” with 53 standards, the mean score for hospitals was equal to 42.15. However, hospital H had complied only with 17 standards, and other standards were not implemented in this hospital. Nevertheless, the best hospitals in this dimension had 50 standards out of the 53 standards available.

In the third dimension, “quality improvement and data collection,” from the total 8 standards, the mean score of the hospitals studied was 7. While none of the standards set in this dimension was implemented by hospital H that indicates an unfavorable status. In contrast, 9 other hospitals had quite good situations in this area.

Out of the total 19 standards evaluated in accordance with the regulations of pharmaceutical care in this university, the current hospitals obtained the mean score of 11.92. While the specialized hospital for burns had a lower use of the regulations of pharmaceutical care in the management of the pharmacy and only complied with 9 standards out

of the 19. On the other hand, the hospital for trauma had the best status among the surveyed hospitals as 15 items of the total 19 items were adhered to and implemented. As well, in other hospitals in this study, at least 9 standards and up to 15 standards of pharmaceutical care regulations for hospitals were implemented.

Qualitative phase

The findings obtained from the qualitative research phase for each one of the aspects of the accreditation standards and pharmaceutical care regulations are listed separately in Tables 1 and 2.

As indicated by the results of Table 1, in the dimension of “organization and management,” two main challenges of “lack of clinical pharmacists,” and “Pharmacy management’s participation in annual budgeting” were identified, while in the dimension of “management and empowerment,” five challenges of “lack of access to patient information in Health Information system,” “discontinuity of pharmaceutical care for patients discharged,” “Defects in pharmacy staff training,” “No legislation to support the pharmacists about drug interactions in prescriptions,” and “lack of adequate access to physicians’ prescriptions” were detected. Finally, in the third dimension of

Table 1: Challenges and solutions for pharmacies in the dimensions of accreditation

Management dimension	Challenges	Solutions
Organization and management	Lack of clinical pharmacists	Short courses for general pharmacists Intern courses division of tasks between interns and pharmacists
	Pharmacy management’s participation in annual budgeting	Accepting pharmaceuticals students in clinical field Separating pharmaceutical accounts from others Binding rules for the presence of pharmacists in annual budgeting
Management and human resources empowerment	Lack of access to patient’s information in health information system	Comprehensive and integrated health information system for all hospitals
	Discontinuity of pharmaceutical care for patients discharged	Communication with patients discharged Medication information unit in the hospital Pharmaceutical education and medication advice to patients before discharge
	Defects in pharmacy staff training	Holding retraining courses to improve the quality of education Signing contracts with prescription reading schools and holding training courses by the technical
	No legislation to support the pharmacists about drug interactions in prescriptions	Developing the culture of clinical rounds by expert teams consisting physicians and clinical pharmacists Defining rules and regulations for pharmacist duties and medication advice
Quality improvement and data collection	Lack of adequate access to physicians’ prescriptions	Developing integrated health information system and electronic prescriptions
	Lack of documentation on reports of medication errors	Eliminating fear of personnel from reporting medication errors Installation of self-stop pharmaceutical systems
	No evidence of examining microbial contamination during intravenous drug use	Building clean rooms in the unit of intravenous drugs Creating infection control unit to investigate environmental cultures and training personnel

Table 2: Pharmacy challenges in pharmaceutical care regulations and proposed solutions

Management dimension	Challenges	Solutions
Pharmaceutical care regulations	Failure to provide appropriate education to patients	Presence of pharmacists or clinical pharmacists and students of pharmaceuticals in the wards to educate patients
	Lack of access to national guidelines related to medications	Formulation of appropriate instructions with the partnership of pharmacists and physicians with an emphasis on costly medications Culture-building and providing appropriate information regarding formulated instructions to reduce challenges between physicians and pharmacists
	No monitoring for patient's file prescriptions and conformity with medication use guidelines	Monitoring the program for file's medication instructions including matching drug instructions with use instructions by pharmacists
	Depreciation of physical resources and problems created in Good Storage Practice and State Drug Policy in pharmacy	Approving budgets to equip and renovate the physical space of pharmacies in definite annual intervals Allocating one part of the revenues of pharmacy to rebuild physical resources as well as employment of trained warehousemen in pharmacy

"quality improvement and data collection," two challenges of "shortage of documentation in reporting medication errors," and "lack of evidence related to microbial contamination during intravenous drug use" were agreed by the experts.

The results of Table 2 revealed lack of proper training to patients regarding prescribed medications in hospitals during hospitalization and after discharge, no national guidelines on drug prescription, lack of monitoring patient's file medication orders which are not consistent with the guidelines of medication use; finally, depreciation of physical resources and problems created in drug storage and distribution standards in pharmacies were of the current challenges in pharmaceutical care regulations in the university.

DISCUSSION

The present findings indicate the relatively favorable status of hospital pharmacies with regard to pharmacy accreditation standards. However; in the qualitative phase, a number of challenges were agreed by experts, which are consistent with the results of Tahviliyan *et al.*^[10] and Nejad.^[11] In other words, it seems that despite the appropriate score for accreditation of hospital pharmacies, these pharmacies face many challenges in their management that indicate dysfunction of the accreditation implementation procedure in hospital pharmacies.^[12]

Other present findings pointed to "shortage of clinical pharmacists" and "participation of the pharmacists in pharmacy annual budgeting" as the most important challenges. In this regard, evidence suggests that the presence of a clinical pharmacist at the hospital beside the medical team can help manage prescriptions and drug use and reduce the patient's hospitalization time.^[13] However, the number of clinical pharmacists in the present hospitals is not enough, and the use of short-term training courses

and changes in the manner of training general pharmacists as a member of patient's treatment team as well as changes in educational content from classroom to bedside are highly recommended.

More findings showed that "lack of access to patient information," "discontinuity of pharmaceutical care for patients discharged," "Defects in pharmacy staff training," "lack of formulating laws in support of pharmacists in cases such as drug interaction," and "lack of adequate access to drug prescriptions" are the other present challenges. In this regard, Asadi *et al.* demonstrated that hospital pharmacy information systems in Tehran are semi-mechanized, and the data elements contained in medication database, patient information database, and medication prescriber database are partially transferred to the pharmacy information system. The tasks of pharmacy information systems are not processed in half of the hospitals in this study;^[14] while the evidence strongly indicates that the presence of an efficient drug information system to provide integrated pharmaceutical services to inpatients and outpatients is crucial.^[15]

Regarding "inefficiency in pharmacists and pharmacy staff training," evidence suggests that the major incentive of the groups subject to retraining including pharmacists was earning scores to extend their licenses rather than promoting knowledge and awareness^[16] while evidence shows that effective and dynamic educational programs can change not only knowledge but also attitudes of the pharmacists.^[17] Obviously, pharmacists' need assessment in this field and designing training courses with the participation of stakeholders can influence the effectiveness of training.

"Lack of documentation in reporting medication errors" and "no evidence associated with the examination of microbial contamination during intravenous drug use" is among the other extracted challenges. However, evidence suggests

that the absence of error logging system as well as weak supervisory regulations and support mechanisms can create many challenges, especially in the hospital pharmaceutical system.^[18]

According to further challenges extracted from the pharmaceutical care regulations, attention to medication storage standards in pharmacies, the shelf time of medications as well as an appropriate system for medication distribution by pharmacies are of the cases which can have a crucial role in reducing current challenges that is recommended to have a comprehensive review to extract local models to upgrade drug storage and distribution systems.

CONCLUSION

It seems that hospital pharmacies affiliated with this university encounter numerous problems regarding accreditation, pharmaceutical care as well as appropriate medication management and supply chain. Attempts to solve these problems and meet the mentioned challenges along with national emphasis on developing medication policies and procedures can play an important role in the optimal management of resources and improvement of the efficiency and effectiveness of pharmacies.

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Conflicts of interest

There are no conflicts of interest.

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