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The Compliance Rate of Patient Safety Standards in Hospital: A Compare and Analysis at Tehran Hospitals

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ABSTRACT

Patient safety as one of the main components of health services quality means to avoid getting into any kind of injury to patient, during providing health care. This study is aimed at evaluation of patient safety standards at selected Tehran hospitals. This study is a cross-sectional and comparative survey study that was conducted in 1392. The study population included all Tehran hospitals, which between them, ten hospitals randomly selected. The data collection instrument was a self-made checklist, which was developed based on the integration of three valid standard groups. The validity of the checklist, was determine with the method of content validity and its reliability, was determined from Cronbach's alpha with the value of 0.94. Data analysis was done using descriptive statistics of Kruskal-Wallis and Spearman tests. The average compliance of patient safety standards was approximately 72% .the average respecting international patient safety goals, 60%, 76% and road safety Friendly Hospitals Patient Safety Solutions was 69%. There was not a significant correlation between the Owner type as well as the number of hospital beds, with the compliance rate of standards (P> 0/05). To establish and promote patient safety programs, primarily it is important to determine the current status, and all hospitals must periodically assess the patient's immune status. So, the hospital progress in this field, in addition to understanding the immune status of the patient, also can be evaluated. The commitment of hospital senior management is essential to improve the patient safety.

KEYWORDS: patient safety, patient safety standards, safety friendly hospital, Hospital.

1. INTRODUCTION

The field of patient safety was under consideration by experts in the health field, after the report of United States medical institution published which addressed the prevalence of medical errors in this country (1). This report, along with reports from other institutions in countries such as England, Canada and Australia on this subject, causes that the health care systems realize that are not secure enough (2). Patient safety as one of the main components of health services quality means to avoid getting into any kind of injury to patient, during providing health care (3). In addition, it includes items such as medicinal failures, surgical procedures, diagnoses failures, machinery and equipment failures, leading to misdiagnosis, and other items such as hospital infections, patient falls and bedsore (4). Unsafe Services, in addition to have unpleasant consequences for patient and his/her family, cause introducing psychological pressure on health system staff and society members, and finally impose a huge economic burden on health care system and society (5). Researchers have documented the extent of errors and their effect on patient safety. Like the card forgotten at the automated teller machine, many of the adverse events resulted from an error made by a person who was capable of performing the task safely, had done so many times in the past, and faced significant personal consequences for the error. Although we cannot change the aspects of human cognition that cause us to err, we can design systems that reduce error and make them safer for patients. My aim here is to outline an approach to designing safe systems of care based on the work of human factors experts and reliability engineers (6-8).

Research studies have shown that, on average, about 10% of all hospitalized cases, patients are affected to different degrees (6). It is estimated that 75% of these errors are preventable. It is estimated that between 5 to 10% of health costs are non-safety related clinical services which resulted to the harm for patients and in this among, the contribution of systems and processes failures is over the role of individuals (7). In response to the urgent need to develop interventions related to patient safety, the Joint Commission International has established the International Patient Safety Goals as the first goal of accreditation standards. The realization of these standards provides this assurance that patient safety as an accepted necessary priority and hospital have the best performance in this regard. The purpose of International Patient Safety Goals is to improve certain reforms in patient safety. Goals have highlighted the problematic areas in health care and define solutions to these problems based on expertise and evidence. In addition, the purpose of International Patient Safety Goals is to improve patient safety through certain methods (8). Patient Safety

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Friendly - Hospital program is another program that is running in some countries (including our country). The World Health Organization has developed a set of standards for these hospitals in the five main areas (leadership and management, patient and society participation, evidence-based clinical iatrology, safe environment and continuous learning) (9). Also on accreditation of Hospitals, patient safety is one of the basic aspects under monitoring (10).

The ultimate goal of evaluation of patient safety is to improve patient safety in hospitals and create situations that lead to safer services and subsequently protecting the society form avoidable damages and reducing unwanted adverse events in the hospital setting (11). In our country, the researches related to patient safety also began with international uprising about improve patient safety (12). Many researches have been done in several fields related to patient safety, including the incidence of bedsores, hospital-acquired infection and falling down of bed (13). However, a research on the evaluation of patient safety in healthcare facilities by researchers was not observed, hence according to the importance of this issue and the lack of researches in this field in Iran, this study aimed at to evaluate the compliance rate of patient safety standards at Tehran hospitals.

2. MATERIAL AND METHODS

This study is a Descriptive survey and cross-sectional study that was conducted in 1392. The study population included all Tehran hospitals, which between them, 10 hospitals consists of 6 university hospitals, 2 Hospitals of Social Security Organization and 2 private hospitals were selected. The data collection instrument was a self-made checklist, which was developed, based on the integration of three valid standard groups in patient safety; 1-friendly hospitals. 2-World Health Organization 9 Patient Safety Solutions. 3-International Patient Safety Goals of the Joint Commission on Accreditation.

The prepared Checklist consists of 28 questions by merging same ones, which includes all above Standards **(3,8,9).** Questions 1 to 6 are related to the governance and leadership standards (Group A), questions 7 to 13 are related to the standards of Patient and Public Involvement (Group B), Questions 14 to 19 are related to the standards of Safe Evidence Based Clinical Practices (Group C) And Questions 20 and 21 are related to the Group D, i.e. the safe environment. Questions 22 to 28 are also related to the international patient safety Goals and solutions. For scoring to the questions, 5 – point scale (1: Failure to comply in full, 2: partial noncompliance, 3: average compliance, 4: relatively full compliance and 5: full compliance) and for the standards that are not applicable in a hospital, absence phrase NA (Not Applicable) was used. The compliance rate of standards was calculated in percent and based on national instruction of assessing clinical governance of Ministry of Health as well as instruction of the International Joint Commission on Accreditation of Healthcare. The validity of the checklist, was confirmed with the method of content validity and its reliability, is tested by Cronbach's alpha of 0.94. Researchers used the method of integration in research (Triangulation), for validation of data collecting. In the way that for evaluation of compliance rate of standards and completing checklist, directly observed the processes in hospital, also reviewed documents and also according to the considered standard, interviewed with both the managerial and clinical personnel and patients. Ethical approval was received for this research from ethical committee. Samples were given information about the study. Those agreeing to participate provided oral informed consent prior to beginning the interview.

Data analysis was done using Spss-16 and Excel software. To description of data, descriptive statistics (frequencies, proportions, percentage, mean, variance and standard deviation) and to data analysis, descriptive statistics of Kruskal-Wallis and Spearman tests in 95% confidence interval were used.

3. RESULTS

From 10 hospitals under consideration, the biggest hospital affiliated to the social security organization with 900 active beds and the smallest one, was a private hospital with 50 active beds (Table 1).

Table 1: number of beds and affiliation if hospital in this study

Number of beds	Frequencies	Percentage (%)	Hospital affiliated to
150 beds≥	2	20	Public and private sector
151-300 beds	3	30	Public, private and social security
301-500 beds	3	30	Public sector
500 beds<	2	20	Public sector and social security
Aggregate	10	100	-

Results of assessing compliance rate of patient safety standards, according to the research's 28-questions Checklist, completely in all considered 28 standards, is shown in Table 2 (Table 2).

Table 2: The compliance rate of patient safety standards based on research checklist

Type of standards	Standards	The mean of compliance rate	The mean (%)
Governance and Leadership	The hospital has patient safety as a strategic priority. This strategy is being implemented through a detailed action plan.	4/06	81/2%
	The hospital has a designated senior staff member with responsibility, accountability and authority for patient safety.	4/55	91%
	The leadership conducts regular patient safety executive walk-rounds to promote patient safety culture, learn about risks in the system, and act on patient safety improvement opportunities.	4/02	80/4%
	A designated person coordinates patient safety and risk management activities (middle management).	3/96	79/3%
	The hospital conducts regular monthly morbidity and mortality meetings.	3/90	78/1%
	The hospital ensures availability of essential equipment.	3/42	68/6%
	The hospital ensures that all reusable medical devices are properly decontaminated prior to use.	3/52	70/5%
	The hospital has sufficient supplies to ensure prompt decontamination and sterilization.	3/67	73/5%
	Qualified clinical staff, both permanent and temporary, are registered to practice with an appropriate body.	3/59	71/8%
Patient and Public Involvement	Before any invasive procedure, a consent is signed by the patient. He/she is informed of all risks, benefits and potential side effects of a procedure in advance. The physician explains, and the nurse oversees the signing.	2/49	49/8%
	All patients are identified and verified with at least two identifiers including full name and date of birth …	2/49	49/8%
Safe Evidence Based Clinical Practices	The hospital maintains clear channels of communication for urgent critical results.	3/17	63/4%
	The hospital has systems in place to ensure safe communication of pending test results to patients and care providers after discharge.	3/94	78/9%
	The hospital has an infection prevention control programme including an organization scheme, guidelines, plan, and a manual.	4/12	82/5%
	The hospital ensures proper cleaning, disinfection and sterilization of all equipment with a special emphasis on high risk areas.	3/83	76/6%
	The hospital implements guidelines, including WHO guidelines, on safe blood and blood products.	4/28	85/7%
	The hospital ensures availability of life-saving medications at all times.	3/87	75/7%
Safe Environment	The hospital segregates waste according to hazard level (see guideline) and color codes it.	4/06	81/2%
	The hospital conforms to guidelines (including WHO guidelines) on management of sharps waste.	3/98	79/6%
The nine patient Safety Solution and International Patient Safety Goals	avoiding catheter and tubing misconnections	4/84	96/9%
	communication during patient handovers	3/12	62/5%
	assuring medication accuracy at transitions in care	3/69	73/8%
	control of concentrated electrolyte solutions	3/62	72/4%
	performance of correct procedure at correct body site	3/46	69/2%
	Look-alike, sound-alike medication names	3/22	64/4%
	single use of injection devices	3/19	63/8%
	improved hand hygiene to prevent health care-associated infection	2/98	59/6%
Total		3/62	72/40%

In above Checklist, questions 1 to 19 correspond to the necessary standards of patient safety friendly hospitals, which the highest compliance rate of these standards was related to questions 2 and 16, with rates of 91% and 85.7%, respectively. Questions 11 and 20 to 27, is also related to patient safety solutions, which Question 20 with 59.6%, has highest compliance rate and Question 27, with 96.9%, has the lowest compliance rate. The remain questions, show compliance rate of international patient safety Goals which the highest compliance rate was related to question 22 with a score of 73.8% and the Lowest one was related to question 28 with a score of 34.2%. Table 3 shows the results of evaluating patient safety at considered hospitals based on patient safety standard groups. In this table, the scores of considered hospitals have been classified and evaluated at separated standard groups (Table 3).

Table 3: The compliance rate based on standards group

Hospital	International Patient Safety Goals	safety friendly hospital standards	The nine patient Safety Solution	Total
Lavasani	69/08%	86/84%	78/12%	81/05%
Motahari	51/36%	69/08%	58/03%	60/96%
Firuzgar	56/53%	72/37%	62/5%	65/43%
Farabi	65/92%	79/6%	70/53%	73/46%
Baharlu	70/11%	84/87%	83/03%	85/46%
Shariati	42/91%	65/13%	53/57%	56/5%
Shohada	45/83%	82/89%	73/66%	76/59%
Pars	61/67%	76/31%	66/96%	69/89%
Laleh	53/33%	71/05%	61/16%	64/09%
Milad	86/61%	88/81%	87/5%	89/98%
Total mean	60/33%	76/69%	69/46%	72/39%

Based on these findings, the highest mean compliance of standards in all three groups, was related to the hospital code 10. The lowest level of compliance in all three groups was related to the hospital code 6. Also In total, the necessary standards of the Patient Safety Friendly Hospital had the highest compliance rate with the score of 76.69%. However, finally Table 4 shows the results of the Kruskal-Wallis test to examine the relationship between hospital ownership types with compliance rate of patient safety standards (Table 4).

Table 4: The relationship between type of hospitals and the compliance rate

Hospital affiliated to	Frequencies	df	P-value
Public sector	6	2	0/187
Social security org	2		
Private sector	2		

The results of the Kruskal-Wallis test showed that there is not a significant difference between compliance rates of patient safety at selected Tehran hospitals in terms of ownership type. (p = 0/187). Also the results of Spearman correlation test showed that there is no significant correlation between the number of hospital beds and the compliance rate of patient safety standards at the alpha level of 0.005 (P> 0/05).

4. CONCLUSION

The study results showed that mean compliance rate of patient safety standards was about 72 %. Mean compliance of International Patient Safety Goals was 60 percent, patient Safety Friendly Hospital was 76 and patient safety solutions were 69 percent. There was no significant correlation between the Ownership type as well as the number of hospital beds, with the compliance rate of standards.

In the group A (Governance and Leadership), the mean compliance rate of standards was 77.13 percent, which reflects the good performance of the hospital in this group. In order to improve the patient safety in this group, embedding patient safety programs in operational and strategic plans and hiring qualified and skilled staff are necessary. The results of Janghorbani's study that performed an evaluation of patient safety Friendly hospital standards in the operating room of a hospital are consistent with this study (14). The results of Farkhondeh's research with title of examine patient safety culture from the viewpoint of nurses at university hospitals in Shiraz indicated that the patient safety culture score in each of 10 dimensions of patient safety culture and 2 dimensions of consequences of safety culture was at a good level that are consistent with results of this study (15). Fathi's study also showed that this level is not suitable at Medical Sciences university hospitals in Kurdistan and organizing the hospital safety committee and continuous studies in occurrences of non-safe cases, are serious actions in order to improve the patient safety (16).

In the group B (Patient and Public Involvement), mean compliance of compliance of standards. In order to improve the scoring in this group, improving patients' knowledge level about their health is necessary in order to make participation in making a correct decision about their treatment (17). Krystsn in his study has known the existing problems in communications and the lack of proper identification of patients, as factors that effect on patient safety (18). In Sabahi's study, patient safety situation in therapeutic centers in Kashan has been examined with a conclusion that the patient safety climate is not in a suitable situation in considered centers. In this study, the relationship between nurses, has received the most points (19). In the Group C (Safe Evidence Based Clinical Practices) mean compliance rate of standards was 77.32 percent, which indicates the good performance of the hospital. Ensuring the safety of blood and blood products, and safety of medicinal system in hospital, leads to an increase in compliance rate of standards in this group. In Mousavi's study, the situation of compliance rate of relatively safe infection control standards evaluated that are consistent with the results of this study (20). In Janghorbani's study, also the compliance rate of standards in this group at Shahid Beheshti's hospitals was shown with a good performance. In Group D (safe environment), the mean compliance rate of standards was 80.40%. This rating reflects the good performance level in this group. To increase this amount, a waste disposal management safe system should be created at the hospital. Janghorbani's study shows good performance of operating room in this group, which suggests the utility of the medicinal system and waste disposal management at the considered hospital (14).

But in the part of the patient safety solutions, the obtained mean was 69.46 percent, which represents a medium safety performance level of hospitals in this group of standards that shows the necessity of providing guidelines for effective implementation of patient safety solutions in hospitals. To improve this level, communications between clinical groups in hospital should be improved, safety considerations related to drugs with similar names and forms should be considered and the hand hygiene in hospitals should be promoted. Zandieh's study also with the title of compliance rate of hand hygiene by staff of the operating room showed that the compliance rate of hand hygiene was 61.3% (21). Correct communication of hygienic clinical staff during the delivery of patient, with compliance of 62.5%, shows an average performance level. Malekzadeh's study with the title of the impact of developed guideline implementation in nursing shifts on the performance of nurses says that, preparation, developing and implementation a legal, comprehensive, and practical method in order to transmission of patient care data in the form of a standard procedure of work shift leads to reducing the incidence of medicinal error (22). Also in this group, the score of reduction of falling out of bed is at a weak level, which shows a considerable point in order to improve. Developing and implementation of policies and procedures to reduce the risk of patient injury due to falls in hospital, patient assessment of falls risk and measures to reduce the individual risk of danger, should be existed in hospitals.

According to the results of this study, the average amount of patient safety standards at selected Tehran hospitals is at a good level, but to improve the situation, creating a competitive environment for the hospitals managers, leads to their motivation and afford to realization of the patient safety programs. Including a list of essential equipments and supplies and alternatives, is another case, which leads to a remarkable improvement. The results of this study showed that in hospitals, a little attention pays to appropriate identifying of patients. This amount requires much more attention of staff to identify and culture of identifying patients in therapeutic parts. Also the getting the aware consent before any invasive treatment or diagnosis, due to the lack of its legal obligations in, has the lowest compliance (17). Finally, it should be said that according to the fact that determining the current status is important for deploying and upgrading the immunity programs of patient, it is recommended that at all hospitals the status of patient safety should assessed periodically. Because form this, in addition to recognizing the immune status of the patient, the hospital's progress in this area will be assessed. Since the interaction with patient and society, were the weaknesses of hospitals, the reform of processes of participation of patient and society in their treatment, should be considered. In addition, the establishment of an incentive system in hospital is necessary for the parts that perform the special actions to improve patient safety, for their repeating and stability of these actions. to perform each of the above changes, primarily, senior managers of hospitals should have enough information in various aspects of safety and its role in preventing clinical errors occurred, And show their commitment to their perform.

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