

The Assessment of Safety Management in Operation Rooms of the Hospitals Related to Isfahan University of Medical Sciences in 2013

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Abstract. Operation room is a unique unit considered as a risky and vulnerable sector in every hospital in respect of its especially and activity variation and the diversity of the accidents and dangers which may happen. In present study, the situation of safety management in the operation rooms of the hospitals being managed by Isfahan University of Medical Sciences were investigated by use of a standard questionnaire consisted of five dimensions including Organizing and Management, Human Resources and Leadership, Methods and Policies, Staffs Education and Improvement and Facilities and Instruments. The collection method contained observation, interview with the manager of every unit and also monitoring the documents. Furthermore, Likert scale was applied to demonstrate the quality of safety situation. This was classified into acceptable, moderate and poor situations for every individual unit. The results showed that the safety in studied hospitals operation rooms were good. While the situation of safety about regarding the principles of safety and personal health and also building and physical safety were reported acceptable, some aspects of safety including the system of firing alarming and also the systems which control the warning of drop or interception of medical gases did not have suitable condition. Therefore, the achieved finding demonstrated that the studied hospitals need to develop their safety level in different respects and management measures for increasing the safety.

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1. Introduction

Operation room is one of the most complex units in health and treatment systems. This complexity can be found in the issues related to patient, therapeutically protocol and also the application of high technology which is used in this unit. So, effective management is necessary to adjust the department with increasing changes in order to provide the safety of the staffs and patients in operation room [1, 2]. Today, some standards have been made by governmental sector, in Canada, which a one of them is specific for operation room [3]. Providing and using standards in operation room leads to decrease the risks, expenses, provide the safety for staffs in this unit and also the patients being operated. Therefore, periodic observation of safety management principles and adjusting them with present standards

are remarkably essential [4]. A lot of research has been done in developed countries about the safety management in operation room. Janghorbani et al [5] studied the situation of safety management in Shahidbehashti hospital in Iran. They found that goal setting should be done in strategic plans of the hospital in order to achieved high level of safety in operation room. Pourreza et al [6] reported in their study that operation rooms are so vulnerable in respect of their potential dangers and the variation of activities may be done in this unit. Nicklin et al [7] found in their investigation that the main cause of 23 percent of firing events were related to operation room in the American's hospitals. The reasons of this high figure could be disregarding building safety guidelines, installing improper electrical system, stocking and misusing firing and extinguishable articles and lack of

qualified laws related to the safety of workplace. So, lacking of safety in operation room results in dangerous events such as firing. It is believed that if safety management in operation room is assessed regularly, it will be possible to reduce the rate of accidents, human errors, and unsafe procedures and also improve the sufficiency of the costs. The goal of this study includes the assessment of safety management in the hospitals being managed by Isfahan University of medical sciences.

2. Methods

This is a cross-sectional study in which ten hospitals being managed by Isfahan University of medical sciences were investigated. The names of studied hospitals were replaced by numbers from one to ten for regarding confidentiality and moral considerations. Only the researcher had access to the raw data of every hospital. The selection of the studied hospitals were based of the following criteria; being considered as a general hospital having an active unit called the committee of safety and accidents, high level of workload and also expensive instruments. Since the operation room has a crucial role in every hospital and its observation can lead to control the accidents and improve the safety situation, this unit was selected to be studied. The selection of any studied operation rooms was based census method.

The applied questionnaire called the assessment standards of safety management in operation room has five standards and including 109 questions. They consist of Organizing and Management, Human Resources and Leadership, Methods and Policies, Staffs Education andImprovement and Facilities and Instruments. 5 option Likert scale including very appropriate, appropriate, moderate, poor and very poor options were used to score this questionnaire. 0 to 100 was supposed for every standard so that the options consisted of very appropriate, appropriate, moderate, poor and very poor were given the following score ranges respectively; 80-100, 60-80, 40-60, 20 -40 and 0-20.

The validity and reliability of the questionnaire was affirmed by running an especial panel and conducting a polite survey. The reliability of questionnaire was 77% and done by calculating Cronbach's Alpha. To gather the necessary data, the researcher referred to the hospitals and interviewed to the managers of operation rooms. He also observed the documents which were related to safety issue. SPSS and descriptive statistical tests were used to analyze the data. In addition to qualitative dimensions of safety, the qualitative ones were studied by use of researcher- made questionnaire having three options Likert scale. According to this assessment, the safety situation of studied hospitals operation rooms were

classified into good (over 74 percent of scores), moderate (between 50 to 74 percent of scores) and poor (less than 50 percent of scores).

3. Results

The results of this investigation showed the safety in studied hospitals operation rooms were moderate according to achieved scores. It was found that the scores of the studied standards including Organizing and Management, Human Resources and Leadership, Methods and Policies, Staffs Education andImprovement and Facilities and Instruments were 75.2, 69, 65.65, 72.9 and 66.8 respectively. The highest and lowest means of regarding the standards of safety management were seen in hospitals one (82.16) and hospital nine (56.2) respectively (diagram 1).

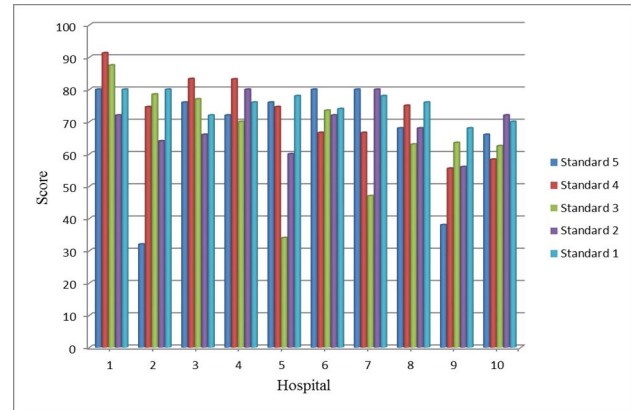


Diagram 1. The condition of safety management standards in studied hospitals' operation rooms

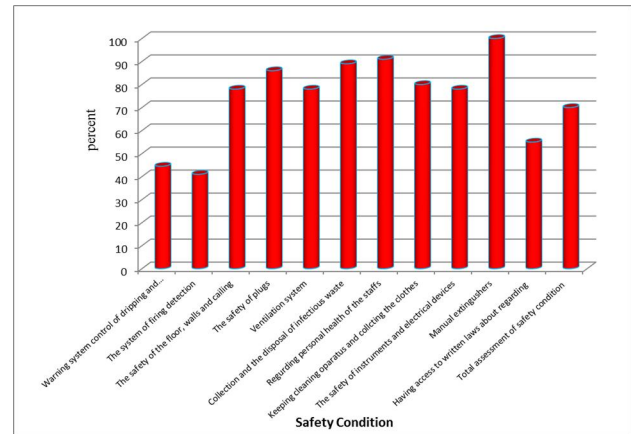


Diagram 2: the frequency distribution of safety condition in studied hospitals' operation rooms

Diagram 2 demonstrates the assessment of safety in operation rooms according to its different dimensions. As shown in this diagram, the physical and building safety and regarding safety principles

about collecting and disposal infections wastes, and also personal health were evaluated appropriate. The most problematic items included lacking of performance and guide instructions in order to manipulate the accident, the detecting system of firing and also lacking of regular program to control warning system of dropping or intercepting the pressure of medical gases.

4. Discussion

Operation room is one of the main units in every hospital so that the most important part of therapy for some patients occurs over there. Therefore, regard the safety principles according to safety management standards. The finding of present study showed that the condition of safety, in most studied hospitals, were at the moderate level. Score of safety management was achieved in hospital one (82.16). The reasons of this finding could be attributed to the active presence of hospital safety committee and its specialization, qualified management of safety affairs and establishment of substructures including commitment to the lows and performance instructions. In contrast, hospital nine achieved the lowest score due to lack of suitable places of operation rooms, limited access to regarding safety principles and also disregarding the rules of infection control. Musavi et al [8] have found that the operation rooms of studied hospital had relatively acceptable situation in regarding infection control disciplines and the safety of the staffs. The score of safety management in this study was 84.9. Mohebati et al [9] found that the rate of regarding standards of safety management was 50 percent the operation rooms of studied hospitals in Shiraz city. This is compatible with the finding of the present investigation. It was shown that the use of checklist in studying the safety management lead to increase the level of staff's knowledge about safety affairs and reduce unwanted damages happened in operation room. This finding was seen in Lapanluona et al project [10].

The results of assessing safety management in studied operation rooms, in present investigation, showed that most of them had acceptable level of safety from different aspects. However, it was not found any firing detecting system, emergency exit ways and also the sufficient rules in more than 50 percent of studied operation rooms. This will result in put in danger the safety of staffs and patients in operation rooms. In addition, it can lead to mental disturbance for patients operated in these units and also their families and affect the attitude of the community about the operation room and hospitals negatively. It was found in a study conducted in the U.S.A that most of firing events happened in hospitals was related to operation rooms. The officials, in this

study estimate that 100 firing events are happened in American hospitals operation rooms among which 10-20 and 1-2 cases lead to severe injury and death respectively[11-13]. The assessment of health and medical units in Tehran's and Hamadan's hospitals showed that firing detecting system and emergency exit were not provided in most operation rooms[14, 15]. No definite instructions were made to manipulate harmful damages and also the staffs did not receive enough education to confront them in the hospitals being managed by Iran University of medical sciences [16]. The study conducted by Gibbs to investigate the influencing factors over patient's safety in operation rooms showed the impact of instructions and similar therapeutically methods in operation rooms over the reduction of errors and patients safety increase [17].

5. Conclusion

The lack of regular plan for controlling warning system of detecting medical gases drop or reduction, lacking of any regular programs to monitor the function of operation rooms instruments, exiting some shortcoming in observing the health condition of the staffs working in operation rooms and lack of periodic sampling from these units were the most problems being found in some of studied hospitals. The causes of all these mentioned problems could be related to lack of establishing and working health and infection control committee in the hospital and poor educational activities. The study conducted in Chicago, U.S.A, to find the effectiveness of providing facilities on promoting patients safety showed that some principle including establishment standardized operation rooms and using automatic extinguisher should be practiced to improve the safety of the patients. In all the achieved results demonstrated that regarding safety principles and their regular monitoring in operation rooms are very necessary. Moreover, the promotion of safety, providing modern extinguishers and emergency exits, installing warning systems of dropping or decreasing the level of medical gases, improving staffs and managers knowledge about safety and setting targets related to strategic programs should be done to achieved the standards and high levels of safety.

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