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## What are the factors affecting risk management in hospitals?

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### Abstract

**Introduction:** Healthcare systems across the globe, continuously strive to overcome a global challenge: Maintaining the quality of services. What demonstrates the level of responsibility of a health care system is the persistence of these efforts. All the members of society expect health care services to be provided with the highest possible quality. Governments and healthcare systems in many developed and developing countries have created new institutions, mechanisms, and processes whose purpose is to maintain and continuously improve the quality of health, and Risk Management is considered an important part of these. The present study aims to examine the factors affecting risk management from the viewpoint of hospital managers of Mashhad.

**Research method:** The purpose of this descriptive cross-sectional study has been to identify the most important factors influencing risk management from the point of view of some of the hospital managers of Mashhad. The participants of this study included 200 managers of Mashhad public hospitals with different ranks who had responsibilities in the hospitals in 2013. The sample size was calculated using Cochran's formula, and by the end of the survey period, 61 participants completed the questionnaire. The tool for gathering data, in this research, was a questionnaire designed and standardized drawn from research on clinical risk management model design in Iranian hospitals. The questionnaire consists of 40 questions regarding information management, complaint management system, financial affairs, prevention programs, and organization and policy-making in the field of risk management. The data were collected by the research units, using a self-administered questionnaire. The data analysis was performed using SPSS software (version 18) and also descriptive statistics, and then summarized by way of tables and graphs.

**Findings:** The results of this research indicate that the most important factors affecting risk management, from the point of view of hospital managers of Mashhad were: prevention and control programs, information management, organization and policy-making, complaints, and financial affairs.

**Conclusion:** Although the managers believed all of the examined factors to be very important because the prevention and control programs got the highest point, it is necessary to give particular importance to this factor in the risk management of hospitals.

**Keywords:** Clinical Risk Management, Safety, Hospital, Prevention.

## Introduction

There are risks in all organizations (Dorontsev AV, et. al., 2022; Duraimurugan V, et. al., 2022). In a world of incertitude and uncertainty, the existence of risk in organizations is taken for granted (Mahmoud IM, et. al., 2022; Hanifi Ayboga M, et. al., 2022). The existence of risk is inevitable and the important thing is how to face and deal with it. To effectively identify, analyze and manage risks, every organization, according to its specific conditions, classifies risks (Huong LLT, et. al., 2022; Blahun S, et al., 2022). Maintaining the quality of services is a global challenge and a reason for continuous efforts for health systems (Nakagawa N, et. al., 2022). It is the persistence of these efforts that demonstrates the responsibility of a health system. All the members of society expect health services to be provided with maximum quality. Maximum quality is a broad concept including several aspects such as the efficacy of services, optimal use of resources, fair distribution of services, risk management for patients and staff, provision of prompt and proper services, and consideration of cultural and religious customs and expectations of people. In many developed and developing countries, governments and healthcare systems have created new institutions, mechanisms, and processes to maintain, and continuously improve the quality of healthcare, and one of the main elements of these provisions is risk management. (Khaliqinejad et al, 2009). In organizations providing health services, the existing risks are categorized as follows: 1-Operational risks 2-Financial risks 3-Human resources risks 4-Strategic risks 5-Legal and regulatory risks 6-Technological risks (Carol-Ching 2003). Patient safety, and more broadly, health care quality mostly means the reduction of unintended errors and adherence to clinical guidelines during the medical care process. This attitude is called the “care-based” approach. On the other hand, in the “system-based” approach, patient safety and quality of care mean the accessibility of effective health care and services, clinical prevention services, primary care, proper referral, and receiving specialized services in an appropriate and timely manner (Borik, 1989). The system-based approach focuses on the ways through which governments can prevent adverse effects of medical interventions, and guarantee timely and effective access to health services throughout the lives of every individual (Digans and Laurent, 2010), although each of these approaches leads to different practices for the improvement of the quality and safety of the patient, they are not contradictory (Porter, 2010), since both of these approaches are necessary to ensure the safety of the patient, the main challenge in policymaking is to strike a balance between these two (Digans and Laurent, 2010). according to the research, about 77% of doctors and 52% of nurses have experienced at least one incident leading to injury during their working lives, among which 42.3% were caused by stress and fatigue, 16.6% by the improper organization of human labor, and 42.3% was due to the poor communication (Fellini et al., 2007).

About a decade ago, the American Institute of Medicine reported that most of the human errors in the health sector happen because the systems are not safe enough, and not because of incompetence or incompetence of employees (Lipp, 2008). Another important issue regarding the institutionalization of the management process and creating a safe environment in organizations is the consideration of the organizational culture, which is

considered the basis of risk management. Usually, after confronting an error that leads to damage, the question arises as to why the fences and barriers that were built to prevent the error did not work well. The likelihood of an injury is usually a function of insufficient knowledge of potential risks in the process of providing health care services, and therefore, raising awareness about how clinical risks may happen remains a key issue (Golfiri, 2011).

Most of the experts and organizations in the health sector are focused on the field of risk management- either concerning patients, or related to treatment and medical care, or in other words the operational risks and safety risks of the patient. This may be because providing medical care and treatment of the patients are considered the *raison d'être* of the health sector. Therefore, it is necessary to control and reduce these risks by gaining a clear understanding and establishing suitable processes. Risk management actively identifies risks, and adhering to, or relying on, the safety culture prevents those risks or reduces them significantly. Thus, the prevention of clinical risks should be operationalized as an organizational process under the title of "Clinical Risk Management", and should involve all people, and here, of special importance is the role of hospital managers. Providing health care services is a sensitive and risky responsibility. The process of providing health services will necessarily pose risks for the patient, the therapist, and the organization. These risks should be reduced as part of the quality improvement project. Risk denotes a small or high probability that a person will be harmed by an unplanned complication. Risks are measured according to their probability and resulting consequences. Risk management as a process of identification, evaluation, and systematic management of risks, and a continuous process to reduce the risk for the organization and individuals, involves keeping track of cultural processes and structures that lead to the realization of potential opportunities for the management of unplanned outcomes in the health care sector (AS/NZS:4360, 2004).

The health system involves processes mixed with different variables (specificity of conditions and characteristics of the patient, each patient's complexities, the complexity of treatments and interventions, variety of management models and methods, etc.) hence, organizations need more risk control. The functional characteristics of the healthcare sector highlight the need to pay attention to risk control and management in this sector. The variety and multiplicity of operations, measures, and equipment, the frequency of emergency cases, the degree of uncertainty and vulnerability of patients at getting the services, and most importantly, the fact that in the health care sector, unlike other sectors where a small number of people serve a large number of users, this relationship is person-to-person (Blandi, 2007). Hubbard believes that the main reason for this tragedy in hospitals is one thing: ineffective risk management methods that are often introduced as best practices act like a deadly virus with a long incubation period. This virus spreads everywhere in the organization and before the beginning of the crisis and the occurrence of a disaster, no early symptoms of it are visible (Raja, 2011). In the health care sector, in addition to the patient, who is the focal point of safety issues, other persons such as staff members and even the patient's companions or visitors are exposed to serious injuries. Risk management in the health sector, according to the definition of the Joint Accreditation Council of the United States, refers to any clinical or

administrative activity to identify, evaluate and reduce the risk of injury to patients, staff members, and visitors (Joint Accreditation Commission of America, 2007).

What is clear is that through a regular and strong process, the management of a field of this kind, and planning for driving away and eliminating possible risks that threaten different groups of patients, personnel, and others, is possible. Therefore, healthcare organizations need to create a proper platform and structure to organize this important problem. Clinical risk management is a process that can manage this huge and important concern in the healthcare sector. Non-systematic practices in different parts of the health care system certainly cannot process and manage the big problem of health risks properly, and before anything else, it is necessary to examine and determine the general framework of what should be done. Meanwhile, examining the viewpoints of managers working in hospitals in the field of risk management is of particular importance and can be very helpful.

#### **Research Objectives:**

General purpose: asking for the opinions of Mashhad hospital managers regarding clinical risk management

Specific goals:

1. Asking for the opinions of Mashhad hospital managers regarding information management of clinical risks
2. Asking for the opinions of Mashhad hospital managers regarding organization and policy making in clinical risks
3. Asking for the opinions of Mashhad hospital managers regarding prevention and control programs in clinical risks
4. Asking for the opinions of Mashhad hospital managers regarding the complaints system and financial affairs in clinical risks

#### **Materials and Methods:**

This cross-sectional descriptive study aims to examine the factors affecting risk management as viewed by hospital managers of Mashhad. The research sample consists of 200 participants who worked at management levels in Mashhad public hospitals in 2013.

The sample size was determined using Cochran's formula and finally, 61 participants completed the questionnaire as a research sample. The research was carried out in public hospitals of Mashhad city. A standard questionnaire taken from a former study on model designing for clinical risk management of the Iranian hospitals was used to collect the data to investigate the effective factors on risk management from the point of view of hospitals managers of Mashhad, and the required data were extracted after it was completed and scored by participants. The data collection tool in this research is a standardized questionnaire taken from a study on model designing for clinical risk management in Iranian hospitals. This questionnaire contains 40 questions about subjects such as information management, complaint management system, and financial affairs of prevention programs and organization and policymaking in the field of risk management. Data analysis was done using SPSS software (version 18). After coding and entering the data into the computer, descriptive statistics were used To analyze the data. Descriptive statistics included the distribution of

frequency and mean according to the responses collected from research samples regarding information management, complaint management system, and financial affairs of prevention programs and organization and policy making. To comply with research ethics, the Confidentiality of information and research objectives were explained to the participants. Among the limitations of the research, the following is worth noting: the conservative stance of officials and managers while answering and commenting on challenging concepts in the field of risk management, the insufficient knowledge of hospital personnel about risk management concepts, the busyness of research participants and their reluctance to complete the questionnaires.

**Research findings:**

**Table 1- The average points of the information management components affecting risk management**

<b>Number</b>	<b>Component number</b>	<b>component</b>	<b>Average points</b>
<b>1</b>	<b>2</b>	Establish and maintain an effective relationship with key departments such as nurse unit quality control, medical staff, and infection control unit to reinforce the efficacy of the risk management program.	<b>4.24</b>
<b>2</b>	<b>20</b>	Prompt the board of directors to issue a mandate for receiving management reports at specific time intervals.	<b>4.05</b>
<b>3</b>	<b>34</b>	Devise a system for reporting such	<b>4.11</b>

		cases to local and public institutions	
4	35	Devise a system for identifying unplanned incidents related to the patient, visitors, and staff members of risky clinical settings	<b>4.22</b>
5		Total Index	<b>4.16</b>

It is apparent from table 1 that the highest average points in the information management index belong to the first component: “establish and maintain an effective relationship with key departments such as nurse unit quality control, medical staff, and infection control unit, to reinforce the efficacy of the risk management program.” And the lowest average point belongs to the component “prompt board of directors to issue a mandate for receiving management reports at specific time intervals.”

**Table 2- The average points of organization and policy-making components affecting risk management**

<b>Number</b>	<b>Component number</b>	<b>Component</b>	<b>Average points</b>
<b>1</b>	19	Make an organizational policy statement and officially confirm a risk management plan in board meetings.	<b>4.18</b>
2	21	Formulate and explain organizational policies regarding financial aspects of risks, and establish the framework for	<b>4.03</b>

		reports submitted to the board of directors	
3	22	Assign a person with clearly defined tasks to carry out organization activities regarding risk management, and evaluate the role of risk management in identifying damages, guaranteeing quality, safety management, resolving complaints, financing, patient's security, and communications, periodically.	<b>4.13</b>
4	23	Provide a precise mechanism to involve medical staff and define the role of medical staff in risk management programs.	<b>4.10</b>
5	24	Establish criteria to evaluate the performance of the medical staff in terms of risk management (for example, does the medical staff identify three	<b>3.96</b>

		problems in the field of risk management annually, or has it solved at least three problems, or does it have any complaints related to the medical staff decreased?)	
6	25	Adequate training for risk management personnel	<b>3.94</b>
7	26	best patient care practices are accepted as a shared vision in the organization	<b>3.89</b>
8	27	organization cares for the safety of patients	<b>3.93</b>
9	28	organization cares for the safety of personnel	<b>3.92</b>
10	29	To openly discuss and talk about mistakes and learn from them (in order not to repeat the same mistake)	<b>3.93</b>
11	30	Allocate budget based on hospital rankings, quality of care, reducing medical errors, and improving clinical performance.	<b>3.73</b>
12	31	Making payments to the	<b>3.86</b>

		treatment team dependent on their clinical performance	
13	32	Formulate rules and guidelines for clinical risk management, based on the main guidelines of international organizations and in accordance with local conditions	<b>3.78</b>
14	33	A system to identify unplanned events in high-risk clinical areas	<b>4.37</b>
15	36	A system for reporting incidents concerning patients, personnel, visitors, and high-risk clinical areas	<b>4.27</b>
16	39	Setting preventive measures and risk management activities according to the results of the risk identification program	<b>3.96</b>
17		Total index	<b>4.01</b>

Table No. 2 indicates that the most important component in the organization and policy index is “a system to identify unplanned events in high-risk clinical areas” and the lowest average points belong to the component “Allocate budget based on hospital rankings, quality of care, reducing medical errors and improving clinical performance.”

**Table 3- Average points of prevention and control programs components affecting risk management**

<b>number</b>	<b>Component number</b>	<b>component</b>	<b>Average points</b>
1	1	Establish specific mechanisms for risk identification, such as reporting incidents, referrals from personnel, reviewing patients' medical records, and patients' complaints, or reviewing information and quality improvement data.	<b>4.62</b>
2	3	Provide quantitative and qualitative statistical reports of risk management processes and measures, and make a connection between this information and evidences or documents.	<b>4.26</b>
3	4	Use scientific/quantitative methods of root cause analysis, analyze the number and nature of errors, and investigate and analyze incidents	<b>4.11</b>

4	5	Set up training programs for personnel at all levels, about every aspect of clinical risk management	<b>4.13</b>
5	10	Set standards for the selection and evaluation of service providers or therapists	<b>3.95</b>
6	–	Total Index	<b>4.21</b>

As Table 3 indicates, the highest average point in the prevention and control programs index belongs to “Establish specific mechanisms for risk identification, such as reporting incidents, referrals from personnel, reviewing patients' medical records, patients' complaints, or reviewing information and quality improvement data.” and the lowest point belongs to the component “Set standards for selection and evaluation of service providers or therapists”.

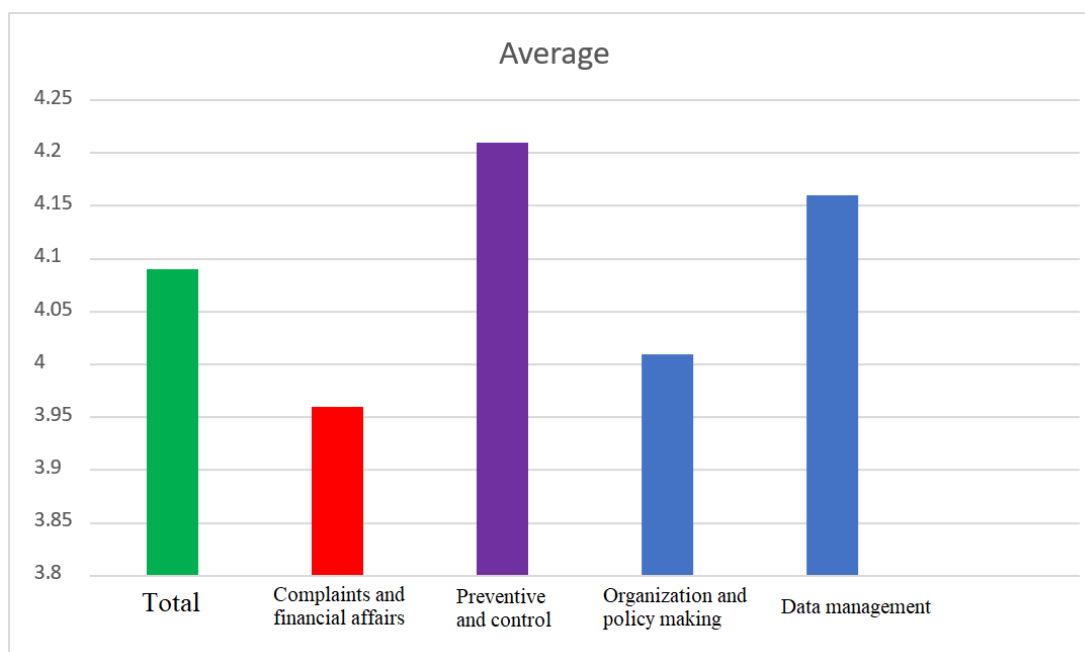
**Table 4- Average points of “submitting complaints and financial affairs” components affecting risk management**

<b>number</b>	<b>Component number</b>	<b>component</b>	<b>Average points</b>
1	6	A comprehensive policy for investigating and addressing complaints, case analysis, resolution mechanism, claims management process, and safekeeping of the complaints file.	<b>4.01</b>
2	7	A mechanism to manage the complaints procedure in such a way as to decrease	<b>3.89</b>

		the number of complaints with false and unnecessary reasons	
3	8	devote particular attention to potential and actual causes or sources (special patient groups or high-risk practices) of complaints	<b>4.01</b>
4	9	Create a specific file, categorize complaints, and coordinate the review process regularly	<b>3.83</b>
5	11	Dedicate a specific account, inventory, and budget source for paying costs of risk and compensation	<b>3.78</b>
6	12	Make sure all organizational managers are aware of various risks and submitted complaints and the method and process of risk financing	<b>3.75</b>
7	13	Maintain and coordinate the collection and preservation of risk data	<b>3.91</b>
8	14	Having sympathy and establishing effective	<b>3.70</b>

		communication with insurers to cover risk costs	
9	15	Evaluation of different risk financing approaches such as insurance and choosing the best option according to organizational needs	<b>4.28</b>
10	16	Establish a specific mechanism for calculating and monitoring risk costs	<b>4.01</b>
11	17	A system for collecting cost details including prevention costs, risk management programs cost, and information about damage costs related to the infrastructure.	<b>4.18</b>
12	18	Consideration of risk costs as part of the operating budget of the entire organization	<b>4.06</b>
13	37	Classifying the results from analysis of identified risks based on position, patient characteristics, and other features	<b>4.04</b>
14	38	A process for analyzing the occurrence of risks	<b>4.04</b>
15	–	Total Index	<b>3.96</b>

As indicated in table number 4, the most important component of the “complaints and financial affairs” index is the "evaluation of different risk financing approaches such as insurance and choosing the best option according to organizational needs” and the lowest point belongs to the component “Having sympathy and establishing effective communication with insurers to cover risk costs”.



**Chart 1- Average indicators affecting risk management**

It is apparent from chart 1 that the average points of components affecting risk management from the point of view of Mashhad hospital managers from highest to lowest are: preventive and control (4.21), information management (4.16), organization and policy-making ( 4.01 ) ) and complaints and financial affairs (3.96).

### **Results and Discussion;**

#### **Policy making and organization index:**

An inspection of the average points of the respondents' opinions about these variables reveals that the variable “Make an organizational policy statement and officially confirm a risk management plan in board meetings” has the highest point among the policy-making and organizing variables, with an average point of 4.18. Providing the highest quality care has always been one of the concerns of the health care delivery system. On this issue, Khaliqinezhad points out that ensuring the quality of services is a global challenge and a goal for the continuous effort of health systems. All the members of society expect health services to be provided with maximum quality. In many developed and developing countries, governments and healthcare systems have created new institutions, mechanisms, and processes whose purpose is to maintain and continuously improve the quality of health services (Khalikinejad et al. 2017).

According to Kasirer, the organization of risk management is an organizational structure that supports clinical risk management operations. From his point of view, three main principles of organization of risk management are 1) support from the hospital's governance team, 2) appointing a risk manager, and 3) engaging employees (Kasirer 2003). In addition to organizational departments, directing and securing clinical risk management activities requires policy-making and the application of organizational policies in a way that is emphasized in the various models of clinical risk management studies. In some of these models, policymaking and concepts of organizational culture are thought to be the same. For example, in Alan's (2005) model, one of the factors affecting risk management in the pediatric department of a hospital in Sheffield, England, is developing a safety culture and evaluation of activities based on standards. In some other models, strategies and organizational policies are introduced as "legal dimensions affecting clinical risks" (New Zealand Health System Information Management Department, 2005).

And in certain models, it is mentioned under the title of having a framework and governing medical services (Wilson and Taylor 2011). moreover, in Ashram's clinical risk management model, paying attention to the organization is mentioned under the title of functional activities of risk management, and policy makers have been emphasized under the title of credit regulations. In Ashram's other model, two notions have been integrated into one concept and are introduced under the title of organizational framework of risk management (Kazirer 2003). It is obvious that the support of the senior management team is necessary for any high-quality program, any reform and improvement in the organization, and basically, the support of the senior manager is one of the basic principles of quality improvement, to the extent that it is said that first-line managers are at the forefront of management. First-line managers who lack commitment, training, and resources, and are not supportive, will fail in quality management (Lamei 2012). This category is emphasized in all organizations development programs, including the clinical support program or the patient safety-friendly hospitals program.

What's more, this concept has been clearly emphasized and implemented in different models of risk management (Sedwick, 2003). In his proposed model for the management and control of risks in the health sector, Kazirer states that the support of the organization's senior management team for the statement and policy of risk management, ratifying the plan, and ensuring the acceptance of the plan by the members of the board of directors to receive risk management reports at least twice a year, is one of the important things in organizing the plans (Kazirer 2003).

Submitting complaints and financial affairs system:

An inspection of the descriptive data from this index reveals that the variable "A comprehensive policy for investigating and addressing complaints, case analysis, resolution mechanism, claims management process and safekeeping the complaints file." has the highest point among other variables of complaint plan and financial affairs system with an average point of 4.01 Investigating and addressing the submitted complaints is one of the solutions that can control the recurrence of the risk and reduce its probability. Developing a policy is

one of the most important issues for advancing strategic issues in the organization (Lamei, 2013). Therefore, it is obvious that to operationalize important and challenging issues such as addressing patients' complaints and claims, devising a comprehensive policy can reduce the diversity, and waste of energy, and help solve the problems of the organization.

This issue has also been emphasized in the American Risk Management Association's model of clinical risk management. In this model, other aspects such as the importance of potential and actual complaint agents, setting standards for the selection and evaluation of service providers or therapists, and approving and authorizing procedures and all risk management components throughout the organization are also mentioned (Sedwick 2003).

**prevention and control programs:**

An inspection of the average point of the respondents' opinions about these variables indicates that among other variables of preventive and control programs, "Establish specific mechanisms for risk identification, such as reporting incidents, referrals from personnel, reviewing patients' medical records, patients' complaints, or reviewing information and quality improvement data." has got the highest point with an average of 4.62. In a study conducted in a children's hospital in Italy, it is also mentioned that many steps must be taken to implement a persistent improvement program for patient safety, and the first is education (Natalia et al. 2009). This subject is also emphasized, for example, in numerous studies on risk prevention and risk control. the risk management model of a children's department in Sheffield, England, for instance, it is mentioned that the clinical risk management model should include the reporting of unfortunate events, the development of a safety culture, the safe cooperation of key staff members, the identification and analysis of risks, which in turn, is a complete process of identifying, analyzing, finding sources for supply, evaluation, and auditing (Allen 2005).

Reason (1990 ) argues that some factors may cause problems in designing a system and work processes, and create potentially dangerous conditions. James Risen refers to these factors as psychological patterns or assumptions and points out that although good management decisions are necessary for the effective work and efficiency of the system, they are not sufficient. Standard equipment that is well maintained, updated, and reliable, and a skilled workforce with sufficient knowledge, reasonable worklist, proper job design with clear guidelines about desirable and undesirable practices, and.... is also necessary. these factors are prerequisites for safe functioning. Each of these preconditions may bring about a safe or unsafe performance. Designing a safe system means that the psychological factors and limitations of the employees are taken into account and we seek to find a way to reduce these conditions and intervene to change their sequence to minimize risks (James Reason 1990). This finding is consistent with Natalia's risk management model. She too suggested that continuous improvement of patient safety programs is achieved only through reporting adverse events and performing techniques such as root cause analysis of accidents (Natalia 2009).

Root cause analysis is a tool for identifying prevention strategies as part of efforts to build a patient safety culture that advances beyond the blame culture. The purpose of using

these techniques is to find out what happened and what do you do to prevent it from happening again. In root cause analysis, just like the diagnosis of a disease, the basic and contributing factors in a process are investigated, of course, taking one main goal into account, i.e. prevention of reoccurrence (Abrieu et al., 2004). This finding is consistent with another study that was carried out for random auditing. In that study, it is noted that performing error analysis techniques as a random safety auditing can help to provide quality services in complex areas of medical care (Arsprung and Gary 2010).

#### **Information management:**

An inspection of the average points of the respondents showed that the variable “Establish and maintain an effective relationship with key departments such as nurse unit quality control, medical staff, and infection control unit to reinforce the efficacy of the risk management program.” has got the highest point among other information management variables with an average point of 4.24. Treatment staff ‘s unawareness of the costs of an action, or the double cost of the risk imposed upon the patient, is one of the basic problems and challenges in hospitals. Therefore, one of the elements that can play a role in reducing and rationalizing the treatment costs is educating the treatment team about the costs imposed on the patient and their subsequent consequences. In a research conducted in England in 1991, Researchers found that many doctors are not aware of the cost of the services they prescribe. For example, a doctor working in a hospital usually does not know the cost of radiology - pathology services, etc. Therefore, it is necessary to provide information about the costs of healthcare services to doctors and other consumers. Based on the results of their research, the abovementioned research group announced that this action has been able to promote the economic use of available resources (Brian, 2007).

Information management has a prominent and sensitive role in many models of risk management and patient safety system. In nearly most of the studies carried out on safety provision and risk control, attention is somehow focused on information infrastructures and data collection systems, including the concept of the smart organization or memory-based organization, which is a document that has been organized since 2000 for the safety of patients in England and is trusted as a draft to ensure the improvement of safety in the future. In this document, the fundamental concepts of dissemination of information in the organization and collection systems and analyzes are emphasized to achieve the persistent improvement of the quality of patient safety (National Medicine of England 2004). This is so much important that Fabio et al. (2012) have presented a special model for information management with different indicators to control clinical risks, in which various kinds of information are used in the organization in a coordinated and comprehensive manner.

According to the findings, it is not possible to manage the risks in the healthcare sector except through a comprehensive and coordinated plan. In the current research, the component of considering preventive and control programs got a higher average point and was more important. This indicates a huge gap in considering safety standards and preventive programs. The absence of a mechanism to prevent the incident before its occurrence is felt in the

hospitals and care centers in the settings of this research because there are no coordinated and managed programs to reduce and control the risks in the hospitals.

The second important factor in the current research is considering information management which manifests the need to pay more attention to the creation and completion of information infrastructures in hospitals. It should be noted that before practicing risk management in hospitals, policymakers and officials must value information management systems and plan actions to fully utilize these processes.

According to the findings of the research, the following are suggested:

- Resistance to change should be taken seriously and before any action preparations have to be made, especially in cases such as making the financial payments of therapists contingent upon safety behaviors.

- According to the status of the information manager in the approved model, it is necessary to address the infrastructure of the health information system and especially to complete the information management systems seriously and purposefully.

- Information management software programs in health care centers should support the minimum data required for risk management.

- Due to the fundamental importance of the cultural environment in the existing literature on risk management, it is necessary to plan discussions to create an encouraging culture.

- Among the variables of the organization, the mechanisms of involving the therapists, especially the medical staff, were considered important, so it is necessary to consider ways to implement them.

- The officials and policymakers of the healthcare sector have to devote particular attention to the notion of safety in hospitals and endow it with legal status.

- Founding legit accreditation institutions based on risk control are important to accept requirements of risk management as legal clauses of accreditation documents. Financial officials of the Ministry of Health and the hospitals themselves have to apply regulations that can increase the interest in safety and encourage the safe performance of doctors and nurses through their financial payments.

- Consideration of the safety infrastructure in the hospital, which is somehow more important than safety itself, and the fact that nowadays there is no reliable infrastructure in this regard in most hospitals.

- Making preparations for the application of strict laws and regulations to pay more attention to the patient's rights, and comply with the standards of treatment and response to the patient.

- Consideration of the basics of occupational safety and the sensitivity on the part of staff members to pay more attention to this issue and to practice self-care.

- Implementation of experimental systems for reporting incidents on an optional basis

- Using incident reporting system data in staff training programs

- Consideration of the educational needs of employees with a focus on special groups of therapists (doctors and nurses).

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