Risks in hospitals. Assessment and Management

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In a complex world, characterized by a multitude of risks, managers need to manage the risks they encounter, in an efficient way and in the shortest time possible. In the current economic crisis, the concept of hospital risk management, as the process in which is identified, analyzed, reduced, or avoided a risk that may affect the hospital, gained great importance. The Romanian health system, distinguished by: lack of transparency, poor funding, the loss of the valuable medical staff, lack of hospitals in villages and small towns, inability to engage patients due to the old and poor equipment, lack of research and problems in information privacy and cyber-security, requires an appropriate management, enabling risk managers to take decisions in order to avoid the occurrence of risks. Important for the functioning of every hospital is the perception of patients and their degree of satisfaction, regarding the quality of services, which depend largely on the quality of human resources. But what are the human resources weaknesses and risks from the patient point of view? What are the risk indicators which must be monitored to avoid risks? And also, which is the most useful method for measurement and assessment of risk?

Keywords: key risk indicators, hospital risk management, quality management, Dashboard.

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Introduction

The romanian health care reform began in the 1990s, in an unstable environment from the economically, socially and politically point of view and continues even today, the authorities trying to adapt to EU requirements. Over time it has been developed a series of enhancements, starting with the Health Insurance Law (1997) and continuing with the introduction of family physician as primary health care and creation of quality cores in hospitals (2001).

Risk management and quality in a health institution focus especially on patient safety. Due to many clinical risks (malpractice), which generated significant financial losses, managers have realized the need for an effective risk management and for the collaboration with the quality department. For this to be feasible, it is required a redesign of the system, from the introduction of additional rules of conduct for medical staff, to the implementation of an IT interface to monitor the condition of patients.

In Romania, the concerns for the quality of the medical system are recent, the health reform focused on this issue have not been brought into force yet. It aims to increase the quality of medical services, the salaries of the medical staff depending on some key performance indicators. Also a new malpractice law is desired, the court must solve cases within 6 months after the event and the malpraxis insurance must cover moral compensations.

Regarding this issue, the experience of western countries indicated the need for fusion of the risk management department and the quality assurance department. Hospital managers must switch their attention from protecting the financial status of the institution, to risk factors, the causes of these losses.The correction of the system's errors determines the mitigation of risks and achieving the strategic objectives.

An institution that has a quality and safety culture is performant. To achieve this culture are required collaboration between the risk manager and the quality manager and incentives provided by government. These incentives are embodied in: additional funding for the creation of risk provisions and additional funding to hospitals that achieve certain performance criteria.
A valuable quality management is establishing quality objectives for the institution, focuses on patient care, advises staff in each department, identifies the causes of the lack of quality and the opportunities for improvement and constantly monitors the patient satisfaction and takes measures in real time.

Measuring the quality of medical services

Risks that manifest in the hospitals in Romania (outdated technology, loss of government funding, strong discrepancies between the medical staff in hospitals in the country, inability to engage patients, regulatory issues, unequal access to health care, patient dissatisfaction, malpractice) generates losses materialized in high costs that managers must manage.
Quality represents a goal for: state, health care providers, managers, patients and insured. The Government wants to ensure quality through the introduction of standards, the insured want to spend resources in an effective way, patients want the best medical care and health care providers want to reflect their competence by holding: hospital conditions similar to those in EU countries, highly qualified medical staff and performant equipment.
Lately, the quality assurance in healthcare represents an area of interest, with consequences on the economic, social and technological domain. Quality medical services aim to maximize the welfare of patients and continuous improve the system by introducing quality standards. An appropriate quality management consists in: planning, implementation, control and verification of the activities required to

adapt the services, so that they meet the needs of all stakeholders [5]. A quality management must provide: competent medical staff, uniform access to health services, effective treatments made with low costs, cooperation between hospital and patients, patient safety, better hospital conditions and the possibility to choose between several providers of health services and between treatments.

In order to measure the quality in hospitals it is needed to identify the opportunities for improvement, by setting the most important issues. Among the most important indicators of quality in hospitals there are: medical staff satisfaction, patient satisfaction and the efficiency of management. All these indicators aim the performance. That is why, to measure the quality there are used the key performance indicators (KPIs). The key performance indicators focus on the historical performance of the hospital, or on the key operations. They are important for an efficient management. KPIs provide information about risk events that occurred, allowing the hospital to define the performance objectives based on goals and to monitor progress towards achieving these objectives. Thus, each hospital needs to define key performance indicators for all strategic objectives, as KPIs tell us whether the objectives will be achieved or not [6].

To ensure a high level of quality in the hospital, the manager must make an assessment of the current state. This evaluation is done through: feedback, motivating the staff and improving medical services and hospital conditions. Achieving a high level of quality in the hospitals ensure the patients loyalty and ensure the attainment of the necessary credentials [7].

The Romanian health system relates in terms of quality assurance to ISO standards, made by the International Organization for Standardization. Romania has adopted ISO 9000, ISO 9001, ISO 9004, ISO 19011, ISO 10013 [8]. Quality Management in any field is regulated by the ISO 9001: 2008, an international standard which specifies the requirements. Obtaining such certification occurs after an

assessment of the extent of its implementation in the hospital. A hospital that has such certification is considered: with high quality of medical services, focused on patients needs, with a guarantee of quality. The certification is renewed every three years, if the hospital maintains its concern for quality assurance. Hospitals that are certified for such a standard receive biannual training for staff and high confidence of the patients.

The Human resource risk

Risk is a metric of the probability and impact of uncertain future events, the possibility that an undesirable event happens [2]. Neglecting the risks that occur in a hospital can generate significant losses, leading to bankruptcy, that is why the risk management in a hospital is very important.

Risk management and ensuring a high level of quality are two related processes. The performance of a hospital can be embossed by the degree of patient satisfaction. Patients want high quality health care services, with the help of highly qualified staff and performance equipments. Offering quality medical services should be a permanent objective for every hospital. The most important aspect which measures the quality of health care provided is the competence of the medical staff, the quality of services depending largely on the quality of human resources. The medical staff of a hospital must work together to meet the needs of patients. The physicians must have a high training in medicine and psychology, in order to interact effectively with patients. The quality of services, provided by the medical personnel, is illustrated via the powers of high professional and moral skills.

Regarding human resources, Romanian health system is characterized by the following: blocked positions in hospitals due to financial crisis, low wages, discrepancies between the value of medical staff in hospitals, inability to demonstrate the competence due to precarious

conditions and obsolete equipments in hospitals etc. Following these negative aspects another phenomenon appeared: the exodus of valuable physicians. Thus, the management must manage both the clinical risks resulting from medical mistakes, and the risk of losing competent staff. Avoiding the loss of valuable personnel can be achieved by providing incentives; professional, material, moral or psychological motivations. Regarding the number of physicians, Romania is on the ante-penultimate place in the EU, being 1.9 physicians per 1,000 inhabitants, this situation creating optimal circumstances for the emergence of risks [1].

The management of each hospital needs to establish strategies and goals, targeting performance. In achieving these, risk situations may arise, that effectively unmanaged can lead to financial losses. A first step in managing these risks is to identify the causes that determine their expression. Human resource risk measurement is performed through a set of key risk indicators (KRIs). For this, there is collected and analyzed data and established thresholds. The need for thresholds is given by the premise to detect early changes in the risk profile. It is necessary regular measurement and monitoring, in order to prevent and detect unfavorable trends [3].The set of key risk indicators designed to measure human resource risk is:

TABLE 1

KRIs

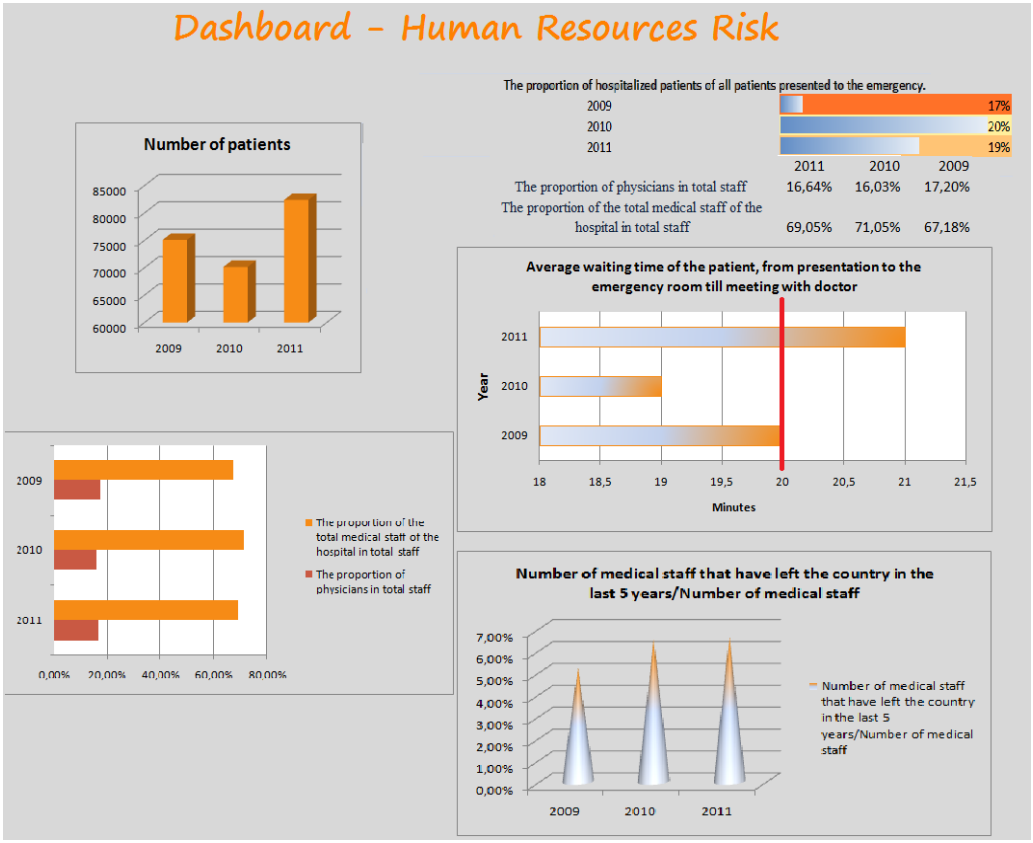
	Aspect	Key Risk Indicators
Human Resource Risk	Interest in research	Number of articles published and projects carried out by the medical staff of the hospital/Number of medical staff
	Malpractice	Number of complaints/Number of patients
		Number of trials ended with the obligation of paying moral and material damages / Number of trials
		The value of moral and material damages paid as a result of judicial decisions during a year/ The profit recorded in that year
	Loss of the valuable medical staff	The concordance index between the admission diagnosis and the diagnosis after 72 hours
		Number of medical staff that have left the country in the last 5 years/Number of medical staff
		The rate of change of employees ([(Number of employees + number of personnel released): 2] : Number of employees at the end of the year X 100)
	Lack of adequate number of medical staff	Average waiting time of the patient, from presentation to the emergency room till meeting with doctor
		No. medical staff / shift on call
		The proportion of physicians in total staff
		The proportion of the total medical staff of the hospital in total staff

Source: own indicators

A key risk indicator provides a forward direction and information about a risk and is used as an alarm signal for further actions. With a KRI, the risk can be monitored and actions can be provide in order to mitigate it.

Monitoring The Risk Using A Dashboard

Permanent risk monitoring is done through a user interface, a Dashboard, which facilitates the decision-making. The raw data collected are filtered through KRIs and KPIs and transformed into information. This information allows the monitoring via Dashboard of the trend changes, which require immediate action. Dashboard is a common language in the hospital, which aims to display the required information on one screen, in a clearly way, in order to be understood by everyone. The processed data can be obtained from various sources, analyzed from several perspectives and distributed on the Web and mobile devices. The main advantage of this methodology is the simplicity of the design. Thus, all data are presented as simple and concise, avoiding unnecessary loading graphics [4]. Below it is presented a Dashboard, which monitors the human resources risk, for a hospital in northeastern Romania.The analysis is performed for the period 2009-2011.



Rates of infection in hospitals (%)	2009	2010	2011
Cardiology	0	0	0
Surgery	1,08	1,422	1,46
Internal	0	0,15	0,08
Ophthalmology	0,13	0,13	0
ORL	0,03	0	0.39
Oncology	0	0	0
Radiotherapy	0	0	0
Dermatovenereology	0	0,05	0,33
Oral and Maxillofacial Surgery	0,11	0,04	0,94
Endocrinology	0	0	0
Diabetes, Nutrition and Metabolic Diseases	0,43	1,05	2,18
Hematology	0,65	0,7	1,18
Immunology and Allergy	0	0	0
Anaesthesia and Intensive Care	2,25	2,05	2,915
TOTAL	0,66	0,73	0,88

For the analyzed period was monitored: the number of hospital patients, the effectiveness of the emergency department, the proportion of physicians in total staff and the proportion of the total medical staff of the hospital in total staff. The risk of losing the valuable medical staff is analyzed by the following KRI: number of medical staff that have left the country in the last 5 years/number of medical staff. We see an increasing trend, which is a signal for the risk manager. The average waiting time of the patient, from presentation to the emergency room till meeting with doctor, exceeds in the last year the acceptable threshold of 20 minutes, indicating a problem in terms the ability to engage patients, due to the shortage of medical staff. The clinical risk or malpractice, is analyzed due to lack of available data, only with the help of a single indicator. That is why, the rates of infection in hospitals illustrates a problem for many departments of the analyzed hospital.

The red and green dots represent the threshold, the limit or boundary which alerts the hospital about the possibility of significant changes in risk exposure. When the risk is in the green zone, the risk management should take steps to prevent the risk. If the situation is extremely unfavorable and the risk is in the red zone, the hospital recorded significant losses and the measure to be taken is to control these losses as far as possible. Indicators which are in the red zone are too low or too high, suggesting that the company is exposed to a considerable risk and requires immediate action from the management. The indicators that are in the green zone, have normal values and the company is not exposed to any risk. In this case there is no need to take any action. The indicator and its associated risks are under control.

4. Concluding Remarks

The Romanian health system needs improvements to ensure quality care. The lack of quality is reflected through: loss of government funding (allocation of an insufficient percentage of GDP for health), demotivation of the medical staff (due to low wages and poor conditions in hospitals), inefficiency, poor risk management, decreased access to health services in rural areas and in small cities, low-value for health indicators.

The risk management must go hand in hand with the quality assurance. For this, it is necessary to focus on risks that have the highest impact and probability of occurrence, measure them through KRIs, permanent monitor them via Dashboard and take action. To increase the quality of medical services, Romania must cease to: adopt solutions from Western countries, inappropriate for the situation in the country, implement radical reforms in a short time, maintain administrative centralization and rapidly change the Health Ministers.

The human resources risk should represent a priority for the hospital, as the manifestation of this risk influences the performance and quality of the provided medical care. Using Dashboard to monitor this risk generates some benefits like: the visual representation of the indicators, ability to identify a negative trend, ability to generate detailed reports, the ability to make informed decisions, alignment strategies, saving time, achieving total visibility and ability to indicate when an action is needed.

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References:

[1]. Bradea, Ioana-Alexandra, Delcea, Camelia, Scarlat, Emil and Boloş, Marcel-Ioan, 2014. "KRIs in Hospitals - Network, Correlations and Influences", Economic Computation and Economic Cybernetics Studies and Research, 1/2014, vol. 48, pp. 81-94, ISSN: 0424-267X.

[2]. Bradea, Ioana-Alexandra, Bădescu, Adrian, Chiriţă, Nora, 2014. "Dashboard – A Useful Method for Measurement and Assessment in System Analysis and Design", The 13th International Conference on Informatics in Economy Education, Research and Business Technologies,Bucharest, Romania, pp. 244-249, ISSN: 2284-7472, ISSN-L: 2247-1480, http://www.conferenceie.ase.ro/.

[3]. Delcea, Camelia, Cotfas, Liviu, Paun, Ramona, 2014. "Grey social networks - a facebook case study", 6th International Conference on Computation Collective Intelligence Technologies and Applications, Lecture Notes in Artificial Intelligence, Springer-Verlang, pp. 125-134.

[4]. Delcea, Camelia, Cotfas, Liviu, Adrian, Paun, Ramona, 2014. "Understanding online social networks' users - a Twitter approach", 6th International Conference on Computation Collective Intelligence Technologies and Applications, Lecture Notes in Artificial Intelligence, Springer-Verlang, pp. 145-153.

[5]. Gheorghe, Adrian, 2012. „Reforma spitalelor publice – evidenţe din spaţiul european", ORS, Policy Report.

[6]. Kerzner, Harold, 2011. „Project management metrics. KPIs and dashboards", John Wiley & Sons Inc, New Jersey.

[7]. Comisia Naţională de Acreditare a Spitalelor, 2010. "Calitatea îngrijirilor de sănătate în spitale", Bucharest.

[8]. Web, http://www.iso.org/iso/iso_9000, (accessed on September 2014).