

# Risk Management in Health Care Organizations in the Czech Republic

Romana Heinzova\*, Kamil Peterek, Eva Hoke

Tomas Bata University in Zlin, Faculty of Logistics and Crisis Management, Studentske nam. 1532, 686 01 Uherske Hradiste, Czech republic  
 rheinzova@utb.cz

Risk management in healthcare facilities focuses on processes whose performance is specifically defined in standards and guidelines that the organization creates according to its needs. The aim is to set up uniform procedures in the organization for staff providing care to patients and define other indirectly related processes to the direct provision of health care. The article focuses on summarizing the results of research in the field of risk management in health care facilities in the Czech Republic. A research team was researched in May - July 2020. This research responded to the then ongoing pandemic COVID-19. The paper aims to map and summarize knowledge from risk management and crisis preparedness of medical facilities across the Czech Republic.

## 1. Introduction

With the development of technology and global globalization, risk management systems are also developing in all areas of human activity. Gradually, there is a shift in risk management from the mere implementation of legislation in specific areas such as safety and health at work or fire protection to complex systems providing risk analysis and management. Similar to other high-risk systems, the complexity of healthcare systems generates errors and adverse events if not controlled properly. (Ortiz-Barrios et al., 2018) Unlike industry, risk management in healthcare does not have a long tradition, but it has now become one of the essential components of modern management in this area. Historically, healthcare risk management has focused primarily on two areas: patient safety and loss prevention. (Kuhn and Youngberg, 2002) Nowadays there is a consensus in the healthcare sectors that the knowledge, experience, and expertise of other industries in Risk Management can improve the quality of services provided in the healthcare sectors. (Cagliano et al., 2015; Ferdosi et al., 2018) Processes in a medical facility follow a pre-prepared plan with a wide range of reasons to consider (human nature, atmosphere often full of emotions and stress, the complexity of modern diagnostic and therapeutic technologies, the variability of human biology, lack of funds and human resources, obsolete functional management, spontaneously developing organizational culture, unstable political and economic background).

Risk management in healthcare is associated primarily with patient safety, which is a global issue. Despite significant advances, patient safety remains a critical public health concern. (Franklin et al., 2020). Demand for healthcare is significantly higher than the human capacity and resources available in healthcare departments (Alhassan et al., 2015). Corresponding to these limits, three interventional approaches have been developed at various levels of the healthcare organizations: (i) quality management, (ii) risk management, and (iii) patient safety (Franca, 2008; Ferdosi 2018). Risk management programs and patient safety improvement has gained significant importance in ICUs (Intensive Care Units) where invasive diagnostic and therapeutic services are provided for patients with complicated illnesses (Askari et al., 2017).

In general, risk management is a process that prevents the action of already existing or future negative factors and suggests possible solutions suitable for eliminating the effect of adverse effects. Gladkij and colleagues described risk management as a systematic process of identifying, evaluating, and performing activities to prevent or manage clinical, administrative, proprietary, and employee security risks in an organization. (Gladkij, 2003) Risk management is one of the most relevant aspects of clinical governance and approaches

put forward in literature highlight the necessity to perform comprehensive analyses intended to uncover root causes of adverse events. (Cagliano et al., 2011). Levett et al., 2017 state that in particular, risk management is a process-oriented method providing a structured framework for identifying, assessing, and reducing risk at appropriate times for healthcare organizations. According to Cagliano et al. 2011 Risk management has been adopted to cover all healthcare risks, both clinical and non-clinical. It includes the processes concerned with risk management planning, identification, analysis, response, monitoring, and control.

In the Czech Republic, risk management is enshrined in legislation in Act No. 262/2006 Coll., The Labor Code, and special decrees of the Ministry of Health. For example, these decrees regulate the conditions for the prevention of the occurrence and spread of infectious diseases and hygienic requirements for healthcare facilities' operation. Risk management in health care is based on a well-established quality management system in the health care facility. In April 2005, the so-called Luxembourg Declaration on Patient Safety was adopted at the European Union (EU) Summit. The recommendation to implement processes in the field of risk management in healthcare by creating algorithms and quality indicators within the system of external quality assessment in healthcare (European Commission, 2020) is given here. It can be stated that quality management in health care facilities focuses on processes that are characterized by unacceptable variability, then risk management is focused on the area of processes with unacceptable risks. Risk management principles are most often implemented by those healthcare facilities that already have a program of continuous quality improvement. Thus, there is a symbiotic, not a competitive relationship between quality management and risk management (Škrála and Škrlová, 2008). Many authors state that risk management in healthcare facilities can be part of a continuous quality improvement program. Quality in a healthcare context means professionals are continuously improving the patients' care systematically and qualitatively. (Eriksson, 2017) They are required to participate actively when efficiency and quality methods are introduced in their regular work practices. (Brennan and Flynn, 2017) The founder of the Health Care Quality Study, Avedis Donabedian, described the quality of health care as the care in which the maximum benefit to the patient's health can be expected and when the benefit obtained is higher compared to the cost at all stages of the treatment process. (Donabedian, 1966) Hospitals are under increasing scrutiny to improve their performance. This does not only include the performance in terms of efficiency, but also, and increasingly, the performance in terms of quality and patient outcomes (Saltman et al., 2011). The implementation of Quality Management Systems is considered one of the main mechanisms to realize. (Groene et al., 2013)

The Joint Commission sets global standards for quality and safety of care on Accreditation of Healthcare Organizations. One of this organization's priorities is safer care and risk control, which has been fully taken over by the Joint Accreditation Commission of the Czech Republic. In 2010, a new standard ISO 31000: 2009 (ČSN ISO 31000: 2010) was issued in the Czech Republic, which sets out general principles and guidelines for risk management. This International Standard is not intended for certification purposes. The standard provides principles and guidelines for risk management. The standard is not specific to any industry or sector and can be used by different organizations. Within healthcare organizations, the standard sets out requirements for quality and safety standards, diagnostic care standards, patient care standards, healthcare continuity standards, and patient rights rules. (Šamaj, 2016) Medical facilities in the Czech Republic are exposed to several factors that threaten the safety of medical and nursing care - overloading of medical staff, poorly designed and managed processes, lack of financial and other resources, and, last but not least, questioning or downplaying existing problems and risks by medical staff and the media. The medical facility is, therefore, a considerable incubator supporting the existence and growth of risks. This fact is gaining in importance in the current situation when the whole world is affected by a coronavirus pandemic, and the Czech Republic is one of the countries with a high incidence. The management of these new risks implies the need to redefine requirements for daily practice using safety criteria and measures and contingency plans. (Alaluf et. al., 2020). The aim of the paper is to map and summarize the findings of risk management and crisis preparedness of health care facilities throughout the Czech Republic.

## 2. Methodology

The literature search was prepared based on the study of domestic and foreign professional literature and the basic terms related to the issue are defined, and the current state of Risk management in healthcare facilities is analyzed and evaluated. A questionnaire survey was used to collect information in health care organizations, which was carried out in March and April 2020. The Survio service was used for the research. Survio is a tool for creating online questionnaires. The questionnaire was sent online to managers at 45 Health-care organizations in the Czech Republic. The authors received back 34 questionnaires. The questionnaires that were sent back were completely filled out. Statistical evaluation and data processing were therefore based on a sample of 34 health organizations.

The rate of return therefore reaches 75%. Because the questionnaires were sent at the time of the outbreak of the Covid-19 pandemic, the authors rate this return as very good.

### 3. Results

Based on a survey two kinds of research questions were analyzed. The questions were verified by the statistical dependence of individual answers with respect to the size of the medical service. However, a representative sample for each type of equipment was not obtained. At the same time, the samples in the individual size categories also could not be marked as sufficient. Therefore, it was decided to categorize the responses according to the number of hospitalizations per year and to consider this classification as a size categorization. The first set of research questions is focused on examining the existence of interdependence between the size of the organization and the implemented Risk Management tools (A-G).

The research questions were defined as:

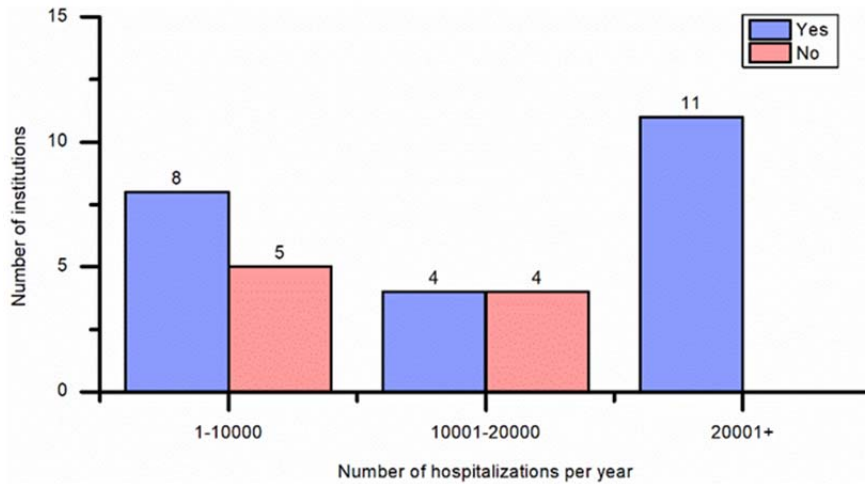
- A. Whether the size of the medical service affects the using (holding) a JCT certificate,
- B. Whether the size of the medical service affects the management according to ISO 31000,
- C. Whether the size of the medical service affects the established program to increase the quality of services provided,
- D. Whether the size of the medical service affects the quantity and the level of sophistication of applied methods used in risk management (FMEA, FTA, etc.),
- E. Whether the size of the medical service affects the existence of the risk catalog,
- F. Whether the size of the medical service affects the setting the authorized department or authorized individuals in crisis management,
- G. Whether the size of the medical service affects the regularly training of employees in risk.

The occurrence of individual answers from the survey were evaluated according to the contingency tables. These tables were used to summarize the relationship between the variables. A chi-square test can be conducted on these contingency tables to test whether or not a relationship exists between variables. The Cramer's coefficient was used to measure the strength of relationship between variables. It could take values from 0 to 1. Values close to 0 indicate a weak association and values close to 1 indicate a strong association between the variables. The Cramer's coefficient was used only in cases where the dependence in the relationship between the variables was found. Due to the page limitation of this paper, only the results of hypothesis testing are presented in the Table 1.

*Table 1: Results of chi-square testing of research questions (A.-G.)*

Research question identifier is	Chi-square statistic is	Critical value is	p-value is	Was the relation between variables significant?
A.	0.534	5.991	.766	NOT significant at $p < .05$
B.	1.177	5.991	.555	NOT significant at $p < .05$
C.	2.072	5.991	.355	NOT significant at $p < .05$
D	<b>6.885</b>	<b>5.991</b>	<b>.032</b>	<b>significant at <math>p &lt; .05</math></b>
E.	2.872	5.991	.238	NOT significant at $p < .05$
F	0.116	5.991	.944	NOT significant at $p < .05$
G	1.445	5.991	.486	NOT significant at $p < .05$

Table 1 shows the results of statistical data processing. There were no statistical dependencies in relation to the monitored phenomena and the size of the medical services in research questions A, B, C, E, F and G. The only identified statistical dependence can be observed in the quantity and the level of sophistication of applied methods which are used in risk management of the medical service (research question D.). The frequency of individual responses is given in Figure 1.



**Figure 1: Number of the answers on identified research question D.**

In addition to the issues mentioned above, dependencies related to risk management in general (without categorization by size) were also identified. Specifically, it was interesting to find whether the institution has the authorized department or authorized individuals in crisis management. And if so, what is the role and position of this element in the crisis management of the institution. The second set of research questions deals with this dependence (I-H).

It is very difficult to clearly quantify such considerations. For the analysis purpose, the relationship to other employees (management and training) and to the quality of institution's crisis management (existence of a risk catalog of the institution) determined. Then the research questions were defined as:

- H. Whether the authorized department (or individuals) affects the regular training of employees in the field of risks,
- I. Whether the authorized department (or individuals) affects the existence of the risk catalog.

*Table 2: Results of chi-square testing of research questions (H. and I.)*

Research question identifier is	Chi-square statistic is	Critical value is	p-value is	Was the relation between variables significant?
I.	11.000	3.841	.0009	significant at p < .05
H.	9.977	3.841	.0016	significant at p < .05

The frequency of individual responses is also shown in Table 3. This table was used for statistical processing and verification of statistical dependencies.

*Table 3: Number of the answers and their distribution in research questions (H. and I.)*

Authorized department or individuals in crisis management?	Regular training of employees in the field of risks?		Existence of the risk catalog?	
	Yes	No	Yes	No
Yes	17	4	20	2
No	6	5	4	7

There is only one research question (D) showing statistical dependence in the first group of research questions. In this research question, a chi-square test of independence was performed to examine the relation between size of medical service and the quantity and sophistication of the choice of methods used in risk management. The relation between these variables was significant. The null hypothesis can be rejected and it can be concluded that the larger the medical service (the greater the number of hospitalized) is, the more

sophistication methods of risk management in medical service are used. The Cramer's coefficient is .464 and that means mean dependence between variables. The remaining research questions do not show statistical dependencies and the relations between these variables were not significant.

The last two research questions (H. and I.) showing statistical dependence. The null hypothesis could be rejected and it could be concluded that the authorized department (or individuals) of the medical service positively affects the regular training of employees in the field of risk. The same relation could be expected regarding with the existence of the risk catalog. It means if there is the authorized department (or individuals) of risk management there will be the risk catalog in the medical service. This trivial statement only supports the need for professionally oriented individuals in the field of crisis management. The questionnaire shows that only a third of the addressed institutions have a crisis manager. The Cramer's coefficients of the research question H. and I. are .577 and .504., thus mean dependence between variables was found.

#### 4. Conclusions

Risk management is one of the essential elements of modern management in healthcare. We consider healthcare to be risky because it provides a service that brings a range of risks that appear in healthcare facilities. A clear relationship between risk management and quality management is given in several professional literature and contributions. Risk management in healthcare is a tool for quality control and deals with the constant consideration of the possibility of adverse situations and their prevention. Risk management is one of the essential components of continuous quality improvement and, in a broader context, part of managed care. In healthcare facilities, compliance with all applicable standards, monitoring, evaluation, and systemic measures to prevent all errors and non-conformities are paramount in the risk management system. The paper was created based on research in March and April 2020. Medical facilities in the Czech Republic were sent using a structured questionnaire survey. This research aimed to summarize the knowledge in risk management and quality used in these facilities. The first of the research questions were focused on how the size of the medical facility affects the use of particular methods of risk and quality management. Here, statistical methods have shown that the larger the medical facility, the more sophisticated the risk management methods it uses. The second question related to the existence or non-existence of a risk management department in the facility. Because the source of healthcare risks is often the human factor, we were interested in whether staff training on this issue is implemented. The statistical analysis showed that if a risk management department is established, it positively affects employees' training on safety and risk issues. Currently, benchmarking is underway at the level of regional hospitals. One of the comparative criteria is the parameters in the area of risk management and quality. The authors assume that they will receive the results of this process and will be able to use them for professional publication.

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