




# “Personnel solutions for clinical risk management in hospitals: Evidence from the Czech Republic”

<b>AUTHORS</b>	Radka Prokešová  
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Radka Prokešová, Dr., Faculty of Health and Social Sciences, Institute of Humanities in Assisting Professions, the University of South Bohemia in České Budějovice, Czech Republic.

Radka Prokešová (Czech Republic)

# PERSONNEL SOLUTIONS FOR CLINICAL RISK MANAGEMENT IN HOSPITALS: EVIDENCE FROM THE CZECH REPUBLIC

## Abstract

Clinical risk management (CRM) is a specific form of risk management used in hospitals that focuses directly on clinical processes and indirectly on patient-related processes as well as on individuals, including their potential to make mistakes. The aim of this study was to describe and analyze the central CRM coordination in hospitals using the Czech version of the CRM monitoring tool developed for hospital environments. Quantitative research consisted of collecting and evaluating data using statistical methods. The research set consisted of responses from 53 participating hospitals recorded in the Czech version of the CRM monitoring tool. The results did not identify statistically significant differences among types of hospitals in terms of whether or not a person responsible for the central coordination of clinical risk management activities is designated in them. According to the findings, this fact does not affect the type of hospital or whether it is a public or private hospital. The paper also shows that most hospitals have one person responsible for coordinating CRM who is often also employed as the hospital's quality manager. In faculty hospitals, the person responsible for CRM is often a subordinate to the medical director or the deputy for medical care, etc. In city and other hospitals, they are usually directly subordinate to the director. The study showed that the person responsible for clinical risk management most often holds the quality manager position in hospitals.

## Keywords

management of clinical risks, position, personal responsibility, hospitals

## JEL Classification

G32, M12

## INTRODUCTION

Hospital management has many priorities, such as finance, safety, and above all, patient care. Risk management in healthcare is one of the most topical and highly monitored issues, not only from the point of view of hospital management but also from the point of view of patients. The aim of risk management in hospitals is to eliminate or reduce the occurrence of risks with a negative impact on the health of patients and medical staff, and the entire medical facility in general (Prokešová et al., 2014). Modern medicine leads to increasingly complex treatment and care processes, which, while improving care, often also increase the risks of side effects and patient harm. Patient care risks can never be eliminated entirely (Briner et al., 2010), so increasing patient safety is a key role in clinical risk management (Vincent, 2006).

Clinical risk management (CRM) plays a crucial role in enabling hospitals to identify, reduce (Prokešová et al., 2014), and manage risks associated with patient safety (Prokešová, 2021). In the Czech Republic, the applications of CRM in hospitals at the strategic level have not been comprehensively investigated. For example, partial research includes only the issue of risk management in hospitals in general (Fialová et



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### Conflict of interest statement:

Author(s) reported no conflict of interest

al., 2005; Keclíková & Briš, 2011; Prokešová et al., 2014), which is based on the Luxembourg Declaration on Patient Safety (European Commission, 2016) and its implementation by healthcare providers.

The manager and his/her job position in the organization play a key role in managing clinical risks. However, even these aspects have not yet been studied at the central level in Czech hospitals.

## 1. LITERATURE REVIEW

Clinical risk management in hospitals is focused directly on clinical processes and indirectly on patient-related processes. CRM systematically focuses on the potential of healthcare workers to make mistakes (Reason, 2000; Corrigan et al., 2001; Misso, 2001). As such, it includes all structures, processes, tools, and activities that enable hospital staff to identify, analyze, influence, and manage risks in the provision of clinical treatment and patient care (Walshe, 2001; Crema & Verbano, 2015). Although the literature describes many components and tools of CRM, e.g., checklists, incident reporting systems, and risk assessment methods (Allegranzi et al., 2007; Secker-Walker & Taylor-Adams, 2001), the overall level of development of clinical risk management in hospitals is not addressed. National and international studies on quality management and system levels aim to improve the quality of hospitals (Wagner et al., 2006; Groene et al., 2009; Lombarts et al., 2009; Makai et al., 2009). Comprehensive CRM studies are missing (Leape & Berwick, 2005).

The list of possible risks, as an important CRM tool in the hospital environment, is mostly addressed by Cagliano et al. (2011), Etges et al. (2018), and the WHO study (2008). For example, Etges et al. (2018) managed to develop a list of 28 corporate risks for healthcare organizations, including a description of their specific scenarios. These lists also include risks that do not directly disappear in the clinical area but have an impact on the clinical area, such as cyber risks (ASHRM, 2014; European Commission, 2014; Young & Tomski, 2002). Existing methods of risk analysis are also used (e.g., a priori analysis of true causes/root analysis – hereinafter referred to as RCA or a posterior analysis of the possibility of occurrence and consequences of failure – FMEA) in clinical risk management (Bonfant et al., 2010; Cagliano et al., 2011; Rezaei et al., 2013; Woodhouse et al., 2004; McNally et al., 1997; Burgmeier, 2002; Rahimi et

al., 2013). Further analysis of CRM and its implementation in the organizational context with an impact on nursing are presented by Farokhzadian et al. (2015a, 2015b) and Johnstone and Kanitsaki (2006, 2007).

Significant CRM research was conducted nationally in 137 Swiss hospitals from 2007 to 2008 (Briner et al., 2013) to identify critical factors influencing clinical risk management in hospitals that would lead to improved healthcare and increased patient safety. This study developed and used a comprehensive CRM monitoring tool (based on a literature review) to identify, for the first time, the key elements of clinical risk management (Briner et al., 2010). The tool was revised based on interviews with experts in the field of clinical risk management, and subsequently, the tool was pilot-verified. The monitoring tool consists of 28 main issues organized in three sections: (1) implementation and organizational integration of clinical risk management, (2) strategic goals and operational implementation of clinical risk management in hospitals, and (3) an overview of clinical risk management in various services. This monitoring tool enables hospitals to collect comprehensive and systematic data on clinical risk management in practice and to identify areas for further improvement.

Since hospitals tend to be decentralized and fragmented with regard to their organizational strategies, structures, and cultures (Kohn et al., 1999), the tool distinguishes between different hospital services. For this reason, the tool provides a more accurate view of clinical risk management both at the hospital level as a whole and within the individual services provided by the hospital. Based on the study carried out in Switzerland, three crucial factors of clinical risk management were identified, namely the introduction of clinical risk management functionality, ensuring dialogue with and between different hospital services, and developing strategic objectives for clinical risk manage-

ment. For the first time, the results of this study offered an assessment of CRM maturity in hospitals and identified critical assumptions related to CRM levels. The study tested organizational factors (e.g., strategy, coordination, resources) and structural conditions (e.g., hospital size). CRM was evaluated by its maturity (i.e., the level of development of CRM) by 12 theoretically derived indices linking the key aspects of CRM at the hospital level and service level (Briner et al., 2013).

Research on parts of CRM was subsequently carried out in Germany. The aim was to empirically compare adverse event reporting systems (IRS) in two European countries and to investigate the relationship of IRS characteristics with contextual factors such as hospital characteristics and clinical risk management characteristics (Manser et al., 2017).

Another CRM tool developed by a team of Iranian scientists, Rezaei et al. (2013), is a comprehensive tool developed using a selected process that can complement the limitations of individual tools for risk assessment and management in hospitals.

The aim of this paper is to analyze the personnel solution of central CRM coordination in hospitals using the Czech version of the CRM monitoring tool. The existence, position, and job title of the person responsible for managing CRM in the hospital, the amount of work assigned to CRM, and the date were examined.

## 2. METHODOLOGY

The analysis was carried out using a quantitative research strategy. As part of the implementation, top hospital managers were contacted by e-mail containing a link to an electronic questionnaire<sup>1</sup> based on a list requested from the Ministry of Health of the Czech Republic. By completing the questionnaire, the necessary data from individual hospitals were obtained, which were transferred to and collected in an electronic database (Excel or another form according to the requirements for statistical data processing). The data was processed using descriptive and analytical statistics

using SASD 1.4.12 (Statistical Analysis of Social Data) and SPSS programs.

The 1st level of sorting and the pivot table of selected indicators of the 2nd level were processed. For the first stage of classification, calculations of absolute and relative frequencies were performed, as well as assessing the mode, median, mean, variance, and standard deviation. For each characteristic, a variance estimate and standard deviation estimate, a range and interval estimate of the mean of 0.05, and an interval estimate of the variance of 0.05 were also performed. To calculate the degree of dependence of selected characteristics, calculations of the Wallis, Spearman, and Correlation coefficients were performed. The  $\chi^2$  for good fit was also applied. The Yates correction was applied due to an insufficient number of observations.

The research set for the quantitative survey consisted of all forms and types of Czech hospitals (faculty, regional, municipal, public, and private). The exact list was established at the beginning of the research based on a request for information pursuant to Act No. 106/1999 Coll., for Free Access to Information. Of the 194 hospitals, those responsible for risk management were approached via an explanatory e-mail containing information about the monitoring tool and how to complete it, particularly a link to the website where the electronic questionnaire was located. Participation of hospitals in this survey was voluntary and anonymous. In total, 53 hospitals participated in the quantitative phase of the research that was carried out from the second half of 2019 to the end of 2021 (data collection was briefly interrupted due to the Covid-19 pandemic in the Czech Republic).

## 3. RESULTS

As part of the analysis, the Czech version of the CRM monitoring tool was used to determine how the hospital deals with central CRM coordination in terms of personnel. The goal was to ascertain whether there was a designated person in the hospital responsible for the central coordination of clinical risk management activities and, if not, whether the position of such a person was planned.

1 [https://docs.google.com/forms/d/1iDJq6etwtN2JEN3MfxOfH7ZyNjGm0c-7SDT2PillZ0U/viewform?edit\\_requested=true](https://docs.google.com/forms/d/1iDJq6etwtN2JEN3MfxOfH7ZyNjGm0c-7SDT2PillZ0U/viewform?edit_requested=true)

Forty (75.5 percent) of the 53 hospitals reported that they had a designated person responsible for central clinical risk coordination, 5 (9.4 percent) planned to staff the position, and 8 (15.1 percent) reported no plan to establish the position. The results show that participating hospitals established and staffed the position in 2008 (9.4%), 2014 (11.3%), 2015 (11.3%), and 2016 (7.5%). Results showed that the first Czech hospital to have staff responsible for CRM coordination was in 1996.

For hospitals with a designated person responsible for central CRM coordination, a statistically significant connection between the existence of this designated person and the type of hospital (faculty, regional, city, etc.) was found. The distribution of individual responses in Table 1 shows the frequency relative to hospital type in which there was a person responsible for central coordination of clinical risk management activities or where one was planned.

To evaluate the connection, the Pearson Chi-Square test was applied. Its strength was weakened by the insufficient number of observations in some fields of the PivotTable (see Table 2).

The results of the conducted study did not identify statistically significant differences between individual types of hospitals in terms of whether or not a person responsible for the central coordination of clinical risk management activities was designated in them. The fact that a person responsible for the central coordination activities of clinical risk management was designated in the hospital according to the results did not affect the type of hospital (faculty, regional, city, etc.)

From another point of view, the existence of a person responsible for the central coordination of clinical risk management activities (Q1) according to the nature of hospitals, i.e., public and private hospitals, was examined. The distribution of frequencies of individual responses in Table 3 shows the frequency of public and private hospitals in which there was a person responsible for the central coordination activities of clinical risk management or where the staff was planned.

To evaluate the connection, the Pearson Chi-Square test was applied. Its strength was weakened

**Table 1.** Existence of persons responsible for coordinating clinical risk management activities relative to hospital type

Existence of persons responsible for coordinating CRM		Faculty hospitals	Regional hospital	Regional hospitals (used to be district hospitals)	City Hospital	Yin	Total
Yes	Count	3	11	12	4	10	40
	% within Q1	7.5%	27.5%	30.0%	10.0%	25.0%	100.0%
	Adjusted Residual	.0	-.7	1.6	-.5	-.4	
It is planned for the next months?	Count	0	3	0	1	1	5
	% within Q1	0.0%	60.0%	0.0%	20.0%	20.0%	100.0%
	Adjusted Residual	-.7	1.5	-1.3	.6	-.3	
No, not planned	Count	1	2	1	1	3	8
	% within Q1	12.5%	25.0%	12.5%	12.5%	37.5%	100.0%
	Adjusted Residual	.6	-.3	-.9	.1	.8	
Total	Count	4	16	13	6	14	53
	% within Q1	7.5%	30.2%	24.5%	11.3%	26.4%	100.0%

**Table 2.** Connection between the type of hospitals and the existence of persons responsible for clinical risk management

Variables	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.348 <sup>a</sup>	8	.720
Likelihood Ratio	6.560	8	.585
Linear-by-Linear Association	.082	1	.775
N of Valid Cases	53		

Note: a. 12 cells (80.0%) have an expected count of less than 5. The minimum expected count is .38.



**Table 3.** Existence of persons responsible for coordinating clinical risk management activities in public and private hospitals

Person responsible for the central coordination of clinical risk management activities		Public hospitals	Private hospitals	Total
Yes	Count	36	4	40
	% within Q1	90.0%	10.0%	100.0%
	Adjusted Residual	-.2	.2	
It is planned for the next months?	Count	5	0	5
	% within Q1	100.0%	0.0%	100.0%
	Adjusted Residual	.8	-.8	
No, not planned	Count	7	1	8
	% within Q1	87.5%	12.5%	100.0%
	Adjusted Residual	-.3	.3	
Total	Count	48	5	53
	% within Q1	90.6%	9.4%	100.0%

by an insufficient number of observations in some fields of the PivotTable (see Table 4).

**Table 4.** Evaluation of the connection between the nature of the hospital (public and private) and the existence of persons responsible for clinical risk management

Variables	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.624 <sup>a</sup>	2	.732
Likelihood Ratio	1.086	2	.581
Linear-by-Linear Association	.000	1	.990
N of Valid Cases	53		

Note: a. 4 cells (66.7%) have an expected count of less than 5. The minimum expected count is 47.

No statistically significant differences in the nature of a hospital (public and private) in terms of whether or not a person responsible for the central coordination activities of clinical risk management was designated. It cannot, therefore, be concluded that the fact that a person is designated in a hospital to manage clinical risks is influenced by the fact that it is a public or private hospital.

Another goal of the research was to determine the person responsible for the central management of clinical risks in the hospital. Four (7.5%) of the 53 hospitals reported that the person responsible for coordinating CRM was the director/chairman of the board of directors, 20 (37.7%) reported that the person was directly subordinate to hospital management, 21 (39.6%) reported that they were a member of hospital management, 1 (1.9%) reported that they were a member of a part of the hospital, 3 (5.7%) hospitals reported that they reported

to the medical director or deputy for nursing care, and 4 (7.5%) hospitals did not answer the question.

Relative to the job placement of the person in the addressed hospital, the most common, in 31 cases (58.5%), was a quality manager; in 9 cases (17%), they were a member of the top management of a hospital (director, deputy director), and 3 hospitals (5.7%) reported another job title (internal auditor, doctor, expert advisor), the rest of the research group did not describe the position. The hospitals surveyed reported that the person's working time dedicated directly to addressing clinical risks ranged from zero to 60% of full-time work with a median of 20% and an arithmetic average of 17.11% (20% was equivalent to 1 working day per week).

The study also examined a statistically significant relationship between the position of a person in a hospital responsible for the central coordination of clinical risk management activities (Q2) and the type of hospital (faculty, regional, city, etc.). The distribution of response rates (Table 5) shows the frequency of each type of hospital and the position of the person in the hospital responsible for the central coordination of clinical risk management activities.

To evaluate the connection, the Pearson Chi-Square test was applied. Its strength was weakened by an insufficient number of observations in some fields of the PivotTable (see Table 6).

Based on the results of the analysis, a statistically significant relationship was identified between

**Table 5.** Positions of persons responsible for coordinating clinical risk management activities in individual types of hospitals

Persons responsible for coordinating clinical risk management activities	Faculty hospitals	Regional hospital	Regional hospitals (used to be district hospitals)	City Hospital	Yin	Total
Director/Chairman of the Board of Directors	Count	0	2	1	0	4
	% within Q2	0.0%	50.0%	25.0%	0.0%	100.0%
	Adjusted Residual	-.5	.9	-.1	-.7	-.1
Reporting directly to the hospital management (line function)	Count	1	5	7	4	20
	% within Q2	5.0%	25.0%	35.0%	20.0%	100.0%
	Adjusted Residual	-.3	-.7	1.1	1.9	-1.5
Member of the management	Count	0	8	5	1	21
	% within Q2	0.0%	38.1%	23.8%	4.8%	100.0%
	Adjusted Residual	-1.5	1.0	-.4	-1.1	.9
Member of the hospital service/primariate/department section	Count	0	0	0	0	1
	% within Q2	0.0%	0.0%	0.0%	0.0%	100.0%
	Adjusted Residual	-.3	-.7	-.6	-.3	1.7
Subordinate to the Medical Director/Deputy, Nursing Director/Deputy, etc.	Count	2	0	0	0	3
	% within Q2	66.7%	0.0%	0.0%	0.0%	100.0%
	Adjusted Residual	4.5	-1.2	-1.1	-.6	.3
Total	Count	3	15	13	5	49
	% within Q2	6.1%	26.5%		10.2%	100.0%

**Table 6.** Evaluation of the connection between the type of hospitals and the position of those responsible for clinical risk management

Variables	Value	Df	Asymp. Sig. (2-sided)	coefficient r	evaluation of the effect
Pearson Chi-Square	30.33	16	.016	0.79	big
Likelihood Ratio	21.885	16	.147		
Linear-by-Linear Association	.007	1	.931		
N of Valid Cases	49				

Note: a. 19 cells (76.0%) have an expected count of less than 5. The minimum expected count is 06/ COEFFICIENT R – effect size limit: r = 0.10 small effect, r = 0.30 medium effect, r = 0.50 large effect.

the position of persons responsible for the central coordination of clinical risk management activities and the type of hospital (faculty, regional, city, etc.). In teaching hospitals, the person responsible for clinical risk management was significantly more often a subordinate to the medical director – deputy for medical care, etc. In city and other hospitals, these persons were significantly more likely to report directly to the director. The effect size of this connection is evaluated as large according to the coefficient r. However, it is necessary to note that a statistically significant correlation was demonstrated with great effect, but the strength of the test was significantly weakened by the insufficient number of observations in the 19 fields of the pivot table (Table 6).

## 4. DISCUSSION

The study carried out in hospitals using the Czech version of the CRM monitoring tool developed by a team of Swiss scientists on the basis of a literature study (Briner et al., 2010) brought information regarding personnel solutions for central CRM coordination in Czech hospitals.

The research results show that Czech hospitals usually have a person responsible for central CRM coordination, which shows the importance of CRM in Czech hospitals is in line with the responsibility of the healthcare manager to assess, develop, implement, and monitor risk management plans in order to minimize exposure<sup>2</sup>.

2 <https://elearning.scranton.edu/resources/article/purpose-of-risk-management-in-healthcare/>

This fact was also proven in Swiss hospitals, which have been establishing central CRM coordinators since 2000 (Briner et al., 2013); this is also in line with the findings from Italy (Verbano & Turra, 2010). It is undoubtedly a reaction to the perception of the importance of CRM after a number of publications in this area, e.g., Scally and Donaldson (1989), who advocated clinical risk management, as well as Kohn et al. (1999) and Vincent (2006).

The research results show that the position of the person responsible for the central coordination of CRM in hospitals can take many forms within the organization. For example, this person is directly subordinate to the hospital management or is a member of the hospital management. Brinet et al. (2013), where most of the hospitals participating in the research had CRM integrated at the level of senior management, recommended that risk managers in hospitals focus on priorities for improving the safety and quality of patient care, successful accreditation, risk management associated with suppliers and business partners, financial risks associated with contract management, and data security in cooperation with IT (Stanilad, 2022).

In the case of the results from Switzerland, most hospitals created the central coordination of CRM position only after 2000 (although the first was in 1991), and most of them were in 2006. In the Czech hospitals that participated in the study, most created the CRM position in 2014 and 2015 (the first hospital to establish the position was in 1996, according to the results), so there was a significant time delay in establishing the position of CRM coordinator compared to Swiss hospitals.

The hospitals surveyed in the Czech Republic reported that the percentage of this person's working time devoted directly to addressing clinical risks was on average 17.11%, with a median of 20%. It corresponds to the findings in Switzerland, where, depending on the size of the hospital, the available human resources for central CRM ranged from zero to three full-time equivalents with a median of 0.2 (Briner et al., 2010).

According to the findings, job title of the person responsible for coordinating CRM in the studied

hospitals was most often a quality manager, as well as a member of the top management of a hospital. The inclusion of clinical risk management in the quality manager's job description is related to the fact that these functions partly overlap since risk managers in hospitals should focus on priorities such as improving the safety and quality of patient care, a successful accreditation process, managing risks associated with suppliers and business partners, financial risks associated with contract management, and data security in cooperation with IT (Stanilad, 2022). According to Keclíková and Briš (2011), managers bring standardized management systems, certified standards, and working methods and adapt them to the environment and to Czech conditions. The implementation of a quality management system is usually not the final stage of the organization's development; if an organization wants to be successful, it must integrate other management systems, including risk management, together with quality management (Keclíková & Briš, 2011).

The results found a statistically significant connection in the way teaching hospitals staff the central CRM coordinator, i.e., the position is significantly more often subordinated to the medical director – deputy for medical care, etc., relative to city and other hospitals where they are significantly more likely to report directly to the director.

The findings show that the development of clinical risk management in Czech hospitals is progressing but still needs to develop to the higher levels seen in other countries. Unfortunately, even in the opinion of Tartaglia (2021), which was based on fifteen years of experience with CRM, some hospital general managers are far removed from the basic principles of clinical risk management and are mainly interested in economic costs and volume of activity, not the value of care.

The study shows that in the position of quality manager, who is also the person responsible for CRM, there is a connection between the CRM application and quality management. This connection has also been shown in various areas of CRM in a number of studies (Corrigan et al., 2001; Callaly et al., 2005; Chiozza & Plebani, 2006; Dehghan et al., 2013) and is likely to continue to be developed in hospital management.



## CONCLUSION

The purpose of the paper was to analyze the personnel solution of central CRM coordination using the Czech version of the CRM monitoring tool. It was investigated whether a person responsible for central CRM coordination is designated in Czech hospitals. The results of the study on the central coordination of CRM showed that most Czech hospitals that participated in the analysis have a person responsible for the central coordination of CRM in the hospital. According to the study results, whether there is a person responsible for the central coordination activities of clinical risk management in a hospital does not depend on the type of hospital (faculty, regional, city, etc.) or nature of a hospital (public, private).

It was also examined what positions the persons responsible for CRM coordination hold. In the hospitals surveyed, this person holds a position in the management of the hospital or, in the second most common case, is directly subordinate to hospital management. The research results show that most often, this person holds the position of quality manager in the hospital. A statistically significant link was found between the position of the person responsible for the central coordination of clinical risk management activities and the type of hospital (faculty, regional, city, etc.). In university hospitals, the person responsible for clinical risk management was significantly more often subordinated to the medical director, deputy of Medical Care, etc., while in city and other hospitals, they were significantly more likely to report directly to the director. The persons responsible for CRM coordination were also asked about their working time for CRM and when their position was established. The median number of working time examined for the person responsible for CRM coordination in Czech hospitals is 20% of working time. According to the research results, this position was most often established in 2014 and 2015.

## AUTHOR CONTRIBUTIONS

Conceptualization: Radka Prokešová.  
Data curation: Radka Prokešová.  
Formal analysis: Radka Prokešová.  
Investigation: Radka Prokešová.  
Methodology: Radka Prokešová.  
Project administration: Radka Prokešová.  
Resources: Radka Prokešová.  
Software: Radka Prokešová.  
Validation: Radka Prokešová.  
Visualization: Radka Prokešová.  
Writing – original draft: Radka Prokešová.  
Writing – review & editing: Radka Prokešová.

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