

## **THE LINK BETWEEN THE APPLICATION OF QUALITY MANAGEMENT PRINCIPLES AND RISK MANAGEMENT IN HEALTHCARE**

Veronika BUCKĖ<sup>1\*</sup>, Darius RUŽELĖ<sup>2</sup>, Juozas RUŽEVIČIUS<sup>3</sup>, Raimondas BUCKUS<sup>4</sup>

<sup>1,2,3</sup>*Faculty of Economics and Business Administration, Vilnius University,  
Saulėtekio al. 9, LT-10222 Vilnius, Lithuania*

<sup>4</sup>*Faculty of Medicine, Vilnius University, M. K. Čiurlionio g. 21/27, LT-03101 Vilnius, Lithuania*

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**Abstract.** Quality management through the application of ISO 9000 certification is a promising approach in striving for organizations' business success and leading to an inferior number of errors. The paper focuses on the following primary questions regarding the scientific problem at the theoretical level: How the application of quality management principles relates to risk management in healthcare? What are the benefits of the application of quality management principles? The aim of this study is to ground the importance of the link between the application of quality management principles and risk management in healthcare. Methods of the research are literature review and the critical analysis of the latest scientific articles on the issue. In conclusion, the application of quality management principles lead to improved decision-making processes, achievement of patient safety goals and objectives, etc. The findings are significant in a practical sense due to their benefits for certified organizations that implement quality management systems.

**Keywords:** quality management, total quality management, quality management principles, risk management, patient safety.

**JEL Classification:** M19.

### **Introduction**

An organization can succeed in perfection in daily operations and gain strategic and competitive advantage through the application of total quality management practices (Khalil & Muneenam, 2021; Permana et al., 2021) that lead both to improved organizational performance (Abukhader & Caglar, 2021; Khdour et al., 2021; Permana et al., 2021; Potkány et al., 2020) and the higher reputation of the company (Khdour et al., 2021). Total quality management is a management philosophy that aims to consolidate all organizational functions since it perceives an organization as a collection of processes (Mohamed, 2020). This holistic philosophy requires efforts to use the continual improvement of the quality of its people, procedures, environments, and services that pay off with a competitive advantage (Khdour et al., 2021). Therefore, today quality is considered not as a goal, but as a method of the entire organizational functioning (Kokot-Stepień, 2021). Total quality management is used in many different service areas to

provide clients with reliable, specific, accessible, timely, and relevant resources (Sahputra et al., 2021). Despite that, healthcare tends to be the most researched industry regarding total quality management implementation (Zhang et al., 2021). Total quality management is useful due to its benefits to improve the quality and efficiency of services (Permana et al., 2021; Yeng et al., 2021), adapt to changes, meet quickly patient needs, and enable workers to actively participate in work processes and decision-making (Sahputra et al., 2021), increase the level of employee satisfaction (Khdour et al., 2021) and the perceived value of customers (Yeng et al., 2021). It could be used to institutionalize change (Thao & Tu, 2021; Vinni, 2021). Quality management is characterized as the management of an organization, focusing on quality. It is a promising approach in striving for organizations' business success (Anttila & Jussila, 2021) and leading to an inferior number of errors (Keenan & Rostami, 2021). ISO 9000 certification has been frequently used as an indicator of total quality management (Para-González &

\* Corresponding author. E-mail: [veronika.bucke@evaf.stud.vu.lt](mailto:veronika.bucke@evaf.stud.vu.lt)

Mascaraque-Ramírez, 2018). Thus, management should consider an ISO 9001 certification as a beneficial initiative (Gremyr et al., 2021). Quality management provides an integrated system that unifies all managerial processes to direct and manage activities toward the achievement of organizational goals (Els et al., 2022) since it includes the processes for integrating the organization's quality policy regarding planning, managing, and controlling quality requirements (Re & Aquere, 2021). Holistically quality management is perceived as a commonality of its interconnected practices (Augustyn et al., 2021) thus is called a process-oriented system (Kim-Soon et al., 2020).

This article covers an analysis of two management methodologies – that is, Quality Management Principles and Risk Management. The paper focuses on the following primary questions regarding the scientific problem at the theoretical level: How the application of quality management principles relates to risk management in healthcare? What are the benefits of the application of quality management principles? The scientific, as well as practical relevance of this conceptual topic, is based on the abundance of the latest scientific articles on the issue. This paper contributes to the theoretical substantiation of the relevance and benefits of the link between the application of quality management principles and risk management, providing theoretical insights to the healthcare sector to address this phenomenon. The aim of this study is to ground the importance of the link between the application of quality management principles and risk management in healthcare. Methods of the research are literature review and the critical analysis of the latest scientific articles on the issue. The latest scientific articles published in International databases (Web of Science and Scopus) and other scientific sources over a period of 15 years (2007–2022) were analyzed, looking for the research conducted on the topic of the application of quality management principles, risk management, and the link between them, using the keywords Quality Management Principles, Risk Management, Quality Management, Total Quality Management, Patient Safety. In general, this paper consists of three sections, introduction and conclusions. The first section describes the concept of Quality Management Principles and includes seven subsections, each of them defining certain characteristics inherent in each of these principles. The second section explicates the conceptualization of risk management, including its importance, benefits to the organization, purpose, structure of the process. The third section analyzes and substantiates the relationship between risk management and each of the seven quality management principles, i.e. Customer focus, Leadership, Engagement of People, Process Approach, Improvement, Evidence-based decision making, Relationship management, described separately in seven subsections. In the end, the summarizing conclusions and relevant insights for future research are made by authors.

## 1. Concept of quality management principles

As society is growing in terms of education and becomes more demanding, the influence of interested parties is rising rapidly. The quality management system model is based on a set of fundamental principles similar to those that support the overall movement of total quality management. These seven principles are listed in the ISO 9000 standard as follows: Customer focus, Leadership, Engagement of People, Process Approach, Improvement, Evidence-based decision making, Relationship management (International Organization for Standardization [ISO], 2015).

### 1.1. Customer focus

The fundamental idea of quality management is to fulfill customer requirements and to strive to exceed customer expectations (ISO, 2015), therefore, focusing on customer needs is a key principle of quality management (Bergman & Klefsjö, 2010). The management philosophy of hospital is becoming “patient-centered” because patient experience is crucial for improving the doctor-patient relationship (Ran et al., 2020). It is stated that customer focus should be an integrated system since it is a multidisciplinary and cross-functional activity. Despite that its success is based on the capability of the organization to collect information about customer requirements and satisfaction, as well as on its capability to use these data for management decisions and continuous improvement (Béchet et al., 2015). Attracting and retaining the confidence of customers and other relevant interested parties contributes to sustained success of the organization. Whereas the opportunity to create more value for the customer arises at every step of the interaction with the customer (ISO, 2015), value creation proceeds during the process (Bergman & Klefsjö, 2010; Fundin et al., 2021). Employees with customer focus put the efforts into understanding and meeting customer needs (Celsi & Gilly, 2009) which in the meantime conduce to social performance (Jusoh et al., 2020). Additionally, through the concern for patients, a strong partnership relationship is being created leading to improved service processes (Sahputra et al., 2021). Enhanced customer satisfaction (ISO, 2015) is achievable through performing customer satisfaction surveys (Béchet et al., 2015), through placing a suggestion box in the service room as well as through effectively resolving customer complaints (Abimbola et al., 2020; Alshourah, 2021). Moreover, customer satisfaction is a driving force for organizational direction (Abukhader & Caglar, 2021). In addition, a proven positive and significant correlation between customer focus and gross profit margin (Han et al., 2021) is one of the desired benefits resulting from customer focus application (ISO, 2015) that has an influence on financial performance (Han et al., 2021). More attention should be drawn to customers' needs and expectations in order to help processes work better and to reduce the number of casual incidents (Béchet et al., 2015). In a rapidly changing environment,

accomplishing and continually strengthening customer focus is vital for attaining and sustaining competitive advantages for the organizations (Madhani, 2020), through mutual learning and knowledge (Lesáková & Reháč, 2020), and for reaching organizational goals (Maswadeh & Al Zu'mot, 2021). In summary, the scope of benefits of applying the principle of customer focus depends on the ability of the organization to gather relevant information about customer requirements and satisfaction, and, more importantly, to employ these data for continuous improvement and decision making.

### 1.2. Leadership

Leadership's importance in maintaining improvement in safety outcomes is demonstrated in plenty of empirical and nonempirical studies, highlighting the role of leadership engagement and commitment through resource distribution as essential factor in the success of quality improvement programs (Hu et al., 2020). Top management needs to be committed to making decisions for improvement and control their effects on improving the overall healthcare service quality (Abu Daqar & Constantinovits, 2020), as well as the job satisfaction of the employees (Abukhader & Caglar, 2021). Therefore, implementation and continuance of quality management as an integrated system in an organization depends on leaders adequate mind-sets, i.e. perceptions and attitude (Els et al., 2022). The establishment of organizational goals and objectives, defining its mission and vision, and systematically expressing the short- and long-term paths are possible to implement through strategic planning (Sucuoğlu & Erdem, 2021), otherwise, lack of planning and long-term policies, as well as non-clarity of objectives, create barriers to organizational success (Mohamed, 2020). Top management should therefore set strategic objectives so that quality emerges as a priority goal at every organizational level (Maswadeh & Al Zu'mot, 2021). Nevertheless, the leader uses inspiration to evoke feelings that influence people to reach organizational goals (Els et al., 2022). Leadership is also recognized as a bridge that links effective strategic planning that strengthens the sense of direction of the goal achievement (Sahputra et al., 2021). Ultimately, much of organizational success is conditional on leadership commitment to quality and improvement.

### 1.3. Engagement of people

The organization's ability to create and deliver value is strengthened by the need to have competent, empowered, and involved people at all levels of the organization (ISO, 2015) which are perceived as a key factor in determining the success of an organization (Kokkina et al., 2018; Rich et al., 2010). Involving people at all levels in continuous improvement of organizational processes (Nawelwa et al., 2015), for instance, the decision-making process (Abu Daqar & Constantinovits, 2020), is important for effective and efficient management of the organization (ISO, 2015) and for improving its performance (Albrecht

et al., 2015; Sundaray, 2011) as well as employee loyalty (Abukhader & Caglar, 2021) and commitment leading to competitive advantage (Abimbola et al., 2020). Empowerment, recognition and enhancement of competence (Kokkina et al., 2020) contribute to the engagement of people in achieving the organization's quality objectives (Abimbola et al., 2020; Abukhader & Caglar, 2021; ISO, 2015) and positively affects employee job satisfaction (Kokkina et al., 2020; Monica & Krishnaveni, 2018; Moura et al., 2014) leading to higher quality results (Mosadeghrad & Afshari, 2021). Main benefits stemming from engagement of people: greater people's awareness of the organization's quality goals and greater motivation for reaching them through quality assurance training (Abimbola et al., 2020; Khan et al., 2020; Khdour et al., 2021), increased personal improvement, initiatives and creativity (Abdul et al., 2019; ISO, 2015), strengthened trust and collaboration throughout the organization (ISO, 2015). Employee involvement in committing quality management practices can be promoted by creating a fair incentive system as well as providing rewards for significant contributions (Almaamari et al., 2020) concerning the quality as a basis and a reliable measure for assessing the performance of employees (Khdour et al., 2021; Maswadeh & Al Zu'mot, 2021). In conclusion, it should be emphasized that value creation and delivery is attainable through the engagement of competent, empowered people in achieving the organization's quality objectives.

### 1.4. Process approach

Optimization of the organization's system and performance is attainable by perception of results obtainment through the execution of interrelated processes (ISO, 2015). Process management is a positive parameter of performance management; therefore, process management must be supported, verified, and periodically reviewed to ensure high performance and perceived quality of care (Sahputra et al., 2021). Processes must correlate with continual improvements (Abu Daqar & Constantinovits, 2020; Thao & Tu, 2021) in a way that progress the work functions (Abu Daqar & Constantinovits, 2020). Accordingly, the quality management system is used to standardize and simultaneously improve existing work practices through wisely documented and standardized processes (Gremyr et al., 2021). The accomplishment of optimized performance through effective process management (ISO, 2015) can be achieved through establishing a service process flow (Sahputra et al., 2021) or developing job descriptions conforming with the requirements of processes (Maswadeh & Al Zu'mot, 2021). Other benefits of process approach could be: allowing the organization to grant confidence to interested parties associated with its consistency, effectiveness and efficiency (Arya, 2020; ISO, 2015). Management of processes and their interrelations as a system in order to achieve organization's quality objectives effectively and efficiently

(ISO, 2015) is achievable through the involvement of all members of the organization in pursuance of long-term success and by satisfying the consumer (Islamgaleyev et al., 2020). To sum up, the application of the principle of the process approach allows organizations not only to standardize interrelated processes, but hence achieve effectiveness in optimization of performance and system.

### 1.5. Improvement

Successful organizations emphasize the importance of continuous improvement (ISO, 2015) which has been proven to influence employee job satisfaction in a positive way, increasing their motivation to achieve high results of performance (Loyd et al., 2020; Mosadeghrad & Afshari, 2021). Moreover, there is a link between continuous improvement and process innovation (Antunes et al., 2021) since innovation supports quality improvement by increasing the capability of responding to the situations properly, allowing to succeed in the business targets for sustained success (Anttila & Jussila, 2021). Potential benefits of improvement principle's implementation are: improvement of process performance (Arya, 2020; Keenan & Rostami, 2021; Re & Aquere, 2021; Taggar & Ellis, 2007), organizational competence and customer satisfaction, enhanced attention to the progressive improvement, upgraded usage of learning for improvement, increased focus on innovation (ISO, 2015). Continuous improvement of organizational processes result in high quality products and services (Martínez-Gómez et al., 2020). Thus, continuous improvement correlates not only with improving results but more importantly with improving capabilities related to demand generation, supply generation, technology, operations, and people capability, all required to obtain better results (Mohamed, 2020). To summarize, it should be noted that a sign of equality should be placed between the principle of improvement and all organizational components. Consequently, their synergism contributes to the improvement of comprehensive results.

### 1.6. Evidence-based decision making

Data-driven hospital management leads to continuous improvement of healthcare quality and patient satisfaction with medical services, as well as better decision-making (Ran et al., 2020). Moreover, it allows managers not only to make informed decisions, but also to immediately detect and avoid quality problems as a consequence, improving environmental performance (Jusoh et al., 2020). Massive patient experience data assist to optimize hospital management mode, which becomes standardized, refined, and scientific (Ran et al., 2020). Improved evaluation of process performance as one of the advantages of evidence-based decision making (ISO, 2015) is achievable through the improvement of the performance appraisal system by managing patient experience data (Ran et al., 2020). Key benefits of implementation of evidence-based decision making could be:

improvement of decision-making processes, capability of achieving objectives, ability to prove the effectiveness of previous decisions (ISO, 2015). To sum up, verification of effectiveness in decision-making is possible only through the usage of evidence-based facts and data.

### 1.7. Relationship management

Managing an organization's relationships with relevant interested parties, such as providers, is essential for long-term success (ISO, 2015). The higher level of service quality can be achieved by adopting more managerial practices to enhance teamwork performance and efficiency (Abimbola et al., 2020; Abu Daqar & Constantinovits, 2020; Khdour et al., 2021; Maswadeh & Al Zu'mot, 2021). Cooperation and teams, meanwhile, lead to better business-client relationships, better working environments, and higher organizational reputations. Moreover, a team-oriented environment fosters proactivity and participative decision-making models (Fok et al., 2021; Keenan & Rostami, 2021) appreciating connectivity, interactivity, and shared knowledge and resources (Anttila & Jussila, 2021). All stakeholders should be encouraged to participate in decision making and problem-solving within the organization (Almaamari et al., 2020; Arya, 2020) so that their objectives and values are addressed (ISO, 2015). In addition, satisfying the employees' needs through the cooperation of the human resources department and executive managers have an impact on employee performance. Healthy relationships among employees can be created through communication within different levels of the organization (Abukhader & Caglar, 2021). Some potential advantages of conducting relationship management are: an increased ability to create value for interested parties by sharing resources and competence, and through quality risk management, the assurance of a stable flow of products and services through the creation of a well-managed supply chain (ISO, 2015). In summary, participation of all stakeholders in the organization's problem-solving process in a long-term perspective allows avoidance of potential risk occurrence and determination of stakeholders' objectives and values.

All in all, it can be concluded that since today quality is considered not as a goal, but as a method of the entire organizational functioning, Total quality management as a management philosophy can be applied for the purpose of the consolidation of all organizational functions. Quality management through the application of ISO 9000 certification is a promising approach in striving for organizations' business success and leading to an inferior number of errors. Thus, in the holistic sense, it is characterized by the commonality of its interconnected practices (in this case, quality management principles), whose synergies contribute to the improvement of process performance and achievement of organizational goals through the proactivity in decision making and problem-solving.

## 2. Conceptualization of risk management

Organizations of all types face uncertainty arising from internal and external factors and influences threatening the achievement of organizational goals, therefore managing risks is a part of all activities related to an organization (ISO, 2018). The importance of adequate risk management is growing (van Steenberg et al., 2020). Risk management in the quality field serves as a scientific and practical tool for decision making (Boboia, 2019). Risk management as a better resource may lead to the company's competitive advantage as it plays an exceedingly prominent role in improving the quality of investment decisions possibly conditioning the increase of the value of the company (Faisal et al., 2021). Since human-caused errors constantly happen, the need for the development of adequate risk and error management in our everyday work emerges (Bienzeisler et al., 2020). The origins of risk have changed and become more interconnected, forming business contexts more complex (Settembre-Blundo et al., 2021). Risk management conception is described as "coordinated activities to direct and control an organization with regard to risk" (ISO, 2018). The goal of risk management is the creation and protection of value, improving performance and encouraging innovation (ISO, 2018). The facet of risk also covers, aside from possible and unavoidable threats, a lot of opportunities (Rana et al., 2019), which, if well integrated into business processes, can facilitate the reduction of the negative consequences of crucial situations and contribute to the recovery (Settembre-Blundo et al., 2021). Anticipating risks requires monitoring of environmental changes that yield threats as well as opportunities and allows an organization for appropriate response (Mahama et al., 2020). The risk management system structure involves processes and systems developed by management to make certain its risk philosophy is integrated into the daily activities of the organization (Araújo & Gomes, 2021). The processes of risk management have been widely explored and described in various international risk management standards and guidelines. Although each standard applies a different terminology to describe these processes, they are mainly grounded by the same pattern and can be mapped into six processes: risk management planning, risk identification, risk analysis, risk response planning, implementation of risk responses and risk monitoring (Roghabadi & Moselhi, 2020). It should be emphasized that risk management should be present in all processes of the organization (Araújo & Gomes, 2021).

In summary, it should be emphasized that since managing risks is a vital part of all activities related to an organization, risk management should cover all processes of the organization, enabling an organization to respond appropriately to change. The need for the development of adequate risk and error management is growing, whereas all organizations face uncertainty conditioned by internal and external factors.

## 3. Link between the application of quality management principles and risk management

### 3.1. Customer focus and risk management

The importance of balancing staff and patient perspectives on safety culture is emphasized due to the fact that higher patient involvement would improve the quality and safety of care and is associated with positive health outcomes (Kuosmanen et al., 2021). Customer focus implementation by active customer relationship management (ISO, 2015) and prioritizing patient needs (Campbell et al., 2021) would strengthen patient-doctor and patient-nurse relationships (Cheng et al., 2021), contributing to patient-centered care and improved decision-making processes (Kuosmanen et al., 2021). Furthermore, customer satisfaction research and monitoring, taking the necessary action accordingly (Alshourah, 2019; ISO, 2015), and learning from patient experience and feedback are appropriate tools for providing in-depth perception of patient safety threats (O'Hara et al., 2018; Ward & Armitage, 2012). Health care organizations must aim at customer orientation to ensure a correct perception of customers needs, provision of quality service, and preventing any possibility of error (Ndubisi, 2012). In summary, the effectiveness of risk management in healthcare is highly conditioned on the application of the principle of Customer focus through higher patient involvement, active customer relationship management, monitoring of customer satisfaction, learning from customer feedback.

### 3.2. Leadership and risk management

Leaders at all levels facilitate the involvement of people in the achievement of the organization's quality goals by creating a unified direction and goal of the organization (ISO, 2015) as well as aligning a vision and mission, that reflects a high-risk healthcare environment (Sammer et al., 2010). By ensuring that patient safety goals and objectives are part of organizations' strategic and operational plans, the healthcare organization creates better conditions for risk avoidance (Lawati et al., 2018). Strong leadership is emphasized as a factor addressing unethical behaviors and actively working to mitigate safety issues (Campbell et al., 2021; Keenan & Rostami, 2021). Better consolidation of the organization's processes as a result of leadership application (ISO, 2015) can be reinforced by hospital managers and unit supervisors demonstrating the importance of patient safety (Hedsköld et al., 2021; Kim & Moon, 2021), encouraging reporting of errors (Guchait et al., 2020) through open communication and nonpunitive attitude to errors (Bailey & Dunganwalla, 2021; Chegini et al., 2020; Rigobello et al., 2017; Sendhofer et al., 2015), and by providing feedback about reactions to errors, contributing to continuous organizational learning for enhanced patient safety (Hedsköld et al., 2021; Krishnasamy et al., 2021; Lee et al., 2019; Liukka et al., 2021). To sum up, it is emphasized that the leader's value scale can determine the organization's approach to safety and the importance of risk management.

### 3.3. Engagement of people and risk management

Achievement of greater consideration on shared values and culture throughout the organization as a result of employee engagement efforts (ISO, 2015) can be beneficial, particularly increasing staff's belief that their personal well-being at work cares for hospital managers, leading to enhanced employee commitment for preventing and mitigating safety risks causing medical errors (Mauno et al., 2007; Wollard & Shuck, 2011). Assigning responsibility and accountability at appropriate levels ensures risk management integration into organizational activities. Nevertheless, everyone is responsible for managing risks (ISO, 2018; Rana et al., 2019). A lack of staff engagement acts as a limiting factor for the success of risk management (Araújo & Gomes, 2021). Developing reward mechanisms based on various motivational measures (Dimitra Kokkina et al., 2020), as for instance, reward system for reporting unusual errors, ensures continuous staff engagement in safety program (Cropper et al., 2018). It is emphasized the importance of empowerment of people to identify inconsistencies and take initiative without fear (ISO, 2015) by intense training for all of healthcare staff members about error prevention techniques (Guchait et al., 2016) and established safety policies as a vital part of safety program implementation (Cropper et al., 2018; Kim & Moon, 2021). Accordingly, training helps to manage most of the risks occurring due to quality service failures (Khan et al., 2020) being success factor of risk management (Araújo & Gomes, 2021). In conclusion, better results of risk management can be obtained through the engagement of employees in the risk management process, assigning responsibility and accountability, a reward system for reporting errors, training, and empowering employees to take initiative.

### 3.4. Process approach and risk management

As more effective and efficient achievement of foreseeable and consistent results is possible by managing and perceiving all activities as interactions of interconnected processes, functioning as a well-organized system (ISO, 2015), it was determined that medical errors primarily occur due to system and process issues, rather than individual human fault (Im & Aaronson, 2020; Mohamed, 2020). Since errors are influenced by the system, the process, and the circumstances that cause people to make mistakes or fail to prevent them, consequently the need for the formation of well-developed "system approach" strategies arises (Kar et al., 2013; Keenan & Rostami, 2021) such as a standard risk management process (Perrenoud et al., 2021). Changing the process can prevent from root causes of errors resulting from faulty systems (Mohamed, 2020). Therefore, proactive use of risk management is important, focusing on system or process errors (Foda et al., 2020) and implementing continuous monitoring as a control method (Kim & Moon, 2021). A standardized risk management process enables organizations to manage risk with the understanding that all risks

are identified, analyzed, and mitigated in a similar way (Perrenoud et al., 2021). Medical institutions must focus on the creation of patient safety management procedures or systems in order to reduce the number of patient safety incidents (Kwan et al., 2021). Since risk management affecting process outcomes is one of process approach implementation steps (ISO, 2015), hospital administrators and managers have to encourage staff to report errors and near misses so that organizations can engage in problem solving, preventing future patient harm and promoting patient safety (Lee & Dahinten, 2020). Systems and processes that enable the adoption of a systematic approach in risk management increase the likelihood of correct decisions being taken with reference to risks (Araújo & Gomes, 2021). To summarize, improvement in risk management is available through the creation and implementation of a standardized risk management process, reflecting a "system approach" with regard to risks, additionally, allowing proactivity.

### 3.5. Improvement and risk management

Improvement is a prerequisite for maintaining the current level of performance in response to changes in internal and external circumstances, generating new opportunities (ISO, 2015), moreover, improvement strategies can be accomplished through identification of errors (Rodziewicz et al., 2021). Accordingly, continuous improvement is one of the eight basic principles of effective risk management (ISO, 2018) as it is closely linked with risk management maturity (Hoseini et al., 2019). In addition, participating in improvement teams that analyze the risks of each clinical area and make suggestions for preventive actions (Ulibarrena et al., 2021) is another possible solution for improvement. Continuous improvements create preconditions for increased motivation of individuals for learning from previous mistakes (O'Hara et al., 2018; Sammer et al., 2010; Ward & Armitage, 2012) and causes an intensified focus on root cause analysis and determination, followed by prevention and corrective actions, improved capacity to predict and react to internal and external risks and opportunities (Saleh et al., 2018). In summarizing, a higher level of risk management maturity is possible to achieve through the application of continuous improvement, emphasizing the importance of learning from errors.

### 3.6. Evidence-based decision making and risk management

Achieving the desired results is more likely through decision-making based on data analysis and evaluation (Manatos et al., 2017), it is important that all healthcare decisions and practices are based on the healthcare company's consideration of evidence, clinical experience, patient preferences, and values (Gallagher-Ford & Connor, 2020). Decision making is often a sophisticated process, always involving a certain degree of uncertainty, because it often involves a variety of types and sources of input, as

well as perception of them, which can be subjective. It is relevant to be aware of cause and effect relationship and probable unexpected consequences (ISO, 2015), particularly in patient safety, influenced by clinical decision making of nurses, depending on their ability of correct identification and evaluation of risks to patients (Trevino et al., 2018). In conclusion, achieving desired results in healthcare and patient safety correlates with correct decisions made for risk management based on evidence, clinical experience, patient preferences, and values.

### 3.7. Relationship management and risk management

The performance of an organization is affected by relevant interested parties (ISO, 2015), therefore, encouraging and enhancing patient and family involvement and participation in healthcare safety and patient safety initiatives is key aspect of the prevention of errors and management of improvement strategies (Vaismoradi et al., 2015). The importance of sharing information, resources, knowledge and experiences (Jung & Yoon, 2017) with relevant stakeholders is highlighted in International standard (ISO, 2015), therefore it is proven that the commitment to reporting incidents among healthcare professionals is crucial and positively influenced by improvement of patient safety culture (Camargo et al., 2012). Development of unexpected dangers may be prevented by engaging patients and families in their care plan to achieve high-quality, safe, and effective care (AL-Fadhalah et al., 2021). Correct communication grants the patient not only a sensation of safety and satisfaction, but also gives assistance to reduce the risk of adverse events: accurate collection of medical history, risk of allergies, chronic medication, acknowledgement of patients overall health problems and making the optimum therapeutic decisions (Serban et al., 2020). Ultimately, the involvement of all interested parties in patient safety initiatives ensures effective risk management.

To sum up, it should be emphasized that the application of quality management principles leads to improved decision-making processes, achievement of patient safety goals and objectives, enhancement of patient safety outcomes, prevention and mitigation of safety risks, identification of inconsistencies, better conditions for risk avoidance, better reporting of errors, recognition of undesirable events occurrence. Hence, the grounded link between the application of quality management principles and risk management reveals not only awareness of cause and effect relationship and probable unexpected consequences as one of the advantages of quality management principles application, but also an intensified focus on root cause analysis and determination, followed by preventive and corrective actions, improved capability of predicting and reacting to internal and external risks and opportunities. The goal of risk management can be achieved through strengthening patient-doctor relationships with higher patient involvement, open communication and nonpunitive attitude to errors, assigning

responsibility and accountability at appropriate levels ensuring risk management integration into organizational activities, teamwork, and training, standardization of risk management process, evidence-based decision making and relationship management with relevant interested parties.

## Conclusions

The analysis of the latest scientific sources on the conceptual topic discussed in this paper has disclosed relevant insights for future research. Since today quality is considered not as a goal, but as a method of the entire organizational functioning, Total quality management as a management philosophy can be applied for the purpose of the consolidation of all organizational functions. Quality management through the application of ISO 9000 certification is a promising approach in striving for organizations' business success and leading to an inferior number of errors. Thus, in the holistic sense, it is characterized by the commonality of its interconnected practices (in this case, quality management principles), whose synergies contribute to the improvement of process performance and achievement of organizational goals through the proactivity in decision making and problem-solving. Since managing risks is a vital part of all activities related to an organization, risk management should cover all processes of the organization, enabling an organization to respond appropriately to change. The need for the development of adequate risk and error management is growing, whereas all organizations face uncertainty conditioned by internal and external factors.

Our findings indicate that a concept of Quality Management Principles is closely interconnected with Risk Management paradigm. This paper contributes to the scientific sources by describing a theoretical link between the application of quality management principles and risk management, as well as the benefits of the application of quality management principles. As a result, the findings are significant in a practical sense due to their benefits for certified organizations that implement quality management systems. It should be emphasized that the application of quality management principles leads to improved decision-making processes, achievement of patient safety goals and objectives, enhancement of patient safety outcomes, prevention and mitigation of safety risks, identification of inconsistencies, better conditions for risk avoidance, better reporting of errors, recognition of undesirable events occurrence. Hence, the grounded link between the application of quality management principles and risk management reveals not only awareness of cause and effect relationship and probable unexpected consequences as one of the advantages of quality management principles application, but also an intensified focus on root cause analysis and determination, followed by preventive and corrective actions, improved capability of predicting and reacting to internal and external risks and opportunities. Consequently, the goal of

risk management can be achieved through strengthening patient-doctor relationships with higher patient involvement, open communication and nonpunitive attitude to errors, assigning responsibility and accountability at appropriate levels ensuring risk management integration into organizational activities, teamwork, and training, standardization of risk management process, evidence-based decision making and relationship management with relevant interested parties.

This paper is also having limitations that should be considered in generalizing the findings of this study. First of all, a systematic review of scientific sources has not been accomplished, creating preconditions for some potential biases to occur while assessing the quality of included studies. Secondly, the search of scientific sources is limited to a particular business sector, namely healthcare regarding the generalization of the findings. Thirdly, the study likely contained a degree of subjectivity whereas the conclusions of the article are formulated on the basis of researchers' insights grounded by the scientific literature. Lastly, the theoretical links between the application of Quality Management Principles and Risk Management have not been supported by authorial quantitative study. The authors' future research can focus on empirical determination regarding the application of quality management principles that have the greatest impact on the maturity of risk management in the field of healthcare. In addition, it would be beneficial to empirically assess the mediating effect of Error Management Culture on the relationship between the application of Quality Management Principles and Risk Management Maturity.

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