

## Book Chapter

# The Frontier of Healthcare Excellent Quality Management Model

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## Abstract

According to customer-oriented and excellence-oriented concepts, the excellent quality management model is an effective approach for optimizing the comprehensive performance management of healthcare organizations. The excellent quality management model is based on evaluating the performance of various organizations by applying qualitative and quantitative criteria for evaluation. The purpose of this article is to explore the healthcare excellent quality management model, reference and quote the ISO 9001:2015 International Quality Management Systems, the European Foundation for Quality Management, and the Malcolm Baldrige National Quality Award. Under the guidance of an excellent quality management model, a healthcare organization can pursue high-quality management, continuously solidify the core competitiveness, and promote high-quality development. The innovative healthcare excellent quality management (HEQMM) proposed in this article can be used to improve management performance and provide patients with the highest quality of healthcare services.

## Introduction

The excellent quality management model (HEQMM) is an effective method of comprehensive performance management for organizations, with customer-oriented and excellence-oriented management concepts. The excellent quality management model is based on evaluating the performance of various organizations by specific qualitative and quantitative evaluation criteria. It is the century of economic globalization, from the pursuit of a quantity to quality. Therefore, establishing "quality awards" to improve the high-quality management level of enterprises/organizations has become an important way for many countries to strengthen and enhance their competitiveness. In addition to the United States, Japan, the European Union, Canada, and other advanced countries and regions, many newly industrialized and developing countries have also established and acquired high-quality national awards. In the process of applying for quality awards, enterprises/organizations have established

and improved the management system, promoted standardization activities, and improved the awareness of management and quality improvement of enterprises/organizations. It has also enhanced the enthusiasm of all staff to participate in high-quality development actively, improved the quality of products and technical services, labor productivity, and the cohesion of the enterprise, and made quality improvement and standardization activities a conscious action of enterprising and integrating the management system's integrity.

In the following paragraphs, this article will introduce four models, including the three most widely used and globally recognized excellent quality management models and the innovative healthcare excellent quality management model (HEQMM) proposed after analyzing the three excellent quality management models.

## **Excellent Quality Management Models**

Three models are described in this section: the ISO 9001:2015 Quality Management systems; the European Foundation for Quality Management (EFQM), and the Malcolm Baldrige National Quality Award (MBNQA).

### **ISO International Excellent Quality Management Model**

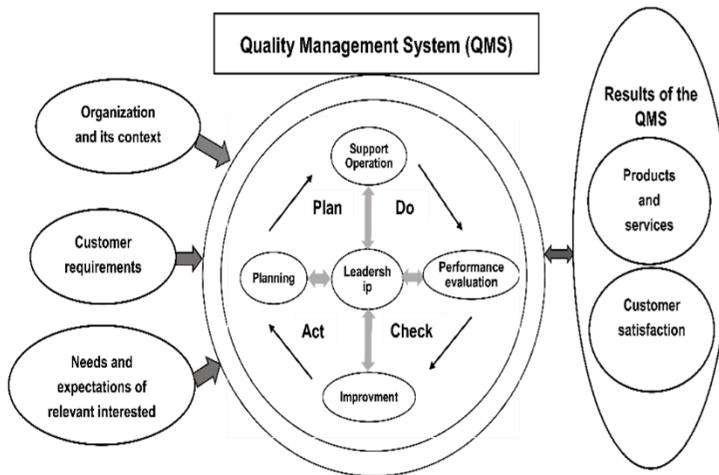
#### **Background**

ISO 9001 is a quality management system published by the International Organization for Standardization (ISO) [1,2]. According to the official ISO report, more than 170 countries with one million companies and organizations have passed the ISO 9001 certification. The standard is based on many quality management principles, including customer demand concerns, governance objectives of senior management, process methods and continuous improvement. The latest version of ISO 9001:2015 is to establish a set of operating procedures and makes a systematic plan to help enterprises/organizations do well in quality management through ISO 9001. If the above principles can be effectively applied, it can lead enterprises/organizations to make their operation quality and meet the needs of customers. It

helps ensure that all customers receive consistent high-quality products and services. Since 2000, the 2015 ISO 9001 certification has been significantly revised for the first time. The new version of ISO 9001:2015 still prioritizes customers and takes sustainable quality management as the standard. The latest version of ISO also introduces risk management thinking, performance improvement, and organizational governance and leadership.

### **Principles and Processes**

ISO 9001:2015 is based on the quality management principles described in ISO 9000 [3,4]. The introduction of each principle includes its interpretation, the theoretical basis of the importance of the principle to the organization, the main benefit examples of applying the principle, and the typical improvement measures of organizational performance when applying the principle. The principles of quality control include customer orientation, leadership, full participation, process orientation, improvement, decision-making, and relationship management. ISO 9001:2015 encourages the process-oriented development, implementation, and improvement of the effectiveness of the quality management system and strengthens customer satisfaction by meeting customer requirements. In adopting "process orientation", the necessary specific requirements cannot be ignored. Systematic understanding and the interactive process of management will help the organization achieve the effectiveness and efficiency of its expected results. Process orientation enables organizations to control the connectedness and interdependence in the system process and improve the overall performance of organizations. Process orientation covers the systematic definition, process management, and their interrelationship, to achieve the expected results of the consistency of the organization's quality policy and efficiency. The application of "process orientation" in the quality management system can promote the organization to: (1) Understand and continuously meet the requirements; (2) process consideration of added value; (3) realization of effective process performance; and (4) the improvement of the process evaluated according to the data and information. The inter-connectedness of various elements in the process orientation is shown in Figure 1 [5-7].



**Figure 1:** ISO 9001:2015 quality management system process guidance diagram.

## European Foundation for Quality Management (EFQM)

### Background

Under the impact of the total quality management (TQM) in the 1980s, following the 1987 National Quality Award of the United States, the European Commission also signed and approved the establishment of the European Foundation for Quality Management (EFQM) in Brussels, Belgium, on September 15, 1988, to provide services for members to enhance quality and competitiveness [8,9]. EFQM members formed the representatives of more than 600 European organizations then and now have more than 700 member organizations. To become an outstanding European Organization, EFQM encourages and assists European organizations to participate in improvement activities so that each organization can perform outstandingly in terms of customers, employees, social responsibility, and key performance outcomes. EFQM also fully supports the operators of various European organizations in implementing TQM to enable organizations to win in the global competition.

EFQM is committed to enhancing the competitiveness of all European enterprises/organizations, regardless of their organizational size, function, structure and form, and even community organizations [10,11]. It draws on the strengths of relevant quality awards in the United States, Japan and other countries, establishes a model for total quality management for European enterprises and organizations, and encourages them to adopt this model to engage in business management activities, continuously improve business efficiency and effectiveness, so as to achieve excellent sustainable performance. EFQM established the European Quality Award (EQA) with the support of the European Commission in 1991 [12]. It has become the most prestigious quality award in Europe. To avoid the false impression that the award only focuses on the quality of products and services, the European Commission has changed its name to the "EFQM Excellence Award" (EEA) to show that a successful enterprise or organization can demonstrate its excellence in all aspects of EFQM [13].

### **Criteria and Distribution**

The European excellent quality management model criterion is based on eight basic concepts of excellence, which has been transformed into nine quality award evaluation projects that can be implemented and evaluated. It is also divided into three concepts: "direction", "execution" and "results". The "direction" includes purpose, vision & strategy, organizational culture & leadership and other two items. The "execution" includes engineering stakeholders, creating sustainable value, driving performance & transformation. The "results" includes stakeholder perceptions and strategic & operational performance. Introduction to the scoring categories and scores of European high-quality development models, such as Figure. 2 and Table 1 [14,15].



**Figure 2:** European excellent quality management model.  
(Source: EFQM excellence award information brochure 2020.)

**Table 1:** European excellent quality management model scoring categories and scores.

Concept	Criteria	Items	Points
Direction	Purpose, Vision & Strategy	1.1 Define Purpose & Vision 1.2 Identify & Understand Stakeholders Needs 1.3 Understand the Ecosystem, own Capabilities & Major Challenges 1.4 Develop Strategy 1.5 Design &	100(10%)

		Implement a Governance & Performance Management System	
	Organizational Culture & Leadership	2.1 Steer the Organization's Culture & Nurture Values 2.2 Create the Conditions for Realizing Change 2.3 Enable Creativity & Innovation 2.4 Unite Behind & Engage in Purpose, Vision & Strategy	100(10%)
Execution	Engaging Stakeholders	3.1 Customers: Build Sustainable Relationships 3.2 People: Attract, Engage, Develop & Retain 3.3 Business & Governing Stakeholders – Secure & Sustain Ongoing Support 3.4 Society: Contribute to Development, Well-Being & Prosperity 3.5 Partners & Suppliers: Build Relationships & Ensure Support for Creating	100(10%)

		Sustainable Value	
	Creating Sustainable Value	4.1 Design the Value & How It Is Created 4.2 Communicate & Sell the Value 4.3 Deliver the Value 4.4 Define & Implement the Overall Experience	200(20%)
	Driving Performance & Transformation	5.1 Drive Performance & Manage Risk 5.2 Transform the Organization for the Future 5.3 Drive Innovation & Utilize Technology 5.4 Leverage Data, Information & Knowledge 5.5 Manage Assets & Resources	100(10%)
Results	Stakeholder Perceptions	Results and topics to be covered could include, but are not listed in any priority order or limited to: <ul style="list-style-type: none"> <li>• Customer Perception Results</li> <li>• People Perception Results</li> </ul>	200(20%)

		<ul style="list-style-type: none"> <li>• Business &amp; Governing Stakeholders Perception Results</li> <li>• Society Perception Results</li> <li>• Partners &amp; Suppliers Perception Result</li> </ul>	
	Strategic & Operational Performance	Strategic and Operational Performance indicators, could include, but are not limited to: <ul style="list-style-type: none"> <li>• Achievements in delivering its Purpose and Creating Sustainable Value</li> <li>• Financial Performance</li> <li>• Fulfillment of Key Stakeholders Expectations</li> <li>• Achievement of Strategic Objectives</li> <li>• Achievements in Driving Performance</li> <li>• Achievements in Driving Transformation</li> <li>• Predictive Measures for the Future.</li> </ul>	200(20%)
<b>TOTAL POINTS</b>			<b>1000(100%)</b>

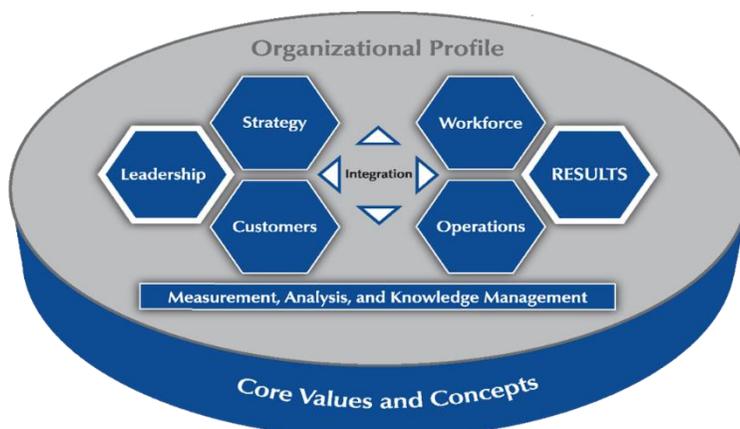
## **Malcolm Baldrige National Quality Award (MBNQA)**

In 1987, the National Institute of Standards and Technology (NIST) established the Malcolm Baldrige National Quality Award (MBNQA), or Baldrige Quality Award (BQA), which was originally only applicable to manufacturing, service and small enterprises/organizations in the early stage of its creation [16,17]; In 1998, it was incorporated into educational and health care institutions; In 2007, it was extended to non-profit organizations (including government departments) [18,19]. In addition to encouraging all walks of life to compete for the highest honor every year, MBNQA draws on the spirit of total quality management (TQM) and formulates a complete and cross industry review framework and standards, which constitute the Baldrige excellent quality management model. In addition to serving as the basis, process and standard of MBNQA's review, the most important contribution of the Baldrige excellent quality management model is to provide a systematic interpretation of business excellence and performance management. It is not only suitable for enterprises /organizations to conduct self-assessment, identify their own advantages and improvement opportunities, assist in formulating goals and action plans, but also acceptable for external verification and measurement, and check whether the scoring results are consistent with empirical data. On the other hand, the review framework of MBNQA also represents a "common language" in management. After fine-tuning and localization of this framework, enterprises /organizations committed to excellence can quickly share each other's best practices, reduce the threshold of benchmarking, and effectively shorten the learning curve. Baldrige excellent quality management model takes promoting excellent business performance as an important element of organizational competitiveness, and enterprises/organizations take obtaining MBNQA as a symbol signifying as the world-class management example or best practice [19,20].

### **Criteria and Distribution**

The Baldrige excellent quality management model includes scoring categories and scores. This model classifies various

issues that enterprises/organizations must face with seven major items and seventeen minor items, which are weighted according to their importance, with a total score of 1000 points. The seven major projects include "leadership", "strategy", "customers", "knowledge management", "workforce", "operations" and "results" [21,22]. If the healthcare industry wants to win in an era of fierce competition, improving medical quality, medical productivity, working environment and service quality have become the inevitable elements of winning. Today, with extreme emphasis on medical quality and patient safety, healthcare institutions make greater efforts to change their physique and culture, take high-quality medical services, reasonable prices, considerate services, and quality management as effective tools for achieving high-quality development management, and instruct the whole organization to work together to promote high-quality development, and clearly divide the tasks and responsibilities of each department to actively carry out high-quality management [23]. The scoring categories and scores of Baldrige excellent quality management model are introduced, as shown in Figure 3 and Table 2 [24,25].



From Baldrige Performance Excellence Program. 2017. 2017-2018 Baldrige Excellence Framework: A Systems Approach to Improving Your Organization's Performance. Gaithersburg, MD: U.S. Department of Commerce, National Institute of Standards and Technology. <https://www.nist.gov/baldrige>.

**Figure 3:** Baldrige excellent quality management model.

**Table 2:** Categories and items point values of Baldrige excellent quality management model.

Categories	Items	Points Value
Leadership		120
	1.1 Senior Leadership	70
	1.2 Governance and Societal Contributions )	50
Strategy		85
	2.1 Strategy Development	45
	2.2 Strategy Implementation	40
Customers		85
	3.1 Customer Expectations	40
	3.2 3.2 Customer Engagement	45
Knowledge Management		90
	4.1 Measurement, Analysis, and Improvement of Organizational Performance	45
	4.2 Information and Knowledge Management	45
Workforce		85
	5.1 Workforce Environment	40
	5.2 Workforce Engagement	45
Operations		85
	6.1 Work Processes	45
	6.2 Operational Effectiveness	40
Results		450
	7.1 Health Care and Process Results	120
	7.2 Customer Results	80
	7.3 Workforce Results	80
	7.4 Leadership and Governance Results	80
	7.5 Financial, Market, and Strategy Results	90
TOTAL POINTS		1000

### Healthcare Excellent Quality Management (HEQMM)

Based on the above international ISO 9001:2015, the European excellent quality management model, and the American Baldrige excellent quality management model, after intercepting the essence of various countries, this paper summarizes and puts forward Table 3 for healthcare excellent quality management (HEQMM), which contains ten key factors for the success of

high-quality development of healthcare organizations: organizational leadership, strategic planning, human resource management, information management, customer management, operation management, innovation management, resource management, social responsibility and performance management.

**Table 3:** Healthcare excellent quality management model (HEQMM).

	Healthcare Excellent Quality Management (HEQM)	ISO 9001:2015 quality management systems	Baldrige excellent quality management model	European excellent quality management model
Organizational leadership	v	v	v	v
Strategic planning	v	v	v	
Human resource management	v		v	v
Information management	v		v	
Customer management	v		v	v
Operation management	v	v	v	v
Innovation management	v	v		v
Resource management	v	v		v
Social responsibility	v			v
Performance management	v	v	v	v

Note: v= the presence.

## Leadership

Leadership is a process in which, within a particular social organization and group, to achieve the predetermined goals of the organization, leaders use their legal power and their influence

to influence the behaviors of leaders and guide them to the organizational goals. The term "leadership" refers to leaders; the verb "leadership" refers to the ability to lead or leadership activities, and leadership activities refer to the leader's behavior process of commanding and guiding to achieve the set goals in a specific environment. The combination of the two, the so-called leadership, is the noun of leadership, the verb of leadership, in other words, the leader of leadership activities, leading a group of people to achieve the common goals [26].

For instance, healthcare leaders should establish a consistent goal and direction for the healthcare organization, and personally participate in some activities leading to the achievement of performance goals. Leaders have the following characteristics: professional knowledge, personality charm, having followers, and the ability to inspire others. In the healthcare system, leaders build management capabilities through evaluation, healthcare management, and business planning to ensure successful resource management and improve resource utilization value. Healthcare leaders should have the following qualifications:

1. Forward vision: establish a consistent purpose and direction for the healthcare organization, and create and maintain a spontaneous working environment for members who can independently participate in activities to achieve healthcare organization goals.
2. Systematic view: an affiliated team should understand the needs and process of the healthcare organization's operation and the requirements of patients or other customers from higher levels of a system view.
3. Recruiting excellent cadres and workers and understanding all levels of the healthcare organization and what they should do.
4. Training medical personnel in knowledge and ability: to ensure the sustainable operation of the healthcare organization.
5. Knowing patients or other customers: knowing the needs of patients or other customers.
6. Be able to create "patients or other customers first" and clear values and goals: the vision, values, and goals should be

balanced with the needs of all stakeholders and promote their realization.

7. Be able to formulate strategies to encourage innovation: the strategy should provide methods to achieve excellent performance and assist and guide all activities and decisions of the healthcare organization.
8. Create a favorable environment: it can stimulate, motivate and encourage all staff in the healthcare organization to learn and develop themselves, be brave in innovation and express creativity, and contribute to the healthcare organization.

Excellent leaders must abide by the code of ethical conduct and put forward some practices related to the sustainable operation, such as vision, beliefs, values, goals, quality policies, paying attention to patients or other customers and stakeholders, motivating employees, innovation and learning, as well as healthcare organization governance, social responsibility and risk management. The specific practices are as follows.

1. Business philosophy, vision, and policy
  - (1) Establish healthcare management philosophy, mission, vision, values, objectives, policies, and ethics, and serve as a role model for high-quality development and excellent culture.
  - (2) Establish a healthcare quality management system, review the system's operation, and take the non-conformities, complaints from patients or other customers, competitor information, etc, as an important basis for continuous performance improvement.
2. Leadership commitment and action
  - (1) The review and tracking of the healthcare organization's quality management system, the participation of top management in goal setting, planning, performance awards and praise, the creation of empowerment/innovation/safety/equal rights environment, continuous improvement activities, and the review and tracking of the healthcare organization's quality management system, and the regular review of

- performance.
- (2) Identify employees' abilities and personal development needs, and motivate, support, and praise employees in the healthcare organization.
3. Risk management
    - (1) Healthcare leaders must take risk management as an important and serious consideration, such as health loss of equipment and personnel caused by natural and human factors, financial, safety, environment, data damage, and goodwill damage, etc.
    - (2) Establish the corresponding operation procedure to prevent the accident.

## **Strategy Management**

Organizations should draw up a set of an action plan that can achieve their 1 objectives, basic policies and strategies, standardize the use of resources required to achieve the action plan, and at the same time, let all employees understand the action plans. Furthermore, they should also plan meaningful strategic changes to improve the healthcare organization's diagnosis, treatment, service, and process, create strategic value for healthcare organization stakeholders, and respond to market and customer requirements quickly, flexibly, and customarily.

The healthcare organization should put forward some practices related to implementing strategic planning, such as forming strategic objectives and planning to achieve its vision and goals and expanding it to the operation level. The strategy should be formulated according to the needs of customers/market, based on mission, vision, and values, and carried out downward.

### **1. Goal setting**

Senior leaders set the progress of the healthcare organization president, medium-term and short-term goals, adjust them according to the internal and external environment changes, and regularly review the achievement of important goals.

## 2. Strategy formulation and deployment

(1) According to the established strategy, the healthcare organization assigns important personnel to formulate the strategy, considering the current and future needs of patients or other customers and the market, its own goals, and relevant key factors.

(2) The strategy shall be formulated according to the satisfaction of patients or other customers and the operation's growth, and the strategy shall be extended to all operation levels.

## 3. Implementation and improvement

(1) The implementation and improvement activities will respond to the requirements of patients or other customers, including simplifying the operation process of medical and administrative units. Make significant improvements in response time, and use scientific methods to carry it out to all departments or departments of the healthcare organization.

(2) The implementation and improvement activities are integrated into daily work and become a part of the regular activities of the healthcare organization.

## 4. Application of management tools and methods

(1) The healthcare organization must use scientific management methods, problem-solving technologies, and analysis tools to explore the root causes of the problems and prevent their recurrence (Wan and Connell, 2003). The approaches may include problem-solving methods, seven tools of quality control, error prevention measures, QCC, TQM, ISO, clinical pathway, 5S, quality index project (QIP), proposal system and other quality improvement methods, to improve the medical quality and business performance of the healthcare organization.

(2) Establish important strategic performance measures or indicators to measure the plans for continuous improvement activities.

## **Human Resource Management**

Human resource management refers to management of human resources. The staffs at all levels of healthcare organizations are the backbone of each department, so the staff needs a sense of belonging, valuing, achieving, etc. Furthermore, the staff can obtain the required knowledge and ability through education and training, so their ability can be brought into play through the creation of shared organizational interests. The use of good system and process methods, the implementation of the commitment and learning of the whole organization, and the shared mutual knowledge are conducive to improving healthcare performance.

People are the most important resource of any organization. Therefore, the healthcare organization's top management should actively seek to enhance healthcare organization members' knowledge, skills, creativity, and ability and encourage them to contribute to improving organizational policies and strategies.

Learning is different from organizational learning and individual learning. Organizational learning includes continuous improvement, major changes and innovations of existing methods, and the emergence of new goals and strategies. Learning needs to be injected into the operation of the organization, which means that: (1) learning is one of the daily work of the organization; (2) it is practiced at the individual, work unit, department, and organizational level; (3) the results of solving problems are reflected in the root causes of problems; (4) it focuses on building and sharing knowledge through the organization; and (5) it produces significant and meaningful changes and innovations driven by incentives. The sources of learning include employees' ideas, quality indicators, safety notices, medical behavior and medical research findings, input from patients or other customers, best practice sharing, and benchmarking learning. We should use various team organizations to engage in continuous improvement activities and strive to let team members freely share knowledge and experience to achieve organizational goals. Attaching importance to employees means the commitment to their opinions,

satisfaction, development, and welfare so that they can produce high-performance work results. The specific methods of human resource management in healthcare management include the following:

1. Show the healthcare organization's top management's commitment to the healthcare organization's members.
2. Timely praise for outstanding employees for outstanding performance.
3. Encourage all departments to pursue development and continuous improvement in the healthcare organization.
4. Share the knowledge of the healthcare organization with members so that they can provide better services to patients or other customers and achieve strategic goals.
5. Create an environment willing to take innovation risks and try the wrong things.
6. Support the collaboration environment and network relationship of different departments.
7. Encourage everyone to participate in appropriate decision-making processes.
8. Focus on valued activities for patients or other customers.
9. So that employees can be satisfied in their work and have a sense of engagement and honor.
10. Establish a learning organization and share knowledge.

## **Information Management**

Information management is the healthcare organization operation's brain, eye, and ear information center. The healthcare organization must establish and maintain an effective operation process to collect reliable data and convert such data into meaningful information required for decision-making. The information must be managed by selecting a system, including storage, security, protection, communication, and providing data and information to all relevant units. In addition, the healthcare organization shall ensure the integrity, confidentiality, and availability of information about its performance, process improvement, and progress achieved.

Healthcare organizations effectively accumulate information to generate knowledge and use systematic management to collect and process existing knowledge as the assets. They plan and implement practices related to information and knowledge management, such as selecting, collecting, analyzing, and managing data and information to improve business performance. Management should properly plan and handle the whole process of knowledge management. The specific measures are as follows:

1. Establish an information management system
  - (1) Data collection, identification, and access so that the required data and information are in a convenient state, easy to be accessed by qualified employees, suppliers/partners, patients, or other customers, and can ensure the integrity, reliability, security, timeliness, accuracy, and confidentiality of data and information.
  - (2) Ensure that information hardware and software quality is reliable and easy to use.
2. Develop the application of an information system
  - (1) Identify information needs, formulate information strategies, analyze the information and integrate data in the measurement process from all healthcare organization departments to evaluate and improve their performance for management.
  - (2) Regularly review the performance measurement methods used by the healthcare organization and continuously and regularly verify the accuracy and completeness of the data to keep the information up-to-date.
  - (3) Update all medical care software, and the health information system communicates with different software systems to prevent errors and warnings.
3. Knowledge management
  - (1) Knowledge is hidden in the operation process. Therefore, healthcare leaders must use a system management method to collect and process knowledge assets and form a knowledge cycle through continuous accumulation, analysis, transmission, and re-creation to help employees find the required knowledge and skills. The

information can also be obtained from patients or other customers, suppliers, and competitors.

(2) Healthcare organizations evaluate the derived benefits of using the information to improve the management of information and knowledge and ensure the appropriate security and confidentiality of knowledge resources.

## **Customer Management**

Customers, in the narrow sense, refer to "illness patients". Customers in the broad sense refer to "other customers, such as patients who have no pain, such as health examination, beauty... or patients who may seek medical treatment". In a narrow sense, the market refers to "serving the people in specific areas." In a broad sense, the market refers to "serving people across communities or regions". The size of the market is the number of patients and other customers. Hence, patients and potential patients are the main service objects of the healthcare organization. The healthcare organization depends on patients and other customers. The customer management department understands their current and future needs and should be sensitive to the requirements of patients and other customers and strive to exceed their expectations.

Customer management is to get patients engaged in a broad spectrum of healthy or help-seeking behaviors. It also deals with some practices related to patients and other customers and the market, such as: understanding the needs, expectations, and preferences of patients or other customers and the market, developing the market, and thoroughly communicating with patients and other customers to establish a relationship, and determine the status of key factors that lead to the satisfaction of patients or other customers, retention of patients or other customers, and business expansion.

1. Understand the patients or other customers and the medical market, explore the requirements, expectations, and preferences of patients or other customers and the need to ensure that the existing services can maintain relevance, and develop new opportunities for some practices:

- (1) Understand patients or other customers, including competitors and other potential customers or markets, and determine the target customers, customer groups, or market segments.
  - (2) Understand the current and potential needs and expectations of patients or other customers for service, schedule, price, quality, etc, and fully communicate.
2. Develop patients or other customers and their markets
  - (1) Develop critical patient or other customer needs and requirements.
  - (2) Understand the services provided by competitors, engage in technology development, and respond quickly and flexibly to customer and market requirements.
3. Patient or other customer relations and communication
  - (1) Complaint handling and patient follow-up or customer satisfaction are important management tools. Patient or other customer satisfaction, loyalty, and complaint information are used for real-time management improvement.
  - (2) Implementation of the measurement of patient or other customer satisfaction and hospitalization experience continuously provides the requirements and measures, and monitors the process information of patient or customer satisfaction feedback. If appropriate, benchmarking can be used to compare patient or other customer satisfaction with competitors.

## **Operation Management**

The resources and related activity processes required for healthcare organization operation must be systematically planned and managed to operate efficiently and effectively for achieving desired results [27]. The healthcare organization should properly identify, understand and manage the interrelated operating systems to achieve its goals. The specific methods of operation planning and management are as follows:

1. Systematic planning and operation management
  - (1) Systematically plan and control what patients' or other customers' need: design, development, medical and management services, etc.

- (2) The healthcare organization integrates new technology, quality indicators, cost control, and other efficient and effective factors into designing these processes and establishing key performance indicators.
  - (3) The management controls the primary value creation process, including appropriate statistical techniques to ensure the process meets the design requirements. Properly use information from patients or other customers, suppliers, and partners. When appropriate, how to combine inspection, inspection, and performance review to prevent diseases and reduce the use of medical resources.
  - (4) Healthcare organizations improve these processes to achieve better performance, reduce variation, and improve medical technology and services. The benefits of these process improvements on healthcare organization profitability and operation should be analyzed and evaluated.
2. Appropriate supply chain management
    - (1) In the activities related to supply chain management, the procurement process must be defined and operated to ensure the compliance of purchased products from specification to receipt. In addition, the evaluation and control of the purchased products to meet the healthcare organization's and stakeholders' needs is essential to achieve higher levels of performance.
    - (2) Healthcare organizations should systematically select and evaluate suppliers, outsourcers, and cooperative institutions. Then, establish a feedback mechanism, regularly give feedback on the performance evaluation results to suppliers, outsourcers, and communal institutions, and find a long-term supply chain partnership of mutual benefit and mutual trust through communication and sharing.
    - (3) Management determines the requirements of key supply chain processes and important performance values or indicators used to control and improve these processes.
  3. Establish a total quality management system
    - (1) Implement a quality management system that requires CNS 12681 (ISO 9001:2015) or CNS 12684 (ISO

9004:2018) for sustainable and successful healthcare management - quality management approach standards.

(2) The implementation conforms to the standards of environmental management system cns14001 (ISO 14001:2015).

(3) Implementation of the occupational safety and health management system CNS 45001 (ISO 45001:2018) or integrate the current quality, environment, occupational safety, and health management system into a single and integrated effective management system.

(4) Others: where appropriate, refer to the use of standards related to tasks, such as medical care quality indicator system, clinical effectiveness indicators, health, and medical equipment standards, specific standards for medical equipment testing, particular requirements for medical experiment quality and ability.

## **Innovation Management**

Innovation" means engaging in meaningful changes and exchanges to improve the healthcare organization's diagnosis, treatment, service, and process and create new value for the healthcare organization stakeholders. To improve the professional reputation and competitiveness of the healthcare organization, the healthcare organization uses innovation ability to change rapidly and flexibly respond to market needs. It strengthens the differentiation of medical technology and the branding of services. The details are as follows:

### **1. Astute aspect**

Success in the changing medical environment depends on "agility" - a rapid change and flexible response. Electronic communication and information transmission can respond more quickly, flexibly, and customarily. The major improvement in response time usually requires simplifying the healthcare organization's organizational structure and working process. The major improvement in response time usually needs to start with establishing a new working system. Employees trained and empowered interactively are important assets trained in this demanding environment. Time performance has become more important, and cycle

time has become a fundamental process measurement method. Time improvement often drives the progress of work system, organization, quality, cost, and treatment results simultaneously.

Today's medical environment attaches great importance to designing a real-time medical delivery system, disease prevention plan, and effective and efficient diagnosis and treatment system. The overall design should include learning opportunities for continuous organizational improvement and consider patients' needs. The design must also include methods to effectively determine the improvement of health status for patients or other customers and specific communities.

2. Innovation

Innovation means engaging in meaningful change to improve medical technology, services, and processes and create new value for organizational stakeholders. In addition, innovation needs to advance the organization into a higher level of performance. It is no longer limited to the R & D department. Innovation is also vital to all work systems and processes of an organization's operation.

3. Thinking

People with new ideas will always try their best to make things different and better. However, this is only the primary stage of reaching innovative thinking. If new ideas employees can further establish systems and change the game's rules to create new or added value, they will enter the intermediate level. What is more brilliant is the "paradigm shift," just as Harvard professor cliff advocated destructive or interrupted innovation and repeatedly proposed the original product paradigm, which entered the advanced stage.

## **Resource Management**

According to the short, medium, and long-term goals achieved, the healthcare organization must identify the internal and external resources needed, such as personnel, equipment, infrastructure, materials, energy, knowledge, finance, etc. In addition, resource management is implemented to ensure the

realization of healthcare organization objectives, such as allocating appropriate resources for the value creation process and support process, planning, resource allocation, human resources, infrastructure, knowledge, financial resources, natural resources, and product life cycle management.

1. Work management

(1) Healthcare organizations should regard internal and external human resources as the most important resources. Therefore, healthcare organizations provide workers with appropriate education and training to enhance their knowledge, experience, and ability to be competent in their work and contribute to improving healthcare policies and strategies.

(2) Use various team healthcare organizations to enable everyone to participate in continuous improvement activities, establish incentive systems, stimulate the potential of employees to improve the healthcare organization's effect and efficiency, and freely share knowledge and experience in teams or groups to achieve healthcare goals.

2. Financial, technical and intellectual resources management

(1) Implement and maintain the financial and intelligent property management system and continuously improve its effectiveness.

(2) Provide innovation funds and rewards to motivate employees' innovation ability.

3. Infrastructure management and work environment management

(1) Use the focus group method to invite relevant and willing people to conduct in-depth small-group interviews to show the healthcare's sincerity and specific practices in paying attention to customer needs.

(2) Determine the work environment required to meet product requirements, including creative working methods and more opportunities for participation. Moreover, the healthcare should consider personnel safety rules and guidance, workplace environment, personnel interaction, energy conservation measures, environmental greening, etc.

## **Social Responsibility**

Healthcare organizations should establish organizational integrity that will abide by their commitments, fulfill their social responsibilities, and become a good citizenship. They will also be respected and loved by patients and their families, and it will be easy to achieve the goal of sustainable operation. The details are as follows:

1. Healthcare leaders should regard integrity and social responsibility as the corner stone of medical treatment and a moral image. It is our responsibility to promise to comply with the requirements of laws and regulations, medical ethics, and social ethics and to become good citizens. Healthcare leaders must devote themselves to doing everything well, starting from improving the working environment and treatment of employees, and then care about their families, local communities, and society, including the commitment to environmental protection, energy conservation, carbon reduction, green manufacturing, employee safety, and employee rights.
2. Consider the needs and expectations of medical stakeholders for services, such as compliance, dependability, medical safety, medical responsibility, and environmental impact. Apply the concept of corporate governance, abide by medical ethics, and comply with laws and regulations to avoid the possible negative impact of the services provided by the healthcare on society, including tax, industrial safety, consumer protection, health, etc.

## **Performance Management**

For the growth and sustainable operation of healthcare organizations in the survival competition, appropriate key performance indicators (KPIs) should be set internally and externally to identify and evaluate risks and opportunities. Continuously review the implementation results of the set work items and objectives as a reference for improvement. At least three years of the continuous results or KPI information are required to confirm the implementation effect. These specific results include:

1. Achievements of organization and Leadership:
  - (1) Achievements in shaping healthcare culture: representing the changes in healthcare culture driven by leaders in the process of realizing the vision and goals of the healthcare organization, indicators should be established to measure, such as the progress of key performance indicators in terms of operational performance, the achievement of key growth goals, etc.
  - (2) Non-key indicators of healthcare organization staff: such as patient satisfaction or reduction of customer complaints. In terms of employee behavior, have employees started to show some important behaviors at different levels? For example, it is the database of customer relationship management regularly updated? In terms of implementation, has the set action milestone been achieved? Is a new policy successfully implemented? Do employees keep their commitments to key customer goals? Especially the results showed the survey on the values and mentality of all the staffs in the healthcare organization. For example, employees' speech and behavior, office layout, participation in innovation and improvement, etc.
2. Strategic planning results: some results of strategic planning measures. For example, medical consortia and suppliers integrate vertically and horizontally or achieve the growth goals of merger & acquisition and market expansion.
3. Human resources management results: employee satisfaction and dissatisfaction and important measurement indicators in development, current level and trend, employee turnover rate, production contribution rate, or current status and trend of average productivity per person, and the current level and direction of the minimum education and training hours, education and training hours, the average number of proposed improvements / total number of proposed improvements, and the number of expertise per employee per year.
4. Information management achievements
  - (1) Information system use achievements, such as management information system (MIS), enterprise resource planning (ERP), etc, and the application achievements of the information provided in management decisions.

- (2) Knowledge management achievements collect and process the existing knowledge assets of the healthcare organization and the number of knowledge assets generated through continuous accumulation, analysis, transmission, and re-creation.
5. Customer management achievements
  - (1) Market achievements: the current level and trend of important measurement indicators of market performance, such as market share, service growth rate, or other similar objective data.
  - (2) Patient or other customer satisfaction results: the healthcare's current level and trend information in the important measurement indicators of patient or other customer satisfaction and dissatisfaction, including the comparison with the satisfaction level of competitors.
6. Operation management achievements
  - (1) Operation design achievements: the design and development of the main medical services the healthcare is engaged in and the process of its implementation, which are used to improve market performance and operational performance.
  - (2) Operation process results: the current level and trend of important measurement indicators in important process design, healthcare services, service provision, and other processes and operational performance improvement. These include healthcare objectives, productivity, bed utilization, mortality, research and development, cycle time, supplier/partner performance, and other appropriate effect and benefit measures.
7. Innovation management achievements

The innovation achievements can include: new knowledge, new concepts, new processes, new methods, new technologies, new marketing methods, new strategies, new systems, new customers, new environments, new employees, new undertakings, new products, new services, patents, new leadership structures, new business models, new performance evaluation methods, etc, and various value-based innovation fields.

8. Resource management achievements

The current level and trend of important financial performance and technology and intellectual property resource measurement indicators, such as return on investment, profitability, asset-liability ratio, added value per employee, technology and intellectual property, etc. Value-added results will be generated in the supply chain management as well as the outsourcing resource management process.

9. Achievements of social responsibility

It represents performance in line with the achievements of integrity and social responsibility, such as employee wellness/health and care, environmental protection, energy conservation, and safety maintenance, corporate governance, etc. Some good image honors and/or testimonials obtained from participating in the corporate social responsibility (CSR) awards and engaging in social welfare activities can also be used as evidence that demonstrates social responsibility achievements.

## Results

The way of implementation: from the above ten important principles and specific practices, it is simply for leaders interested in pursuing high-quality development to point out the areas that should be paid attention to in healthcare management and operation. If they are to be done well, the "important activities" should be implemented, and their performance measured to produce specific results. For the individual projects in the above ten key items of healthcare excellent quality management model, we should regard it as a topic that Healthcare leaders should pay attention to. Each subject has its specific practices. The planning and implementation of these practices must comply with two principles: 1) The first is related to achieving healthcare goals, and 2) the second is increasing value. Healthcare leaders should take the ten key issues of concern and their development projects as the "root of governance" and thoroughly implement them.

## Conclusion

This article presents the healthcare excellent quality management model. It references the international excellent quality management model in ISO 9001:2015, the excellent quality management model in Europe, and Baldrige excellent quality management model in the United States.

Healthcare organizations can explore the pursuit of high-quality development management under the guidance of the excellent quality management model, continuously improve their core competencies and competitiveness of healthcare organizations, and promote high-quality, sustainable development. In the future, healthcare organizations can use the healthcare excellent quality management model (HEQMM) innovated in this article to improve healthcare management performance and provide added value health services to patients with the highest quality.

## References

1. Management system standards. Available online at: <https://www.iso.org/management-system-standards.html>
2. Bravi, Laura, Murmura, Federica, Santos, Gilberto. The ISO 9001:2015 Quality Management System Standard: Companies' Drivers, Benefits and Barriers to Its Implementation. *Quality Innovation Prosperity*. 2019; 23: 64.
3. Abuhav I. ISO 9001: 2015 - A Complete Guide to Quality Management Systems (1st ed.). Boca Raton: CRC Press. 2017. Available online at: <https://doi.org/10.4324/9781315369808>
4. Fonseca, Luis, Domingues, Pedro. Fonseca L, Domingues. P. 2017. ISO 9001 2015 The-results-are-in. *Quality Progress*. 2017; 50: 26-33.
5. Baciuc C, Darabont DC, Bejinariu C, Ioniță I, Bernevig-Sava M, et al. Considerations on improving occupational health and safety performance in companies using iso 45001 standard. *Environmental Engineering and Management Journal*. 2018; 17: 2711-2717.
6. Ezrahovich AY, Vladimirtsev AV, Livshitz I, Lontsikh PA, Karaseva VA. Risk-based thinking of ISO 9001:2015 — The new methods, approaches and tools of risk management. 2017

- International Conference "Quality Management, Transport and Information Security, Information Technologies" (IT&QM&IS). 2017; 506-511.
7. Fonseca, Luis, Domingues, Pedro, Baylina, Pilar, et al. ISO 9001:2015 adoption: A multi-country empirical research. *Journal of Industrial Engineering and Management*. 2019; 12: 27-50.
  8. The EFQM Model. Available online at: <https://efqm.org/the-efqm-model/>
  9. Nabitz U, Klazinga N, Walburg JAN. The EFQM excellence model: European and Dutch experiences with the EFQM approach in health care. *International Journal for Quality in Health Care*. 2000; 12: 191-202.
  10. Van Schoten S, de Blok C, Spreeuwenberg P, Groenewegen P, Wagner C. The EFQM Model as a framework for total quality management in healthcare: Results of a longitudinal quantitative study. *International Journal of Operations & Production Management*. 2016.
  11. Moeller J. The EFQM Excellence Model. German experiences with the EFQM approach in health care. *International Journal for Quality in Health Care*. 2001; 13: 45-49.
  12. Favaretti C, De Pieri P, Torri E, Guarrera G, Fontana F, et al. An EFQM excellence model for integrated healthcare governance. *International Journal of Health Care Quality Assurance*. 2015.
  13. Asadzadeh SM, Tanhaeean M, Abdi N. Recognizing dissimilarities between resilience engineering and EFQM approaches to ensure safety in hospitals. *Human Factors and Ergonomics in Manufacturing & Service Industries*. 2019; 29: 233-252.
  14. Pattanaik B. Quality Assessment Using EFQM Model for Overall Excellence of Indian Health Care Sector. *Indian Journal of Public Health Research & Development*. 2020; 11.
  15. Yousaf M, Bris P. A systematic literature review of the EFQM excellence model from 1991 to 2019. *International Journal of Applied Research in Management and Economics*. 2019; 2: 11-15.
  16. Baldrige Performance Excellence Program. Available online at: <https://www.nist.gov/baldrige>
  17. Winn BA, Cameron KS. Organizational quality: An examination of the Malcolm Baldrige national quality framework. *Research in Higher Education*. 1998; 39: 491-512.

18. Wilson DD, Collier DA. An empirical investigation of the Malcolm Baldrige National Quality Award causal model. *Decision Sciences*. 2000; 31: 361-383.
19. Foster TC, Johnson JK, Nelson EC, Batalden PB. Using a Malcolm Baldrige framework to understand high-performing clinical microsystems. *BMJ Quality & Safety*. 2007; 16: 334-341.
20. Curkovic S, Melnyk S, Calantone R, Handfield R. Validating the Malcolm Baldrige National Quality Award framework through structural equation modelling. *International Journal of Production Research*. 2000; 38: 765-791.
21. Harsanto B. Innovation in hospital: Learning from Malcolm Baldrige Awards latest winners in healthcare. In *International Conference Health, Science and Technology (ICOHETECH)*. 2021; 62-64.
22. Daryono D. Investigation of The Influence of Malcolm Baldrige National Quality Award (MBNQA) On Health Service System Performance. *Sustainable Competitive Advantage (SCA)*. 2022; 12.
23. Aydın I, Tütüncü Ö. The Effects of Business Excellence to Internal and External Customer Opinions in Healthcare. *International Journal of Health Management*. 2021.
24. Tourism.Purba HH. A systematic literature review of Malcolm Baldrige National Quality Award (MBNQA). *Journal of Technology Management for Growing Economies*. 2021; 12: 1-12.
25. Purba HH. A systematic literature review of Malcolm Baldrige National Quality Award (MBNQA). *Journal of Technology Management for Growing Economies*. 2021; 12: 1-12.
26. Wang BL. *Healthcare Quality and Safety Management*. Beijing: Chinese Peking Union Medical College publisher. 2021.
27. Wan TTH, Cornell AM. *Monitoring the quality of health care: Issues and scientific approaches*. Boston: the Kluwer Academic Publishers. 2003.