Developing a Total Quality Management Framework for Healthcare Organizations

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Abstract

Quality management has become an important issue in healthcare organizations (hospitals) during the last couple of decades. The increased attention to quality is due to governmental regulations, influence of customers, and hospital management initiatives. So, the role of government as the main provider of healthcare (HC) services has changed. Additionally, the healthcare market is changing from a producer-oriented to a customer-oriented market due to the increasing influence of customers and public pressures. As a consequence, the patient is becoming a customer for the healthcare organizations, or more likely a direct strategic partner who participates in a decision-making process. The changes in environment, society, and political policies have significant impacts on management in hospitals as well. There are many difficulties in managing healthcare organizations in a competitive marketplace with a little support from official bodies especially in a small country like Jordan. The purpose of this paper is to provide a framework for implementing the total quality management concept that is compatible with the local culture of Jordan.

Keywords
Total quality management, healthcare system, quality of care.

Theoretical Background

Total quality management is a system that makes quality the responsibility of all clinicians and administrators throughout the health care organization. In TQM, systems are established to prevent clinical and administrative problems, increase patient satisfaction, continuously improve the organization's processes, and provide healthcare services as good, or better, then those of the competitors. Customer focus, error prevention, employee participation, teamwork, systemization, leadership and continuous quality improvement are TQM universal management concepts that can be transferred to any business setting. TQM uses quality as the fundamental measurement metric, continuous improvement as the philosophy and employee involvement as the approach. Therefore, TQM programs in healthcare can be measured, without the need for a deep knowledge of the industry unique circumstances.

TQM Definition in Healthcare

In healthcare services there are three definitions distinguished TQM from other approaches:
One is that TQM is a "Comprehensive strategy of organizational and attitude change for enabling personnel to learn and use quality methods, in order to reduce costs and meet the requirements of patients and other customers. (Ovretveit, 2000)
A second definition by Donabedian refers to quality as "the maximization of patient's satisfaction considering all profits and losses to be faced in a healthcare procedure" (Donabedian, 1989).
A third definition given by US theories (William & Johnson, 2013) emphasized that TQM is a management method: "TQM/CQI – Continuous Quality Improvement – is simultaneously two things: a management philosophy and a management method".

They propose four "distinguishing functions", which are often defined as the essence of good management which includes:

- Empowering clinicians and managers to analyze and improve process;
- Adopting a norm that customer preferences are the primary determinants of quality and the term "customer" includes both the patients and providers in the process;

- Developing a multidisciplinary approach which goes beyond conventional departmental and professional lines; and
- Providing motivation for a rational data-based cooperative approach to process analysis and change.

Understanding the methods of TQM implementation in healthcare system can provide insights that will help develop approaches to facilitate and enhance the successful TQM implementation within the local culture.

For the purpose of this paper an amended definition for Total Quality Management in healthcare will be used, a one that is more applicable and more coherent to the local culture. TQM will be thus defined as "A management approach for medical organizations to enhance the satisfaction of involved parties (e.g. patients, doctors, nurses,

suppliers, and other supporting bodies)." This definition differs from other definitions because it focuses on the essential areas where management can take proper actions under the special circumstances that have power over the healthcare business in Jordan. It takes into consideration the importance of all providers and the role that top management has to play in communicating its new TQM concept. It also concentrates on the importance of process simplification which will lead to a better time management and a lower cost indeed.

Quality of Patient Care

The term quality of patient care is still subject to debate and has no specific definition yet, since the guides to quality of healthcare are highly probabilistic due to estimations of the outcomes. The outcomes are not certain; therefore the measures of its quality must include dimensions of both the outcome of the care provided and processes by which the care is carried out. Consequently measures of quality of care should include an evaluation of the provider-patient relationship. For the purpose of this study the definition of quality of healthcare has been developed to consider the patient's, the doctor's, and other supporting factors perspectives. Hence, the following definition was used to encounter all above mentioned standpoints. Healthcare is "the proper implementation of an agreement between a patient, a physician, a nurse, and/or physicians and a healthcare organization regarding a medical intervention that is in a harmony with actual professional standards and protocols applied within the organization".

The question that may suggest itself now, who is responsible for detecting the possible problem that might affect the quality of care provided. It's a responsibility of the quality assurance (QA) team to find out the possible problems? And thus (QA) maybe viewed as "all the measures that lead to the identification of a problem in any of the three components of the medical systems, setting up to improve the quality of care through the use of quality tools". In the case of applying traditional methods in managing a medical organization the answer is yes, it's the responsibility of QA to locate the problems. But, when we seek continuous improvement and customer satisfaction both external and internal, the answer is very big NO. Continuous improvement mainly depends on the "the level of customer satisfaction, measurements that lead to excellence in business performance (Gorst, etal., 1998).This component allows health services to shift from reacting to proacting, and from focusing on self-determining health service organizations to focusing on healthcare systems. And thus problem identification becomes the responsibility of every single person within the system.

Specifying Quality in Healthcare Service

Hospitals focus on creating physical, mental, and social environments that are good for both customers – patients, and staff. Externally managers concentrate on promoting the health and wellbeing of communities, and on reducing costs of the healthcare service (Ovretveit, 2000). A variety of studies have come to the conclusion that providers and patients add dimensions to measuring quality in hospitals. In this respect, public (stakeholders) opinion plays a vital role, because it provides an opportunity for providers to become aware of problems and quality characteristics from point of view of patients. Identifying the different levels of aggregation of healthcare services will help us to understand the perspectives from where each level will attend and deal with the new concept of total quality management. We suggest here four levels of aggregation were identified each with certain quality characteristics. That is each with different degree of reliability, responsiveness, assurance, empathy, information and representation.

1- Fundamentals of care: the basic level at which quality principles will apply across all areas of care, characteristics at this level may include, privacy, communication, responsiveness, and empathy.

2- Generate area of care: are those which are common to a limited range of specialties or conditions, such as cancer treatment services, day case surgery, and emergency care. Quality characteristics at this level would include acceptability, information, appropriateness and equity.
3- Clinical specialty: this level allows principles to apply to all patients cared for by a specialty area such as physiotherapy, radiology; quality characteristics in this level would include accessibility, efficiency, and reliability.
4- Individual condition or care group: at this level, care is considered for particular conditions or patient care group, such as diabetes, maternity. Quality characteristics would focus on technical issues an example of clinical appropriateness and effectiveness.

Hospitals are the core of the healthcare service, since they provide patients with all the complex medical procedures whenever needed. But, hospitals are facing sort of compound problem that is tightening and eliminating them from improving their services without sacrificing the quality of their services. This problem is the increasing cost of providing the healthcare service on one hand and competition on the other hand. Yet, there is a way of doing things without any sacrifice, a way of reorganizing things in order to increase the efficiency (the cost side of the story) and effectiveness (the quality) of hospitals, this way is through the adoption of TQM. Nevertheless, hospitals have been shown to be open systems that interact with their environments, exchanging and transforming material and information in a manner that enables them to develop, maintain structural integrity and stay viable

According to McLaughlim & Kaluzny (1990), TQM is more than a change in values and responsiveness by top management. It requires rigorous process flow and statistical analysis, evaluation and ongoing activities and the recognition and application of underlying psychological principles affecting individuals and groups within an organization. It requires accepting the fundamental assumption that most problems encountered in healthcare organizations are the result of the structures and/or systems and not errors by administrative or clinical professionals, but the inability of the structure within which all personnel function.

Meanwhile, we can develop a TQM model for healthcare service organizations which is very similar to the Deming model. In his model, which presented later on, TQM is defined as a method of leadership and management which:

- Analyzes system for errors and variation rather than blaming people;
- Develops long term partnership with external and internal suppliers;
- Uses accurate data to analyze processes and measure system improvement;
- Involves the staff who work in system analysis and improvement;
- Sets up effective collaborative meetings as the basis of teamwork;
- Train supervisors and managers in leading the ongoing improvement process;
- Engages staff in setting targets and ensures that results are feedback;
- Highlights the need for senior executives to plan strategically;
- Achieves long-term improvement through small incremental steps.

This model challenges traditional hospital management practices. Traditionally, much interest was paid by hospital management to professional quality – certification of professional training programs and education, development of new quality standards and guidelines. However, after the big success of TQM in the manufacturing sector, and the increased professional standards of management, processes other than primary healthcare processes are reconsidered. Managers of hospitals start to think in terms of care systems, with an increasingly important role for customers – patients.

Selected Total Quality Management Practices in Healthcare

For the successful implementation of a quality approach that will eventually lead to quality improvement of the provided healthcare service, the following factors were derived and considered necessary (Laffel & Blumenthal, 1989):
1- An active, visible support from clinical and managerial leadership for continuous quality improvement.
2- A focus on processes as the objects of improvement.
3- The elimination of unnecessary variation.
4- Revised strategies for personnel management.

Obviously, much research has been carried out aiming to evaluate and eventually improve the hospital healthcare quality at a global level. The rationale behind this study is to enhance the understanding of the relationship between quality management, performance and customer satisfaction in the hospital under study through the diagnostic of causes of problems that may affect the quality of the services provided.

Furthermore, Thomas Plochg & Niek Klazing (2005) have been tried to explore theoretically the reasons for the modest uptake of clinical governance practices by taking the literature on the origin of tensions between

doctors and managers as the starting-point. Design/methodology/approach – is the approach of doctors and managers to the division and coordination of medical work are analyzed theoretically from a twofold perspective that combines insights from sociologists` theories on `professionalism' and administrative scientists` theories on `management science`. Findings are the combined perspective theoretically explains the problems between doctors and managers that frustrate the uptake of clinical governance practices. By inference from this analysis, a twofold agenda for a constructive dialogue is proposed. Doctors and managers must develop a shared vision of the division and coordination of medical work as well as discussing the values, norms and goals underlying patient care. It's a questionable, however, whether this agenda is currently adequately addressed.

Ching Horng and Fenghuhei Huarng (2001) conducted a deep study by collecting data from 76 hospitals in Taiwan to test a multilevel model addressing the issue of TQM adoption as one type of organizational adoption.

They focused on the extent of TQM adoption by the individual hospitals as dependent variable. As for the independent variables, they selected five multilevel constructs: the scope of the network cooperation, the nature of the network relationship, organizational identity, adoption strategy and organizational citizenship behavior. Results from the regression analysis indicate that both the nature of the network relationship and prospector strategy is positively and significantly related to the extent of TQM adoption.

Theodorakioglou, D (2000) conducted a research in Greek public hospitals in 1998. The research analysis showed that the Greek hospital sector is facing a serious crisis. On one hand, this crisis appears in the sharp rise of service cost, and on the other hand, it appears in the increased public demand for an improved healthcare system. The main conclusions of the research were as follows:

- The implementation of quality management systems in Greek public hospitals is rare. In most cases, the successful implementation of quality programs is excluded, since an active and visible support from managerial leadership does not exist.
- The lack of information systems for data saving and filing obstructs the effective diffusion and use of information.
- The ignorance of essential quality terms by superior managers and physicians is discouraging but also indicative of the lack of information and appropriate education of hospital employees regarding quality issues.
- Owing the insufficiency of hospital staff, operational problems are apparent in hospitals.

Karin Newman, et al., (2000), conducted a study that aimed to deal with the issue of nurse recruitment, retention, healthcare quality and patient satisfaction. The paper depicts and describes a generic conceptual framework or chain derived from a review of the literature on nurse recruitment and retention, service quality and human resource management. The chain is made up of the following elements: National Health System (NHS), and trust conditions and environment (internal quality) – service capability- nurse, satisfaction-nurse retention- quality of patient care-patient satisfaction. The value of the chain is derived from its synthesis and display of the prime constituents of drivers of patient care and satisfaction. The paper ended up with the conclusion that nurse retention and turnover are complex issues and cannot be examined in isolation from each other. From the issues highlighted, it is evident that some factors play a greater part in nurse turnover behavior and lack of patient satisfaction, but its usually the culmination of a number of different factors which eventually result in nurse turnover or poor quality of patient care.

Tony Conway and Stephen Willcocks (1997), presented a conceptual model of quality which incorporates an expectation framework. The paper was promoted by a related empirical study that examining the relevance of the role theory to managerial effectiveness. There is some support from the data for a model which helps to understand the relationship between perceived service quality and patient expectations, patient experience, confirmation/dis-confirmation of expectations and the degree of patient satisfaction. In particular, it is felt that such an explanatory model may be managerial value in that it has the potential to identify key areas of concern and areas for action.

Unlike the above reviewed studies, through this paper, we attempt to present a model that can help the healthcare organizations to implement TQM principles in a Jordanian environment. The model emphasizes on the managerial part in the adaption of TQM, bearing in mind that this issue is the most important one due to environmental reasons and the present type of management adopted by top management.

Measuring the Quality in Healthcare Service

Three characteristics of healthcare services contribute to the difficulty of measuring it, these are: service intangibility, performance heterogeneity, and customer-producer inseparability. However, unlike other services in the healthcare context, the patient/customer participates in the delivery of the service, and therefore, both performance and quality will be affected by the patient/customer actions, moods, and cooperativeness. These dimensions of health care services make it:

- More difficult for customer/patients to evaluate
- Evaluations made are not only on the output but also on the delivery process itself

Understanding the structure and psychological process underlying perceived quality was the focus of too many studies. Customers' perceptions of the service quality or customers' assessment of the overall excellence or superiority of the service, is considered as a corner stone in measuring the service quality. Parasuraman (1991) shown the conceptualization of the customer's evaluation of overall service quality as the gap between expectations and perceptions of service performance levels. Furthermore, he proposed the SERVQUAL tool, which was designed to measure service quality.

In healthcare patient satisfaction is the aim of using SERVQUAL which will be used later in this study to assess and measure the patient's satisfaction. It is important to note here that patient satisfaction affects a number of vital issues. Since it affects the use of the medical service provided by healthcare organizations, it also affects the kind of relationship between the patient and service providers. Moreover, patient satisfaction data contribute to the monitoring of healthcare delivery at all levels within the organization. i.e.,

- Organizational level (hospital, clinic, etc.)
- Unit level (surgical, laboratory, etc.)
- Individual level (nurses, physicians, etc.)

Patient satisfaction is a patient's (affective or emotional) response to his or her (cognitive or knowledge-based) evaluation of the healthcare provider's performance (perceived quality) during a healthcare consumption experience.

SERVQUAL a Perfect Tool for Assessing Quality

Patient satisfaction inquiries are very popular in healthcare due to several reasons behind this, the efforts of quality management and improvement, to increase attention to customers. Therefore, patient satisfaction has been seen as a measure of quality, and questionnaires are the most commonly used instruments for data collection.

It is increasingly recognized that patients should be given a voice in the assessment of the service quality that is offered to them by the healthcare organizations. The well known SERVQUAL tool is considered as a good approach for measuring the customer satisfaction. Patient satisfaction surveys are often seen as the natural outcome

of the increase in consumerism. However, several authors point out that patient satisfaction surveys are used to fulfill some multiple objectives, including Quality Audit (QA) of the quality of medical and nursing care on the one hand, and the derivation of an outcome measure for the evaluation of care and the organization of service on the other hand.

The SERVQUAL methodology is primary developed to measure satisfaction with service industries. The approach starts with the hypothesis that service quality is critically determined by the difference between customers' expectations and perceptions of the services. The method is predicated upon the gap to be discerned between customers' expectations of a service and their perceptions of service as actually experienced.

Research by (Parasurman, et.al., 1991) has shown that regardless of the type of service, customers use basically similar criteria in evaluating service quality. The criteria fall into ten key categories as follows:

- Reliability, which involves consistency of performance and dependability.
- Responsiveness, concerns the willingness or readiness of employees to provide service. It involves timeliness of service.
- Competence means possession of the required skills and knowledge to perform the service.
- Access involves approachability and ease of contact.
- Courtesy involves politeness, respect, consideration and friendliness of contact personnel.
- Communication means keeping customers informed in language they can understand and listening to them.
- Credibility involves trustworthiness, believability and honesty. It involves having the customer's best interest at heart.
- Security is the freedom from danger, risk or doubt.
- Understanding involves the efforts to understand the customer's needs.

- Tangibility includes the physical evidence of the service like physical facilities and appearance of personnel.

The gap between expectations and perceptions may be analyzed with respect to five dimensions determined from an examination of the content of the ten service quality items discussed earlier. The final list of dimensions and their concise definitions will be as follows:

1- Tangibility: physical facilities, equipment and appearance of personnel.
2- Reliability: ability to perform the promised service dependably and accurately.
3- Responsiveness: willingness to help customers and provide prompt service.
4- Assurance: knowledge and courtesy of employees and their ability to inspire trust and confidence.
5- Empathy: caring, individualized attention the firm provides to its customers.

Application of SERVQUAL can be used to make comparisons globally over time. It's possible to ascertain those elements of service in which the gap between expectations and perceptions is widest. The application of this instrument and results of measurement allows possibilities of more specific management action to readdress perceived outcomes.

The Unique Relationship between Hospitals and Medical Staff

The successful introduction of TQM in hospitals requires the involvement and commitment of all parties in providing the service. Yet, this commitment presents a problem for hospitals since not all the parties are directly employed by these hospitals. The physicians and specialists usually work on their own and have limited commitments with the hospital they corporate with. Most doctors believe that their interests are not directly tied to that of the hospitals they work with. In fact, barriers by physicians' involvement may turn out to be the most important single issue impending the success of quality improvement in medical care.

The difficulty of involving physicians in TQM has its roots in hospital structure. In most hospitals usually two bodies exist; the hospital on one side and the medical staff on the other side with all the conflicts between these two bodies. Doctors view patient care as very individual and private affairs. As members of an old and highly respected profession, physicians have operated autonomously and have been accountable only to themselves and their peers. The complexity of medical care kept them immune from outside scrutiny and regulation. Because of these privileges physicians perceive themselves as losing power and influence, and may see TQM as an assault on their independence. They view TQM as a program which will replace what was largely subjective process controlled by them, with as objective and statistically based discipline which is not under their control.

Thus, the tools and methods of TQM are foreign to physicians and considered abstract and irrelevant to individual patient care. Therefore, finding a way to overcome physicians' resistance becomes a priority for the managers who are seeking a successful and fruitful implementation of TQM in hospitals.

It is very important that doctors become committed to quality. This can be achieved by avoiding a threatening presentation for the TQM program, building common believes among physicians by involving them from the early stages of TQM this involvement will increase the chances of success. Lopresti and Whetstone (1993) recommended that involving physicians in establishing TQM should begin with a few interested physicians and expand to others as their involvement begins to attract support. Thus, to resolve the conflict between doctors and hospitals a new leadership style is again needed a one that is capable of bridging the between the two bodies. The areas of conflict outlined are summarized below in Table (1).

Table (1) the areas of conflict between doctors and hospitals

Area of conflict	Professional view	TQM view
Responsibility	Individual	Collective
Leadership	Individual	Managerial
Autonomy	Individual/peers	Accountability
Planning	Rigid	Flexible
Feedback	Responses to complains	Benchmarking
Performance Appraisal	Retrospective	Continuous
Authority	Administrative	Participation

Accordingly to the Table (1) identifies the area of conflict between doctors and hospitals and clarifies the viewpoint of each party concerning that particular area contained by two different types of management.

Proposed TQM Framework for Jordanian Healthcare Organizations

Adopting TQM will help to enhance the financial situation of the healthcare organization, and it will also help to overcome many other problems like manpower shortfalls, qualifying medical staff internally, reduce the number of patients complains, an increase of efficiency-orientation. However, in order for TQM to succeed there must be a framework within which it can work, act and react.

This work suggest a framework for the proper application of TQM in healthcare organizations will be illustrated and discussed, the framework model is built to match both the social and organizational needs of any private healthcare organization with in the local environment. However, its applicability is expected to extend to any healthcare organizations.

Framework for Hospital Quality Management

As mentioned earlier there are certain trails to assess the quality of healthcare in the local market. These attempts may be considered as single interventions that proved little effect. In most hospitals, a manager will be appointed with responsibility for quality improvement. But the question remains what is the best to do? And how quality will be approached? Choice of what to do should be guided by a comprehensive framework enabling a diagnostic analysis of needs.

For the purpose of framework development, it is important to mention that hospital quality management involves at least the following structures:

- Resources;
- Activities;
- Patients;
- Processes;
- Leadership;
- Policy and strategy;
- Society;
- Performance results.

The proposed framework took into consideration most of what European Foundation of Quality Management (EFQM) and ISO models, yet it offers a good opportunity for a hospital to self assess the degree to which it wants to deploy quality management. Both models have certain barriers if we just want to duplicate any of them as it is. Therefore, a simpler model is needed to adopt the Jordanian environment, and a customize one that can be applied in this environment. Such a framework model must pass through six degrees of development:

- Representation of reality;
- Setting up a strategy and defining priorities;

- Specifying priorities in measurement criteria;
- Defining standards;
- Understanding the gap between expected and observed values;
- Providing accountability guarantees.

Developing a TQM Framework for Healthcare Service in Jordan

It has been emphasized that TQM is used as a corporate strategy in healthcare organizations in Jordan which implementation successfully will contribute in achieving customer satisfaction, it is also will mobilize the healthcare organization to achieve its strategic goals and objectives. These achievements can be contributed through the followings:

- Upgrade the service quality,
- Improve performance,
- Prevent costly (critical) mistakes,
- Reduce medical treatment,
- Increase the satisfaction of working staff, and
- Develop the patients' satisfaction

The process of continuous quality improvement in Jordan must be linked to the achievements of these strategic goals. So, we have to show that strategies to implement a hospital quality management system are possible. By following this model, healthcare organizations are expected to eliminate the obstacles and enhance their processes systematically and successfully. The framework development will follow the below sequence:

1- Establishing commitment for the change. Top management of the healthcare organization must trust in the success of TQM implementation. This trust must be transferred to the employees by explaining the reasons behind the adoption of TQM. This is why the leadership must support the change and must commit them to the change.
2- Settings the principles and policies of quality. The first thing or action to do for implementing TQM successfully is to start changing the traditional organizational culture to become quality oriented and customer oriented. This change must be managed properly by the top management that has to start listening to the internal customers, participate in teams, in other words the top management must start to show practical support to TQM programs.
3- Establishing the right infrastructure for the change. The top management and its partners in the change must try to correctively instill new concepts of quality by making quality the core of meetings, communications, the new mission, vision, and goal statement, must all evolve around the new concept and how it has to be carried out.
4- Conducting educational training. To make quality a way of living and a trend of thinking employees must be subject to intensive training programs that aim at the education of the participants.
5- Constructing the teamwork. For TQM to fully function teamwork and participation are the engineering powers, especially in the medical service.
6- Adjusting the style of leadership. The top management should start by now to move on from the old fashion management style – control style – to a more open style based on encouragement listening, teamwork style – innovative style.

7- Knowing the internal customers' requirements. Now and after the fact that all employees are familiar with the new concept, it is time to understand their requirements.
8- Knowing the external customers' requirements. TQM has a wonderful tool in which customers' requirements may be detected. Quality Function Deployment (QFD) is usually used in order to clarify the customers' needs, requirements, and expectations in order to take action to satisfy these needs.
9- Standardization for managing the change. It is very important for clinical path to become standardized in order to assure the quality of the service – medical treatment – and to save effort, money and time.
10- Carrying on with continuous improvement. Based on the results of using QFD, management must make continuous improvements to keep its customers satisfied.
11- Performing customer satisfaction surveys. It is very important to conduct a customer satisfaction survey periodically to analyze the problems that continue to persist, in order to take further action.
12- Spreading the right quality concept. A change of culture is now in place and it is about time for the employees to accept the new trend and start to act accordingly.

If a TQM is to become in Jordan a way of life for healthcare organization, it should be understood in the context of a cultural transformation. The traditional culture, leadership style, and the mentality of medical professionals are somehow the barriers to the adaption successfully of TQM. The integrated framework shown in Figure (1) can be a good guidance for healthcare organizations to move out of these barriers and successfully implement TQM concepts and practices. Its therefore, important to verify that the proposed framework provides an unbiased, perspective and comprehensive view of healthcare organization reality that can link human and other resources, patients, activities to organizational units.

Conclusion

The practices discussed above can be integrated systematically, as shown in Figure (1). The applications of such practices effectively, there is no doubt that both employees' satisfaction and customer satisfaction can be achieved. In healthcare organizations, the traditional Jordan culture, leadership style, and the mentality of the medical professionals are somehow the barriers to the adoption of the TQM. The suggested integrated framework model of the TQM (Figure 1) can be help the healthcare organizations to move out of the barriers and successfully implementing TQM concepts and practices.

It is therefore important to verify that the proposed framework model provides an unbiased, perspective and comprehensive view of hospital reality that can link human and other resources, patients, activities to organizational units. A view that will help hospitals to avoid falsifiability which may take place through two ways:

1. The focus on only a part of the hospital performance which is the successful one,
2. The use of a biased view of performance, for example certain departments dear with patients with severe medical conditions (Cancer) leading to an apparently lower performance level.

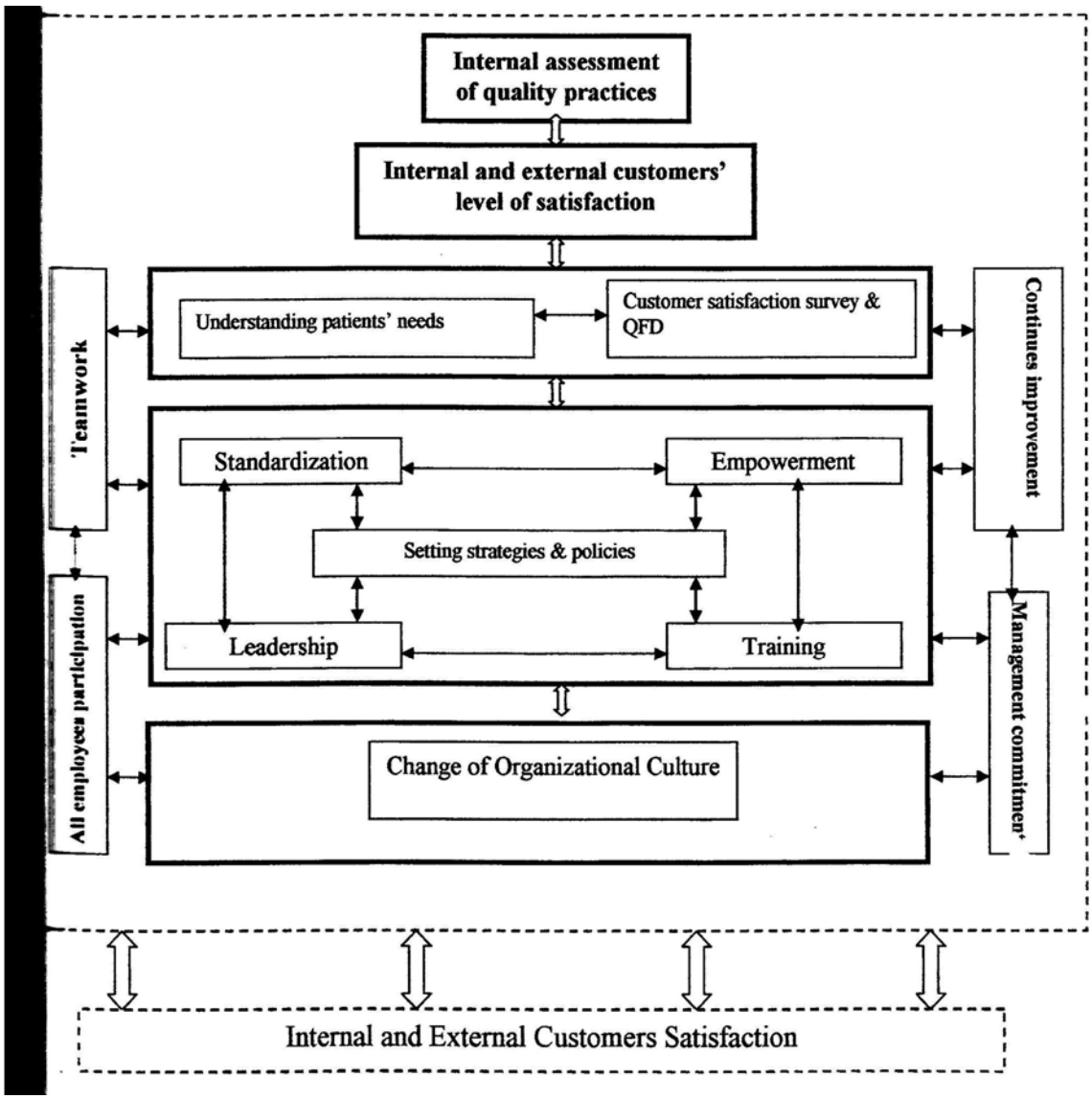

Figure 1: TQM Framework Model for Healthcare

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Biography

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