CHAPTER FOUR -
APPLICATION OF TOTAL QUALITY MANAGEMENT (TQM) IN
HEALTHCARE SERVICES

The previous chapter dealt with the key definitions of quality, the concept of Total Quality Management (TQM), the essential elements of TQM and the models of TQM. The aim of this chapter is to understand the application of TQM in healthcare services. This chapter discusses briefly the meaning of healthcare quality, the dimensions of healthcare quality followed by the role of TQM in healthcare, and models of TQM in healthcare. A detailed description of the SERVQUAL model and Malcolm Baldrige National Quality Award (MBNQA) including ISO 9000 certification in healthcare services is presented.

**Meaning of Healthcare Quality**

Quality information is important to consumers and providers alike. However, the essential elements of "quality" may be understood in quite different ways and ranked with different priorities among various consumer and professional groups. For example, healthcare professionals may relate to objective and technical measures of quality, such as statistical measures of clinical performance, where as patients may base quality
on less technically complex and more subjective notions, such as overall measures of satisfaction.

During the last several centuries, the healthcare industry has been spectacularly successful in increasing the human life span. This has been primarily because of setting up of numerous quality controls on a wide variety of activities, products and systems all relating to human health. Health services include a wide variety of quality aspects all of which are very much important. In case of medical services, the sellers are doctors, hospitals, nursing homes and clinics etc., and the buyer is the patient. The buyer wants acceptable quality services which confirm the laid down norms for which he is paying the seller. Acceptable quality service includes:

- Direct medical services - e.g., diagnosis, medicines, surgery and treatment.
- Indirect operations- e.g., administration and purchasing which affect the cost of services.
- Quality of performances related to food, housing, safety, security, attitude of employees.

The adaptation of the general definition of quality to healthcare has two different sides, either stated or
implied, which affect quality management in an organization: that is, the what and how.

Quality in healthcare involves sustaining an acceptable outcome through appropriate processes or services to meet or exceed patient expectations. The concept of quality is difficult to define in healthcare industry, as there are many participants involved in the delivery of health care, each having his/her own interest in point. In healthcare services, quality is achieved when the outcome matches or surpasses the patient expectation (Zabada et al.1998). This definition assumes that the patient knows in advance what the possible outcomes are; without that knowledge of quality cannot be measured.

Quality, from the health professional's perspective, is technical in nature and is operationalised in terms of three constructs—structure, process, and outcome (Bopp, 1990). He also argues that consumers define service quality in terms of functional quality rather than technical quality and that technical quality perceptions depend on functional quality perceptions and he states, "A medical encounter achieves quality in perception when it meets or exceeds the patient's expectations."

Healthcare quality is the degree to which health services for individuals and populations increase the
likelihood of desired health outcomes and are consistent with current professional knowledge (Lohr, 1990).

John (1991) conceptually defines quality in healthcare environment based on Brook and Williams' (1975) definition:

\[
\text{Quality of Healthcare} = (\text{Technical care}) + (\text{Art of care}) + (\text{Technical care} \times \text{Art of care}) + E
\]

where: Technical care refers to the adequacy of diagnostic and therapeutic processes; Art of care refers to the milieu, manner, and behavior of the provider in delivering the care, and in communicating to the patient; The interactive term emphasizes that the two terms are not additive; the error term E represents random error.

Healthcare quality is conformance to patient requirements (Lytle and Mokva, (1992). They suggest that patient perceptions of healthcare quality are formed by a process involving three evaluations - service outcome, service process, and physical environment.

Overtveit (1992), defined quality as “fully meeting the lowest cost to the organization, within limits and directions set by higher authorities and purchasers”. According to him, the quality in healthcare has to be considered from three dimensions, patients’ quality, professionals’ quality and management quality.
Association of Healthcare Authorities and Trusts of the United Kingdom (1996) defined quality in healthcare from a patient perspective as available, appropriate, effective, acceptable and efficacious. Availability acknowledges that a healthcare service is delivered to match the patient’s individual wants including time and clinical requirements. Appropriateness emphasizes that patients should be able to receive the best care. Effectiveness highlights the correct and the safe provision of care. Acceptability emphasizes the need for the healthcare service to satisfy patients and their families. Lastly, to be efficacious, the system must ensure that the patients derive advantages from care services, such as curing disease and promoting health. Heather Palmer (1997) sums up the above definition by saying that quality of care is operationally defined in terms of those health outcomes that can be influenced by healthcare processes and those processes of care that can yield desired health outcomes. Zabada, Rivers and Munchus (1998), remarked, “Quality is achieved when the outcome matches or surpasses the patient expectation”. This definition assumes that the patient knows the possible outcomes before hand, without that knowledge quality can not be measured.

According to Babakus and Mangold (1992), “technical quality in a health care setting is defined primarily on
the basis of the technical accuracy of the diagnosis and procedures." They say, "Functional quality refers to the manner in which the health service is delivered to the patient." Anderson and Zwelling (1996) contrast technical quality with functional quality by defining functional quality as the customers' perceptions of service received relative to their expectations of what service should be.

**Dimensions of healthcare quality**

According to Donabedian (1980), quality is simply an attribute that the technical and interpersonal aspects of medical care manifest in varying degrees. He developed seven attributes of healthcare quality: efficacy, effectiveness, efficiency, optimality, acceptability, legitimacy and equity. Zifco-Baliga, et al. (1997) expanded upon this model and linked 15 perceived quality dimensions, namely, Building/Technological environment, Amenities, Billing procedures (structure component); Professional expertise, Validation of patient beliefs, Interactive communication, Image, Antithetical Performance (Process Component-Physician); Interactive caring, Professional Efficiency, Individual reliability (Process Component-Nurse); Perspicacity skills (Process Component-
Supporting Staff); Physical/Emotional Cure (Outcome component).

Quality in healthcare has to be considered from three dimensions Ovreveit (1992): patients' quality, professionals' quality and management quality. Patient quality is concerned about whether the service gives patients what they want. Professional quality emphasizes professionals' views of whether the service meets patients' needs as assessed by professionals, and whether personnel correctly select and carry out procedures which are believed to be necessary to meet patients' needs. Management quality means that the most efficient and productive use of resources is set up in order to meet patients' needs, without waste and within limits and directives set by the top management.

Jun, et al. (1998), identified 11 dimensions of healthcare quality. Eight of these dimensions, tangibles, reliability, responsiveness, competence, courtesy, communication, access and understanding the customer, are parts of the Parasuraman model. Bowers (1994) added the caring and patient outcomes dimension. The concept of team work and the synergistic effect of various groups in providing healthcare are included in the dimension collaboration by all of Jun's groups. Jun further emphasizes that communication is essential for collaboration because it "fills in the gaps to prevent
disjointed service." The dimensions measured by the Massachusetts Health Quality Partnership (MHQP, 1988) included: respect for patient preferences, physical comfort, involvement of family and friends, continuity and transition, co-ordination of care, information and education, and emotional support.

The above mentioned dimensions of healthcare quality reveal that the consumer, in addition to the providers and administrators, is a key player in the process of defining and measuring quality and his/her voice provides an important component to the process. One has to listen to those dimensions by which the consumer defines the experience of healthcare. These components can then be incorporated into a more comprehensive service quality measurement plan in healthcare.

In the quest for improved outcomes with limited resources, healthcare organizations in many developed and developing countries tried to look for answers. An integrated and systematic quality technique called total quality management (TQM) began to infiltrate healthcare organizations in order to meet patients' requirements.

TQM in Healthcare organizations

In the competitive and dynamic healthcare environment, an emerging interest in total quality
management (TQM) has been propelled by the need to control costs and the desire to improve the quality of care. The concept of TQM is continuously a focus of executives in hospitals. The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO), for example, has incorporated TQM concepts in its' agenda for change.

**TQM models for health care organizations**

Healthcare organizations in many countries are starting to adopt TQM principles and techniques. A number of operational models have been adapted from industry and applied to the healthcare setting. These models are usually presented as steps to quality improvement. A brief description of these TQM models as applied to healthcare is given below.

1. **The NKC Model**

This model developed by NKC Inc., the winner of the First Annual Healthcare Forum/Win Award, describes the 10 steps to quality it took in the 'absence of a model' (Powers, 1988). Since then, more sophisticated models have been described in the healthcare literature. One needs, however, to keep in mind that this healthcare institution was one of the first to actually apply TQM
to the hospital setting when TOTAL Quality Processes were still very new to healthcare.

2. The Hospital Corporation of America Model

The Hospital Corporation of America has been using the Deming Philosophy, and adapted the well-known 14 Deming points and a strategy called FOCUS-PDCA to the healthcare setting. Nackel & Collier (1989) described a five-step quality improvement implementation process. They were: organizing efforts to improve quality, action plan to improve quality, pilot implementation, executive visioning, and developing and implementing cultural change strategy.

3. The Harvard Community Health Plan Model

The Harvard Community Health Plan Model describes four phases of quality improvement (start-up, test, scale-up, institutionalize) and 12 specific steps of the quality improvement process (Harvard Community Health Plan, 1989; Berwick et al., 1990). The model has been tested quite extensively through various phases of the National Demonstration Projects.

4. The American Hospital association Model

Brent C. James (1989) describes three major steps (prepare to improve, implement, innovate) for
achieving high quality and appropriate cost reduction, and developed an operational model for quality in healthcare based on the four different dimensions of quality (quality of organisation/management, quality of evaluation, quality of service, value of care).

5. The University of Michigan Medical Centre Model

The University of Michigan Medical Centre (UMMC) model's total quality process includes a number of phases (create awareness, top leadership training, development of internal resources, mid-level training, introduction of quality improvement teams, employee and clinical training) and is conceived as a 5-year process (from awareness to maturity). Marszalek-Gaucher & Coffey (1990) in their book Transforming Healthcare Organizations describe a specific total quality roadmap for UMMC.

In addition to the above models, there are The SERVQUAL model and the Malcolm Baldrige National Quality Award (MBNQA) which need special detailed attention as they are relevant for the present discussion of the research study.
Service Quality (SERVQUAL) Model

A major development in the search for rigorous and generic quantitative measures of service quality is the work by Parasuraman, Zeithaml and Berry. Among the most popular assessments tools of service quality is SERVQUAL, an instrument designed by the marketing research team of Berry, Parasuraman, and Zeithaml (PB&Z). SERVQUAL model was developed based on a marketing perspective with the support of the Marketing Science Institute (Parasuraman, Zeithaml and Berry, 1996). Through qualitative studies, they evolved a set of five dimensions which have been consistently ranked by customers to be most important for service quality, regardless of service industry. These dimensions are defined as follows:

**Tangibles:** appearance of physical facilities, equipment, personnel, and communication materials; **Reliability:** ability to perform the promised service dependably and accurately; **Responsiveness:** willingness to help customers and provide prompt service; **Assurance:** knowledge and courtesy of employees and their ability to convey trust and confidence; and **Empathy:** the caring, individualized attention the firm provides its customers.
Based on the five SERVQUAL dimensions, the researchers also developed a survey instrument to measure the gap between customers' expectation for excellence and their perception of actual service delivered. The SERVQUAL instrument helps service providers understand both customer expectations and perceptions of specific services, as well as quality improvements over time. It also helps target specific service elements requiring improvement, and training opportunities for staff. Analyzed at the item level, data drawn from application of the SERVQUAL instrument are rich with practical implications for a service manager.

Introduced in 1988, SERVQUAL has been used in replication studies in a wide range of service industries: health care, banking, appliance repair, and several other professions.

A conceptual model of service quality is presented in Figure 4.1
The service quality model (PZB, 1985) indicates that consumers’ quality perceptions are influenced by a series of four distinct gaps occurring in organizations. These gaps on the service providers’ side, which can
impede delivery of services that consumers perceive to be of high quality, are:

**Gap 1:** Differences between patient expectations and management perceptions of patient expectations.

**Gap 2:** Difference between management perceptions of patient expectations and service quality specifications.

**Gap 3:** Difference between service quality specifications and service actually delivered.

**Gap 4:** Difference between service delivery and what is communicated about the service to patients.

Perceived service quality (Gap 5) is defined in the model (Figure 4.1) as the difference between consumer expectations and perceptions, which in turn depends on the size and direction of the four gaps associated with the delivery of service quality on the marketer’s side.

**Malcolm Baldrige National Quality Award (MBNQA) for Healthcare Services**

The healthcare criteria for performance excellence of Malcolm Baldrige National Quality Award (MBNQA) were developed in 1999. The National Institute of Standards
and Technology (NIST) established it in 1987. The MBNQA is an annual award to recognize US organizations for performance excellence. The Healthcare criteria are the basis for organizational self-assessments, for making award, and for giving feedback to applicants (MBNQA, 2004). The award’s purpose is to promote awareness of performance excellence as an increasingly important element in competitiveness, and facilitate communication and sharing of best practices information among healthcare organizations and to serve as a working tool for understanding and managing performance and for guiding organizational planning and opportunities for learning (MBNQA, 2004).

Malcolm Baldrige Healthcare criteria provide a systems perspective for hospitals to achieve performance excellence. The system consists of six criteria as seen in the centre of Figure 4.2. The figure defines the organizations, their operations and results. Leadership (Category 1), Strategic Planning (Category 2) and Focus on Patients, Other Customers, and Markets (Category 3) represent the leadership triad. These categories are placed together to emphasize the importance of a leadership focus on strategy and patients/customers. Staff Focus (Category 5), Process Management (Category 6) and Organizational Performance Results (Category 7)
represent the results triad. All actions point towards Organizational Performance Results—a composite of healthcare, patient and other customer, financial, and internal operational performance results, including staff and work system results, governance, and social responsibility results. The category of Measurement, Analysis and Knowledge Management (Category 4) is critical to the effective management of the organization and serves as a foundation for the performance management system (MBNQA, 2004). The core values of the health care criteria are "visionary leadership; patient-focused excellence; organizational and personal learning; valuing staff and partners; agility; focus on the future; managing for innovation; management by fact; social responsibility and community health; focus on results and creating value; systems perspective". They are the foundation for integrating key organizational requirements within a results-oriented framework that creates a basis for action and feedback (MBNQA, 2004). The framework of MBNQA is shown in Figure 4.2.
Figure 4.2
Baldrige Health Care Criteria for Performance Excellence Framework: A Systems Perspective

Organizational Profile:
Environment, Relationships and Challenges

1 Leadership
2 Strategic planning
3 Focus on Patients, Other Customers, and Markets
4 Measurement, Analysis, and Knowledge Management
5 Staff Focus
6 Process Management
7 Organizational performance Results


The Malcolm Baldrige National Quality Award (MBNQA) offers healthcare criteria relevant to Total Quality Management and designed specially for healthcare organizations. It has already promoted a new concept of total quality which goes beyond a simple application of techniques. The MBNQA Model in the 2004 health care criteria for performance excellence consists of seven categories. Each category is assigned a certain number
of points defined in the award criteria. This is shown in Table 4.1.

Table: 4.1: Categories and Point Values of MBNQA Healthcare Criteria

<table>
<thead>
<tr>
<th>Categories/Items</th>
<th>Point Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Leadership</td>
<td>120</td>
</tr>
<tr>
<td>2. Strategic Planning</td>
<td>85</td>
</tr>
<tr>
<td>3. Focus on Patients, Other Customers, and Markets</td>
<td>85</td>
</tr>
<tr>
<td>4. Measurement, Analysis and Knowledge Management</td>
<td>90</td>
</tr>
<tr>
<td>5. Staff Focus</td>
<td>85</td>
</tr>
<tr>
<td>6. Process Management</td>
<td>85</td>
</tr>
<tr>
<td>7. Organizational Performance Results</td>
<td>450</td>
</tr>
<tr>
<td>7.1. Health care Performance Results</td>
<td>75</td>
</tr>
<tr>
<td>7.2. Patient and Other Customer Focused results</td>
<td>75</td>
</tr>
<tr>
<td>7.3. Financial and Market Results</td>
<td>75</td>
</tr>
<tr>
<td>7.4. Staff and Work system Results</td>
<td>75</td>
</tr>
<tr>
<td>7.5. Organizational Effectiveness Results</td>
<td>75</td>
</tr>
<tr>
<td>7.6. Governance and Social Responsibility Results</td>
<td>75</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
</tr>
</tbody>
</table>


A detailed description of the MBNQA healthcare criteria for performance excellence is as follows.

**Leadership element**

Leadership in healthcare criteria of MBNQA aims to show a senior leader how to guide a hospital, review the
hospital's organizational performance, address the degree of the hospital's responsibilities to the public, provide its contributions towards community health by setting and deploying clear mission, vision and values.

**Strategic Planning element**

The strategic planning element in the MBNQA healthcare criteria focuses on how a hospital develops chooses and deploys its strategic objectives and action plans. The measurement of progress is also emphasized.

**Focus on Patients, Other Customers, and markets element**

This element addresses how a hospital ensures the relevance of current healthcare services in order to meet the requirements of the patients, their expectations, preferences and also other customers and markets. It also emphasizes on how a hospital should retain its current patients and build relationships to develop new healthcare service opportunities.

**Measurement, Analysis and Knowledge Management**

The Measurement, Analysis and Knowledge Management element in the healthcare criteria of MBNQA utilizes the performance data and information to assess and analyze overall clinical and administrative /operational performance to compare with competitors and benchmark
for performance improvement. It also considers a hospital’s effective information system to identify, link and improve its organizational performance.

Staff Focus element

The Staff Focus element aims to examine the hospital’s work design, job design, compensation, career progression, education and training of staff to enhance their skills and knowledge. It also stresses on staff motivation via rewards and recognition systems.

Process Management element

The Process Management element in the healthcare criteria of MBNQA examines how hospitals manage the processes. The key healthcare service designs, delivery processes, and key support processes, which maintain the routine hospital operations that are provided by the hospitals, are addressed in this element. Inter and intra departmental processes and all work units are as well addressed.

Organizational Performance Results

The term “performance” refers to output results and their outcomes obtained from processes and services that permit evaluation and comparison relative to goals, standards, past results, and other organizations (MBNQA,
2004). The Organizational Performance Results category examines a hospital's performance and improvement in key areas—healthcare delivery and outcomes, patient and other customer satisfaction, financial and marketplace performance, staff and work system results, operational performance, and governance and social responsibility. It also examines the performance levels relative to those of competitors and other hospitals providing similar healthcare services.

ISO-9000 Certification in Healthcare

ISO 9000 being an International Standard covers a wide range of quality management issues. An increasing number of hospitals and other healthcare establishments are finding that ISO 9000 can provide a framework for controlling costs, without sacrificing the need for quality of patient care. The systems based approach of ISO 9000 can encourage health care establishments to become more conscious of, and to improve, the ancillary services such as welcome and reception of patients and their families, proper communication, and catering etc., which contribute to the overall appreciation of quality on the part of the user community at large.
The generalized implementation of ISO 9000 quality management systems by healthcare organizations is seen as a means of rationalizing client-supplier relationships and an opportunity to improve the quality of healthcare while reducing the costs. Substantial benefits (e.g. a more positive attitude towards, and greater concern for, the healthcare "customer"; a significant boost in personnel morale across the organization; clear communication and more trusting relationships at all levels; enhanced team work etc) are also expected by implementing ISO 9000 in healthcare service sector.

ISO 9000 provides a quality management system that takes into account the measures, settings, services, and functions of both clinical and administrative activities within the healthcare industry. ISO 9000 is process based and is less complicated to implement. It works on the principle that the organization defines its own quality system based on processes that best works for it.

Healthcare services consist of many component parts, including health care networks, laboratories, administration, nursing service, clinical practice guidelines etc. In the ISO system it is possible to identify measures for specific settings at every mode or
system. The organization can define the service provided, clinical conditions, health function status and customer satisfaction, administrative and fiscal consideration for each component. In addition to these component parts, healthcare professionals and managers often face a split focus regarding process and outcomes. Clinicians stress outcomes with less concern for how they arrived at them; managers, on the other hand, stress processes. It is possible through the integrated healthcare quality management model of ISO 9000 for both process and outcome to complement each other.

Hospitals are becoming aware of ISO 9000 certification in seeking a better mechanism to ensure optimal performance. The international ISO 9000 standard has made it possible to implement a total quality management system that can be documented and certified by a third party. Several hospitals in India and abroad have implemented a total quality system according to ISO 9000 standards in order to provide a service that can satisfy the expectations of the patients in a controlled and efficient way. Thus, in order to seek a better mechanism to ensure optimal performance, hospitals are adopting ISO 9000 certification.
Summary

This chapter described the application of TQM in healthcare services. The chapter discussed briefly the meaning of healthcare quality, the dimensions of healthcare quality followed by the role of TQM in healthcare, and models of TQM in healthcare. A detailed description of the SERVQUAL model and Malcolm Baldrige National Quality Award (MBNQA) including ISO 9000 certification in healthcare services was also provided.