

A Study on TQM of Health Care Sector¹⁾

Heetak Kim

Division of Business Administration, Sangmyung University

Key Words: TQM in Health Care, TQM Models, Barriers to TQM

Abstract

The study attempts to review TQM models used in the health care sector and the obstacles to the application of TQM in the sector. Even though the TQM models in the manufacturing and service sectors were successfully applied, the applicability of TQM in the health care sector is still in question. The reason is the unique characteristics of the medical sector such as medical and management practices.

The most of the TQM models in the health care sector come from manufacturing industries. The importance of the professional groups is, however, more emphasized in the sector than in manufacturing sector. The role of the groups are idiosyncratic to the sector. They generate some obstacles to the application of TQM in the sector. The barriers include cultural obstacles of health care organization.

It naturally follows that the TQM in the health care sector requires the change of the organizational culture of the sector. The culture embraces the norms, rules, regulations, compensation system, morale, practices, and common experiences. To change the culture needs long term effort and modification of the rules, regulations, compensation system, and practices. It also requires staffs' training in the problem solving methods.

The TQM in the health care sector needs that the interested parties should change. Since doctors group and nurses group are controlled in the bureaucratic and authoritative manner, they should learn the problem solving techniques which require the interaction with other groups. The management also needs to learn management skills and get thorough training on them.

1. Introduction

1.1 The Purpose of the Study

The fierce global competition during the last century make it an imperative that

1) This research was fully supported by Gyedang Foundation in 2001.

every nation should enhance its competitiveness to survive. The mobility of services which is the result of WTO is a crucial factor to the nations like Korea which has low productivity in service sector. Among the services in Korea, medical service, legal services, accounting, and education are very vulnerable to Doha agenda. In this situation raising competitiveness of these services becomes an urgent national agenda.

Medical crisis in 2000 and restructuring in the medical service system after the crisis suggested that we should raise the efficiency and the quality of health care rapidly. To do this, the introduction of TQM in medical sector in Korea is very urgent. So far, however, there has been little research on this matter in Korea. For example, Kim(1997), Yoo(1997), Jung(1999), Kim and Cho(2000), and Tak(2002) are the only studies on the topic. Thus TQM implementation in health care requires the studies on the issue. Since TQM is not popular among Korean hospitals, there has not been suggested TQM models peculiar to Korea. In this case, it is important to investigate current TQM models used in health care sector.

The purpose of the study is to analyze TQM models in health care, examine them, and clarify the barriers to TQM implementation in order to make suggestions for activating the

implementation. The study can be used as a guide line for selecting proper TQM models when needed.

1.2 The Content and Method of the Study

The research will analyze the models of TQM and mention the barriers to them by doing literature survey. First of all it will collect the various models of TQM and examine them. Next, Strength and weakness of each model will be discussed. After that it will clarify the hindrance to implement TQM models. Especially, factors around organizational culture will be delineated. Finally, the method to remove the barriers or minimize the effect of the barriers will be reviewed

2. TQM in Health Care

2.1 Previous Experience

In the United States, many hospitals started TQM projects in the eighties due to the social pressure for reducing the medical cost and for enhancing the quality of health care. In 1987, the leaders of 21 hospitals and the same number of quality professionals from industry gathered to set up a new project called NDP(National Demonstration Project on Quality Improvement in Health Care). The project was to find out whether the

modern quality improvement tools would help in health care sector as well as in the manufacturing sectors. In 1988, the participant hospitals reported that TQM can be applied to the health care sector and should be applied to the sector. The success of the NDP led to the creation of a new non-profit organization, IHI(the institute on Healthcare Improvement).

Eubanks(1992) explored 781 hospitals in the northern America and found that 58.5% of the hospitals were involved with TQM activities. Lin and Clousing(1995) discovered that among the 31 hospitals which conduct TQM projects in northern Louisiana State, most of the hospitals introduced TQM partially and there were little hospitals which had launched full TQM programs.

The notable feature of the TQM in health care is the team approach. For example, Blyth(1995), Gates(1996), and Womack et al.(1994) are the typical studies in this venue. They traced the improvement projects of the medical teams which had consisted of doctors, nurses, nurse's aides, and orderlies and they evaluated the results of the projects.

Claus(1991) reported that various TQM implementation strategies were tried and actually they resulted in considerable success. Abu Zayed(1994) found that the quality of medical process could be improved according to the strong leadership of top management regardless of the ownership of hospitals.

In Korea, Kim(1997) surveyed the medical service on the outpatients of eight general hospitals around Seoul and Kyung-In area. He claimed that hospitals should enhance customer satisfaction through process improvement using process reengineering method. Yoo(1997) clarified how TQM in health care sector of the United States and Japan worked and suggested a TQM model in the sector.

Lee(1999) reported that A hospital, a large general hospital in Seoul, launched a QI(Quality Improvement) team in 1993 for the first time in Korea and persevere in its effort to improve the quality of care. Also the hospital conducted patient satisfaction survey everyday.

B hospital, another large hospital in Seoul, started Six Sigma movement in 2000 and the departments of Imaging Medicine, Insurance Appraisal, Nursing, Clinical Pathology Lab, Medical Checkup, Medicine, and Facility Maintenance participated in the movement. As a result, the side effects of contrast media were minimized in the Imaging Medicine Department and the report rate of the pre-op diagnosis time were improved in the Clinical Pathology Department 「Park, 2000」 .

C hospital, a large hospital in Seoul, reported QI activities during 2002년 by choosing appropriate quality improvement topics for the Department of Medical Treatment, Nursing, Supporting, and

Managing. (www.hallym.or.kr/~hmrdr/qiqi3.html)

2.2 Elements of TQM in Health Care

Although the elements, or the success factors of TQM in manufacturing industries have been an object of study for a long time, there is little agreement as to the factors of TQM in health care sector. Many scholars agreed, however, that the criteria of quality award can be used as the key success factors. 「Kim et al., 1999」 Thus we are going to review the criteria of the MBNQA (Malcolm Baldrige National Quality Award) which is the representative award for the quality excellence.

MBNQA was established in 1987 and has been known as the key motivator for recovering national competitiveness of U.S. by enhancing the quality of American products and services rapidly. Initially it gave awards in only three areas: manufacturing, service, and small business. Since 1999, education and health care areas have included in MBNQA.

MBNQA has seven categories in all five areas. <Table 1> shows the categories, items, and the point values given to them.

Above all, noteworthy category is the third one. The third category in the business area is "Focus on Customers and Markets." In the health care sector,

however, it was modified for "Focus on Patients, Other Customers, and Markets." because the most important customers in the sector are patients.

The reason why the criteria of the MBNQA has been used significantly in TQM movement can be referred from underlying motive for its establishment. The purpose of the MBNQA is "to strengthen national competitiveness by helping all types of organization in the United States enhance business performance and implementation capability and by helping them share information of best management practices." 「Kim et al., 1999」

Even before MBNQA for health sector was started, some researchers apprehended that the criteria from MBNQA for business could be used for health sector. For example, Everett and James(1991) suggested that the key success factors of TQM in this sector are leadership, patient focus, process control, employee participation, communication, appraisal, and quality culture. As we notice the similarity between these factors and the criteria in <Table 1>, most factors of Everett and James appear in the table.

2.3 TQM Models in Health Care

We can argue that there are many models for TQM. The important TQM models in health care sector, however,

can be presented as follows.

2.3.1 FOCUS-PDCA

This model was developed by the Quality Resource Group of Hospital Corporation of America in Tennessee.

This model is used at the hospitals of HCA and Henry Ford Hospital in Detroit. The model has the following procedure. 「Gaucher and Coffey, 1993」

1. Find a process improvement opportunity.

<Table 1> Categories and Items of MBNQA(2002)

No.	Categories	Items	Point Values	
1	Leadership	Organizational Leadership	75	120
		Public Responsibilities and Citizenship	45	
2	Strategic Planning	Strategy Development	40	85
		Strategy Deployment	45	
3	Focus on Patients, Other Customers, and Markets	Patient/Customer and Health Care Market Knowledge	40	85
		Patient/Customer Relationships and Satisfaction	45	
4	Information and Analysis	Measurement and Analysis of Organizational Performance	50	90
		Information Management	40	
5	Staff Focus	Work System	35	90
		Staff Education, Training, and Development	25	
		Staff Well-Being and Satisfaction	25	
6	Process Management	Health Care Service Process	45	85
		Business Process	25	
		Support Process	15	
7	Organizational Effectiveness Results	Patient-and Other Customer-Focused Results	125	450
		Financial and Market Results	125	
		Staff and Work System Results	80	
		Organizational Effectiveness Results	120	

2. Organize a team who understands the process.
3. Clarify the current knowledge of the process.
4. Understand the root cause of variation and poor quality.
5. Select an improvement plan.
Then start the 'plan-do-check-act' cycle.
6. Plan the process improvement.
7. Do the improvement, data collection, and analysis.
8. Check the results and lessons learned.
9. Act by adopting, adjusting, or abandoning the change.

The above steps emphasize the data collection and analysis, and process management which are the backbones of TQM implementation. Also PDCA cycle is included in the procedure. The first procedure, finding a process improvement opportunity, indicates that the principle of Kaizen, or continuous improvement, from Japanese quality management technique should be included first.

The model is substantial in partial TQM principles, but it lacks leadership, patient focus, or staff focus of MBNQA. Even though the continuous improvement and problem solving in the course of implementing TQM is very important, the model lacks organizational philosophy which leads the total TQM activities.

2.3.2 7 Steps of Qualtec

Florida Power and Light, Co established an affiliated company, Qualtec Quality Service to diffuse the knowledge around quality management. The company introduced following 7 steps. 「Plsek, 1995」

1. Reason for improvement: Understand the reason to select a specific theme(or problem) for improvement.
2. Present Condition: Set goals for improvement.
3. Analysis: Clarify the root cause of the problem.
4. Counter plan: Suggest, Select, and Implement a counter plan
5. Result: Confirm decreasing occurrence of the problem, removal of the root cause, and fulfillment of the goal.
6. Standardization: Standardize the problem solving process to prevent the problem and the root cause from occurring again.
7. Future Plan : Plan for the remaining problems and evaluate the effectiveness of the team.

University of Michigan Medical Center in Ann Arbor, Michigan has used the model effectively and St. Joseph's Medical Center in Stockton, California also reported effective use of the model.

The model is considerably logical in the conceptual development and it contains all steps of PDCA cycle. Due to the concentration on the problems, it is easy

to overlook any area which requires improvement. The model assumes that team members know basic tools for problem solving. Since it is the training of team members that decides the effectiveness of the model, it requires comprehensive training on problem solving.

2.3.3 Juran's Quality Improvement Process

The quality improvement process is developed by Juran Institute founded by the famous quality expert, Joseph M. Juran. The process consisted of following six steps. 「Plsek, 1995」

1. Understand the project.
Define the project, Evaluate the project, Select the project.
2. Launch the project.
Describe the jobs. Select the team, Review the work.
3. Diagnose the problem
Analyze the problem, Confirm or Modify the work, Establish a theory, Verify the theory, Clarify the root cause.
4. Improve the cause
Evaluate alternatives, Set up an improvement plan, Formulate managing plan, Try to change organizational culture, Prove the effectiveness. Execute the plan.
5. Yield a profit
Design effective quality management,

Simplify the improvement plan, Audit the managing plan.

6. Review the result and select new project.

Monitor the result and review it.

The model has a strength in continuously implementing PDCA cycle by establishing a project, finding and improving the causes of problems, and reviewing the consequences. It keeps employees reminding the importance of profit and keeps them implementing management plans for the benefit of whole organization.

Like FOCUS-PDCA it overlook the leadership which is emphasized by MBNQA. The model also assumes that team members know basic tools for problem solving like data collection techniques and the knowledge for analysis. It requires comprehensive training on problem solving like 7 steps of Qualtec.

2.3.4 7 Steps Model of University of Michigan Medical Center

Gaucher and Coffey(1993) models the seven steps of quality improvement process developed by the University of Michigan Medical Center. They argue that the model is very effective because it fulfills the needs which health care sector requires. The model is as follows.

1. Examine processes

- Examine key processes and analyze them.
- 2. Gather data
Collect and categorize data to solve problems.
- 3. Analyze the data
Confirm and analyze the factors affecting processes.
- 4. Generate alternatives and select one
Suggest alternatives which remove or decrease root causes affecting quality.
- 5. Measure changes as a result
Measure the result of implemented alternative.
- 6. Applying to medical practice
Standardize the selected alternative and keep it.
- 7. Plan the future
Generalize the alternative and make a plan for further improvement.

Gaucher and Coffey (1993) emphasize the importance of theme selection (or problem selection) for quality improvement project team. They claim that if the theme is not proper for the team to deal with, it is very easy to fail.

The model suggests that once the project team examines problems, then it leads to gathering data and analyzing them. It is very important to keep the selected alternative by standardizing it after it is implemented and achieve good results.

Like FOCUS-PDCA and Juran's model it doesn't include the leadership and

customer focus which are emphasized by MBNQA. The model also assumes that team members know basic tools around data collection and analysis. It assumes that they require comprehensive training on problem solving like 7 steps of Qualtec.

2.3.5 10 Factor Model of GOAL/QPC

GOAL/QPC is a non-profit, research, publishing and educational organization founded in 1979. It diffuses 10 factor model of TQM implementation as follows. 「Gaucher and Coffey, 1993」

- 1. Decisions for TQM
- 2. Customer focus
- 3. Basic process
- 4. Starter teams
- 5. 5-year plan
- 6. Managing driving force
- 7. Hoshin management
- 8. New teams
- 9. Daily management
- 10. Process evaluation

The model was widely used at Bethesda Hospital in Cincinnati, Ohio, at Bryn Mawr Hospital in Bryn Mawr, Pennsylvania, and at Our Lady of Lourdes Hospital in Camden, New Jersey.

The model mentions all the factors we can use during TQM implementation process. It introduces hoshin management and daily management to enhance the effectiveness of the implementation

process. It adheres to the basic principle of TQM, i.e. patient focus. Those can be merits of the model.

On the other hand, it lacks the leadership of organization and concerns for organizational positioning. Market oriented organization is an organization which transforms itself to the changes of the market. It will produce products or services which can be accepted favorably from the market.

2.4 Review of the TQM Models

There are many TQM models in addition to the models reviewed above. For example, Crosby(1979) suggested his fourteen step program for quality improvement as follows.

1. Establish management commitment
2. Form quality improvement teams
3. Establish quality measurement
4. Evaluate the cost of quality
5. Raise quality awareness
6. Take action to correct problems
7. Zero defects planning
8. Train supervisors and managers
9. Hold a 'zero defects' day to establish the attitude and expectation
10. Encourage the setting of goals for improvement
11. Obstacle reporting
12. Recognition for contributors
13. Establish quality councils
14. Do it all over again

Many organizations create their own quality improvement models for various reasons. Here we are going to discuss the common features of the models.

First of all, the models try to change incrementally. Continuous and incremental change is the spirit of Kaizen and it is very effective and need change for transforming organizational culture. The radical change in stead of incremental change tends to face the resistance from the members of the organization. Thus TQM persist in incremental change.

TQM, however, tries to acquire revolutionary results even though it uses continuous improvement. That is, the result of TQM brings positive results to the organization by settling down quality-oriented culture which is totally different from the previous organizational culture.

The above models lack the leadership in the model. They do not include the leadership factor explicitly. There are many steps in which distinct leadership is required to involve. For example, the first step of any project is to visualize it, to make it clear, and to plan it. In this step leader shows the organization the direction for which the project should head. For this reason the requirement for the leadership should be described explicitly.

Another weak point of the models is that it also lacks the importance of customers (patients) and markets is not

clearly described. We know that the prior step of any projects is to examine its customer and its market. In this case, however, the models shows more concerns on the process than customers and markets. Consequently, the members of the project are misled that processes are more important than customers and markets.

Finally, the common weakness that most models do not show enough concern over the performance of organization. Organizational performance can be divided into financial performance and non-financial performance. The balanced scorecard of Kaplan and Norton(1996) divide non-financial performance into more: customer perspective, internal process perspective, and learning and growth perspective. The customer perspective and internal process perspective are included in the criteria of MBNQA. The last perspective, learning and growth perspective, is to facilitate the organization into learning organization and it shows that continuous growth starts from organizational learning.

Non-financial performance is not explicitly described in the models, but it should be delineated because it is required in reviewing the result of improvement program and planning for the next improvement project.

2.5 The Barriers to the Implementation of TQM in Health Care

Many obstacles are reported in the course of the implementation of TQM in health care. We can find big differences between the implementation of TQM in health care and TQM in manufacturing industry. The TQM in manufacturing industry has been applied to the key processes but the TQM in health care has been addressed to non-clinical processes than clinical processes. 「Zabada et al., 1998」 We can argue that the reason why TQM in health care started originally for the purpose of cost reduction.

Wakefield and Wakefield(1995) found that the implementation of TQM in health care sector is different from that of TQM in other sectors in the following aspects.

1. Health care sector has long history of conflicts among professional groups over the responsibility and authority for medical treatment and support.

We can think that any professional group is homogeneous, but the groups in health care sector are not so. Doctors can be categorized as training intern, resident, attending physician, and diplomate and there exists a distinct hierarchy among them. Nurses can be classified as registered nurse graduated from college, registered nurse graduated from junior college, and aide. The existence of heterogeneous small groups in the same profession makes conflict among them

more serious.

2. The conflict mentioned in 1, however, has been coordinated through traditional, functional, and vertical hierarchy.

So far the conflict between the groups in the health care sector has been settled by the top ranking professionals' meetings of the two groups and it is regarded as a power game between the two groups. Thus the resolution accepted by the meeting cannot satisfy members of both professional groups.

3. Evaluation and reward system of the past depended on individual professional skills rather than the performance and productivity of a team.

Past system in the health care sector emphasized on the professionalism and individual skills to treat patients. It enforced functionalism in the sector and kept the quality of care from raising. For TQM implementation we should develop and use reward system centered on incentives for teams.

4. Line manager and staffs have very good professional skills, but they are not well equipped with basic managing skills. Also they don't

understand problem solving techniques and lack proper training on the techniques.

In Korea, the managers of health care sector are chosen among the top ranking professionals in each function. The reasoning behind this is that to facilitate services in the function smoothly the top ranking member of the profession might be a good manager for any conflict in the function. In this case there hasn't been any opportunity to work in another function or department. This leads to the lack of cooperation skills required for cross functional teams in TQM. Thus the managers in the sector, whose background is medical profession should learn managing skills.

5. TQM tools from manufacturing industries are regarded not to work well because patients are different from products.

In manufacturing industries most products are produced in mass production which emphasized conformation to the specification required in blueprints. Health care sector, however, uses jobshop processes for the individual requirement of each patient. Even in the manufacturing industries, firms using jobshop processes are reported that they have difficulty to apply TQM to them. It is because jobshop processes make use of

skillful employees and they are very difficult to be motivated to raise productivity. In like manner, health care sector is difficult to apply TQM because it uses professionals such as doctors, nurses, and technicians to produce medical services.

Even though the sector deals with technically delicate professionals, it should adopt new human resource policy emphasizing new motivation for professionals to enable cooperative team system.

Shortell et al.(1995) argue that the most difficult obstacles to overcome in the course of implementing TQM are cultural barriers. Their cultural barriers are:

1. Employees of health care sector concerns more about the inner needs of them than that of patients.
2. Most hospitals are managed by strict bureaucratic organization. Thus we cannot find the delegation of power among employees.
3. Top management of most hospitals do not show proper interest in TQM.
4. Since most hospitals are controlled by strict order and regulation, managers are accustomed to this culture.
5. Generally middle managers regard TQM as a latent threat to their job. Thus they resist introducing TQM.

Zabada et al.(1989) mention following

barriers in addition to the above cultural barriers.

1. Most physicians in hospitals show little interest in TQM. They don't think that TQM cannot be applied to their work.
2. Because of the reason mentioned above, they do not make an effort to participate in TQM.
3. Most hospitals do not pay attention to patients' needs sufficiently. Patients are the product of medical treatment and participator in the medical process at the same time. To gain higher quality of care the participation of patients (for example, giving informations and complying to the treatment) is extremely needed. But they are left out in the course of medical process.
4. Rigid hierarchical and authoritative organizational structure do not permit any suggestions to peers for change. For example, medical professionals who side for patients are apt to be fired.

The cultural barriers mentioned above can be applied to Korean hospitals. Furthermore we can add following barriers to the above.

1. In Korea, medical treatment has been regarded as curing. Thus the benefit of patients are not important than curing patients of disease. In this

culture temporary discomfort should be endured to cure patients of their illness.

2. Doctors do not think their medical treatment as a service. They pay much attention to curing patients rather than comforting patients.
3. Medical crisis in 2000 showed that fellows, residents, and training interns, backbone of our medical service system, are severely underpaid. The reward system like this is very important for us to understand the quality of cure in Korean
4. Patriarchal system of Korea and authoritative tendency of doctors are the major hinderance to team approach of TQM.
5. Our patients tend to go to bigger or more hospitals in spite of cost or quality. The hospitals lack enough capability to supply medical services, then the quality of cure is deteriorated.

The characteristics mentioned above are hindering us carrying out TQM projects. This reminds us that we should take the barriers into consideration in establishing TQM implementation strategy.

3. Conclusions

This paper reviews models of TQM in health care sectors and examines the barriers to the implementation of TQM.

TQM has shown great performance in manufacturing and service areas, but it is still a question whether TQM in health care sector can present as much performance as in the above areas. The question rises because the characteristics of TQM seems not to match with practices of medical treatment and administration. 「Zabada et al. 1998」 It is required that current practices in the sector should be transformed to match with TQM.

Most of the TQM models in health care sectors come from those of manufacturing area. Generally TQM models use PDCA cycle of Deming or continuous improvement or Kaizen. TQM, however, is revolutionary in essence. It means that TQM in health care sector requires radical changes of the culture of the sector which is conservative and authoritative.

TQM in health care sector emphasizes distinctiveness of professional group. The heterogeneity of doctors and nurses group hinders us implementing TQM projects. The bureaucratic and authoritative control used in the sector contributes to the cultural climate which is very difficult to adopt team approach required in TQM. The change of the control mode will affects organizational culture eventually.

It is a logical conclusion that the most important factor in implementing TQM in health care is the change of organizational culture. Organizational

cultures involves with rules, regulations, reward system, morale, practices, and common experiences which the organization has preserved so far. Cultural changes needs continuous effort for a long period of time and the effort requires concrete and systematic support for change. To do this, organization needs to modify regulations and reward system and to change morale and practices.

It naturally follows that the TQM in the health care sector requires the change of the organizational culture of the sector and all the interested parties should change as well. Since professional groups such as doctors, nurses, and technicians are controlled in the bureaucratic and authoritative manner, they should learn the problem solving techniques which require interactions with other groups. It also requires staffs' training in the problem solving methods. Managers in the sector are required to learn managing skills and get a thorough training on them.

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