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2001 MICHIGAN HOSPITAL CQI/TQM STUDY

by

COLLEEN L. CROXALL

DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

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MAJOR: POLITICAL SCIENCE

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DEDICATION

To my husband, Dave Samuels,
my parents, Doris and Fred Croxall
and the late Cooper.

ACKNOWLEDGMENTS

It took a village to complete this degree.

I would like to acknowledge the contributions of my committee: Dr. Richard Elling, Chair; Dr. John Strate; Dr. Jered Carr and Dr. Laura Reese.

In addition, I'd like to thank my two sisters. Thanks to Laura Reese (my "sister" by choice) who spent a great deal of time and effort to mentor me through the entire process and Tammy Croxall (my sister by birth) for her many hours of proofreading. Last, but not least, thanks to the many friends and family who were always there to give me support and encouragement along the way.

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CHAPTER 1

INTRODUCTION

In recent years, there has been significant interest in the application of total quality management/continuous quality improvement (TQM/CQI) within health care organizations. The healthcare industry, in its quest to improve outcomes with fewer resources, began to look at CQI/TQM as a possible solution. Pressured by local, state and national health care reform initiatives, hospitals are searching for ways to provide more cost-effective care. This is seen in patient care restructuring, clinical re-engineering and value improvement programs. In addition, in this new era of accountability, those paying for healthcare such as businesses expect that health care will meet high standards as gauged by outcome measures, target benchmarks, and report cards. They expect that hospitals will compete on the basis of quality. It is possible to demand excellence because extensive organizational and national data sets exist that measure clinical and financial effectiveness. Hospitals are being recognized for their quality efforts. In addition, hospitals recognize the need to meet internal goals, professional standards, and the needs and expectations of external accrediting and licensing groups and various purchasers of services.

To date, the most comprehensive and enthusiastic response to efforts to improve quality while containing or lowering costs is reflected in hospitals' commitment to continuous quality improvement/total quality management (CQI/TQM). The health care industry, particularly hospitals, has embraced the concepts of CQI/TQM with the belief that adoption will lead to an improvement in both the quality and efficiency of health service delivery (Shortell, 1995). The

National Demonstration Project in Quality Improvement in Health Care is largely responsible for the adoption of CQI/TQM in health care. The initial effort to launch CQI/TQM within health services began in 1987 with the pairing of leaders from various health care organizations with industrial quality experts. The teams used quality improvement techniques to address quality issues in these health care organizations. The projects in this study were highly successful, indicating that combining the tools and principles of quality improvement with the involvement of leaders and staff could result in improved care and services.

It should be noted that although this eight month demonstration project clearly showed that the quality movement techniques used in industry could be applied to health care, it did not give evidence on the costs and benefits of CQI/TQM. Indeed, in apparent recognition of the benefits to be gained from CQI/TQM, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), which accredits 83% of the nation's hospitals, has changed its accreditation standards to incorporate the CQI/TQM approach to management (Carman, et al., 1996). But, despite numerous published reports of the need for CQI/TQM activities in health care organizations and their widespread diffusion within the health care industry, whether these programs actually make a difference remains an unresolved issue (Counte, et al., 1995). There remains insufficient information on the nature and extent of CQI/TQM programs within hospitals to begin the process of accurately assessing outcomes across a spectrum of hospitals.

CQI/TQM encompasses all systems and processes, both clinical and non-clinical, with actions directed towards improving processes and thereby

improving the quality of all services and products for patients and other customers. It is a means for not only meeting, but exceeding, customer requirements. CQI/TQM is both a philosophy and a new way of doing business for health care organizations.

A number of factors contribute to the sustained interest and enthusiasm for CQI in health care, despite the limited empirical evidence regarding impact and cost. The first argument for CQI is its direct impact on quality, a gain to the customer and to the organization. The second is that systems can often be designed or redesigned to give lower costs at the same time and with the same techniques used for quality improvement. The third argument is that there are benefits associated with a plan that empowers employees in health care through participation in decision making (McLaughlin and Simpson, 1994).

The purpose of this study is to assess CQI/TQM program elements, activities and barriers and to evaluate perceptions of CQI/TQM program success in Michigan hospitals. The study focuses on answering the following central questions:

- 1) What is the extent and nature of CQI/TQM program elements present in Michigan hospitals?
- 2) What types of barriers to CQI/TQM are Michigan hospitals facing?
- 3) How does the nature of the CQI program, and participation in and attitudes about CQI relate to perceptions of CQI outcomes?

Program Elements

According to McLaughlin and Kaluzny (1994), transforming an organization into one that practices CQI/TQM requires that a number of

elements to be present. These program elements are the foundation of a CQI program. Do all hospitals implement and use all of these elements in their programs? To what extent do they use various elements? These elements, which are chosen because of their theoretical relationship to quality, provide an overall focus and specify particular actions for managers, staff and quality improvement teams. These elements can be divided into three categories: philosophical elements, structural elements and health-care specific elements. The philosophical elements include customer focus, continuing improvement and data-driven analysis, and are those aspects that must be present in order to constitute a CQI effort. Structural elements include such things as process improvement teams, top management commitment and benchmarking, and are usually found in CQI programs but may be omitted for various reasons. The health care-specific elements include use of cost-effectiveness analysis, use of risk-adjusted outcome measures and quality assurance data. They often are not included in CQI initiatives outside the health care arena but are particularly relevant in the health care setting. These elements are further discussed in Chapter 2.

Barriers to CQI

There are many barriers to implementing and maintaining a CQI program. Although these barriers are discussed in greater detail in Chapter 2, it is worth discussing them briefly here. Quality improvement initiatives usually bring about major changes in how employees do their work that often leads to employee resistance. Overcoming engrained philosophies and mindsets can be one of the greatest obstacles to a CQI program. Too often organizations have not given

time enough for the “new culture” to evolve. These changes do not happen overnight.

For CQI efforts to succeed in the healthcare sector, hospitals must be ready to commit resources and provide training to hospital employees who are responsible for undertaking CQI initiatives. In addition, implementing and maintaining a CQI program requires training for all employees at all levels of the organization. This training needs to be more than a “token” information session. Employees need to fully understand their role in a CQI program before they can be expected to be a willing supporter/participant. This also includes physicians who can be very reluctant to become committed to such a program. Physicians desire autonomy, they have heavy time commitments and may see CQI to be a threat to their professional identity. These issues cannot be ignored.

Outcomes Related to CQI

One of the most appealing aspects of the CQI/TQM approach is that it promises better outcomes with fewer resources. Both high quality and appropriate care can be obtained with cost containment. Empirical studies showing desirable effects within hospitals, such as higher customer satisfaction, have emerged over the past ten years. Other benefits include profitability, employee satisfaction, reduced costs, improved patient survival and better continuity of care. Specific examples of such outcomes are discussed in Chapters 2 and 3.

Dissertation Outline

Chapter 2 will focus on the literature regarding the philosophy and key components found in a generic CQI/TQM program. Chapter 3 will look at

CQI/TQM program elements and implementation issues in healthcare. Chapter 4 focuses on the record of CQI/TQM in the healthcare sector. The focus of chapter 5 is on TQM in the public sector and the lessons that may be learned for the healthcare field. The chapter will examine similarities/differences between the health care and public sector arenas and how these might affect the implementation and success of a CQI/TQM program. Chapter 6 examines the literature related to implementation issues using CQI in health care. Chapter 7 describes the methodology for my study. Chapter 8 presents findings regarding the CQI/TQM elements in Michigan hospitals and examines two research questions, "What do respondent's programs look like." and "How do programs match model policy?" Chapter 9 presents the findings regarding what respondents report as perceived outcomes of CQI. Chapter 10 describes the methodology for data reduction in preparation for regression analysis. Chapter 11 reports my analysis of what patterns of association are found between CQI program elements and perceived outcomes. Chapter 12 describes how the path model was tested using multiple regression. Finally, chapter 13 addresses the question, "What leads to a successful CQI program?" by discussing the "diagnosis", "prognosis" and "prescriptions" for Michigan hospitals. In addition I make recommendations for future CQI research.

CHAPTER 2

CQI/TQM – PHILOSOPHY AND KEY COMPONENTS

Emergence of CQI

The fundamentals of CQI are based on the Scientific Management movement developed at the turn of the 19th century. Management was to be based on mastery of the facts. Under this theory, management specified one correct work method for all workers and mandated that personnel used that method to ensure quality. Over the years this perspective has been modified by the human relations perspective that recognizes the importance of the capability of the people in the organization. In this chapter I will review the major contributors identified with the founding principles of CQI/TQM. In addition, I will discuss the basic concepts found in a generic CQI/TQM model.

Most histories of CQI credit statistics pioneer Walter Shewhart, an employee of Bell Laboratories, with the first published efforts in this area. His best known contributions are the control chart and the Plan, Do, Check, Act (PDCA) cycle. Shewhart believed and promoted the idea that market price alone was no indicator of value. It was Shewhart's idea that statistical control of stable processes were the foundation of all empirical CQI activities (Jaeger, et al., 1994, p. 12).

W. Edwards Deming is the best known advocate for TQM. In 1950 he was invited by representatives of Japanese industry to advise on how they might best rebuild their war-ravaged economy. Although he had been advocating his statistical approach to quality for some time, U.S. industries had been reluctant to

embrace the new approach to quality. Thus, the Japanese were the first to implement his ideas widely. Many in U.S. industry have expressed that he was our country's most costly export.

Over the years, Deming made significant contributions to the development of TQM. He is perhaps best known for the 14-point program of recommendations that he developed for management to improve quality. But his focus always remained on processes (rather than organizational structures), on the ever-continuous cycle of improvement, and on the rigorous statistical analysis of objective data.

Deming's 14 Point Program

1. Create and publish to all employees a statement of the aims and purposes of the company or other organization. The management must demonstrate constantly their commitment to this statement.
2. Everyone in the organization must learn the new philosophy.
3. Understand the purpose of inspection, for improvement of processes and reduction of cost.
4. End the practice of awarding business on the basis of price tag alone.
5. Improve constantly and forever the system of production and service.
6. Institute training.
7. Teach and institute leadership.
8. Drive out fear. Create trust. Create a climate for innovation.

9. Optimize toward the aims and purposes of the company, the efforts of teams, groups, and staff areas.
10. Eliminate exhortations for the work force.
11. Eliminate numerical quotas for production. Instead, learn and institute methods for improvement. Eliminate Management by Objective.
12. Remove barriers that rob people of pride of workmanship.
13. Encourage education and self-improvement for everyone.
14. Take action to accomplish the transformation (Deming, 1993).

Deming believed that management had the final responsibility for quality. Employees work in the system; management deals with the system itself. He also felt that most quality problems are management controlled rather than worker controlled. This was the basis for his requirement that TQM be based on a top-down, organization wide commitment (Deming, 1986).

Joseph M. Juran, like Deming, was involved with the Japanese in the 1950s. He argued that the quality improvement process was a never-ending spiral of progress (Jaeger et al., 1994, p. 16).

Juran's writings are similar to Deming's concepts. He classifies process variations into two categories: "sporadic" and "chronic." Sporadic problems occur when production falls below acceptable standards: chronic problems are intrinsic in the work setting and require intervention by management. Furthermore, Juran insisted that quality goals be specific.

Philip B. Crosby, working in the 1980s, developed a different theoretical perspective on quality improvement based on changing the corporate culture

and attitudes. He departed from his predecessors' focus on statistical process control techniques and emphasized the concept of "zero defects." He emphasized organization and management theories rather than the application of statistical tools.

Crosby asked two questions: What is quality? What standards and systems are needed to achieve quality? He answered with four "absolutes of quality." The first absolute requirement is "conformance to requirements," often referred to as "Do it right the first time." The second is "defect prevention is the only acceptable approach." The third is that "zero defects" is the only performance standard, and the fourth is that the cost of quality is the only measure of quality. His approach, like Deming's, is to implement a 14-step process, but a process that stresses changes in the organization's culture and attitudes (Crosby, 1979, p. 135).

Crosby believed that the quality program should go forward on two fronts: management and individuals.

Crosby's writings emphasize developing an estimate of the "cost of nonconformance," also called the "cost of quality." This involves identifying and assigning values to all of the unnecessary costs associated with waste and wasted effort when work is not done correctly the first time.

Essential Components

Continuous Quality Improvement/Total Quality Management (CQI/TQM) is a relatively new approach to quality improvement for the health care arena.

CQI/TQM¹ was introduced into healthcare in the late 1980s. Until that time, organizations in the healthcare industry generally viewed CQI as a business management practice that was not applicable to the healthcare field. They believed that quality healthcare was attained through the efforts of quasi-regulatory agencies, such as the Joint Commission on Accreditation of Health Care Organizations (JCAHO), that demanded the application of certain standards in providing care.

Basic Concepts in CQI/TQM

CQI encompasses all systems and processes, clinical and non-clinical, with actions directed towards improving the quality of all services and products for patients and all other customers. Meeting and exceeding customer needs is one of the primary objectives of CQI. In this context the term "customers" includes not only patients but also employees within the organization. CQI is both a philosophy and a new way of doing business. It uses a participative team-oriented approach. Step-by-step, through the application of a scientific problem-solving methodology, the organization learns to manage with facts rather than intuitions. It is argued that a CQI approach can enhance all critical systems and processes in the organization as managers learn to focus on long-term strategies rather than quick-fixes. Employees are to learn how to listen to the voice of the customer, continually improve essential services, reduce costs, and ultimately help the organization to compete more effectively. Experience shows that high quality service and return on investment are usually related. In the long

¹ When discussing CQI/TQM in the health care setting there is virtually no differentiation between Continuous Quality Improvement and Total Quality Management because the components and methods of implementation are essentially the same for both. Henceforth, the term CQI will be used.

run, the most important single factor affecting a business unit's performance is the quality of its products and services, relative to those of competitors. Quality leads to both market expansion and gains in market share (Gaucher and Coffey, 1993, p. 20).

Another distinguishing characteristic of CQI is its emphasis on avoiding personal blame. CQI focuses on the managerial and professional processes associated with a specific outcome instead of personal blame issues such as personal negligence, poor workmanship, and lack of interest. It assumes that the process needs to be changed and that the person(s) currently involved in that process are needed to help identify how to approach a given problem or opportunity.

Thus CQI moves ahead of the ideas of participative management and decentralized organizations because it takes advantage of both. It is considered participative because it encourages the involvement of all personnel associated with a particular work process to provide critical information and become part of the solution. CQI is decentralizing because it places responsibility for ownership of each process in the hands of those workers most directly involved. Rather than absolving management of its fundamental responsibility, this level of participation and decentralization actually places additional burdens on management. This approach requires significant amounts of management thought, oversight, and responsibility. Instead of imposing management's preconceived solutions, management's role is to encourage and support the development of process improvement teams. Management

must be the classic teacher and model of the improvement process (McLaughlin and Kaluzny, 1994, p. 5).

CQI supposedly increases the pride of the employees involved because it recognizes the important role of each of the members of the process improvement team and, in addition, involves them as partners and even leaders in redesigning the process. Organizations using CQI often experience improvements in morale as helpfulness and involvement increase and avoidance and adversarial relationships diminish. Workers take more pride in the quality of their work since quality is now being measured.

An additional distinguishing feature of CQI is the belief in fact-based decision making. Although facts are not those resulting from scientifically designed, double-blind studies, everyone involved in CQI activities is expected to study the multiple causes of events and to investigate a vast array of system wide solutions. Instead of starting by trying to fix blame, the teams gather hard and soft data to see what is actually happening and why. Numerous causes are assumed, and analysis is conducted to identify those factors that are contributing to less than optimal system performance (McLaughlin and Kaluzny, 1994, p. 6).

Although CQI models may vary slightly, a generic model of CQI incorporates certain key components:

- (1) Executive level commitment - Executive level commitment is crucial to the success of CQI within an organization. Once this commitment is achieved, education is the key to manager and staff understanding the relevance of CQI, quality tools, processes, and methodologies for

improving quality. Education and executive level commitment to CQI are the beginning seeds to transform an organizational culture to continuous quality improvement.

- (2) Transformation of the culture – this step involves open communication among various levels within an organization, breaking down barriers and territories, eliminating fear, and empowering employees.
- (3) Planning quality – quality planning emphasizes team formation and building. Planning encompasses the following key elements: (1) identification of customer requirements and professional standards, (2) data-based identification of deviation from standards and requirements (problem), and (3) identification of opportunities for improvement (goal).
- (4) Organizing quality – organizing quality is a vital link in the improvement process. During this phase, four key elements are emphasized: (1) translating operational specifications, (2) selecting process performance measures or key indicators, (3) measuring process performance measures or key indicators, and (4) planning and implementing the proposed solution(s). All of these elements provide a scientific basis for making decisions based on facts.
- (5) Evaluating quality - evaluating quality includes the following key elements: (1) evaluating results of the implemented solution(s), (2) holding gains, (3) and evaluating team effectiveness. Once the evaluation process is in place, it is essential that teams use a cyclic

approach in sharing information with key players while at the same time continuously planning and organizing quality.

These individual components are not intended to be self-contained or mutually exclusive, but rather represent the critical elements of the process as continuous, ongoing, and overlapping building blocks to the next step. There is no precise road map that applies to all organizations. For this reason each organization must customize its own plan for CQI (Baird et al. p. 91-93, 1997).

The emergence of CQI can be attributed to a number of persons. Their contributions have been brought together to form the basic components of a CQI/TQM program. Now that we have an understanding of the key components found in a generic CQI/TQM model, Chapter 3 will broaden our understanding with a discussion of program elements, activities and implementation issues found in CQI/TQM programs in the healthcare sector.

CHAPTER 3

CQI PROGRAM ELEMENTS AND ACTIVITIES

This chapter discusses the specific elements and activities that are common to most CQI programs.

Program Elements

Philosophy of CQI: The overall purpose of CQI is continuous quality improvement applied organization-wide, throughout all activities and functions and manifested in a fundamental and shared belief in total customer satisfaction (Weech-Maldonado, 1999). Everyone in the organization, from the board of directors, hospital administrator, physicians, management personnel and employees must adopt CQI principles and embrace a philosophy and culture where quality is key (Huq and Martin, 2001).

Shifting to a CQI paradigm requires a new perspective regarding hospital administration in which, (a) hospitals are viewed as open systems, (b) participative management is emphasized, (c) strategic leadership is advocated and (d) explicit focus on external and internal customers is imperative (Carmen et al., 1996). The basic internal processes necessary for this paradigm shift within hospitals include: (a) changing organizational structure in order to better identify and improve processes, (b) using a quality-oriented information system to study processes and (c) empowering employees and/or creating cross functional teams to take charge of their work operations in a manner that encourages continuous learning as well as empowerment and personal responsibility (Huq and Martin, 2001). Hospitals must move beyond correcting present deficiencies

or meeting current standards to create a culture committed to continuous learning and improvement.

Quality Improvement Teams: Quality improvement teams (QIT) are a highly regarded method for accomplishing professional collaboration in healthcare. Interdisciplinary collaboration among health care providers is thought to be essential to the delivery of high-quality care and positive patient outcomes. Quality improvement teams are usually formed to evaluate and improve processes. The development of a QIT for improving organizational performance has become very common in health care. Before the development of QITs, committees were most often used to solve problems.

There are several important differences between teams and committees. QITs are most often comprised of members of the organization who are involved in the processes selected for improvement. Unlike committees, which consist of members at similar levels of the organization, each member of a QIT has equal authority, although they may come from different levels of the organization. QITs focus on improving a selected process and disbands after recommending an improvement. Recommended improvements are designed to be permanent solutions rather than a quick fix. Unlike committees that are usually ongoing in nature, QITs are designed for short term accomplishments.

Customer Focus: Customer focus is an essential element for a successful CQI program. CQI has a focus on both internal and external customers. Changes in the health care arena over the past 25 years have recognized the importance of accountability to the customer. This accountability began to be measured, managed and routinely reported as CQI programs began to be

implemented in the health care field during the late 1980s. This has led to consumers evolving into responsible partners who actively participate in health care maintenance and improvement processes. When referring to CQI, a customer is more than an individual who is consuming health care services. For instance, the nurses are a customer of many day-to-day processes including medication delivery and laboratory analyses, just to name a few. In turn, many of the hospital's departments are customers of nurses for information that may initiate various support department processes. Every department in the hospital, at different times, is the supplier of a customer. Moreover, physicians are both suppliers and customers within the organization. Patients or consumers are a special category of customers because they are the ultimate receivers of health care services or products (Johnson, 1999).

Consumer satisfaction as a specific component of health care reporting is a result of many forces. These forces include the widespread adoption of CQI, with its customer focus, increasingly assertive consumers, heightened competition, regulatory or accreditation standards that mandate satisfaction surveys and complaint management systems. Also there is increased evidence of relationships between satisfaction and the quality of health care processes and outcomes (Schweikhart and Strasser, 1994). For example, Weyrauch (1996) reported that in a cross-sectional randomized telephone survey of more than 1,000 patients, those who were treated by their provider of choice for a visit had more positive satisfaction scores statistically than patients who were not treated by their provider of choice.

Employee Empowerment: Empowerment is the ability to take unencumbered action (Curtis, 1997, p. 202). It provides people with the skills and training that allow them to figure out the best way to accomplish tasks.

Change driven from the top of the organization without significant organization-wide participation will likely fail. People are motivated to achieve what they can see, touch and measure—they are goal oriented. It is important that people are committed to the program because of an innate desire to limit change. Not only do employees need to be reminded that they are empowered to make change, they must also be renewed by participation in their own goals and objectives.

Structured Problem Solving Process: A multitude of quality improvement frameworks exist, each with their own specific steps, language, and processes. Each framework, though, shares common tools for arriving at a structured format for problem solving. Moreover, the tools within each framework serve in facilitating group decision making and progress, which furthers the current emphasis on decision making within a team context (Bucholz & Roth, 1987, p 237). Even though quality improvement methods were initially designed to be implemented within industrial settings, Deming (1986) accurately envisioned that those same improvement tools could readily be applied to the service sector, including health care. These tools have been successful in improving patient care and organizational performance. Tools include brainstorming, multivoting, flowcharting, cause-and-effect diagrams, run charts, control charts, histograms, Pareto diagrams and scatter diagrams. These tools are designed to help teams successfully carry out some of their most important activities: generating ideas,

organizing ideas, planning tasks, reaching consensus, and documenting accomplishments. In addition, these tools can help a team that is stalled to regain its forward motion. These tools assist with the effectiveness of group problem solving while minimizing interpersonal conflict (Joint Commission, 1996, p. 37). These tools can be used as part of a formal improvement team, or to support day-to-day management decision making. Used effectively, they help to create a continuous quality improvement culture in an organization.

CQI Elements Related to Medical Staff

A successful quality improvement program depends on the clear delineation of lines of communication and responsibility. The documentation and communication of quality improvement activities involve the identification of problems, the specification of corrective action, and the identification of the individuals responsible for implementing these actions.

Peer Review: Peer review is an important element of medical quality review. It evaluates all aspects of medical care provided by all physicians to all patients. Medical records are screened to determine whether or not there are questions about a physician's care. The criteria for medical record review are developed by physicians. Recommendations of any actions to be taken against a doctor as a result of peer review are recommendations only. Departments do not take action against a physician. Actions are taken by higher level committees in response to patterns or formal complaints, or events of a magnitude that merit actions.

This quality review activity generates documentation that is sometimes critical to patient care performance. Therefore, there can be a natural

reluctance on the part of hospitals to be aggressive and candid in conducting such activities. Because there was recognition of the public interest in encouraging quality management activities, governments sought to dispel such reluctance by enacting statutes establishing a privilege that protects peer review materials from disclosure (Rowland, 1988). The peer review privilege was created to serve the valuable public policy interest of fostering vigorous quality management activities.

Morbidity and Mortality Conferences: Morbidity and Mortality (M & M) conferences are one of the most effective risk management tools because of the learning that occurs when physicians gather to discuss their own difficult or challenging cases. Cases which have recently occurred within the hospital setting hold a natural appeal for discussion, making the regularly scheduled M & M conference an ideal opportunity for educational exchange. Physicians may initially feel reluctant to actively critique one another's work but this hesitation tends to dissipate in the non-punitive atmosphere that focuses on the goal of improved patient care. The underlying objective of M & M conferences should always be improving the quality of care.

CQI Activities

Organized Case Management: Case management is a complex phenomenon. It can be defined as a clinician or clinical group that oversees a patient's plan of care across the episode or continuum. Case management services are not required by all patients. Instead case management is used for very complex cases, case types demonstrating high cost or high volume, for patients admitted to acute care or with numerous unscheduled visits to

ambulatory care, or for patients with many unmet socioeconomic needs. At any given time fewer than 20% of patients cared for within a health system will require case management services (Hill, 1997, p. 220). The goal of case management is to better manage care by predicting high-risk patient needs, intervening to prevent or decrease the number of acute exacerbations of the condition and continuing to monitor the effect of the interventions over time.

Practice Guidelines/Critical Pathways: The Agency for Health Policy and Research emphasized the processes of care through its Office of the Forum for Quality and Effectiveness in Health Care. The primary responsibility of the forum was to facilitate the development, periodic review and update of practice guidelines that assist practitioners in managing clinical conditions (DHHS, 1994). Between 1992 and 1994, a number of practice guidelines addressing such diverse conditions as acute pain, cancer pain, pressure ulcers, sickle cell disease, depression and unstable angina were published. At the same time, hospitals also emphasized process criteria in developing critical pathways. These critical pathways define the timing and sequence of health professionals' activities for a specific procedure or diagnosis (Coffey, Othman and Walters, 1995). The goal of critical pathways is to use resources efficiently. The focus of these efforts is primarily on standardizing practice of plans of care for specific populations.

While the development of practice guidelines can be viewed as one mechanism for defining the work process and insuring quality care, the implementation of practice guidelines presents a challenge for hospitals. Hospitals often work within the confines of their own organization when developing these guidelines. Because a hospital wants to maintain a

competitive edge, sharing guidelines with other organizations is often not an option. With the application of CQI hospitals gain an awareness that the provision of quality care demands going beyond integration and communication among providers in a specific setting. Process, or the way in which care is delivered, is critical to quality and cost issues. The challenge is finding a way to continue to improve the efficiency of delivery while maintaining quality.

Rewards Systems: There are a few examples of the application of CQI to a hospital's reward and performance appraisal system. For example, employees at Parkview Medical Center in Pueblo, CO use a tool called APOP (annual piece of paper) (Macintyre and Kleman, 1994, p. 120). This paper belongs to the employee and is brought to the meetings or coaching session the employee has with his or her supervisor. The APOP documents the work processes to which the employee contributes. The employee's training and educational needs relating to those work processes are also discussed. In addition, they also use criteria-based competency testing for performance evaluations. Pay is not connected with performance appraisals.

Those who are familiar with Deming's work recognize that reward systems run counter to the CQI philosophy because they focus on individual behaviors. Deming argued that an individual's performance results from a combination of forces: some interpersonal; some from coworkers, some within the job, including the material available and the equipment provided; some from customers; some from managers; some from supervisors, and some from environmental conditions. The University of Michigan Hospitals have reported that they have a reward

system in place that avoids the traps identified by Deming (Gaucher and Coffey, 1993). Their system uses the strong incentive of financial awards while at the same time increases organization wide teamwork and commitment to its mission and goals. The Gainshare Program was implemented in 1991 and is very simple in nature. The organization determines a desired margin from operations, taking into account depreciation, interest expenses, interest income, prior year settlements and contributions to the academic enrichment fund. If the target is exceeded, half of all the excess is distributed to all full-time employees. All employees receive an equal share. Throughout the year performance measures are shared with employees. In addition, information relating to revenues, expenses, admissions, clinic visits, attendance and other measures is provided by a variety of methods. This information enables employees to see the effect they have on the overall operations of the hospital. Gainshare checks are distributed each October.

Benchmarking: The quality improvement and management tool of benchmarking was initiated in industry in the late 1970s and is now being implemented in health care organizations. Camp (1989) defines benchmarking as "the continuous process of measuring products, services, and practices against the toughest competitors or those companies recognized as industry leaders" (p. 10). Benchmarking became increasingly recognized as a premier quality tool when it was included in the criteria for the Malcolm Baldrige National Quality Award. Health care organizations have often compared themselves with each other, but the recognition and use of benchmarking have added a significant dimension to the improvement of performance. When

health care organizations use the tool of benchmarking, they measure, assess, and compare practices, processes, and outcomes with other organizations that are considered comparable with them in scope of service or have been highly recognized for best practices.

Benchmarking can be comparative or process oriented (Patrick & Alba, 1994). In comparative benchmarking, an organization compares its performance with the performance of others by using performance measures and indicators. Benchmark studies are valuable for examining major care systems, product lines, products, and functions. Findings from benchmarking studies often serve as the catalyst for chartering a CQI team or some other mechanism to improve performance. Process benchmarking may start as a comparison of data but evolves into the evaluation of a process or processes. The evaluation of processes is necessary to recognize and identify the best practices. Health care organizations usually benchmark critical processes such as flow through an operating room or an outpatient diagnostic testing center. The success of benchmarking and improvement actions depends on leadership support, interdisciplinary collaboration, and a commitment to improve patient outcome, organizational processes, and practitioners' practices.

Integrated Quality Assurance, Utilization Review and Risk Management:

There is a large degree of commonality in functions, activities and level of interest among risk management (RM), utilization review (UR), and quality assurance (QA) departments. Hospitals can capitalize on this commonality of interest to determine if thorough integration of activities, operational improvements can be achieved. For example, risk managers, quality managers

and UR staff have a common interest in reviewing data regarding adverse events or other outcomes. Each individual may have a unique purpose for the data but the need for data is common nonetheless. Quality departments are historically rich with data on patient outcomes, appropriateness of procedures, blood utilization, medication use and so forth. Infection control programs contain useful information about nosocomial infections (infections contracted while a patient in the hospital) and other surveillance activities that may also shed light on RM and UR issues. Several databases may exist within one organization, either alone or in combination with regional or national comparative data. Not only should these databases be a shared resource among departments, data needs from each area should also be shared.

There are many benefits to having an integrated RM, QM and UR effort. RM, QM and UR department efforts are often fragmented. Each department may have its own forms, equipment, software, and methods for achieving tasks. Although some activities are similar, they are not well-coordinated across departments. There can be tremendous variation in process across departments, and the quality of the information collected may be less than optimal. Through integration, new tools designed to integrate common functions may emerge to reduce redundant paperwork and the number of people analyzing the same problems without coordination. Integration ultimately will enhance the process of care.

In addition, integration may increase the effectiveness of department functions. Often, integration offers opportunities to execute tasks more quickly and with more satisfying results than before. Integration may also help

consolidate resources across departments. Collecting the same information in multiple departments is redundant and inefficient, preventing staff from doing other activities that might be more valuable to the organization. Therefore, integration should not only focus on increasing efficiency, but should identify opportunities to perform valuable functions that were not previously possible.

Finally integration can facilitate the effectiveness of reporting relationships. Through integration, reporting relationships may change to enhance the ability of each department to perform at its best.

Disease State Management: Disease state management (DSM) is a process of organizing care for a specific high-cost and/or high volume diagnosis, with the intention of improving outcomes and, when possible, lowering overall costs. DSM is a multi-step process which involves evidence-based clinical policies, an explicit implementation strategy and a data-driven feedback mechanism to objectively measure those aspects of care the program is designed to impact (e.g., clinic outcomes, patient satisfaction, cost, etc.). It is a coordinated systems approach to managing and improving care processes across the entire continuum—from prevention via self care ambulatory services, to acute hospitalization, rehabilitation and recovery (www.aafp.org/managed/disease.html).

There are a number of components common to most effective disease state management programs including:

1. Patient education and involvement in self-care techniques.
2. Clinical policies/best practices that extend across the entire continuum of care.

3. Outpatient drug management.
4. Clinical information systems with the capacity to identify, classify, and track defined patient populations.
5. Informed support of physicians.
6. Team-oriented, multidisciplinary approach.
7. Feedback or continuous review.

Indicators of the health system's success in treating the entirety of a disease across the continuum of care (related to the family of outcome measures that treat the disease as opposed to managing health) may include measures for major diagnostic categories (e.g., hypertension, diabetes), primary care (e.g., patients satisfaction, utilization of preventive services, illness episodes per 1,000), specialty care (e.g., diagnostic or therapeutic guidance compliance, diagnosis-specific health status scores), acute care episodes (e.g., average length of stay per major DRG categories, surgeries per 1,000, readmission rates), or rehab and recovery (patient compliance, DRG-specific health status scores) (Meisenheimer, 1997, p. 694).

The next chapter will examine the record of CQI in the health care field from its emergence from the National Demonstration Project to reported outcomes found in the literature.

CHAPTER 4

THE RECORD OF CQI IN THE HEALTH CARE FIELD

Quality is not a new issue in health care, and some have questioned the value added by CQI. A comparison of quality from an industrial perspective versus a health care perspective reveals that the two are surprisingly similar and that both have strengths and weaknesses (Donabedian, 1993). The industrial model of CQI is limited in that it (1) ignores the complexities of the patient-practitioner relationship; (2) downplays the knowledge, skills, and motivation of the practitioner; (3) treats quality as free, ignoring quality/cost trade-offs; (4) gives more attention to supportive activities and less to clinical ones; and (5) provides less emphasis on influencing professional performance via "education, retraining, supervision, encouragement and censure" (Donabedian, 1993, pp. 1-4). However, as suggested by Donabedian there are important insights that the professional health care model can gain from the industrial model:

1. new appreciation of the fundamental soundness of health care quality traditions.
2. the need for even greater attention to consumer requirements, values, and expectations.
3. the need for greater attention to the design of systems and processes as a means of quality assurance.
4. the need to extend the self-monitoring, self-governing tradition of physicians to others in the organization.

5. the need for a greater role by management in assuring the quality of clinical care.
6. the need to develop appropriate applications of statistical control methods to health care monitoring.
7. the need for greater education and training in quality monitoring and assurance for all concerned (1993).

CQI activities can be viewed along a continuum, with manufacturing at one end of the continuum and professional services at the other. Each CQI approach should be modified in accordance with its position along this continuum. Manufacturing processes have linear flows, repetitive cycle steps, standardized inputs, high analyzability, and low worker discretion (Hart, 1993). Professional services, on the other hand, involve non-standardized and variable inputs, non-repetitive operations, unpredictable demand peaks, and high worker discretion. Many organizations, including health care organizations, have processes at different points along that continuum that should be analyzed accordingly. For example, the laboratory and support operations of a hospital resemble manufacturing processes while diagnostic and treatment activities are professional services. The objective of the factory-like operations should be to drive out variability to conform to requirements and to produce near-zero defects. On the other hand, the objectives of diagnosis and treatment are to do whatever it takes to produce customer satisfaction and maintain the loyalty of customers and employees.

Emergence of CQI in Healthcare

CQI was applied in several health care settings in the mid-1980s. The most notable was the National Demonstration Project on Quality Improvement in Health Care which was the initial effort to launch CQI within health services. This demonstration project, which began in 1987, paired industrial quality experts with groups from various health care organizations. Each team formulated an issue to address using quality improvement techniques. The results showed a high rate of success for the projects and indicated that the tools and principles of quality improvement could successfully involve leaders and staff members, and improve care and services. Although it did not give evidence on the costs and benefits of CQI, this eight-month demonstration project clearly showed that the quality improvement techniques used in industry could be applied to the health care setting. The Project provided ten key lessons to guide subsequent efforts, namely:

- 1) Quality improvement tools can work in health care.
- 2) Cross-functional teams are valuable in improving health care processes.
- 3) Data useful for quality improvement abound in health care.
- 4) Quality improvement methods are fun to use.
- 5) Costs of poor quality are high, and savings are within reach.
- 6) Involving doctors is difficult.
- 7) Training needs to arise early.
- 8) Non-clinical processes draw early attention.
- 9) Health care organizations may need a broader definition of quality.

- 10) In health care, as in industry, the fate of quality improvement is first of all in the hands of leaders (McLaughlin and Simpson, 1994).

The report on the National Demonstration Project on Quality Improvement in Health Care (Berwick, Godfrey, and Roessner 1990) details the importance of CQI for health care. This work demonstrated how several hospitals began to implement total quality methods into their organizations, although the applications of CQI were limited to administrative processes rather than medical practices. McLaughlin and Kaluzny (1990) help explain the difficulty by suggesting that total quality management represents a significant shift for health care professionals from top-down to team management approaches. Many of these professionals view CQI with skepticism because they see it threatening the traditional norms of professional autonomy and authority. Likewise, Milakovich (1991) argues that CQI requires health professionals to re-orient management away from traditional approaches driven only by cost, regulatory standards, or quality assurance (Kaldenberg and Gobeli, 1995).

The mission of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is to improve the quality of care provided to the public. Because quality is ultimately a judgment made by patients and others based on their perceptions of an organization's care and its outcomes, JCAHO has focused its attention on the healthcare organization's performance of the activities that most affect the nature of care and its outcomes. Thus, accreditation becomes a catalyst for better quality by stimulating continuous improvement in organizational performance.

JCAHO believes that CQI provides the health care field with helpful concepts and methods. While the Joint Commission has borrowed some of these concepts for incorporation into its standards, most CQI concepts do not appear in the standards. This approach follows a long-standing Joint Commission practice of including in standards only the core concepts of a relevant field (e.g., infection control, information management). JCAHO leaves the details of implementation to each accredited organization.

Furthermore, JCAHO notes that it is important to recognize that there is a large and growing number of approaches that have been labeled CQI by their creators—approaches that vary significantly in their effectiveness. If the Joint Commission were to 'adopt' CQI, they would be perceived as endorsing them all.

Examples of CQI principles that have been incorporated into JCAHO standards include:

- the key role leaders (individually and collectively) play in enabling the systematic assessment and improvement of performance
- the fact that most problems/opportunities for improvement derive from process weaknesses not from the competence or incompetence of individual employees;
- the need for careful coordination of work across departments and professional groups;
- the importance of seeking judgments about quality from patients and other 'customers' and using such judgments to identify areas for improvement;

- the importance of carefully setting priorities for improvement;
- the need for both systematic improvement of the performance of important functions and the maintenance of the stability of these functions.

The Joint Commission does not dictate a particular management style, nor are they prescriptive about the manner in which an organization conducts its performance assessment and improvement activities (O'Leary, p. 76-78, 1997).

Building upon the lessons learned from the National Demonstration Project, the Hospital Corporation of American (HCA) has adopted an approach to CQI it calls FOCUS-PDCA. The acronym represents the following steps:

- F – Find a process to improve.
- O – Organize a team that knows the process.
- C – Clarify current knowledge of the process and its variation.
- U – Understand the causes of process variation.
- S – Select the process improvement.
- P – Plan the improvement.
- D – Do the data collection, analysis, and improvement effort.
- C – Check the data for process improvement and customer outcome.
- A – Act to hold the gains and continue improvement.

FOCUS-PDCA provides the firm's health care workers with a common language and an orderly sequence for implementing the cycle of continuous improvement.

Some Applications of CQI and Their Effects

As noted above, in the 1980s a number of hospitals began to experiment with applications of CQI. Pioneers included Meriter Hospital, Madison, Wisconsin; University of Michigan Hospitals, Ann Arbor, Michigan; Alliant Health System, Louisville, Kentucky; Henry Ford Health System, Detroit, Michigan; and West Paces Ferry Hospital, Atlanta, Georgia (Jaeger, et al., 1994, p. 21). Empirical studies showing desirable effects of CQI within the health organization have begun to emerge since the early 1990s. The health care literature indicates a number of specific benefits associated with quality improvement and related measures such as customer satisfaction. Benefits reported include increased profitability, enhanced employee satisfaction, reduced costs, improved patient survival, and better continuity of care.

Profitability: There appears to be a clear relationship between profitability and customer satisfaction in hospitals. Harkey and Vraciu (1992), for example, report on the relationship among the 82 HealthTrust hospitals. They developed a quality-profitability model based on their findings. This model showed profitability affected by increased market share and better prices in addition to reduced costs due to productivity improvements and reduced lengths of stay. Financial performance was defined as the net operating income of the hospital, excluding interest, depreciation, ESOP (employee stock ownership plan) expenses, and corporate management fees. The researchers took the results of all these surveys and looked at the relationship between questionnaire values and financial performance.

Factor analysis was used to determine whether a quality factor could be developed from the many quality questions. Two quality factors developed from ten questions. Seven questions, based on employee, patient, and physician responses, made a very strong factor accounting for 39.4 percent of the variance in the cost/quality relationship. The second quality factor was made up of three community responses about the hospital's image and explained 11.1 percent of the variance in the cost/quality relationship.

Nelson et al. (1992b) also have reported that patients, employees, and physicians have correlated quality perceptions. They determined that quality ratings by 15,095 patients at 51 Hospital Corporation of American (HCA) hospitals explained 10 to 29 percent of the variation in net operating revenue and return on assets.

Employee Satisfaction: Rush-Presbyterian-St. Luke's Medical Center in Chicago surveyed 5,174 employees (out of a possible 7,400) in 1990, two years into an extensive CQI program. Approximately half of these employees had participated in that effort. After adjusting for demographic differences in the participating and nonparticipating groups, the hospital reported a statistically significant improvement in intrinsic job satisfaction, in the general opinion of the hospital as a place to be a patient and to work, and in the number of positive attitudes toward CQI (Counte et al., 1992).

Cost Effects: The University of Michigan Medical Center in Ann Arbor, Michigan, monitored its savings and its costs from 19 quality improvement teams between July 1987 and June 1991. Seventeen of the 19 teams showed a positive net cost saving. The implementation costs were estimated at \$2.5 million, of

which \$1.3 million represented programmatic costs. The combined two-year savings and additional revenues attributed to these teams were \$17.7 million. Teams focusing on the turnaround of the center's operating rooms led to added revenues of about \$13 million (Gaucher and Coffey, 1993).

Other CQI efforts have also recorded cost savings. Baptist Medical Center in Columbia, South Carolina, found that the suppliers of contrast media solution for radiology were packaging the solution in volumes greater than each patient needed to drink. At the team's request the vendor started repackaging the material in smaller volumes, resulting in an annual savings of \$200,000 in avoided waste.

Cost savings may not come quickly in the beginning, but may occur in spurts as the approach is internalized and then reoriented. Thomas H. Breedlove, Senior Vice President of Crosby Associates, argues against a time estimate for full implementation of CQI since he sees it as always evolving. However, he does argue the hospital should be getting a three-to-one payback within six months (Burrus, 1993a). Northwest Hospital, in Seattle, Washington experienced this when its director decided that CQI was a philosophy and not just a procedure. In the first few months of the change, the hospital saved about \$3 million and the average length of stay dropped one day. A number of middle management positions have been eliminated, as has the contract management company at a savings of \$750,000 annually (Burrus, 1993b).

Other Specific Effects: Reduced costs are not the only positive outcome of CQI efforts. At the University of Utah, for example, the development of a protocol supported by computer systems to control life support equipment has

increased the survival rate of Adult Respiratory Distress Syndrome (ARDS) from 12 percent to 42 percent (Morris, 1992).

Other effects include increased capacity utilization and improved continuity of care. For example, the Joint Commission on Accreditation of Healthcare Organizations' book, *Striving Toward Improvement* (1992), describes the CQI efforts of six hospitals. The hospitals reported improved operating room utilization, a 78 percent reduction in food waste on the pediatric service, increased utilization of transportation orderlies, and reduced admission and discharge waiting times. The case studies also show increased utilization of capacity, lower supply costs, increased physician continuity, reduced laboratory costs, reduced hospitalization for low back pain, more satisfied obstetric patients, and reduced inpatient antibiotic costs. West Paces Ferry Hospital also reports how empowered employee teams implemented an \$83,000 reduction in antibiotic waste. Finally, Kibbe et al. (1993) show how CQI techniques were able to improve continuity of care in an academic medical practice. This report shows how such aspects of health care quality can be measured and used to guide improvement.

Costs of Quality: Crosby (1979) talks about the "cost of quality," meaning the cost of poor quality. Knowledgeable administrators do not hesitate to say that the cost of nonconformance and waste in health care is in the same rate—20 to 40 percent of total costs—that has been seen in American industry. As much as 25 percent of the cost of care goes into billing, collections, and handling of claims. The Florida Health Care Cost Containment Commission asserts that 90 percent of hospital bills contain errors.

Doubts About the Value of CQI

With documented results previously discussed, why do some continue to question the value of a CQI program? First, the data cited above indicate *potential savings*—this raises the issue of the probabilities of achieving them. Consultants report that the likelihood that hospital CEOs will maintain a CQI effort is probably about 50-50. In addition, there appears to be a moment of truth about 18 months into the process when the CEO suddenly realizes that the process does not involve simply changing the corporate culture, but involves a fundamental change in the way managers, including the CEO, make decisions (McLaughlin and Simpson, 1994, p. 42). Some CEOs never reach that level of understanding; some do and cannot make the transition.

The fact that only a limited number of quality improvement teams or task forces can be underway at a time also reduces the payoff while everyone may be trained in the basics of CQI, only a small proportion are actually practicing CQI at one time, so that the effective increased capacity for change emphasized above is limited by the number of teams that can be maintained at one time. The limit on the number of teams is related to the capacity of the facilitators to fully train and support the teams as well as the number of processes that can be in flux at one time without confusing people. Thus, although the investment in developing the program and doing the awareness training for large numbers of staff occurs early, the returns come later, mostly in the third year and beyond.

While cost savings seem relatively easy to quantify, the effects for increased competitiveness are more difficult to document. An increased

occupancy rate quickly improves the bottom line, but one usually cannot tell why a patient came to a hospital, and one hears almost nothing about those who didn't come because neighbors told them that the hospital was unfriendly or poorly run. That is why studies about the relationship between customer satisfaction and financial performance are so important. The competitive effect cannot be justified based on specific events as can the waste avoidance and cost savings effects. Furthermore, any analysis of competition effects can be confounded by the offsetting marketing efforts of competitors. Hospital A may enhance its image in the community by way of continuous improvement, but it may be countered by a heavy advertising campaign by Hospital B or special equipment purchases to attract physicians at Hospital C. We know little about the relative effectiveness of those three strategies or combinations thereof, so it is virtually impossible to compare the impact of a dollar spent on CQI against the impact of a dollar spent on other market-oriented activities (McLaughlin and Simpson, 1994, p. 42).

Because CQI is relatively new, there is little information about how permanent or sustainable any gains may be. Prior approaches such as quality circles often achieved good results in the short run but benefits declined over time. Early on, it is possible to clear up the obvious quality problems, and to show some immediate improvements. However, later quality gains are likely to be smaller. One may experience diminishing returns, or one may find a learning effect in which teams and management with experience develop sufficient confidence to tackle some major issues with high potentials for payoffs such as admissions and discharge. McLaughlin and Simpson (1994) predict that the

program will produce savings immediately, then experience a decline in savings or contribution to earnings, and then, as clinicians become more involved and management more assertive in looking for high-potential areas, begin to experience some increasing returns.

Quality efforts can affect the processes in the organization that can lead to improvements in outcomes and reduced costs. These efforts should also lead to improved physician and patient satisfaction with the institution, leading to more admissions, more patients, more patient days, and an increased share of the market. Improved quality might also lessen the pressure for reduced prices to compete against other institutions. All of these together could be contributing to the observed profitability by both lowering unit costs and increasing volume and revenues (Smeltzer and Pfeiffer, 1997, p. 126; Gaucher and Coffey, 1993, p. 24).

The cost of a CQI program is not trivial. The organization may pay \$20,000 to \$200,000 for program development, training materials, trainers, and workshops for senior managers, board members, and key clinicians (McLaughlin and Simpson, 1994, p. 43). In addition, there is the cost of the facilitators and the time lost by employees attending training sessions and engaging in team tasks. Adding to these costs, there are opportunity costs for the resources allocated to the program that might have been used for something else. Much of the opposition to the Joint Commission requirement for a continuous improvement process has been couched in terms of the costs involved and how they might exceed the returns.

Continued Interest in CQI

A number of factors contribute to the sustained interest and enthusiasm for CQI in health care, despite the limited empirical evidence regarding impact and cost. The first argument for CQI is its direct impact on quality, usually a net gain to the customer and to the organization. The second is that organizations who implement quality improvement programs often realize cost savings as a result of these quality improvement techniques. The third argument relates to the set of benefits associated with a plan that empowers employees in health care through participation in decision making (i.e., increased morale, better communication among departments, and increased levels of employee commitment) (McLaughlin and Simpson, 1994).

Even if CQI can validly be applied in health care settings, it will not achieve its maximum potential unless it is appropriately implemented. Chapter 5 examines TQM and the Public Sector, focusing on the lessons that can be learned for health care institutions.

CHAPTER 5
TQM AND THE PUBLIC SECTOR:
LESSONS FOR HEALTH CARE INSTITUTIONS

In the early 1990s in an effort to solve a variety of organizational problems including high turnover, low performance levels, and public criticism, managers in many public organizations turned to a set of doctrines and practices known as TQM. As previously discussed, TQM was originally developed in the private sector and emphasizes concepts such as quality improvement through innovations in work processes, client satisfaction, employee responsibility and involvement, statistical monitoring of work quality and a unified vision of the agency's efforts (Mahler, 1995). Because the key components and philosophies of TQM are virtually the same whether looking at the public or private sector, they will not be reiterated here. In this chapter I will seek to answer the following questions:

- 1) What are the similarities of TQM in the public vs. private sectors?
- 2) Is the public sector experience with TQM relevant to the health care CQI experience?
- 3) Why have governmental jurisdictions and administrative agencies at all levels sought to implement TQM?
- 4) To what extent has TQM been implemented in the public sector?
- 5) What appear to be some of the major impediments to successful implementation in the public sector?
- 6) What factors does the literature suggest are associated with greater success?

Why then, the interest in TQM in the public sector? Interestingly, Radin and Coffee (1993) noted that the reasons used to support the implementation of such a program are also why the public sector may be hesitant to implement TQM. These reasons include:

- 1) During an era of cutbacks and economic decline, these measures represent attempts by those in charge of government services to live with greatly diminished resources. Focusing on these management efforts will diffuse the reality of these cutbacks.
- 2) TQM has been successful in the private sector. Emulating the private sector will help government deal with some of its traditional problems and criticisms.
- 3) TQM is the thing to do; other agencies are doing it and appear to have produced some results.
- 4) Top management wants it done.
- 5) TQM provides a way for an agency to look as if it is taking action and dispels criticism (Radin and Coffee, 1993).

TQM in the public sector is another effort to change the way federal, state and local governments conduct business. Earlier governmental reforms include PPBS, ZBB, MBO and quality circles to name a few (Radin and Coffey, 1993). It seems that each of these efforts have either failed or eroded over time. Radin and Coffee (1993) report that although each of these previous reforms had its own unique problems there were also several attributes of these reforms that were common. These attributes include:

- 1) Few reforms were designed to deal with the multiple actors found in our political system.
- 2) The agenda for change was often a maneuver for increasing executive control.
- 3) Attempts to rationalize the system often meant looking at interdependencies between various program and organizational elements.

TQM differs from the previous reforms. TQM proposes significant change in organizations. Successful TQM programs can bring about cultural change within the organization. It is easy to understand the challenge of implementing such a program considering the way public bureaucracies have been managed in the past.

In the early 1990s much of the public sector's focus on reform centered on "reinventing government." TQM was but one of several reforms implemented during this time. Brudney et al (1999) reported that TQM programs were underway in 31 states by the mid 1990s. Furthermore, the Council of State Governments had identified 27 states that had created steering committee/task forces for the specific purpose of addressing TQM. Seventeen of these 27 states also formed public-private partnerships to do so. These partnerships appear to be very similar to those formed between the health care and private sectors during the National Demonstration project. Furthermore, Berman et al. (1994) surveyed directors of state departments of health, education, welfare, transportation and corrections and reported that 58 percent had implemented

TQM in at least one service they provided. In addition, 34 percent had implemented TQM applications in five or more service functions.

Respondents reported improvements in productivity, quality, timeliness, and customer satisfaction, but reported only modest gains in cost reduction (Berman et al., 1994). In addition, Berman and West (1995) reported that top management leadership is a significant determinant of TQM commitment and impact.

The National Performance Review recommended that all organizations use quality management principles as described in the Criteria for the Malcolm Baldrige National Quality Award, to guide their transformation. The following criteria are used in this award:

- Leadership: Symbolic acts are required to emphasize the importance of quality to the employees and to elevate it above financial and efficiency goals.
 - Human resources utilization: To see if empowerment really exists, examiners look at the ability of frontline employees to act in the interest of customers without getting prior approval.
 - Education and training: Increased quality awareness, problem-solving tools, and group-process skills (such as leading meetings, teamwork, making presentations) are especially important.
- Commitment to TQM is seen to be directly proportional to percentage of revenues spent on education and training (Connor, 1997).

Along with these principles, the Government Performance and Results Act of 1993, and the executive orders that resulted from the NPR report the Federal Quality Institute designed a model for implementing change (Hunt, 1995). This model has a customer-driven vision, mission and values articulated by the organization.

- Vision is a dynamic picture of where the organization wants to be in the future. This vision should focus on the organization's commitment to customers and be supported by a consensus throughout the organization and by processes that build commitment among key managers in the organization.
- The mission of the organization describes what it currently does, what business it's in and why it was established.

Values provide employees with guidelines for day-to-day behavior. They are principles that management and employees agree on that shape the organization's culture (Hunt, 1995).

Certainly Connor (1997) was not the first to offer a critical look at TQM. Others have noted that TQM can be hard to implement (Harari, 1992; Radin and Coffee, 1993; Schneider, Brief and Guzzo, 1996, p. 15), or suggested that its orthodox form is inappropriate to public-sector organizations (Swiss, 1992), or denied that it is comparable with the cultural realities of public administration (Rago, 1994; Kim, 1995). However, it has rarely been observed that TQM might be costly to the organization and its members, let alone that there might be

situations where successful implementation of TQM could do more harm than good.

Barriers to TQM in the Public Sector

There are many barriers to implementing TQM in the public sector. These barriers include, but are not limited to:

- loss of control by high level managers.
- problems with unions.
- the time effort needed to implement the program.
- lack of dedicated resources.
- loss of autonomy at all management levels.
- difficulty in defining the customer.

Many of the barriers to TQM in the public sector mirror barriers found in the health care sector. These include competing demands on employee time, adequate funding for training and defining "customer". In addition, lack of top management support and employee involvement are further examples of implementation barriers (Berman, 1995). Cohen and Brand (1993) identify the need for long-term commitment for a successful TQM program and the uniqueness of the public sector which can compromise this commitment by the ever-changing political contexts of public management, as well as turnover by top management.

Similar to information previously reported regarding CQI programs implemented in large hospitals, it was found that larger cities had a higher commitment to TQM. This is consistent with the hypothesis reported by West et al. that larger cities have greater resources for investing in TQM. Furthermore,

commitment to TQM was not found to be significantly greater in cities with council-manager forms of government, although it should be noted that they were more often associated with heightened levels of professionalism and provided more training in TQM (Berman and West, 1995.)

Although extensive literature on TQM and leadership exists, it appears to have some significant shortcomings (Rago, 1996). There seems to be a lack of substantive discussions about the barriers encountered when implementing a leadership model in an existing organizational culture. Rago believes we are at a place in understanding TQM where we believe the substantive issues surrounding implementation are not content issues but problems in how to "shape" this content to address the barriers that the organizational culture presents to implementation.

In addition to the barriers to TQM, Radin and Coffee (1993) also recognize a number of attributes unique to the U.S. public sector, particularly at the federal level, that create pressures that complicate the implementation of TQM.

1. Uncertainty: TQM places an emphasis on strategic planning and decision-making that has a proactive quality. It assumes a level of stability within the organization that allows those within it to make relatively accurate predictions about its future direction and continued existence. The structure of the American political system, by contrast, establishes a set of actors and processes that maximizes a sense of uncertainty. Many federal domestic programs deal with an annual budget process, time-limited authorizations, and frequent turnover in agency political

leadership. These conditions frequently lead to disruption in operations that are beyond the control of the agency.

2. Multiple Accountability Mechanisms: Quality and the customer are two values that are crucial from the TQM perspective. While not simple to put into effect, these two values are relatively easy to define within a private sector organization. For many public sector organizations, however, both of these values are problematic, stemming from the multiple accountability mechanisms that are at play within the American political system. It is extremely difficult for an agency to define "quality" clearly or to determine who their "real" customer will be.

Fragmentation and shared powers emerge from three major sources.

First, our system of government means that an executive level agency has multiple masters. In Washington alone, an agency is accountable to the White House (through OMB and other institutions) and, at the same time, must deal with the elements in the Congress with responsibility for program creation, oversight, and budgetary control. Divided government over the past decade has further complicated a system of institutional conflict. The judiciary also plays a role in the accountability relationship.

The second source of fragmentation arises from the U.S. intergovernmental system. Relatively few federal domestic agencies actually deliver services to individuals within the society. Rather, the federal agency is a part of a complex product delivery chain that involves state agencies, local agencies, and the private sector. While the federal agency could define the

state agency (or others) as its customer, it is not always clear whether the intervening actors share the goals of the legislation or agree with the definition of the intended beneficiary.

The third source that confounds the system has to do with the multiple interest groups and agendas that are present in most domestic program areas. Many federal organizations find themselves in a turbulent policy environment with conflicting pressures from various stakeholders in a large and heterogeneous society. They find it difficult to juggle or balance these interests, all of which have a degree of legitimacy in the system and must be provided at least minimum access to the agency. In many instances, the organization itself has become extremely complex and accentuates its interdependencies with other organizations both inside and outside of government.

3. Symbolic action: A system such as TQM is constructed on the assumption that an organization is created to produce something—a product, a service or even a set of rules or regulations. The “something” provides the organizing framework for data collection and management systems and procedures for the assessment of quality and for identification of training and rewards for employees.

This seemingly simple assumption may fall apart in government. Government action has many meanings. While some programs or policies have clear cut goals, others don't.

The existence of vague goals mean that public organizations are sometimes implementing a policy or program without clear purpose or

substantial resources. While the rhetoric of the legislation creates high expectations about its potential, both the resources that are provided and a careful reading of the political debate suggest that Congress did not mean to deliver. In these cases, the agency is caught in the middle, blamed by the public for failing to deliver but constrained from doing so by Congress, that supplies it with both authority and resources.

Success stories

There is a great deal of literature that reports on the successes of TQM in the public sector (Nyhan and Marlowe, 1995). Public sector TQM systems have been credited with improving organizational effectiveness, strengthening employee satisfaction and reducing operational costs (Butler, 1990; Curry and France, 1990).

Government experiences with quality parallel the private sector's experiences. Based on numerous federal, state, and local governmental quality efforts, Struebing (1997) reports that there are more similarities than differences between the public and private sectors. Reasons for success and failure are remarkably similar.

TQM redefines and consolidates traditional principles of public administration, and there are visible signs that the philosophy made a difference in IRS's culture (Mani, 1995). Although the analysis of selected input and output indicators showed no statistically significant difference in productivity before and after TQM implementation, there have been cost savings and improvements in customer satisfaction as a result of quality improvement process (QIP) team projects, an approach to problem solving specific to TQM. The reported benefits

of each QIP team are projected savings for one year in each QIP team's office. If one multiplies these projected savings by the number of IRS offices and the number of years over which savings will continue, the benefits are much greater. Quantitative analysis is used to a greater extent in the problem-solving process, and there is greater employee involvement as a result of QIP teams. It seems that the IRS was more successful as a result of the implementation of TQM.

As previously mentioned, TQM and performance measurement are tightly linked. Despite this focus on improving performance measures in the public sector, results to date indicate that performance measures remain in the emergent stage. Mahler (1995) identifies two primary factors that have contributed to lack of progress in implementing meaningful performance measurement systems in the public sector; one is the lack of utility of existing performance measures to enhance organizational effectiveness, a second is difficulty in comparing measures across disparate programs and organizational units.

Not all reports of TQM are negative. For instance, the Baltimore VA Medical Center offers this success story. In the past a sick veteran was passed from specialist to specialist from room to room, like a chassis on an assembly line. The hospital staff was organized according to their narrow job descriptions and assigned to stations. Nurses took care of whoever was in their assigned rooms. If a patient was moved to another room, he got a new nurse. After the implementation of TQM the medical center was organized around the patient (customer). A small team of people was assigned with the attending physician to a specific patient. This allowed the teams to make daily rounds together, plan

goals for their patient and administer a complete course of treatment together. This approach is more rewarding for the staff, more comforting for the patient and results in better care (Hunt, 1995). The General Services Administration Regional Office, supplier of paper products and office supplies for the federal government, retrained its product inspectors in statistical process control, threw away the 500-page quality control handbook, and replaced it with a laptop computer, a seven-page guide, and the empowerment to make on-the-spot decisions about quality. As a good example of employee empowerment, management gave this control to front-line inspectors and eliminated the need for management involvement (Hunt, 1995).

As indicated above, Brudney et al. (1999) found that by 1994 there were TQM programs in some stage of implementation in 31 states. Furthermore, 58 per cent of state departments of health, education, welfare, transportation, and corrections had implemented TQM in at least one service they provided. In a 1998 survey, Brudney and Wright (2002) reported that there had been substantial increases in adoption and full implementation of the following 3 items: strategic planning, customer service improvement, and benchmarking. All key components of TQM programs.

Finally, at the Department of Labor's OSHA Cincinnati area, office inspectors investigating unsafe working conditions are empowered to own each investigation themselves start to finish. They ask for advice when they need it, but they are responsible for making decisions, preparing the paperwork, updating the files, arranging and conducting conferences with plant owners,

determining appropriate fines, and assisting with prosecution if necessary (Hunt, 1995).

Governmental staff departments are historically prone to bureaucracy, developing policies and procedures to suit their own timetables and viewpoints. More recently, at the City of Auburn, Alabama, upper management has encouraged innovation as a means for improving the quality of customer services. The success of these innovations is demonstrated in the following estimated improvement rates (Jackson, 1999): payroll error rates decreased 25 percent; budget preparation time decreased 33 percent; revenue staff productivity in collecting delinquent taxes increased 25 percent, and; accounts payable staff productivity increased 20 percent

Based on the positive verbal and written input that the city has received from taxpayers, vendors, and citizens, it is evident that customer service quality has been improved. While it would be difficult to estimate improvement in the satisfaction levels of these customer groups, the city has experienced these non-quantifiable benefits (Jackson, 1999): improved communication and cooperation between finance and the other city departments; increased interest in and willingness to participate in the quality circle process by other city departments; and a more positive image of the city government among citizens and taxpayers. Auburn's aggressive pursuit of TQM concepts through the quality-circle structure has made an observable and positive difference in the delivery of public services.

For those who expected that it would reinvent government, it clearly has not, but as a tool for getting normally rule-or turf-bound bureaucracies to act

more sensibly, TQM continues to hold real promise (Mani, 1995; Mahler, 1995; and Walters, 1994). After years of experience, it's clear that TQM can be adapted to the public sector. And not only has it lasted but it continues to grow, and rapidly. The number of states and localities involved in TQM is no longer in the dozens as it was in the early 1990s. It is in the hundreds. Deming's basics have been applied in agencies and departments as disparate as mental health and motor vehicles. Cities, counties and states nationwide now have official offices of quality, directors of quality services or offices of excellence. They are giving out quality awards.

The other truth that has emerged forcefully over the past several years is that while TQM can indeed be adapted to the public sector, it's not easy. The interesting thing is that nowadays few proponents of TQM claim otherwise. As state and local governments move forward (and backward) in their attempts to adapt Deming's management tool to public-sector practice, there has been one other noticeable shift: a more realistic—even subdued—approach on the part of TQM supporters (Rago, 1994 and Walters, 1994). This time around, TQM proponents still claim that it can work miracles—but small, subtle miracles, not large, flashy ones (Walters, 1994).

That willingness to engage the front line in problem solving is not something that comes naturally for all managers, however. For that matter, labor tends to view every new management fad as a thinly veiled attempt to hit workers or stave off collective bargaining. A clear weakness in current state and local TQM efforts is that labor really is still not on board (Walters, 1994; Radin and Coffee, 1993).

There are more reasons for union foot-dragging than merely the age-old lack of trust in management. Union leaders have to worry about TQM reducing their power. After all, if the rank and file and managers start working together cooperatively—and even enjoying it—it's likely to be a lot harder for labor to rally the troops around a blizzard of grievance filings or job actions.

Public Sector TQM and Healthcare's CQI

Although there are some distinct differences that set the public sector apart from the private sector, the literature shows many similarities when comparing quality improvement programs in both arenas. Both sectors report successes and failures—and many attribute the same reasons for both. Barriers to the quality improvement movement are similar in both areas, namely with respect to participation and employee empowerment issues. When comparing the public sector and the health care sector tasks there are several similarities. Most importantly, both sectors provide a service for their customers and have difficulty defining “customer”. In addition, both sectors are constantly looking for ways to “do more with less”. In other words, they are trying to become more efficient while maintaining effectiveness. CQI, or similar quality improvement programs, appear to be more prevalent in the health care sector since they are mandated by voluntary accrediting agencies.

Both the public sector and health care sector have been involved with CQI/TQM for a little over a decade. Because both sectors have been involved with CQI/TQM for about the same amount of time, “lessons” learned from the public sector will be limited since both sectors are in the “infancy” stages of CQI/TQM when compared to the private business sector. As similarities go,

Americans want both a government and a health care system that focuses on both efficiency and effectiveness. In addition, both sectors focus on customer satisfaction. CQI/TQM addresses these issues. It appears that CQI is here to stay in the health care sector—the Joint Commission's mandate that requires an active quality improvement program as a condition of accreditation could easily explain this. Because of the long history of transient programs adopted by the public sector to reform government, it is not as clear what kind of future TQM has in the public sector.

CHAPTER 6

IMPLEMENTATION ISSUES IN CQI IN HEALTH CARE

How the various elements of CQI are implemented has implications for the success of any CQI effort. This chapter discusses the essential components necessary for CQI success, the importance of organizational culture in the implementation process, and potential barriers to successful CQI program implementation.

Few, if any, of the supposed benefits of CQI/TQM for health care are likely to be achieved unless the initiative is well implemented. Leadership is at the core of successful CQI implementation. It provides the influential increment over time that helps to surpass mechanical compliance with routine directives. As described by Bennis and Nanus (1985, p. 21), management involves "doing things right, whereas leadership involves "doing the right thing." Critical to leadership in CQI are creating the climate and culture and creating and recharging the "champions". A champion of CQI is an individual who is a strong supporter and advocate of the program.

The Decision to Adopt CQI

It is management's responsibility to create the climate and culture that support CQI. A manager must tailor his or her own responses to every situation to support the philosophy and behaviors of CQI. That is called "walking the talk," since people look for ways to deny management commitment to the level of cultural change that CQI requires. Management must continuously communicate the positive vision of CQI: that it is a route to success; that people

will be energized by the empowerment and the learning that come with it; that it will lead to improved care; that the effort will not be a threat to people's jobs, but an opportunity for personal growth and increased job security (Coffey and Gaucher, 1993, p. 100). In addition, management must reinforce the understanding that with CQI comes the requirement for high commitment and the expectation of high standards of performance. With this effort, management must interject the element of celebration. This often runs counter to the expectation that a good professional always does his or her job, and the less said the better.

Champions must make a long-term commitment to their roles for the implementation to succeed. That is often a problem in an industry where executive turnover is high and promotions are rapid and linked to job changes. There is even a risk that being a champion, while giving a positive image, may inhibit career advancement.

In CQI, managers function to support problem-solving teams, not to impose their own ideas. This sometimes creates unusual role-reversing situations, but if everyone understands that the purpose is to get the problem resolved as quickly and as effectively as possible, there is no incongruity. As CQI develops across the organization, some teams will become self-managing of both the process and themselves. The evolution of such "super teams" is an indication that CQI is well embedded in the organization's culture. The organization must provide resources for and support the legitimacy of those who will mentor both management and teams in the implementation of CQI.

Essential Components for CQI Implementation Success

Transforming the Organization

According to McLaughlin and Kaluzny (1994), transforming any organization, including a health care organization, into one that practices CQI requires a number of components or conditions to be present. These include a thorough knowledge and understanding of the concept, management and worker commitment, planning, teamwork, communication, education and training, and patience.

Knowledge and Understanding: Typically, responsibility for knowing and understanding the concepts and practices of CQI falls on senior management. More than likely, that person is the CEO. If not, then there must be a person who will work closely with and help the CEO become knowledgeable. This is very important as it is through the CEO that the board, and in health care organizations, the medical staff, learns about and understands CQI and what the concept can and cannot do for the organization. Before moving forward with implementation of CQI, as many members of the organization as possible must become knowledgeable. The senior management must not only be knowledgeable, but must also have a considerable depth of understanding of the concepts and philosophy of CQI.

Commitment: One of the most difficult conditions to achieve, but one that must be created early on, is the need for total commitment to the concept. This commitment must be from the very top of the organization. It matters little how committed members of the organization below the CEO are, if the CEO is uninterested or does not give CQI the highest priority. Indeed, lack of

commitment at the top is the most frequently cited reason for failure of CQI initiatives (Jaeger et al., 1994, p. 27). If the CEO is truly committed, others will have little choice but to adopt CQI unless they leave the organization.

Planning: The planning process begins with a clear and well-articulated organizational vision and mission statement. This vision and mission must be disseminated not only throughout the organization, but also to the organization's suppliers and customers. In this sense, strategic planning can no longer be mechanical. If it is, an unclear understanding of the vision and mission may result, priorities will be blurred and the results of CQI will be mixed at best.

Teamwork: Although there are exceptions based on the nature of the particular process being studied, CQI is based on teams that together approach the problem and its possible resolution. Because many of the problems that need to be addressed across organizational boundaries, these teams tend to be composed of individuals with diverse backgrounds and perspectives. Therefore it is essential to their effectiveness that the teams learn, understand, and use group skills in order to maximize the creativity and potential contribution of the group.

There are many other benefits to the use of teams. Teams take on a common culture—this helps to spread knowledge of the organization's mission and vision. Teams break down barriers to communication as team members across organizational and professional boundaries

Communication: All organizations can improve their ability to communicate, especially internally. Poor communication may cause confusion, dissension, and low morale in an organization. Health care organizations suffer

the same problems with communication. Because of their size, their complexity and professional specialization, and the often critical nature of their work, some of these characteristics appear more evident in health care organizations.

Education: Education and training are also critical. Everyone in the organization must understand CQI and how to apply it to their individual work settings. This includes not only learning what it is and how to do it, but also learning the basic tools and techniques and associated concepts. Some individuals will receive advanced training in many of these areas so that they can serve as internal teachers, trainers, consultants, and mentors. Effective CQI also requires that every individual not only remains up-to-date, but also advances within his or her own specialty, requiring management to commit to even more education and training.

Patience: The importance of patience cannot be overemphasized. Experience has shown that it takes from 6 to 12 months to get enough people knowledgeable to begin planning CQI activities (McLaughlin and Kaluzny, 1994). Another 6 to 12 months is consumed with the first wave of training and the start-up of a few projects to prove CQI's effectiveness to the staff. As a few CQI successes are achieved and experience obtained, enthusiasm will slowly spread throughout the organization. The initial projects are likely to focus on issues that are problems and are bothersome to the team members. It takes another year or more before management can turn its attention to areas that are not seen as problems, but represent major opportunities for improvement. However, it may be five years before everyone in the organization is relatively knowledgeable about CQI concepts and tools, is involved in a CQI initiative, and is capable of

planning and implementing a CQI initiative on his or her own. At that point, gains start to become more apparent. Some experts believe that as many as ten years are necessary before the organization is completely transformed into a "CQI organization." Such an extended time frame demands strong management commitment and vision to provide the staying power and the direction for such a lengthy journey (Jaeger et al., 1994, p. 29).

CQI works well as a method to engender a new customer service philosophy, primarily because it is a universal process that empowers employees to analyze and improve processes; supports customer preferences as the primary determinants of quality; and provides the motivation for a rational, data-based, cooperative approach to process analysis and change. CQI distinguishes itself from other approaches by simultaneously encompassing two things: a management philosophy and a management method (Johnson, 1999).

The Need to Define One's "Customers"

In addition to the previously discussed components necessary for successful CQI implementation it is essential for the healthcare organization to clearly define who its "customers" are. Health care organizations are large, paradoxical, and complex. At the core of the health care process are intimate relationships between the customer and the health care provider. These interpersonal relationships make customer satisfaction a good determinant of quality customer service and care (Johnson, 1999).

Defining health care customers is complex because of the multiple relationships involved, yet the literature describing customers in the health care field is rather simplistic in nature. Although patients are usually defined as primary

customers and account for a major group of external customers (McLaughlin and Kaluzny, 1994), healthcare customers also include health care providers, third-party payers, colleagues inside or outside the department or agency, physicians, sales representatives, the technical support staff, those contracting services with the health care organizations, transportation, the local community, and friends and family of the patient. One study found that health care facilities send nearly one-third of their customer surveys to non-patients (Strasser and Davis, 1991). This shows the importance of considering patients' friends and families as customers, since they also receive service and may be more difficult to satisfy. Another important class of customers include the stakeholders of the facility. Any group that influences the hospital's ability to achieve its goals is an institutional stakeholder. Stakeholders may be internal or external to the organization. They may be perceived as powerful or powerless; they may be permanently organized; they may have leaders who have formal authority to speak for the group; or they may be an informal group bound together only by a common issues (Simpson and McLaughlin, 1994). Examples of stakeholders are county commissioners, community leaders, hospital employees, advocacy groups, medical and other professional associations, hospital associations, and major insurers. Taxpayers and government agencies are also stakeholders since much of health care is publicly funded. The implication of clearly recognizing and defining who the organization's customers are is essential for the successful implementation of CQI.

Culture and TQM Implementation

A number of studies have examined the influence of cultural forces on the implementation and impact of quality improvement in health care organizations. The findings are generally consistent and indicate the importance of cultures that facilitate empowerment of the workforce in implementing quality improvement work (Shortell, 1995). For example, Counte et al. (1992) examined 5,174 employees in an academic medical center in which one-half had been exposed to TQM principles, practices, and values, and one-half had not. Among those exposed to TQM, significant associations were found between increased job satisfaction, more favorable opinions of the organization, and more favorable opinions of their work than those not exposed. In a study of eight hospitals ranging from 125 to 850 beds, Sheridan et al. (1994) found a significant relationship between integrative cultures emphasizing leadership, innovation, and patient focus and the perceived quality of care provided. These investigators also found a positive relationship between integrative cultures emphasizing commitment to TQM and the effectiveness of both professional and nonprofessional employees.

Transformation of the Culture

Cultural change begins once the executive board and CEO make the commitment to CQI. Although cultural change is a requirement for successful implementation, this cultural transformation may take from 5 to 10 years (Baird, et al., 1993, p. 94). During this transformation process, key changes occur in the organizational climate, such as trust building, clear communication, increased employee participation, and employee performance improvements. These

changes are marked by the ability and the commitment to communicate among various levels within the organization. The movement away from a unidisciplinary focus to an interdisciplinary focus is extremely important in the transformation of the culture.

There is little in the care of patients that requires the contribution of only one discipline. Furthermore, the system-oriented processes are seldom within the control of a single discipline. Thus, it is essential that the efforts of a variety of disciplines be integrated to make sound decisions and effectively implement a plan for CQI. The movement from unidisciplinarity to interdisciplinarity is not sudden and rapid, but rather is an evolutionary growth process. The first step is multidisciplinary, which may be defined as several distinct disciplines working together with each representing its own professional areas. The contribution made by each discipline will represent only its own disciplinary interest. At the next stage, a richer interaction takes place, where members of several disciplines interact as a team and all members contribute toward the accomplishment of a common goal. This can best be represented by the expression, "the whole is greater than the sum of the parts." In most process improvement activities, group and team interdisciplinary actions are desirable and essential. Team building processes will facilitate breaking down interdepartmental barriers and will minimize territorial issues. One of the most effective strategies to accomplish this is to have group ownership of a common goal, such as the CQI program and its quality improvement processes. A prerequisite for this common ownership, of course, is staff empowerment by management.

Managers empower their employees through the use of positive feedback and reinforcement of positive attitudes and behaviors that support quality improvement. Team building and effectiveness result from participation in mutual goal setting and consensual problem solving. It is vital that managers lead and coach, rather than direct and order. Employees will become more involved if they begin to see greater quality improvement initiatives within the organization. Strong employee motivation toward the improvement of quality is essential in order for the cultural transformation to occur. As empowerment is experienced within individual units, pride and morale are boosted, barriers and turfs are broken down, and fear is driven out as individuals begin to take ownership of their daily work.

After the executive level has committed to CQI and education has become the cornerstone for training all individuals within an organization, the CEO should move to the next step and clarify the organization's overall quality mission. The CEO remains the pivotal driving force in implementing organizational change. Before implementing the educational process, an organizational assessment may be initiated by the CEO. This assessment will provide a baseline concerning the knowledge, attitude, and behaviors of the organization regarding quality.

Prior to planning quality, a quality council is formed. The quality council, which is chosen by the CEO, initially consists of top executives, middle managers, and grass roots employees. This council reflects the cultural make-up of the organization. The council is referred to as a cross-functional group that is representative of the entire institution. Individuals within the council possess

overall knowledge and understanding of the organization as a whole. The members must have the power to initiate organizational change. Membership includes both administrative and clinical management. Because power and authority are needed to initiate change, there may be a lesser number of non-management personnel on this particular council. The quality council is responsible for a number of activities within an organization. These responsibilities include the following: (1) providing guidance and overall direction in implementing the process of CQI; (2) developing the mission and vision statements of the organization; (3) developing the goals and objectives, guidelines, definitions, and value statements of the organization; (4) coordinating employee and leadership development; (5) initiating continuous quality improvement teams; (6) ensuring that organizational policies and procedures are consistent with CQI principles; and (7) demonstrating a top-down commitment to the CQI process.

Management support

Regardless of where the idea of implementing CQI originates, executive level commitment is crucial to its success (Baird et al., 1993, p. 95). Once the executive level is committed to the elements of CQI, education becomes the cornerstone to empowering middle management and other employees within an organization. Before implementing CQI throughout the organization, an initial task force is organized by the Chief Executive Officer (CEO) or the executive board to research various CQI philosophies. This task force is a temporary committee that is made up of individuals chosen by the CEO and may include top executives, middle management, and grass roots employees. Task force

members have the responsibility to actively seek input from various CQI consultants and organizations that have a well-established program. After the task force has explored the groundwork, synthesized information, and made subsequent recommendations for implementation, a presentation is made to the CEO and other executive board members. After the executive level has committed to implementing CQI, the CEO initiates the educational process.

The CQI concept must be established firmly at the top before structurally empowering and educating other levels within an organization. As previously discussed, education is essential to the success of CQI within an organization. This educational process is slow and has no shortcuts. An essential early step is the establishment of a glossary of terms that will result in common usage throughout the organization. All levels of management must attain a thorough knowledge of CQI principles. These principles include basic knowledge and understanding of the concept of CQI, quality tools, processes, and methodologies for quality improvement. It is imperative that executive level administrators and managers philosophically commit to and practice these quality principles on a day-to-day basis. Seminars, readings, and various levels of formal CQI training are a part of the learning process. The development of an educational plan, including time frames, is a valuable device to formulate at this time. CQI consultants may be used to assist in planning and/or training executive level managers and other individuals within an organization. It is important to explore various consulting services carefully before selection in order to choose a consultant that is supportive of the vision, culture, and goals of the organization.

In summary, executive level commitment is crucial to the success of CQI within an organization. In addition, education is the key to managers and staff understanding the relevance of CQI, quality tools, processes and methodologies for improving quality. Education and executive level commitment to CQI are the beginning seeds to transform an organizational mindset to continuous quality improvement.

Reviewing the Record on CQI Implementation

There have also been a number of studies that address the adoption of CQI components in quality improvement work. For example, in summarizing the initial phase of the National Demonstration Project for Health Care Quality Improvement, Berwick, et al. (1990) judged that 15 of the 21 projects were successful in regard to application of basic tools to existing data. The six case studies of the Joint Commission (1992) revealed that all six hospitals had made significant commitments of financial and human resources to training in CQI methodologies. Their approach was to first create a general awareness of the principles followed by "just-in-time" training as needed. Respondents also found it important to carefully select initial team projects, to use pilot teams to gain experience, and to make sure that facilitators were well trained. The significance of the technical component was also indicated by a national survey in which the following items were evaluated as among the principal barriers to implementing quality improvement: 1) inadequate employee training in relevant principles and methods, 2) insufficient senior management knowledge of quality assurance/quality improvement approaches, and 3) inadequate information systems (Barsness et al, 1993).

The importance of cross-functional teams was highlighted in the work of Berwick, Godfrey, and Roessner (1990). Such teams have helped organizations understand the interdependencies among people and processes across the continuum of care. Furthermore, the findings from the international Ernst and Young and American Quality Foundation study also underscore the need to gather more input from lower-level participants and demonstrate the need for structures that facilitate lower-level involvement (Shortell, 1995).

More recently, according to a National Hospital Quality Improvement Survey, health systems are now saving money and boosting some patient outcomes with CQI/TQM programs. Ninety-three percent of the responding 1,928 hospitals are using continuous quality improvement or total quality management methods. But the survey, sponsored by the American Hospital Association, also revealed that only 35 percent of hospital staff members—and 22 percent of doctors—were trained in CQI or TQM methods (1999).

Barriers to CQI Implementation

Research has shown that successful implementation of a CQI/TQM strategy requires substantial commitment from employees throughout the hospital, including management, clinical and support staff (Kazemek and Charny, 1991), and that numerous obstacles need to be overcome, which likely means a lengthy implementation period (Shortell, 1990).

Among the barriers confronting hospitals seeking to implement CQI are the following:

Problems associated with organizational culture:

- CQI program initiatives almost always require vast changes in work structure and substance, and almost everyone resists change to some extent (Messner, 1998).
- Overcoming engrained philosophies and mind-sets. By far this is among the most difficult obstacle to a CQI program. An organization develops a culture with which its members are comfortable. Introducing ideas that go against established procedures and beliefs can radically shock employees. Assessment of the preparation for change at all levels is required to avoid undue resistance. In reengineering in particular, executives often misjudge the magnitude of changes required and the impact on the rank-and-file staff (Lumsdon, 1995).
- Resistance to role change. Radical redesign may call for professionals (such as physicians and nurses) to perform an entirely new mix of duties. This may be a source of tremendous resistance—role identity is strong among the health care professions (Strasen, 1994). It may be difficult to convince professionals of the merit of proposed role changes. Assuming that role changes will be readily accepted is a prescription for failure.
- Time allowed for behavioral changes is too short. Frequently, management's haste to see results gets ahead of the employees'

ability to change their behavior or mold to the new, evolving culture. Moving too fast can foster resentment and resistance. Again, any quality initiative should start with an assessment of ability and the willingness to change. Such assessments should continue periodically throughout the project. Management should make a rough determination of an appropriate time frame for cultural change based on an assessment of the current culture. Education and training usually are required to gain wide acceptance of cultural changes.

Other barriers relate to failures by management levels. These include the following:

- Organizational goals not clearly communicated. Upper management may wrongly believe that all employees either are already aware of the organizational mission or have no need to know it. Mission and goals should be communicated throughout the staff from top to bottom so that efforts can be directed appropriately. Even outsourced and volunteer staff should be aware of the mission and goals.
- Lack of perceived management presence and support. If management does not believe in the CQI program, the program is doomed. In cases of small scope and size, some QI programs can succeed without senior management support but in general, corporate commitment and acceptance is required from top to bottom.

- Viewing CQI as a quick fix. Quality improvement requires intense planning and effort and is meant to be an ongoing initiative. Rarely are dramatic overnight benefits realized, although they do occur in situations where solutions are obvious and the ability to change readily exists. It can take months to years to see substantial results. Demanding instant results wears down and frustrates the staff and leads to considerable error making and compromises in strategic judgment. Adequate planning is necessary.
- Role changes for management. For many managers, CQI programs bring about role changes from that of traditional managers to leaders and coaches. Not all managers are ready or willing to make such drastic role changes, and certainly not all present managers will be required after work redesign. An important tenet of CQI is to empower employees at the point of impact. Therefore, as work groups become more self-directed, fewer traditional managers will be required. Management should be educated and prepared for such role changes, and where foreseeable, reassured that their contributions will be required in other capacities after the program is implemented.
- Organizational commitment. For a CQI program to be successful, all employees must understand that each holds a responsibility for the quality of the organization's product. Many organizations traditionally turn to quality assurance departments, and individuals such as department managers and directors for achieving and maintaining quality. No individual or department can achieve substantial, lasting

results without the commitment and backing of the rest of the organization.

Quality assurance/quality control difficulties. Quality assurance can be defined as a function carried out by clinicians in the hospital. CQI is not the same as quality assurance. Quality assurance implies that a predetermined standard is in place rather than the continuously evolving standard implied in by CQI.

- Quality assurance (QA) at the end of the process. Traditionally, most firms in the United States have placed QA at the "end" of the process. In other words, quality was inspected after the fact. CQI philosophies place assurance of quality at the beginning of the process and, in essence, build it right in with the product or service. Are the materials, manpower, resources, skill, knowledge and guidance available prior to performance of the tasks? Is the process designed to be error-proof? This fundamental shift in thinking can take a surprising amount of effort to overcome.
- Minimum standards of care. Setting minimum parameters of care can be well intentioned, but it often leads to mediocre performance. The problem is that minimum standards of care rapidly become the acceptable level of care, and although the organization may continuously be reaching defined standards, excellence is rarely achieved. Instead, an organization should set goals that are more of a "reach" so that employees constantly strive for excellence.

- Performing QA tasks for the wrong reasons. The QA department should analyze why they are performing each task and see whether or not it is designed merely to meet some regulatory requirement, or whether it measures something that is patient focused and in line with the quality movement at hand (Blumenthal and Epstein, 1996). Some QA departments may find that they are measuring data and filling out reports that have absolutely no bearing on either quality of care or regulations. Quality assurance tasks should be redesigned so that the outcomes are patient focused and compliant with current regulations.

Problems with the quality improvement team: CQI is based on teams that together approach the problem and its possible resolution. Teams may be permanent or transitory. Because many of the problems that need to be addressed cross organizational boundaries, these items tend to be composed of individuals with diverse backgrounds and perspectives. By their nature, teams promote a "we" feeling and commitment. Team building may be hampered by the following:

- Not enough time to become a team. Management must give a quality improvement (QI) team enough time to function as a true "team" before results (or even much progress) are expected. If management dictates performance milestones before the team is able to interact with each other in a team-like fashion, great frustration and rash decisions will result. The QI team may then be viewed unfavorably and mistrusted by others in the organization.

- Lack of interdisciplinary teams. Quality improvement teams at all organizational levels must be interdisciplinary in the health care setting (Carter and Meridy, 1996, p. 105). Numerous specialties perform patient care functions, therefore, the QI team should include a representative from each relevant specialty.
- Lack of creative benchmarking. Many organizations do not think to look beyond their own industries for ideas. Certainly, an organization could look at another organization in a completely different line of business and gain ideas on how to perform function they have in common.

Lack of Physician Support: Autonomy (the privilege of freedom from the control of outsiders based on the unusual degrees of skill and knowledge that are involved in clinical professional work), heavy time commitments, and a perceived threat toward and need to protect one's professional identity are physician barriers to be considered. One type of barrier is fear of failure at using the CQI process or the possible exposure of professional failures. Other barriers may be perceptual, such as not seeing the applicability of the CQI process to health care or finding the structure and discipline of CQI too constraining, especially in that it limits physicians' use of intuitive solutions that appear to save time and energy. Others who are by nature given to the intuitive reasoning process may find the CQI approach too linear and reductionist for their comfort (Kaluzny, et al., 1994, p. 209). This often manifests itself in complaints like "Well! We got to a solution, but we could have done it in half the time, if we had just listened to _____."

Individuals need to make transitions at various points in the adoption process such as recognizing a performance gap or acknowledging the interdependency of the clinical process rather than focusing on its individuality. Failure to comprehend one of these key transitions, such as accepting the customer's point of view as legitimate data, can become a barrier to clinician involvement, even though there have been signs and actions implying initial acceptance.

Another barrier is that clinicians are reluctant to get involved with CQI because they do not feel prepared to participate in the process. For example:

- Their concepts of team roles (always being in charge) conflict with the proposed team process.
- They may fear the uncertainty of the process, including statistical thinking and the less structured process of CQI as compared to grand rounds and randomized clinical trials.
- They may resent the learning and student role required by CQI, feeling that their student role ended with their boards and the few hours a year devoted to continuing education activity under relatively unthreatening and unchallenging conditions.
- They may see the CQI process as requiring an unwelcome change in their decision-making styles because of its emphasis on blame-free analysis, setting up win-win situations, and analyzing causes and effects one at a time, as opposed to jumping into large-scale actions

The organizations composed mostly of "smart people" may encounter the greatest challenge (Argyris, 1991). Such individuals may (1) define situations

too narrowly as mere "problem solving" focused on the external environment, and (2) fail to reflect critically on their own processes, on how they might have contributed inadvertently to the problems or failed to define the problem properly. One of the ironies cited is that highly successful people have little experience with failure, giving them little understanding of how to learn from it. Consequently, smart people tend to become defensive, to blame others and not themselves, and not to reflect on or critique the thought processes that guide their performance. Professionals embody a learning dilemma, often being enthusiastic about CQI but often being the biggest obstacle to its success. Questioning of the reasoning process has to start at the top, with senior managers analyzing their own defensiveness, and then proceed to establishing a culture in which questioning each other's reasoning is seen not as a sign of mistrust but as a valuable opportunity for learning how to learn (Kibbe, 1993).

Perceived political barriers: At academic medical centers CQI leadership seems to emerge among the hard-charging elite in their late thirties and early forties. If, however, the formal leadership, which is somewhat older, fails to exhibit the same enthusiasm, other physician faculty members and staff may attribute some disapproval and fear the political consequences. If some groups of clinicians see CQI as a challenge to their autonomy and technical knowledge base, not so subtle messages about "whose side are you on" or other evidence of we/they thinking can chill the enthusiasm of some. This is especially true if some people believe that the impact will be felt through the referral network and that others who do not participate enthusiastically in CQI will be more likely to get cases.

In summary, previous studies that have looked at implementation issues in CQI in health care have resulted in the following findings:

- there is a need for facilitating more input and involvement from lower-level employees
- successful implementation of a CQI/TQM strategy requires substantial commitment from employees at all levels of the organization
- there are numerous barriers to successful implementation of a CQI/TQM program
- employees who have been exposed to CQI/TQM principles and practices experience greater levels of job satisfaction and more favorable opinions of the organization
- there is a significant relationship between organizational cultures emphasizing leadership, innovation, and patient focus and the perceived quality of care provided
- CQI/TQM can be applied to the health care industry

This study is designed to examine these and other issues in the context of a sample of Michigan hospitals. Chapter 7 outlines the study methodology in greater detail. Chapters 8-12 examine the findings of the study. Chapter 13 places the findings in the context of other research on CQI in health care and suggest directions for future research.

CHAPTER 7

METHODOLOGY AND HOSPITAL/CQI COORDINATOR CHARACTERISTICS

In this chapter I will begin by describing the methodology used in this study. This will include discussion of the sample and the design's strengths and weaknesses. In addition, I will report preliminary data describing characteristics of the responding CQI coordinators and their hospitals.

As discussed in previous chapters much of the research on CQI has taken the form of case studies. Probably the best known studies regarding CQI are the National Hospital Quality Improvement cross-sectional studies conducted by Shortell et al. in 1993 and 1998. In these two studies surveys were sent to a national sample of hospitals. Many of the questions asked in these two studies related to program elements and characteristics of a hospital's quality improvement program and are used in the current study. Questions regarding perceptions of outcomes resulting from quality improvement initiatives were based on a study that examined CQI in Veteran's Administration Hospitals (Al-Assaf, et al., 1993).

Looking at the methods used in 39 previous studies of CQI in the health care field, there is diversity. Qualitative studies led the way with 21 studies (Table 7-1). All but one of these were case studies. Some of these studies reported information regarding a hospital, but the majority of these studies focused on a single department or area. The remaining 18 studies examined were quantitative. Of these, eight were case studies. These studies also reported information on either a single hospital or department, but unlike the qualitative

single studies that reported a majority of the time on a single department or area, the quantitative case studies focused on the entire hospital a majority of the time. The remaining ten quantitative studies used the comparative method. Most of these studies looked at multiple hospitals around the country. In most studies, data were collected via a survey. Except for departmental studies which often collected data from various types of workers in these areas, the larger comparative studies involving hospitals usually surveyed hospital CEOs, presidents and other upper level individuals. These cross-sectional designs looked at all types of hospitals. Only the NHQIS (1999) study was repeated five years later for comparison data. No study has looked at a large sample of hospitals in a single state as does my study.

Table 7-1: Types of previous CQI studies in the Health Care field

Author	Date	Quantitative	Qualitative	Single case	Multiple cases
Hasin, Seeluangawaf and Shareef	2001	x		x	
Chong, Unklesbay and Dowdy	2000	x		x	
NHQIS	1999	x			x
Goodrich, Woodley, and Morrison	1998	x		x	
McFarland, Harmann, and Lhotak et al.	1996	x		x	
Hoskins, Abdul, and Gasib	1994	x		x	
Potter, Morgan, and Thompson	1994	x		x	
Larsen	1993	x		x	
Reeves and Bednar	1993	x		x	
Bringleson and Basappa	1998	x			x
Serb	1997	x			x
Weiner, Shortell, and Alexander	1997	x			x
Boerstler, Foster, and O'Conner et al.	1996	x			x
Carman, Shortell, and Foster et al.	1996	x			x
Sales, Moscovice and Lurie	1996	x			x
Kaldenberg and Gobeli	1995	x			x
Lin and Clousing	1995	x			x
Al-Assaf, et al.	1993	x			x
Hug and Martin	2001		x		x
Motwani, Klein, and Navitskas	1999		x	x	
Klein, Motwani and Cole	1998		x	x	
Kivimaki, Maki, and Lindstrom et al.	1997		x	x	
Kohli, Kerns and Forgionne	1995		x	x	
Ernst	1994		x	x	
Jackson	1994		x	x	
Juran	1994		x	x	
Wakefield, Cyphert, and Murray et al.	1994		x	x	
Williams and Williams	1994		x	x	
Albrecht	1993		x	x	
Laws	1993		x	x	
McCarthy	1993		x	x	
Raimondo	1993		x	x	
Creps, Coffey, and Warner et al.	1992		x	x	
Davis	1992		x	x	
Hughes	1992		x	x	
Lynn	1992		x	x	
Matthews	1992		x	x	
Modern Healthcare	1992		x	x	
Boyd and Haraway	1991		x	x	

The Sample

The hospitals included in this study were selected from a list of Michigan hospitals accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). As of June 2001 there were 152 JCAHO accredited hospitals in Michigan. A 50% random sample of these hospitals was taken. The first wave of surveys was sent in June 2001. Those who had not responded to the first mailing were sent another survey in August 2001. Surveys were sent directly to the individual who was in charge of the hospital's CQI program. The majority of CQI coordinators were identified on the hospital's general information page on the JCAHO website. The remaining individuals were identified by a phone call to their respective hospitals. The two waves of surveys resulted in a response rate of 64% (n = 49). A copy of the survey can be found in Appendix A. Based on the response rate of two previous National Hospital Quality Improvement Surveys completed in 1993 and 1998 of 60% and 38%, respectively, the response rate for this current study is good (NHQIS, 1999).

Design Strengths

There are several strengths of this study. Surveys are the most widely used method of collecting data in the social sciences (Bradbury and Sudman, 1988, p. 61). The cost of obtaining data is often much less than other data collection methods. The survey uses questions from a variety of studies and combines them into a single survey instrument (NHQIS, 1999; Al-Assaf, et al., 1993).

Cross-sectional designs are the most commonly used survey design (Singleton, Straits and Straits, 1993). In this study, the cross-section of respondents represents a population of Michigan hospitals (Table 7-2). The random sample of

hospitals provides data on many hospitals of different sizes and types. Unlike the NHQI study, whose data were provided by hospital CEOs/presidents, this study's respondents are CQI/TQM coordinators. This has the advantage of gaining information from the individual likely to know the most about a hospital's quality improvement program. In addition, this study has the added dimension of reporting CQI coordinators' perceptions about their quality improvement program including perceptions of outcomes resulting from CQI. This design also has the ability to become a longitudinal study.

Table 7-2: Comparison of types of hospitals¹

Type of hospital	Michigan Hospital population n=152	Michigan hospitals surveyed n=76	Michigan hospitals responding n=49
General	88%	84%	83%
Psychiatric	5%	8%	12%
Long Term acute	3%	3%	2%
Rehabilitation	3%	4%	2%

Design Weaknesses

Along with strengths of this study design, there are also some weaknesses. The grounds (especially temporal precedence and non-spuriousness) needed to demonstrate cause-and-effect relationships cannot be established directly as in experiments. Causal inferences from survey research generally are made with less confidence than inferences from experimental research (Singleton, Straits and Straits, 1993). Reported outcomes supposedly related to CQI efforts may have been caused by some other factor instead. Sampling error can also be a problem. It is possible that the group of hospitals is not representative of the

¹ This is the only comparative information available regarding the hospital population.

population of Michigan Hospitals, although Table 7-2 suggests this is not a problem in this study (Campbell and Stanley, 1963).

Surveys tend to be highly standardized making them less adaptable once the study commences. Surveys are susceptible to reactivity and rely on reports of behavior not observations. Thus, measurement error may be produced by respondents' lack of truthfulness, misunderstanding of questions and inability to recall past events accurately (Singleton, Straits and Straits, 1993, p. 254).

There are internal validity issues that should be mentioned. Although the CQI coordinator would be expected to know about the hospital's CQI program, there is the potential of biased responses. There may be a tendency for CQI coordinators to exaggerate extent of CQI efforts or positive outcome (Singleton, Straits and Straits, 1993). To minimize this possibility respondents were assured confidentially of their responses in addition to having data reported only in aggregate form.

There may also be a problem of reliability in basing measures for each hospital only on the views of one individual in the organization. A more thorough design would include responses from individuals at all levels of the organization (i.e., upper management, middle management, non-management and physicians). A study of this type was not done because of cost-feasibility issues.

The Survey Instrument

The survey began with an information sheet (Appendix A). This introduced the researcher to the CQI coordinators and briefly explained the nature of the study. The information sheet explained that participation in the study was completely voluntary, and provided respondents with an assurance of

confidentiality. Contact information was also provided for participants should they have any questions. Self-addressed stamped envelopes were provided for the return of the surveys.

The survey was designed to have three different sections containing a total of 88 questions. The first section sought general information about a hospital's CQI/TQM program. Many of these questions had Likert scale response options. Information collected in this first section were relevant to various characteristics of the hospital's quality improvement program; the extent to which quality efforts were used in different hospital units; the specific quality improvement approach used by the hospital; the extent to which the hospital had been involved in various CQI-related activities; and the extent to which various barriers had hampered the hospital's quality improvement efforts.

The second section of the survey looked at the respondent's perceptions of their hospital's CQI program. First, respondents were asked to indicate on a Likert scale ranging from "strongly agree" to "strongly disagree" their responses to fifteen statements about their quality improvement program. Next, respondents were asked to rate employee enthusiasm for CQI/TQM; satisfaction with management's performance related to CQI and satisfaction in the improvements resulting from their quality improvement efforts. Answers to these questions were indicated on a Likert scale ranging from "not satisfied" to "very satisfied."

The third and final section of the survey collected information about the hospital in which the respondent was employed and demographic information about the CQI coordinator himself or herself. Respondents were also asked if

they would like a copy of the results of the survey mailed to them at the conclusion of the study.

Characteristics of Responding Hospitals and CQI Coordinators

Hospital Characteristics

Table 7-3: Characteristics of Responding Hospitals

		Number	Percent
Hospital Type	General	34	83%
	Psychiatric	5	12%
	Long term acute care	1	2%
	Rehabilitation	1	2%
Teaching Hospitals	Teaching Hospital	14	30%
	Non-teaching Hospital	32	70%
Number of beds	Range		20 – 900 beds
	Mean		160 beds
	Median		93 beds
Number of personnel	Range		70 – 5,600
	Mean		909
	Median		400
Number of senior managers	Range		2 – 40
	Mean		11
	Median		7
Number of active physicians	Range		4 – 3,000
	Mean		192
	Median		30
Hospitals having implemented a formal CQI program		100%	
Length of CQI program	Range		2 – 12 years
	Mean		7 years

The hospitals whose CQI coordinators participated in the survey were of various types: general; psychiatric; long term acute care; and, rehabilitation (Table 7-3). This was similar to the make up of the hospital types from the entire population of 152 Michigan hospitals: general (89%), psychiatric (4%), long term

acute care (3%), and rehabilitation (3%). The survey hospitals had a higher representation of psychiatric hospitals (12% vs. 4%), but it was felt that this bias would not significantly skew the findings since the overall representation of this type of hospital was still low. The number of beds for responding hospitals ranged from as few as 20 to as many as 900 with a mean of 160 beds and a median of 93 beds. Fourteen (30%) of all of the hospitals were teaching hospitals.

One hundred percent of responding hospitals reported having implemented a formal CQI program. This comes as no surprise given that hospitals for this study were randomly chosen from a list of those accredited by JCAHO and in order for a hospital to be accredited by JCAHO they must have some type of quality improvement program in place. The number of formal CQI programs reported by the 1993 and 1998 NHQI surveys was 69% and 93%, respectively (NHQIS, 1999), suggesting the use of CQI has increased over time to almost universal use.

The length of time a CQI program was reported to have existed in responding hospitals ranged from two to 12 years with an average of seven years. Given the passage of time, these figures are consistent with the mean age of CQI programs reported in 1993 (less than two years) and 1998 (2 – 4 years).

CQI Coordinator Characteristics

The typical CQI coordinator who responded was a white female in her 40s who held a bachelor or a masters degree (Table 7-4). The typical respondent had been employed in the hospital in question for more than a dozen years, had

served in their current position in that hospital for about half a dozen years and held a position in middle management. Respondents typically had nine or more years of experience working with CQI. While continuing education is important to the success of a CQI program, only about one fourth of the respondents had had more than two weeks of training in the past two years.

Table 7-4: CQI Coordinator Characteristics

		Number	Percent
Gender	Male	2	4%
	Female	45	96%
Race	Caucasian	45	96%
	African American	2	4%
Age	Range		32 – 63 yr
	Mean		47.2 yr
Education	High School diploma	2	4%
	Associate's degree	7	16%
	Bachelor's degree	16	36%
	Master's degree	18	40%
	Ph.D.	2	4%
Number of years experience with CQI	Less than 1 year	4	9%
	1 – 2 years	0	0%
	3 – 4 years	4	9%
	5 – 6 years	4	9%
	7 – 8 years	11	24%
	9 or more years	25	54%
Amt. of CQI training over the past 2 years	No training	4	9%
	1 day or less	1	2%
	2 – 5 days	11	26%
	1 – 2 weeks	17	40%
	3 – 4 weeks	6	14%
	More than 4 weeks	4	9%
Job Classification	Senior level management	16	36%
	Mid level management	28	62%
	Nursing	1	2%
Tenure at the Hospital (in years)	Range		.16 – 32
	Mean		13.6
Tenure in current position (in years)	Range		.16 – 24
	Mean		5.5

Now that the hospital and CQI Coordinator characteristics have been examined, Chapter 8 will explore two overall questions. First, what are the elements or characteristics of the CQI programs of responding hospitals? Second, to what extent do these programs embody characteristics of so-called "model" programs?

CHAPTER 8
TO WHAT EXTENT DO EXISTANT CQI PROGRAMS IN MICHIGAN HOSPITALS MATCH
MODEL PROGRAMS?

This chapter focuses on two major research questions. Data were examined to describe, "What do programs look like." In addition the data will help answer a second question, "How do programs match model policy?" To answer these two major questions, a series of more specific questions will be answered. These include:

- What types of CQI program characteristics are found in responding hospitals?
- What types of CQI program elements are found in responding hospitals?
- What types of hospital units are using CQI?
- What types of CQI activities are found in responding hospitals?;
- What are the rates of employees who have been trained in CQI?
- What are the rates of employees participating in quality improvement teams? and,
- What barriers to CQI were found in responding hospitals?

What types of CQI program characteristics and elements are found in responding hospitals?

Although all the responding hospitals were reported to have implemented a CQI program, it is interesting that only 91% of individuals surveyed considered their hospital to be formally involved in CQI efforts (Table 8-1). Hospitals had

been involved in CQI activities on average of 7.3 years. The majority of surveyed hospitals had established a separate department, division, or office for quality improvement.

Table 8-1: CQI Program Characteristics

Percent of hospitals formally involved in CQI efforts		91%
Time involved in CQI activities	Range	2 – 12 years
	Mean	7.3 years
Established separate office, department or division for Quality Improvement		72%

As Table 8-2 indicates, respondents were asked to what extent specific CQI elements were part of their hospital's program.

As suggested in the literature, there are several program elements that need to be present to constitute a CQI effort. The vast majority of hospitals surveyed reported the presence of these elements.

**Table 8-2: Continuous Quality Improvement Program Elements
Frequencies, Percentages and Means**

	Don't know ¹	Not at all (1)	A little (2)	A moderate extent (3)	A large extent (4)	An enormous extent (5)	Mean Score
Use of quality improvement teams including employees from multiple departments and from different organizational levels as the major mechanism for introducing improvements in organizational processes (n = 48)	0% (0)	0% (0)	4.2% (2)	22.9% (11)	41.7% (20)	31.3% (15)	4.00
A philosophy of continuous improvement through improvement of organizational processes (n = 48)	0% (0)	0% (0)	8.3% (4)	12.5% (6)	52.1% (25)	27.1% (13)	3.98
An explicit focus on "customers"—both external and internal (n = 48)	0% (0)	0% (0)	8.3% (4)	37.5% (18)	29.2% (14)	25% (12)	3.71
Reliance on physician peer review of selected cases (n = 48)	0% (0)	0% (0)	16.7% (8)	31.3% (15)	35.4% (17)	16.7% (8)	3.52
Use of medical staff quality review committees (n = 47)	0% (0)	4.3% (2)	19.1% (9)	21.3% (10)	31.9% (15)	23.4% (11)	3.51
Use of structured problem-solving processes incorporating statistical methods and measurement to diagnose problems and monitor progress (n = 48)	2.1% (1)	0% (0)	16.7% (8)	25% (12)	43.8% (21)	12.5% (6)	3.53
Review of delinquent medical records (n = 48)	0% (0)	2.1% (1)	25% (12)	31.3% (15)	14.6% (7)	27.1% (13)	3.40
Empowering employees to identify quality problems and improvement opportunities and to take action on these problems and opportunities (n = 48)	0% (0)	2.1% (1)	14.6% (7)	45.8% (22)	25% (12)	12.5% (6)	3.31
Morbidity and mortality conferences (n = 47)	2.1% (1)	25.5% (12)	29.8% (14)	14.9% (7)	21.3% (10)	6.4% (3)	2.52
Disciplinary action taken against physicians failing to comply with recommended standards of practice (n = 48)	4.2% (2)	20.8% (10)	37.5% (18)	22.9% (11)	10.4% (5)	4.2% (2)	2.37

¹ Excluded from calculation of mean scores

One hundred percent of hospitals surveyed reported the following program elements to some extent ("a little" to "an enormous extent"): use of quality improvement teams; a CQI philosophy; customer focus; and physician

peer review. The percentage of hospitals that had these elements present to a "large" or "enormous" extent results were 73%, 79%, 54% and 52%, respectively. The use of a structured problem solving process, employee empowerment and delinquent medical record review was found to some degree in 98% of hospitals. Only 75% of the hospitals surveyed felt that Morbidity and Mortality (M&M) conferences applied to their CQI program. Since all accredited hospitals have functioning M&M conferences it is likely that some of CQI coordinators do not recognize M&M conferences as relating to their CQI efforts. Disciplinary actions against physicians failing to comply with standards of practice were found to some degree in 75% of hospitals but only 14% reporting its use to a "large" or "enormous" degree. Again, this element related to medical staff may be present in a hospital, but not be recognized as essential to a CQI program. Although this may not be a popularly recognized element of CQI, it is a concept of improving quality. Furthermore, this element was incorporated in both the 1993 and 1998 NHQI studies, and, thus, this study as well. With two exceptions, the mean scores on program elements were 3.31 or greater and indicate at least "moderate" use.

There was some variation in the extent to which Program Elements applied to the hospitals' CQI programs although many elements appear present. Traditional CQI components had the highest mean scores overall. The five program elements that had the highest mean scores were: use of quality improvement teams, philosophy of CQI through improvement or organizational processes, explicit focus on customers, reliance of physician review and use of medical quality review committees. While almost three-quarters of hospitals

were said to rely on quality improvement teams to either a "large" or "enormous" extent, earlier we stated that only 15% of employees were reported to have been members of such teams. This suggests that CQI engagement is lower than the presence of teams alone would suggest.

Two practices that existed in these hospitals' CQI programs to only a limited degree were the use of morbidity and mortality conferences, and taking disciplinary actions against physicians for failing to comply with recommended standards of practice. This may not mean that hospitals don't engage in these practices, rather it may suggest that CQI coordinators don't consider them to be part of CQI.

What types of hospital units are using CQI?

The survey also explored how use of elements varied across different organizational subunits. Table 8-3 summarizes the findings regarding the question, "To what extent do your hospital's quality improvement efforts include the following units?" Ideally, CQI is used across all subunits of a hospital, including those subunits that are "owned" or "affiliated". One would expect consistent usage across all of these subunits from hospitals that have implemented CQI, although there would probably be more variation in usage in the case of those subunits that were not part of the hospitals on-site structure. It would be much more difficult to monitor CQI programs in offsite facilities.

Table 8-3
Continuous Quality Improvement Efforts in Different Hospital Units

	Don't have this unit (N/A) ¹	Not at all (1)	A little (2)	A moderate extent (3)	A large extent (4)	An enormous extent (5)	Mean score
Acute patient care (n=48)	(0)	0% (0)	4.2% (2)	2.1% (1)	39.6% (19)	54.2% (26)	4.44
Outpatient clinics (n=40)	(8)	2.5% (1)	22.5% (9)	32.5% (13)	22.5% (9)	20% (8)	3.35
Owned or affiliated nursing homes (n=16)	(32)	25% (4)	0% (0)	12.5% (2)	37.5% (6)	25% (4)	3.38
Owned or affiliated ambulatory surgery centers (n=12)	(34)	16.6% (2)	16.6% (2)	25% (3)	25% (3)	16.6% (2)	3.10
Home health agencies (n=23)	(25)	13% (3)	30.4% (7)	17.5% (4)	26.1% (6)	13% (3)	2.96
Major physician offices or group practices owned or affiliated (n=32)	(16)	12.5% (4)	43.8% (14)	18.8% (6)	15.6% (5)	9.3% (3)	2.66
Owned or affiliated hospices (n=15)	(33)	40% (6)	20% (3)	20% (3)	13.3% (2)	6.7% (1)	2.27

¹ Excluded from "n" and calculation of mean scores

Every hospital had CQI efforts in their acute patient care units with more than 90% reporting this was so to a "large" or "enormous" extent. Following a close second to acute patient care units, outpatient clinics in 75% of hospitals that reported having these units used CQI to a moderate extent or greater. Although the majority of hospitals reported using CQI to a moderate extent or greater in the case of owned or affiliated nursing homes and owned or affiliated ambulatory surgery centers, the majority of hospitals reported not having these

units (65% and 75% respectively). Twenty five percent reported not using CQI at all in the case of owned or affiliated nursing homes while less than 17% reported using CQI in owned or affiliated ambulatory surgery centers. The majority of the remaining three units, home health agencies, major physician offices or group practices owned or affiliated and owned or affiliated hospices reported using CQI in these units at a level less than a moderate extent. Twelve to forty percent reported not using CQI at all in these units while 50%, 33% and 69% of these hospitals reported not having these units at all.

Again, when looking at the different types of units that were included in CQI efforts, there was a wide variation. Acute patient care was the most common site using CQI. All hospitals reported CQI efforts in this unit to some extent 100% of the time. Outpatient clinics came in second with a mean score of 3.35. The results for acute patient care and outpatient units are encouraging, but not surprising since CQI programs are expected to impact patient care and outcomes. One would expect to find the presence of CQI in patient care areas.

Of those reporting the presence of the following units, CQI efforts are much more rare in home health agencies, major physician offices or group practices owned or affiliated and finally, owned or affiliated hospices. For the small number of hospitals that reported having these other units it would appear that the CQI focus of these hospitals is still on units that are physically located within the facility, something that might facilitate oversight of the program. In addition, the hospital probably would not have the oversight authority for a CQI program in these units, especially if they are only affiliated with the hospital.

What types of CQI-related activities are found in responding hospitals?

CQI activities are very similar to program elements. Many program elements are overall concepts (i.e., philosophy of CQI, focus on the customer, employee empowerment); activities are CQI in practice. Respondents were also asked to what extent their hospital had been involved in various CQI-related activities (Table 8-4).

Table 8-4: Continuous Quality Improvement Activities

	Don't know ¹	Not at all (1)	A little (2)	A moderate extent (3)	A large extent (4)	An enormous extent (5)	Mean score
Benchmarking (i.e., comparing) quality improvement results against those of other health care organizations (n = 47)	0% (0)	0% (0)	14.9% (7)	36.2% (17)	27.7% (13)	21.3% (10)	3.55
Integrated quality assurance, utilization review, and risk management activities reporting to a single designated person (n = 47)	0% (0)	12.8% (6)	6.4% (3)	25.5% (12)	38.3% (18)	17% (8)	3.40
Development and/or use of clinical algorithms, practice protocols/guidelines or critical pathways (n = 47)	0% (0)	8.5% (4)	25.5% (12)	31.9% (15)	25.5% (12)	8.5% (4)	3.00
Organized case management (n = 47)	0% (0)	17% (8)	19.1% (9)	23.4% (11)	29.8% (14)	10.6% (5)	2.98
Have incorporated CQI/TQM criteria into the reward and performance appraisal systems for employees (n = 47)	0% (0)	23.4% (11)	31.9% (15)	10.6% (5)	19.1% (9)	14.9% (7)	2.70
Disease state management (i.e., organized programs to coordinate care for specific diseases/conditions) (n=46)	4.3% (2)	28.3% (13)	23.9% (11)	21.7% (10)	17.4% (8)	4.3% (2)	2.43

¹Excluded from calculation of mean scores

Of the six CQI activities rated by program coordinators in Table 8-4, benchmarking was the only activity used by 100% of reporting hospitals to at least some extent with about half doing so to a "large" or "enormous" extent. Benchmarking is an essential adjunct to a quality improvement program. These techniques can be used in both clinical and non-clinical areas.

Variation was found in the extent to which other CQI related activities were used by reporting hospitals, with these activities typically much less common. Three activities were used to some extent by over 84% of reporting hospitals: integrated quality assurance, utilization review and risk management activities reporting to a single person; development/use of clinical algorithms, practice guidelines or critical pathways; and organized case management. These three activities were used to a "large" or "enormous" extent by 55%, 34% and 40% of the hospitals, respectively. Incorporating CQI criteria into the performance appraisal and reward system of employees, and programs to coordinate care for specific diseases or conditions, were the least commonly found CQI activities, used by less than four hospitals in five in my survey. The former has been difficult to implement in large part due to resistance from employee unions (Laffel and Blumenthal, 1993). Surprisingly, organized programs to coordinate care for specific diseases/conditions were used by only two-thirds of hospitals and to a "large" or "enormous" extent by only 20% or so. This activity of developing a systems framework for managing population-based care and disease state management is often a result of organized case management and can result in more effective and efficient patient care.

Two groups emerged with respect to usage of CQI activities. Three activities were used at a moderate level: benchmarking; integrated quality assurance, utilization review and risk management activities; and development and use of clinical algorithms, practice protocols/guidelines or critical pathways. On the other hand, organized case management, incorporating CQI in employee reward and appraisal systems and disease state management were used very little if at all. Organized case management and its closely related counterpart, disease state management, may have lower scores because of the reliance on so many physicians and different departments (Hill, 1997). These programs rely on a cooperative relationship between health care providers and their respective departments rather than individual "fiefdoms". Perceptions of whether CQI has been able to eliminate barriers between departments shows that this is still a problem found among Michigan Hospitals (O'Brien, et al., 1995).

What are the rates of employees who have been trained in CQI?

In order to have a successful CQI program that involves individuals from all levels of the organization, all employees need to receive training. There was considerable variation in the extent to which hospital staff received training in quality improvement. On average only 38% of full-time equivalent employees were reported to be trained in CQI. This is a low percentage in light of the importance the literature places on training employees at all levels of the organization. The 1998 NHQI study found that only 35% of hospital employees had been trained in CQI. My data suggest the picture is similar in Michigan—only 38% of full-time employees had been trained. Given the stress that the

literature places on the necessity of training staff in CQI, my data suggest a continuing problem.

Table 8-5: Rates of CQI Training

Total number of FTE personnel trained	Range	0 – 3,000
	Mean	349
	Median	150
% Personnel trained		38%
Number of Senior Managers Trained	Range	0 – 4
	Mean	8
	Median	6
% Senior Managers trained		73%
Number of Active staff physicians trained	Range	0 – 38
	Mean	10
	Median	4
% Active Physicians trained		5%

The percentage of senior managers who had participated in formal CQI training averaged 73%. Although this percentage was much higher, the literature stresses that commitment/leadership must start at the upper levels of the organization. One would have expected this percentage to be closer to 100%. The average percentage of active physicians who had been trained in the organization averaged only 5%. This percentage was even lower than previous NHQI results—in 1993 16.2% of physicians were reported to have been trained in CQI, with this percent rising slightly to 22% in 1998 (NHQI, 1999). Again, as the literature suggests, there may be many barriers to physician involvement in CQI. One of the barriers may well be limited training in CQI.

What are the rates of employees participating in quality improvement teams?

As Table 8-6 illustrates, patterns with regard to participating in quality improvement teams mirror patterns with respect to participation in training. Very

few physicians were participating, only a slightly higher percentage of rank and file employees participated, and a reasonably higher proportion of senior managers were involved with quality improvement teams. Extent of physician participation on CQI teams in Michigan was comparable to that found to exist in the 1993 NHQI study. This finding suggests that although the majority of hospitals reported the existence of quality improvement teams, the number of quality improvement teams convened is very small. It might also indicate that the same people are serving on such teams over a period of time.

Table 8-6: Participation in Quality Improvement Teams

Total number of FTE's participating in QITs	Range	13 – 955
	Mean	137
	Median	8
Total % FTE's participating in QITs		15%
Number of senior managers participating in QITs	Range	1 – 46
	Mean	8
	Median	6
% Senior managers participating in QITs		73%
Number of active physicians participating in QITs	Range	0 – 100
	Mean	14
	Median	9
% Active Physicians participating in QITs		7%

As noted in Table 8-7, there is a significant correlation between the size of the hospital (number of beds) and total number of personnel trained, total number of physicians trained and the total number of senior managers participating in quality improvement teams.

Table 8-7: Correlation¹ of Personnel trained in CQI and Participating in Quality Improvement Teams by Hospital size

	Number of Beds
Number of personnel trained	.396*
Number of senior managers trained	.191
Number of Active Physicians trained	.421*
Number of personnel in QITs	.191
Number of Senior Managers in QITs	.388*
Number of Active Physicians in QITs	.338

¹Pearson's r

*correlation significant at the 0.05 level (2-tailed)

What barriers to CQI were found in Michigan hospitals?

There is a great deal of literature that discusses various barriers to CQI. The top three barriers to hospital quality improvement that were reported in the 1993 NHQI survey were:

1. Inadequate information systems
2. Inadequate employee training
3. Lack of time

In the 1998 study, the three leading barriers to quality improvement again included inadequate information systems and a lack of time, plus the fact that too many other changes were underway in the organization. We have just seen that employee training is limited in our sample of Michigan hospitals. Perhaps many other barriers exist as well.

I asked Michigan CQI coordinators to indicate to what extent 14 factors had hampered their hospital's efforts to change or improve their CQI activities with responses ranging from 1 = no barrier to 7 = a great barrier. There was a wide variation in the extent to which these 14 variables were viewed as barriers.

As Table 8-8 illustrates nearly ninety four percent of CQI coordinators reported that a lack of time was the most serious barrier to some extent while 44% reported this being a "great" barrier. Other barriers reported to be present as a "moderate" or "great" barrier in reporting hospitals included too many other changes going on in the organization (85%), inadequate information systems (76%), too few resources committed (79%), lack of physician support (66%), insufficient knowledge or understanding of quality improvement approaches (63%), and inadequate employee training in relevant principles and

methods (70%). Barriers that had a mean score of 4.00 or above included lack of time, too many other changes going on in the organization, inadequate information systems, and too few resources committed. Thirty percent of coordinators reported too many other changes going on in the organization as a "great" barrier followed by inadequate information systems (26%) and too few resources committed (24%). On average, a lack of time, the existence of other changes competing for attention, inadequate information systems, and insufficient resources were moderate to severe impediments (means of 4.85, 4.28, 4.02 and 4.00, respectively).

It comes as no surprise that these four barriers figured prominently in reporting Michigan hospitals. Hospitals are constantly struggling with changes such as downsizing, the demands of regulatory agencies including JCAHO and its ongoing inspection and review costs, and changes to Medicare reimbursement just to name a few. As the literature has shown, CQI requires substantial resources especially in the early years of the program (McLaughlin and Simpson, 1994, p. 43). In addition, without the proper tools to use for CQI activities such as good information systems, success of a program can easily be impeded.

There were several barriers the CQI coordinators reported to be no barrier to their quality improvement activities. There were four barriers that had mean scores of less than 2.5. These included: lack of realistic goals (2.49), lack of top management commitment and leadership (2.45), legal barriers to use personnel in new ways (2.26) and lack of board commitment/support (1.77). Half or more of the respondents gave a rating of only "1" or "2" to these four as barriers.

**Table 8-8: Barriers to Continuous Quality Improvement Activities
Frequencies, Percentages and Means**

	No Barrier		Moderate Barrier			Great Barrier		Mean Score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Lack of time (n = 47)	2.1% (1)	4.3% (2)	17% (8)	17% (8)	14.9% (7)	31.9% (15)	12.8% (6)	4.85
Too many other changes going on in the organization (n = 47)	2.1% (1)	12.8% (6)	21.3% (10)	21.3% (10)	12.8% (6)	21.3% (10)	8.5% (4)	4.28
Inadequate information systems (n = 46)	6.5% (3)	17.4% (8)	17.4% (8)	26.1% (12)	6.5% (3)	10.9% (5)	15.2% (7)	4.02
Too few resources committed (n = 46)	8.7% (4)	13% (6)	15.2% (7)	28.3% (13)	10.9% (5)	15.5% (7)	8.7% (4)	4.00
Lack of physician support (n = 47)	10.6% (5)	23.4% (11)	19.1% (9)	17% (8)	8.5% (4)	14.9% (7)	6.4% (3)	3.60
Insufficient knowledge/understanding of QA/QI approaches (n = 46)	10.9% (5)	26.1% (12)	19.6% (9)	13% (6)	21.7% (10)	8.7% (4)	0% (0)	3.35
Inadequate employee training in relevant principles and methods (n = 46)	15.2% (7)	15.2% (7)	30.4% (14)	15.2% (7)	10.9% (5)	10.9% (5)	2.2% (1)	3.33
Perception that it costs too much (n = 47)	17% (8)	29.8% (14)	27.7% (13)	6.4% (3)	12.8% (6)	4.3% (2)	2.1% (1)	2.89
Inability to prioritize projects (n = 47)	10.6% (5)	44.7% (21)	21.3% (10)	12.8% (6)	6.4% (3)	4.3% (2)	0% (0)	2.72
Current organizational structure not conducive to QA/QI (n = 47)	29.8% (14)	21.3% (10)	29.8% (14)	8.5% (4)	4.3% (2)	4.3% (2)	2.1% (1)	2.57
Lack of realistic goals (n = 47)	17% (8)	42.6% (20)	23.4% (11)	12.8% (6)	2.1% (1)	0% (0)	2.1% (1)	2.49
Lack of top management commitment and leadership (n = 47)	44.7% (21)	17% (8)	14.9% (7)	8.5% (4)	4.3% (2)	8.5% (4)	2.1% (1)	2.45
Legal barriers to use personnel in new ways (n = 47)	42.6% (20)	27.7% (13)	10.6% (5)	10.6% (5)	0% (0)	6.4% (3)	2.1% (1)	2.26
Lack of board commitment/support (n = 47)	63.8% (30)	17% (8)	8.5% (4)	6.4% (3)	0% (0)	2.1% (1)	2.1% (1)	1.77

Although nearly 70% reported legal barriers to using personnel in new ways as not a barrier in their facility, 30% did report this as being a problem.

These legal barriers might become evident in the event a hospital is involved in

cross training individuals. Many hospital personnel have specific scopes of practices under which they practice. These scopes of practice are spelled out by state licensing agencies and other national certification bodies.

When comparing these findings to the NHQI survey, it appears that there has been little progress made in overcoming various barriers to CQI. This lack of progress may be an indication of a lack of understanding, focus and commitment to the vision of continuous CQI and value creation in healthcare (NHQIS, 1999).

How do Michigan hospitals compare with model CQI programs?

When examining at how Michigan hospitals compare with a "model" CQI program the results show that Michigan Hospitals are doing a good job in most areas. Many program elements/activities are reported to be present in the majority of Michigan hospitals (Table 8-9). For instance, having a philosophy of continuous improvement of quality throughout organizational process, having an explicit customer focus, use of quality improvement teams and use of benchmarking were reported by 100% of hospitals surveyed. Other elements/activities that had a high presence were use of structured problem solving process, employee empowerment, presence of a quality improvement council or steering committee, and the hospital formally involved in CQI efforts. Although a significant number of hospitals report the presence of these program elements and activities, the results previously discussed show that many of these elements and activities are used to a less than moderate extent. While it would have been helpful to compare these results to other studies, especially the most recent NHQI study, these data are not available.

**Table 8-9: CQI Program Model and Reality
Michigan Hospitals**

CQI Program Element or Activity	% of Hospitals with Element or Activity
Philosophy of continuous improvement of quality throughout organizational processes (n=48)	100
Explicit focus on "customer" (n=48)	100
Use of quality improvement teams (n=48)	100
Benchmarking (n=47)	100
Use of structured problem solving processes (n=48)	98
Employee empowerment (n=48)	98
Presence of Quality Improvement council or steering committee (n=48)	94
Hospital formally involved in CQI efforts (n=48)	92
Use of clinical algorithms, practice guidelines or critical pathways (n=47)	91
Integrated Quality Assurance, Utilization Review and Risk Management reporting to a single person (n=47)	87
Organized Case Management (n=47)	83
Separate dept/division/office for Quality Improvement (n=48)	79
Incorporation of CQI into employee reward and performance system (n=47)	77
Disease state management (n=46)	67

The program elements/activities that were present in the fewest of responding hospitals were having a separate department/division/office for Quality Improvement, incorporating CQI into employee reward and performance systems and disease state management. The responding Michigan hospitals appear to be very comparable to other health care organizations with regard to other factors as well. Involvement and training of physicians and non-management employees lags behind what a model CQI program would be doing. Important barriers reported in the literature and found to exist in Michigan hospitals include: the level of employee empowerment, physician indifference to CQI, the low numbers of medical staff actively involved in CQI and in adequate information systems. While hospitals often report the presence of various "model" concepts, the extent to which they are used is

often very low. Alas, this is often the case for other health care institutions as well (Allen and Brady, 1997; Berwick, 1990; Boerstler, et al., 1997; Huq and Martin, 2001; McLaughlin and Kaluzny, 1990; Sheridan, 1994; Shortell, et al., 1995; and Westphal, et al., 1997).

Summary

The data reported in this chapter were often consistent with the findings of prior research on CQI. As previously discussed, one of the essential cornerstones of CQI is that a hospital's quality improvement program must involve all employees at all levels of the organization. Yet, there was actually one hospital with an established CQI program that reported none of its employees, management or physicians had been trained in CQI! Furthermore, the percentages of employees trained in CQI was still quite low. The literature suggests that this could hamper the positive effects of the program. It would be useful to know why this training does not appear to be mandatory for employees. If not mandatory, what types of incentives, if any, are there for employees to be trained?

The fact that approximately only one in three hospital employees is exposed to CQI training suggests that most hospitals are not yet serious about CQI. While this lack of commitment to CQI may be attributed to various causes, it suggests that healthcare does not see CQI and creation of value for its customers as its ultimate goal. Moreover, the widespread existence of CQI programs is unlikely to bring optimal benefits if few employees receive training.

Given the low proportion of employees trained in CQI it comes as no surprise that the number of employees participating in quality improvement

teams was also small. This also suggests that given the fact that coordinators reported using quality improvement teams, including employees from multiple departments and different levels of the organization to a large extent, that there may be individuals serving on multiple teams.

When examining CQI program elements results were consistent with previous studies. The vast majority of responding hospitals reported the presence of program elements found in model quality improvement programs.

CQI coordinator responses rating possible barriers to CQI indicated that the top three barriers found in Michigan hospitals were identical to the top three barriers reported in the 1998 NHQI study.

Now that there is some understanding about what Michigan CQI programs look like and how they match model programs, Chapter 9 will explore what outcomes, if any, seem to have resulted from such CQI efforts as have occurred in Michigan Hospitals.

CHAPTER 9

WHAT ARE THE PERCEIVED OUTCOMES OF CQI?

CQI is a philosophy and practice designed to enhance productivity and quality, reduce waste and increase customer satisfaction (Allen and Brady, 1997). This chapter will attempt to discuss what the CQI coordinators I surveyed perceived to be the outcomes of CQI in their hospitals.

There are several areas that can affect CQI outcomes. Individual questions regarding outcomes include:

- What are the levels of employee enthusiasm toward CQI?
- What are the perceptions of the CQI program?
- What are the perceptions of the CQI process?
- What are the perceptions of the outcomes related to CQI?
- How satisfied are respondents with CQI?

Questions regarding satisfaction with CQI helped determine the extent to which satisfaction toward CQI was affected by factors such as CQI program elements present, CQI activities used and barriers to CQI. In addition to the level of satisfaction, CQI coordinators were asked to rate the level of enthusiasm toward CQI for different levels of employees in the organization (upper management, middle management, non-management employees and physicians).

Several questions sought to determine perceptions of the CQI program. Of interest was the degree of management and employee commitment to CQI and the outcomes judged to have occurred. Employee commitment is essential

to the effectiveness of CQI/TQM. Although commitment in a CQI/TQM program begins with the executive level of the organization, it ultimately embrace include employees from all levels of the organization. Commitment to CQI/TQM involves an employee's belief in and acceptance of his or her organization's goals and values, willingness to exert effort on that organization's behalf, and desire to remain employed there. Authors describing the TQM approach urge practitioners to increase an employee's attitudinal organizational commitment, as well as his or her concern for service and quality (Allen et al., 1997). In addition to having CQI coordinators assess the level of commitment to CQI in their organization, attitudes towards the outcomes or effects of CQI/TQM applied to treatment outcomes and patient satisfaction were also assessed.

What are the levels of employee enthusiasm toward CQI?

Respondents were asked to rate the level of enthusiasm toward CQI by various groups of employees in their hospitals. Overall mean scores rating the level of enthusiasm by various employee groups ranged from 2.67 to 3.65 or "some enthusiasm" to "high enthusiasm". Those reporting "no enthusiasm" ranged from 2.1 to 8.3% while those reporting "very high enthusiasm" ranged from 0 to 18.8% (Table 9-1).

**Table 9-1: Employee Enthusiasm toward Continuous Quality Improvement
Frequencies, Percentages and Means**

	No Enthusiasm (1)	Very Low Enthusiasm (2)	Some Enthusiasm (3)	High Enthusiasm (4)	Very High Enthusiasm (5)	Mean Score
Upper Management (n = 48)	2.1% (1)	8.3% (4)	31.3% (15)	39.6% (19)	18.8% (9)	3.65
Middle Management (n = 48)	2.1% (1)	10.4% (5)	50% (24)	33.3% (16)	4.2% (2)	3.27
Non Management (n = 48)	8.3% (4)	22.9% (11)	62.5% (30)	6.3% (3)	0% (0)	2.67
Physicians (n = 48)	4.2% (2)	35.4% (17)	43.8% (21)	16.7% (8)	0% (0)	2.73

As suggested by the literature there are several factors that may affect an individual's level of enthusiasm. Not all such enthusiasm can be attributed to the CQI program itself, however. One would expect that higher levels of enthusiasm would lead to higher satisfaction with the CQI process, a higher level of participation and a higher rate of positive outcomes.

Upper management groups were most enthusiastic toward their hospital's CQI program (Table 9-1). Only 10% were reported to have no or low enthusiasm while almost 3 of 5 were highly enthusiastic. Middle management was reported to be similarly enthusiastic with only 13% reported to have little or no enthusiasm and more than one third displaying high or very high enthusiasm.

Non-management employees, as expected, displayed less enthusiasm, while physicians were seen as least enthusiastic. Forty percent of physicians were reported to have little or no enthusiasm for their hospital's CQI program according to CQI coordinators and only one in six was reported to be highly enthusiastic.

When examining the mean scores related on enthusiasm, two categories emerged. Not surprisingly, the two employee groups that had the highest mean scores were upper management and middle management. The other two groups were physicians and non-management. It appears that as CQI activities/involvement "trickles down" through the levels of the organization, the level of enthusiasm decreases for the program. It has also been previously reported that this former group of physicians and non-management employees receive less CQI training and are only minimally involved in quality improvement efforts. This could also have a negative impact on their enthusiasm toward their hospital's CQI program.

What are the perceptions of the CQI program?

CQI coordinators were asked what effects or consequences the CQI program in their hospital had had (Table 9-2). Questions could be categorized as focusing either on perceptions of the CQI process or perceptions of CQI outcomes.

Table 9-2
Perceptions on Continuous Quality Improvement Effects and Consequences
Frequencies, Percentages and Means

(n = 47)	Strongly disagree (1)	Disagree (2)	Neither agree or disagree (3)	Agree (4)	Strongly agree (5)	Mean score
1. Our hospital has made a long-term commitment to CQI/TQM	4.3% (2)	6.4% (3)	8.5% (4)	44.7% (21)	36.2% (17)	4.02
2. The incorporation of CQI/TQM in my facility has increased the quality of care provided	0% (0)	0% (0)	21.3% (10)	63.8% (30)	14.9% (7)	3.94
3. CQI/TQM has resulted in an increased emphasis on teamwork	0% (0)	6.4% (3)	21.3% (10)	59.6% (28)	12.8% (6)	3.79
4. Use of CQI/TQM has improved treatment outcomes for patients in my hospital	2.1% (1)	6.4% (3)	19.1% (9)	68.1% (32)	4.3% (2)	3.66
5. Use of CQI/TQM has increased patient satisfaction rates in my hospital	2.1% (1)	6.4% (3)	34% (16)	46.8% (22)	10.6% (5)	3.57
6. CQI/TQM has led to a breakdown of barriers between departments	2.1% (1)	10.6% (5)	21.3% (10)	61.7% (29)	4.3% (2)	3.55
7. Use of CQI/TQM has improved the health of patients in my hospital	2.1% (1)	8.5% (4)	34% (16)	51.1% (24)	4.3% (2)	3.47
8. Employees in this institution understand the concepts of CQI/TQM implementation	0% (0)	14.9% (7)	31.9% (15)	51.1% (24)	2.1% (1)	3.40
9. Physicians and management at my facility work well together as a team	0% (0)	25.5% (12)	21.3% (10)	46.8% (22)	6.4% (3)	3.34
10. CQI/TQM is included in the daily activities of management	2.1% (1)	21.3% (10)	21.3% (10)	53.2% (25)	2.1% (1)	3.32
11. Employees at all levels of the organization participate in CQI/TQM activities	6.4% (3)	25.5% (12)	6.4% (3)	55.3% (26)	6.4% (3)	3.30
12. Use of CQI/TQM has reduced patient complaints in my hospital	2.1% (1)	14.9% (7)	46.8% (22)	27.7% (13)	8.5% (4)	3.26
13. CQI/TQM has decreased total healthcare costs in my facility	2.1% (1)	21.3% (10)	48.9% (23)	25.5% (12)	2.1% (1)	3.04
14. CQI/TQM process teams have been more successful in non-clinical areas of the hospital	4.3% (2)	44.7% (21)	23.4% (11)	25.5% (12)	2.1% (1)	2.77
15. CQI/TQM has resulted in a reduction of FTEs in my facility	10.6% (5)	46.8% (22)	31.9% (15)	10.6% (5)	0% (0)	2.43

Coordinators' Perceptions of the CQI Process

Seven statements asked CQI coordinators to rate their perceptions of the CQI process in their hospitals (Items 3,6,8-11 and 14 in Table 9-2). Four statements related to hospital employees. Coordinators generally agreed that CQI has resulted in an increased emphasis on teamwork and has also led to a breakdown in barriers between departments. In addition coordinators reported that hospital employees understand the concepts of CQI and that employees at all levels of the organization participate in CQI activities. Finally, coordinators reported agreement with the statements that physicians and management work well together as a team, and CQI is included in the daily activities of management. Fewer believed CQI process teams have been more successful in non-clinical areas of the hospital than in clinical areas of the hospital. These results appear to be less than positive.

What are the perceptions of the outcomes related to CQI?

Six statements were related to a CQI coordinator's perception of outcomes related to their program (Items 2,4,5,7,12 and 13 in Table 9-2). Three different statements dealt with the effects CQI has had on patient care. CQI coordinators generally agreed that the CQI program had: increased the quality of care provided, improved treatment outcomes for patients, and improved the health of patients. Two statements focused on patient satisfaction. The majority of coordinators agreed that their CQI program had increased patient satisfaction in their hospital although only 36% agreed that CQI had reduced patient complaints. One reason why relatively few coordinators may have felt that CQI had reduced patient complaints may be because hospitals are

surveying their patients more often than before the implementation of a CQI program and are encouraging them to give feedback. Hence, patients may be more willing to provide such feedback but not all of it is positive. Finally, only about a quarter of the coordinators believed that the use of CQI had decreased healthcare costs in their facility.

When looking at variables related to employee commitment there was not a great deal of variation in mean scores. All three mean scores fell in the range between neither agree or disagree (3) and agree (4).

The most widely held belief among coordinators was that their hospitals had made a long-term commitment to CQI. The mean score was 4.02. This was the only effect that had a mean score of 4.0 or above. Surprisingly, two other management variables had relatively low mean scores: CQI is included in the daily activities of management and employees at all levels of the organization participate in CQI activities. This suggests a lack of commitment to CQI.

With regard to outcomes, three statements had a mean score of 3.5 or above, CQI has increased quality of care provided, improved treatment outcomes for patients and increased patient satisfaction rates in their hospital. Although the individual scores may look promising regarding the effects of CQI in Michigan hospitals, overall mean scores are lower than may have been expected.

How satisfied are respondents with CQI?

When CQI coordinators were asked to rate their own level of satisfaction with CQI in their hospital roughly nine out of ten expressed some satisfaction, however limited (Table 9-3). Just slightly less than 50% of coordinators were either

"satisfied" or "very satisfied" with CQI/TQM in their hospital, with mean satisfaction (5.15) in the "somewhat satisfied" range. Satisfaction with management's performance with respect to CQI was even greater—a mean satisfaction level of 5.50 and nearly 60% in the "satisfied" or "very satisfied" range. Finally, most coordinators expressed considerable satisfaction with quality improvements resulting from application of CQI/TQM, with mean satisfaction of 5.63 and nearly 46% being either "satisfied" or "very satisfied".

Table 9-3: Satisfaction with CQI

n = 48	Not Satisfied		Somewhat Satisfied			Satisfied			Very Satisfied		Mean
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
How satisfied are you with CQI/TQM in your hospital?	0% (0)	10.4% (5)	10.4% (5)	16.7% (8)	16.7% (8)	22.9% (11)	12.5% (6)	6.3% (3)	4.2% (2)	0% (0)	5.15
Overall, how satisfied are you with the performance of management with respect to CQI/TQM?	6.3% (3)	10.4% (5)	6.3% (3)	6.3% (3)	14.6% (7)	16.7% (8)	20.8% (10)	10.4% (5)	6.3% (3)	2.1% (1)	5.50
How satisfied are you with the improvements in quality that have resulted from CQI/TQM?	2.1% (1)	6.3% (3)	2.1% (1)	25% (12)	18.8% (9)	8.3% (4)	14.6% (7)	14.6% (7)	4.2% (2)	4.2% (2)	5.63

Conclusions

When focusing on the perceived outcomes of their hospital's CQI program, the vast majority of respondents (81%) reported their hospital had made a long-term commitment to CQI. This should come as no surprise given the fact that JCAHO has required hospitals to have an active quality improvement program in place for the past several years. Although all responding hospitals reported the presence of a CQI/TQM program, enthusiasm toward and commitment to the program were generally mediocre at best. Furthermore, coordinators generally reported satisfaction with the improvements

in quality that have resulted from CQI, although they are only somewhat satisfied with the program itself. One wonders whether higher levels of enthusiasm and commitment toward a hospital's CQI program might affect the reported outcomes related to CQI.

In chapter 10 the keys to a successful health care CQI program will be explored. To facilitate this inquiry, various methods of understanding the underlying dimensions in my findings to this point will be utilized.

CHAPTER 10

FACTOR ANALYSIS

In this chapter I describe the use of factor analysis to reduce CQI related variables to more manageable sets. Nine factors emerged in the following four areas: CQI program elements, CQI activities, barriers to CQI and perceived outcomes of CQI (Table 10-1). In addition, I will briefly review the definitions of these four CQI concepts set forth in previous chapters.

Table 10-1: CQI Factors and their Categories

CQI Category	CQI Factor
CQI Techniques/Program Elements	- CQI related to Medical Staff - Traditional CQI Techniques
CQI Activities	- CQI Activities
Barriers to CQI	- Lack of Resources - Lack of Management Support - Lack of Personnel/Training
Perceptions of CQI	- Good Outcomes - Employee Commitment - Management Commitment

Factor Analysis Methodology

The survey questions were organized into sections based on past surveys and literature. Similar items or questions were grouped together into the sections as listed in Table 10-1. A separate factor analysis was conducted on the items in each category subsection to test whether or not each item belonged. Based on past surveys and literature, I identified items linked with each CQI factor, ran principal components analysis specifying that I wanted only one factor, and examined loadings. In two cases I deleted items that did not load .50 or higher and reran the principal components analysis. Because the survey yielded so

many different but related CQI variables, factor analysis is ideal to reduce the data into fewer dimensions. Advantages of this data reduction technique include more parsimonious models and the avoidance of multicollinearity (Hamilton, 1992, p. 249). Using SPSS, principal components analysis was used. Because only one component was extracted for each set of items, no rotation was requested. A .50 or higher loading was judged to be sizeable. After deleting items with small loadings (<.50), the principal components analysis was repeated and factor scores were saved for each component.

CQI Techniques and Program Elements

As previously discussed by McLaughlin and Kaluzny (1994), transforming an organization into one that practices CQI/TQM requires that a number of techniques/elements be present. These are the foundation of a CQI program. These techniques/elements, which in theory are related to quality, provide an overall focus and specify particular actions for managers, staff and quality improvement teams.

Variables related to CQI techniques/practices are associated with two factors. One is labeled *techniques related to the medical staff*. The other is labeled *traditional CQI techniques* (Table 10-2). Items that load onto the medical staff techniques factor include: review of delinquent medical records; reliance on physician peer review of selected cases; morbidity and mortality conferences; use of medical staff quality review committees; and, disciplinary action taken against physicians failing to comply with recommended standards of practice.

**Table 10-2: Factor Analysis
Continuous Quality Improvement Techniques**

Factor	Communalities	Loadings
<u>CQI Related to Medical Staff</u>		
Review of delinquent medical records	.495	.703
Reliance on physician peer review of selected cases	.728	.853
Morbidity and mortality conferences	.292	.540
Use of medical staff quality review committees	.663	.815
Disciplinary action taken against physicians failing to comply with recommended standards of practice	.536	.732
% of Variance explained		58.67%
n		46
<u>Traditional CQI Techniques</u>		
Use of structured problem-solving processes incorporating statistical methods and measurement to diagnose problems and monitor progress	.354	.595
A philosophy of continuous improvement of quality through improvement of organizational processes	.781	.884
Empowering employees to identify quality problems and improvement opportunities and to take action on these problems and opportunities	.637	.798
An explicit focus on "customers"—both external and internal	.580	.762
Use of quality improvement teams including employees from multiple departments and from different organizational levels as the major mechanism for introducing improvements in organizational processes	.582	.763
% of Variance explained		58.67%
n		48

Items that load on the traditional CQI techniques factor include: use of structured problem-solving processes incorporating statistical methods and measurement to diagnose problems and monitor progress; a philosophy of continuous improvement of quality through improvement of organizational processes; empowering employees to identify quality problems and

improvement opportunities and to take action on these problems and opportunities; an explicit focus on "customers"—both external and internal; and; use of quality improvement teams, including employees from multiple departments and from different organizational levels, as the major mechanism for introducing improvements in organizational processes.

According to the literature, these traditional CQI components are essential to all such programs. These basic components are important singly, but are also important together. Together these components tell who is involved in quality improvement (all employees), how quality is monitored and improved (use of quality improvement teams, empowering employees, using statistical methods), all under a CQI philosophy that has an explicit focus on the customer.

CQI Activities

Closely related to CQI techniques/elements are CQI activities. While many techniques/elements are overall concepts (i.e., philosophy of CQI, focus on the customer, employee empowerment), activities capture CQI in practice. In other words, activities are how the conceptual elements of CQI are operationalized. As Table 10-3 indicates, five of the six CQI activities have sizable loadings on this factor. These five are: development and/or use of clinical algorithms, practice protocols/guidelines or critical pathways; organized case management; disease state management (i.e., organized programs to coordinate care for specific diseases/conditions); benchmarking (i.e., comparing) quality improvement results against those of other health care organizations; and, incorporating CQI/TQM criteria into the reward and performance appraisal systems for employees. The one activity that does not

load on this factor is "having integrated quality assurance, utilization review and risk management activities reporting to a single designated person". Although these activities—quality assurance (QA), utilization review (UR) and risk management (RM)—appear conceptually similar, I suspect that this variable does not load with the others because, in many instances, these three activities (AQ, UR and RM) may be contained in separate departments or there may not be a single person responsible for all three areas.

**Table 10-3: Factor Analysis
Continuous Quality Improvement Activities**

Factor	Communalities	Loadings
Development and/or use of clinical algorithms, practice protocols/guidelines or critical pathways	.593	.77
Organized case management	.514	.72
Disease state management (i.e., organized programs to coordinate care for specific diseases/conditions)	.700	.84
Benchmarking (i.e., comparing) quality improvement results against those of other health care organizations	.548	.74
Have incorporated CQI/TQM criteria into the reward and performance appraisal systems for employees	.498	.71
% of Variance explained		57.07%
n		46

The Structure of Barriers to CQI

There are many barriers to implementing and maintaining a CQI program. Quality improvement initiatives usually bring about major changes in how employees do their work which often leads to employee resistance. Overcoming engrained philosophies and mind sets can be one of the greatest obstacles to a CQI program. Too often organizations have not allowed sufficient time for the "new culture" to evolve. These changes do not happen overnight.

For CQI efforts to succeed in the healthcare sector, hospitals must be ready to commit resources and provide training to hospital employees who are responsible for undertaking CQI initiatives. In addition, implementing and maintaining a CQI program requires training for all employees at all levels of the organization. This training needs to be more than a "token" information session. Employees need to fully understand their role in a CQI program before they can be expected to be a willing supporter/participant. Training must also involve physicians since they may be very reluctant to commit to such a program. Physicians desire autonomy, they have heavy time commitments and may see CQI to be a threat to their professional identity. These issues cannot be ignored.

There are three conceptually different kinds of barriers: *lack of resources*, *lack of management support* and *lack of personnel/training* (Table 10-4). Five items refer to *lack of resources*: lack of time; too few resources committed; lack of physician support; perception that it costs too much; and, too many other changes going on in the organization. All of these are ways in which full implementation of CQI is constrained either by time, money, lack of support from an important participant group and an inability to focus on it due to other organizational changes. *Lack of management support* includes: lack of board commitment/support; lack of top management commitment and leadership; current organizational structure not conducive to QA/QI; lack of realistic goals; and, the inability to prioritize projects. The item, "current organizational structure not conducive to CQ/QI" does not load in the initial factor analysis, and was deleted. The third factor, *lack of personnel/training* includes: inadequate employee training in relevant principles and methods; legal barriers to using

personnel in new ways; and, inadequate information systems. While this last item could be considered a resource constraint, since it loads on this factor suggests that insufficient staff or staff focus has been given to the development of the information systems necessary to support CQI.

**Table 10-4: Factor Analysis
Barriers to Continuous Quality Improvement**

Factor	Communalities	Loadings
<u>Lack of Resources</u>		
Lack of time	.583	.764
Too few resources committed	.829	.910
Lack of physician support	.363	.602
Perception that it costs too much	.416	.645
Too many other changes going on in the organization	.579	.761
% of Variance explained		55.42%
n		46
<u>Lack of Management Support</u>		
Lack of board commitment/support	.475	.690
Lack of top management commitment and leadership	.656	.810
Lack of realistic goals	.525	.724
Inability to prioritize projects	.594	.771
% of Variance explained		56.25%
n		47
<u>Lack of Personnel/Training</u>		
Inadequate employee training in relevant principles and methods	.321	.566
Legal barriers to use personnel in new ways	.667	.817
Inadequate information systems	.542	.763
% of Variance explained		50.99%
n		45

Perceptions of CQI

One of the most appealing aspects of the CQI/TQM approach is that it promises better outcomes with fewer resources. Both high quality and appropriate care can be obtained with cost containment. Empirical studies showing desirable effects within hospitals, such as higher customer satisfaction, have emerged over the past ten years. Other benefits include profitability, employee satisfaction, reduced costs, improved patient survival and better continuity of care.

To assess these perceptual outcome issues a series of questions focused on commitment to CQI and assessment of positive outcomes. There are three important and distinct factors: *employee commitment*, *management commitment* and *perceived outcomes* (Table 10-5).

The literature has stressed the importance of employee commitment to a successful CQI program. Although the initial commitment and leadership for a CQI program begins with management, employees at all levels of the organization play an important part in the success of the CQI program. It should be noted that the commitment questions on the survey focused on assessments of how committed employees and management appeared to be to the process as opposed to personal or individual commitment. The third factor, *perceived outcomes*, is closely related to commitment since more commitment demonstrated by employees is likely to produce better outcomes related to the CQI program.

The employee commitment factor includes perceptions that: CQI/TQM has resulted in an increased emphasis on teamwork; employees understand the

concepts of CQI/TQM implementation; and, CQI/TQM has led to a breakdown of barriers between departments. Management commitment factors included perceptions that: physicians and management at my facility work well together as a team; CQI/TQM is included in the daily activities of management; our hospital has made a long-term commitment to CQI/TQM; and, employees at all levels of the organization participate in CQI/TQM activities. The item, "physicians and management at my facility work well together as a team" does not load in the initial factor analysis and was deleted. Lastly, the perceived outcome factor includes perceptions that: the incorporation of CQI/TQM in my facility has increased the quality of care provided; CQI/TQM has decreased total healthcare costs in my facility; use of CQI/TQM has improved treatment outcomes for patients in my hospital; use of CQI/TQM has increased patient satisfaction rates in my hospital; use of CQI/TQM has improved the health of patients in my hospital; and, use of CQI/TQM has reduced patient complaints in my hospital.

**Table 10-5: Factor Analysis
Continuous Quality Improvement Perceptions**

Factor	Communalities	Loadings
<u>Employee Commitment</u>		
CQI/TQM has resulted in an increased emphasis on teamwork.	.525	.724
Employees in this institution understand the concepts of CQI/TQM implementation.	.552	.743
CQI/TQM has led to a breakdown of barriers between departments.	.585	.765
% of Variance explained		55.41%
n		47
<u>Management Commitment</u>		
CQI/TQM is included in the daily activities of management.	.739	.859
Our hospital has made a long-term commitment to CQI/TQM.	.794	.891
Employees at all levels of the organization participate in CQI/TQM activities.	.545	.738
% of Variance explained		69.26%
n		47
<u>Perceived Outcomes</u>		
The incorporation of CQI/TQM in my facility has increased the quality of care provided.	.294	.542
CQI/TQM has decreased total healthcare costs in my facility.	.359	.599
Use of CQI/TQM has improved treatment outcomes for patients in my hospital.	.758	.871
Use of CQI/TQM has increased patient satisfaction rates in my hospital.	.521	.722
Use of CQI/TQM has improved the health of patients in my hospital.	.720	.750
Use of CQI/TQM has reduced patient complaints in my hospital.	.562	.848
% of Variance explained		53.56%
n		47

The following chapter explores the nature of the relationships that exist among CQI elements, use of CQI activities, barriers to CQI and the perceptions of employees, management commitment to CQI, and the CQI outcomes. The focus in Chapter 11 is on the simple bivariate relationships. In Chapter 12 a more complex multivariate model is specified and tested.

CHAPTER 11

PATTERNS OF ASSOCIATION BETWEEN CQI PROGRAM ELEMENTS AND PERCEIVED OUTCOMES

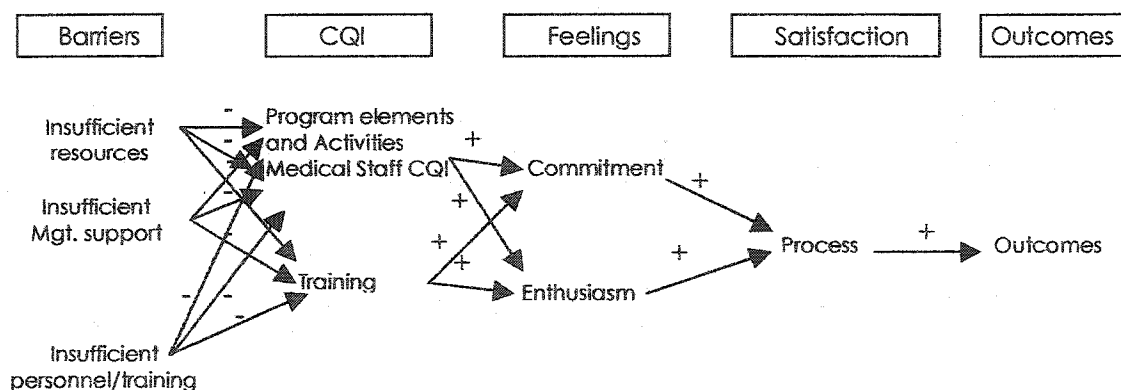
In the preceding chapter factor analysis was used to reduce the number of indicators of various aspects of CQI to a more manageable number. In this chapter I begin the process of exploring the nature and strength of the relationships that exist between the factors generated in chapter 10 and a number of other variables of interest. This chapter serves as the foundation for the multivariate analysis to follow in chapter 12.

Path Analysis

In order to better understand the possible relationships between variables, I propose a heuristic causal model to show the expected relationships among variables. Figure 11-1 shows this model. I hypothesize that various barriers have a negative impact on the implementation of CQI program elements and activities and extent of CQI training. The amount of CQI elements and activities present in a hospital, along with the amount of training that personnel receive, is hypothesized to impact feelings of commitment and enthusiasm to the CQI program. While one could argue that commitment and enthusiasm for the program are important before the implementation of the program elements and activities, I have chosen to place these factors in the path analysis after the implementation of program elements and activities. Employees must first be exposed to and trained in CQI before feelings of enthusiasm and commitment can develop. Similarly, employees must see the activities and program elements implemented on the ground before they can be expected to develop any feelings of "ownership" toward them.

Moving along the causal path, commitment and enthusiasm regarding CQI are hypothesized to affect overall satisfaction with the implementation process. In turn, satisfaction affects perceived outcomes resulting from CQI. Satisfaction in this case refers to how CQI was implemented, in other words, the process. While there may be feelings that relate to CQI outcomes, feelings regarding implementation would logically come before any feelings about outcomes. I hypothesize that respondents having more positive assessments of the implementation process will also feel that more positive outcomes have been achieved.

Figure 11-1: Path Analysis Model



Correlations

The correlational analysis contained in the following sections is organized based on the hypothesized path model just described. The hypotheses are stated in correlational rather than causal terms. Because this is a cross sectional study it is impossible to establish the time order of variables. Thus the direction of causation cannot be established with certainty. Familiarity with the literature on CQI and its implementation, of course, suggests the order portrayed in Figure 1.

Stage One: Barriers to CQI Implementation

A factor analysis of the various possible barriers to CQI implementation yielded three dimensions: insufficient resources, insufficient management support, and insufficient personnel/training. These barriers can immediately impede a quality improvement program, affecting not only program elements and activities use, but also the percentage of employees trained in CQI¹. Four aspects of program implementation were measured by the survey and were described in previous chapters. These aspects include: program elements, program activities, CQI related to medical staff, and CQI training. Specifically I would expect the following relationships to emerge:

- Greater presence of barriers to CQI is associated with a lesser presence of program elements.
- Greater presence of barriers to CQI is associated with a lesser presence of program activities.
- Greater presence of barriers to CQI is associated with a lesser presence of CQI related to medical staff.
- Greater presence of barriers to CQI is associated with lower levels of CQI training.

The three "barrier" factors were separately correlated with these variables and yielded the results summarized in Table 11-1.

Insufficient Resources. Insufficient resources for doing CQI was negatively associated with program elements (Table 11-1). It was not associated with CQI related to medical staff or to CQI activities, however.

¹ Training is not correlated with CQI program elements and activities. Hence, is treated as a separate variable.

Insufficient Management Support. In the case of management support, only one significant correlation existed. The extent of perceived management support appears to impact the nature of CQI implemented with regard to program elements, but not the extent of personnel trained.

Table 11-1: Zero-Order Correlation Between Factor Scores on Barriers to CQI and Factors Measuring the Use of CQI Program Elements, Activities, and Training

	Expected Relationship	CQI Elements and Activities			CQI Training		
		Program elements	Related to medical staff	Activities	Total FTEs	Senior Managers	Physicians
Insufficient:							
Resources	-	-.249*	-.065	-.013	-.093	-.261	-.121
Management support	-	-.270*	-.086	-.045	.033	-.249	-.079
Personnel/training	-	-.367**	-.187	.011	-.197	-.126	-.022

*Correlation is significant at the 0.05 level (1-tailed)

** Correlation is significant at the 0.01 level (1-tailed)

Insufficient Personnel/Training. Insufficient training in CQI for hospitals is negatively associated with program elements, as expected. It is interesting to note that there was not a significant correlation with insufficient personnel/training and the following variables: CQI related to medical staff, CQI activities and the extent of training.

Barriers and Training. There were no significant correlations between any of the barriers to CQI and the three CQI training variables. In short, insufficient resources and commitment to training mainly reduce the extent to which CQI program elements are implemented. It is surprising that a limited commitment to training does not appear related to the percent of individuals actually trained. It may be that, since this variable does not measure actual training, but rather assesses CQI coordinators' perceptions of whether there were organizational barriers to sufficient training, that it is possible that coordinators would routinely

think not enough employees have been trained in CQI because of their own commitment to CQI and their standards for training are so high.

Stage Two: Program Elements

The second stage of the path analysis specifies the relationships that exist between CQI program elements/activities, medical staff CQI, training, and degree of commitment and enthusiasm toward CQI. The following propositions are explored with respect to program elements:

- Greater presence of CQI program elements is associated with higher levels of commitment toward CQI.
- Greater presence of CQI program elements is associated with higher levels of enthusiasm toward CQI.

As Table 11-2 shows, use of or presence of CQI program elements are positively correlated with both commitment and enthusiasm. While it is impossible to establish causal order here—greater commitment and enthusiasm could lead to more program elements being implemented—the positive correlation is not in doubt.

Table 11-2: Zero-Order Correlation Between Factor Scores on the Use of CQI Elements, Activities and Training with Factors Measuring Commitment and Enthusiasm Toward CQI

	Expected relationship	Commitment		Enthusiasm			
		Management	Employee	Upper Mgt.	Middle Mgt.	Non-Mgt.	Physicians
Traditional CQI Program Elements	+	.505**	.421**	.584**	.488**	.445**	.459**
CQI elements related to medical staff	+	.009	-.058	.189	.071	-.099	.456**
CQI Activities	+	.276*	.425**	.273*	.399**	.340*	.331*
CQI Training:							
Total FTEs	+	.198	.231	.055	-.121	-.008	.129
Senior managers	+	.196	.233	.333*	.115	-.035	.358*
Physicians	+	.068	-.057	.360*	.078	.010	.333*

* Correlation is significant at the 0.05 level (1-tailed)

** Correlation is significant at the 0.01 level (1-tailed)

CQI Use by Medical Staff

I hypothesize the following:

- Greater presence of CQI related to medical staff is associated with higher levels of commitment toward CQI.
- Greater presence of CQI related to medical staff is associated with higher levels of enthusiasm toward CQI.

Table 11-2 shows a significant correlation only with physician enthusiasm toward CQI. Greater use of CQI related to medical staff is not associated with employee and management commitment, or with upper, middle and non-management enthusiasm toward CQI. Apparently CQI use by medical staff has little impact on the non-medical staff of a hospital.

CQI Activities

I hypothesize the following relationships:

- Greater presence of CQI activities is associated with higher levels of commitment toward CQI.
- Greater presence of CQI activities is associated with higher levels of enthusiasm toward CQI.

As Table 11-2 indicates, greater presence of CQI activities is positively correlated with both commitment and enthusiasm. The correlation is especially large with respect to employee commitment.

These findings regarding CQI program elements and activities provide support for the arguments in the literature on how essential the implementation of these components is to a successful CQI program. These program elements

and activities are the cornerstone of a successful quality improvement program. Hospitals cannot ignore the importance of these factors.

CQI Training and Enthusiasm/Commitment

Given the focus that the literature places on the need for CQI training, one would expect to find that the percentage of employees trained in CQI within a hospital, regardless of job type, would be positively correlated with commitment and enthusiasm toward CQI. In my study, extent of CQI training is measured in three different ways: percent of total FTEs trained, percent of senior managers trained and percent of active physicians trained. With respect to training for each group. I hypothesize the following:

- Greater training in CQI is associated with greater commitment toward CQI.
- Greater training in CQI is associated with greater enthusiasm toward CQI.

Percent of FTEs trained in CQI. Surprisingly, the percent of total FTEs trained in CQI (see Table 11-2) was not significantly correlated with commitment or enthusiasm.

Percent of senior management trained in CQI. The percent of senior management trained in CQI was positively correlated with upper management and physician enthusiasm, but not with management commitment, employee commitment, middle management and non-management employee enthusiasm. In short, exposing more senior employees to CQI training is related to greater upper management commitment.

Percent of physicians trained in CQI. Only two of the hypothesized relationships were significant, as Table 11-2 indicates. Moderate positive associations were found between the percent of active physicians trained in CQI and both upper management and physician enthusiasm toward CQI.

It is interesting to note that although CQI training is important for all employees, this training seems to matter more for senior managers and physicians than it does for employees as a whole. One might speculate that this supports the notion that CQI success depends on support by those in upper management and then "trickles down" to rank and file employees. One would not expect to find a great deal of support given to a quality improvement program if appropriate training had not been completed. It would appear that senior managers and physicians are looked upon as leaders when it comes to successful program implementation and maintenance.

Stage Three: Feelings and Satisfaction

The third stage of the path analysis examines what relationships are found between feelings toward CQI and satisfaction with it. Feelings are gauged by both commitment and enthusiasm.

Commitment to CQI

I hypothesize the following relationships to emerge:

- Greater commitment to CQI is associated with greater levels of satisfaction related to CQI.

As Table 11-3 shows, both management and overall employee commitment are positively correlated with satisfaction with CQI, consistent with my hypothesis.

Table 11-3: Zero-Order Correlation Between Factor Scores on Commitment and Enthusiasm Regarding CQI and Factors Measuring Satisfaction

	Expected Relationship	Satisfaction with:		
		CQI Program	Management performance related to CQI	Improvements related to CQI
Management Commitment	+	.467**	.418**	.294*
Employee commitment	+	.379**	.316*	.335*
Enthusiasm				
Upper management	+	.586**	.711**	.586**
Middle management	+	.631**	.506**	.536**
Non-management	+	.380**	.286**	.191
Physicians	+	.556**	.438**	.626**

*Correlation is significant at the 0.05 level (1-tailed)

**Correlation is significant at the 0.01 level (1-tailed)

Enthusiasm toward CQI

Levels of enthusiasm were measured for various job levels (upper management, middle management, non-management or physician).

Specifically I hypothesize the following:

- Greater enthusiasm toward CQI is associated with greater satisfaction with CQI in the case of all types of hospital employees.

As Table 11-3 shows, 11 out of 12 variables were significantly and positively correlated with CQI enthusiasm for the upper management, middle management, non-management and physician groups. There was no significant correlation between non-management employee satisfaction and improvements related to CQI. It is possible that non-management employees are less likely to be intimately involved with CQI information in these two areas when compared with physicians and management groups. Overall, then, employees who are more enthusiastic about CQI also are more satisfied with the

CQI program itself, feel more positive about management performance related to CQI and are more satisfied with the level of improvements related to CQI.

Stage Four: Satisfaction with CQI

The fourth stage of the path analysis looks at relationships between satisfaction with various results of CQI and the ultimate effects or outcomes of the use of CQI. I hypothesize the following:

- Higher levels of satisfaction with CQI are associated with higher perceptions of positive outcomes related to CQI.

Table 11-4 shows that all correlations were positive, as hypothesized.

Table 11-4: Zero-Order Correlation Between Factor Scores on Satisfaction with CQI and Factors Measuring Outcomes or Effects

	Expected Relationship	Perceived Outcomes
Satisfaction with:		
CQI Program	+	.382**
Management performance related to CQI	+	.274*

* Correlation is significant at the 0.05 level (1-tailed)

** Correlation is significant at the 0.01 level (1-tailed)

Summary

In this chapter a large number of relationships have been explored. Some patterns are worth noting. Among the potential barriers to successful implementation of a CQI program, insufficient resources and lack of commitment to training may hinder the implementation of CQI program elements. Insufficient personnel and training does not appear to be a barrier to the percent of personnel actually trained in CQI, however. This is an apparent anomaly that is difficult to explain. It could be that the expectations of CQI administrators regarding optimal levels of training are not realistic thus they see barriers even when some training has occurred.

Next, it is clear that the elements of a CQI program and the activities necessary to implement the CQI program are positively associated with a number of desirable conditions within the hospital organizations, most importantly positive feelings of commitment and enthusiasm to CQI itself. Extent of training is less important than actual program implementation, in shaping such feelings.

Another summary observation is that CQI related to medical staff is not consistently associated with commitment and enthusiasm, unlike the other elements of a CQI program.

Finally, satisfaction with outcomes resulting from CQI is strongly related to satisfaction with the process of implementing CQI. It is not surprising that perceptions that the process has been positive are related to perceptions that the outcomes are also positive.

Now that certain basic relationships among factors have been explored, I can examine the general question, "What leads to a successful CQI program?" In the next chapter I address the following questions using multivariate analysis:

- What has the greatest impact on CQI outcomes?
- What has the greatest impact on satisfaction with the CQI process?
- What has the greatest impact on enthusiasm toward CQI?
- What has the greatest impact on commitment to CQI?
- How do enthusiasm, commitment and satisfaction together affect perceptions of positive CQI outcomes?

CHAPTER 12

TESTING THE MODEL USING MULTIVARIATE METHODS: WHAT HAS THE GREATEST IMPACT ON CQI?

The preceding chapter identified numerous correlations with respect to CQI. Here I use multiple regression analysis¹ to estimate the coefficients of the path model proposed in Figure 11-1. Some of the correlations identified in chapter 11 may not reflect causal relationships because of correlations among independent variables. Multiple regression controls for this possibility so that the specific effect of each independent variable can be estimated by holding constant other independent variables. In using this method, I assume that there are no correlations among error terms. The multivariate analysis reported in this chapter addresses the following questions:

- What barriers to implementation of CQI impact CQI program elements and activities and CQI training?
- What has the greatest impact on commitment and enthusiasm toward CQI?
- What impact do commitment and enthusiasm have on satisfaction with the CQI process?
- What impact does satisfaction with the implementation of CQI have upon perceived outcomes?

¹ OLS regression was run using SPSS. The enter method was used to enter all independent variables in a single block. This was done to allow me to assess all the variables included in the model. In addition, the stepwise method was used with results identical to those that resulted when all variables were entered simultaneously.

The results of the regression analysis are presented by moving forward along various paths of the model and are organized by each dependent variable. The ultimate goal is to answer the question; "What leads to a successful CQI program?"

What barriers to implementation of CQI impact CQI program elements and activities and CQI training?

Regression analysis was conducted using all three possible barriers as independent variables and the presence of program activities and elements as the dependent variables². Results are summarized in Table 12-1. Only one of the barrier factors, insufficient personnel/training, was statistically significant in this regression. The less adequate the amount of personnel or training, the fewer CQI program elements and activities occurring in a hospital. Moreover, these three barriers together could account for only 13% of the variance in CQI program elements and activities. It is difficult to tell what additional factors may affect CQI program elements and activities. Possible factors might be the skill/training of the CQI staff and number of CQI staff. In addition, perhaps there are other aspects of resources that the survey did not measure, such as training materials, material rewards for participation on process improvement teams or how much hospitals pay their CQI staff.

² CQI program elements and CQI activities were found to be highly correlated. These indexes were combined to form a new index so there would not be a problem with multicollinearity.

Table 12-1: Predictors of Extent of CQI Elements and Activities Present in Michigan Hospitals.

Variable		B	Beta	Sig.
CQI Program Elements and Activities				
Constant		4.850E-02		.865
Insufficient management support		-.281	-.157	.376
Insufficient resources		.386	.207	.317
Insufficient personnel/training		-.703	-.385	.041
R ²	.126			
Number of cases	45			

Analysis was also conducted using the same independent variables with extent of CQI training as the dependent variable. Results are summarized in Table 12-2. With respect to extent of training, none of the three barriers had a statistically significant impact, with the percent of explained variance ranging from as little as 3% for the proportion of all employees trained, and 8% for percentage of physicians trained to a "high" of about 15% for the percent of senior managers trained whatever can account for extent of training, it does not seem that the three "barriers" I have posited matter.

Table 12-2: Predictors of CQI Training in Michigan Hospitals.

Variable		B	Beta	Sig.
Percent total FTEs trained in CQI				
Constant		.449		.000
Insufficient management support		1.367E-02	.030	.892
Insufficient resources		9.598E-03	.025	.931
Insufficient personnel/training		-7.0E-02	-.198	.494
R ²	.031			
Number of cases	45			
Percent senior managers trained in CQI				
Constant		.729		.000
Insufficient management support		-7.1E-02	-.188	.350
Insufficient resources		-.107	-.322	.193
Insufficient personnel/training		4.272E-02	.118	.605
R ²	.148			
Number of cases	45			
Percent physicians trained in CQI				
Constant		.240		.002
Insufficient management support		-7.0E-02	-.183	.422
Insufficient resources		-8.6E-02	-.273	.369
Insufficient personnel/training		9.482E-02	.304	.316
R ²	.079			
Number of cases	45			

What has the greatest impact on commitment and enthusiasm toward CQI?

I look first at enthusiasm. Regressions were run for each of the four employee groups relating to enthusiasm toward CQI. These groups include upper management, middle management, non-management employees and physicians. The independent variables that I hypothesize may impact degree of enthusiasm include the presence of CQI elements/activities and the three measures of extent of training. Table 12-3 summarizes the results of this analysis.

Table 12-3: Predictors of CQI Enthusiasm among Four Types of Employees in Michigan Hospitals.

Variable		B	Beta	Sig.
Upper management enthusiasm				
Constant		3.149		.000
CQI elements/activities		.226	.411	.076
% total FTEs trained in CQI		-.366	-.129	.637
% senior managers trained in CQI		.720	.220	.455
% physicians trained in CQI		.269	.078	.744
R ²	.279			
Number of cases	46			
Middle management enthusiasm				
Constant		3.299		.000
CQI elements/activities		.183	.437	.051
% total FTEs trained in CQI		-.957	-.443	.101
% senior managers trained in CQI		.625	.251	.374
% physicians trained in CQI		-.300	-.115	.617
R ²	.339			
Number of cases	46			
Non-management enthusiasm				
Constant		3.108		.000
CQI elements/activities		.158	.496	.025
% total FTEs trained in CQI		-.431	-.262	.306
% senior managers trained in CQI		-.412	-.218	.425
% physicians trained in CQI		.345	.174	.437
R ²	.381			
Number of cases	45			
Physician enthusiasm				
Constant		2.007		.000
CQI elements/activities		.154	.400	.067
% total FTEs trained in CQI		-.300	-.151	.558
% senior managers trained in CQI		1.079	.472	.099
% physicians trained in CQI		-.249	-.104	.647
R ²	.360			
Number of cases	46			

The four different models exhibit moderate explanatory power, ranging from 28% for upper management enthusiasm to 38% for enthusiasm among non-management employees. Only in the case of presence of CQI elements, for all four employee groups, plus percent senior managers trained in the case of physician enthusiasm, is any independent variable significant at the .10 level or better.

With regard to the determinants of commitment to CQI, the regression results are summarized in Table 12-4.

Table 12-4: Predictors of Commitment to CQI in Michigan Hospitals.

Variable		B	Beta	Sig.
Employee commitment				
Constant		-.474		.331
CQI elements/activities		.261	.542	.016
% total FTEs trained in CQI		8.909E-02	.036	.888
% senior managers trained in CQI		.657	.229	.407
% physicians trained in CQI		-.387	-.129	.569
R ²	.367			
Number of cases	45			
Management commitment				
Constant		6.357E-02		.869
CQI elements/activities		.196	.507	.022
% total FTEs trained in CQI		-.540	-.269	.294
% senior managers trained in CQI		.240	.104	.702
% physicians trained in CQI		.345	.143	.524
R ²	.375			
Number of cases	45			

Again, as for enthusiasm, while the overall equations had moderate explanatory power, only the presence of CQI elements mattered. Commitment was greater when aspects of CQI were in place.

What impact do commitment and enthusiasm have upon satisfaction with the CQI process?

Regressions were run for the two satisfaction areas related to process: satisfaction with the CQI program and satisfaction with management performance on CQI. The results are summarized in Table 12-5. With regard to satisfaction with the hospital's CQI program, the two commitment and four enthusiasm factors were used as independent variables. These six variables could account for 57% of the variance in satisfaction with a hospital's CQI program. Upper management, middle management and physician enthusiasm for CQI each had a significant impact on satisfaction with the CQI program.

Table 12-5: Predictors of Satisfaction with CQI in Michigan Hospitals.

		B	Beta	Sig.
Satisfaction with hospital's CQI Program				
Constant		-.758		.575
Management commitment		.214	.113	.431
Employee commitment		.106	.056	.661
Upper management enthusiasm		.457	.247	.064
Middle management enthusiasm		.811	.342	.020
Non-management enthusiasm		-.97E-02	-.037	.793
Physician enthusiasm		.625	.264	.034
R ²	.571			
Number of cases	47			
Satisfaction with management's performance related to CQI				
Constant		-.876		.613
Management commitment		.370	.155	.289
Employee commitment		5.365E-02	.022	.863
Upper management enthusiasm		1.401	.565	.000
Middle management enthusiasm		.402	.135	.356
Non-management enthusiasm		-.296	-.091	.532
Physician enthusiasm		.268	.090	.468
R ²	.556			
Number of cases	46			

Next, regression analysis was conducted for satisfaction with management's performance related to CQI. The six independent variables explain 56% of the variance. However, only upper management enthusiasm had a statistically significant positive effect. While this may appear to be self evident, perceptions of whether management displayed enthusiasm about CQI is different than whether CQI administrators were satisfied with management's implementation of and participation in the program. Therefore, while it is likely that if management displayed greater enthusiasm, CQI coordinators would be more satisfied with their performance related to CQI, these variables represent two different concepts.

With regard to satisfaction, the amount of enthusiasm seems to be a very important predictor. Here again, while it may seem that enthusiasm and satisfaction are not separate phenomena, the former variable, enthusiasm

measures whether CQI administrators felt that management displayed enthusiasm toward the program while the latter variable assesses whether CQI coordinators were satisfied with management's participation in CQI.

What impact does satisfaction with process have upon CQI outcomes?

How does satisfaction with the CQI process related to perceptions of CQI outcomes? To determine this, two measures of satisfaction were used. While nearly 40% of the variance could be accounted for and only satisfaction with the CQI program was a significant predictor of perceptions of CQI outcomes.

Table 12-6: Predicting impact of Satisfaction on CQI Outcomes in Michigan Hospitals.

Variable		B	Beta	Sig.
CQI Outcomes				
Constant		-1.025		.015
Satisfaction with CQI Program		.214	.406	.062
Satisfaction with management performance related to CQI		-1.3E-02	-.032	.881
R ²	.382			
Number of cases	47			

Summary

The multivariate analysis presented in this chapter suggests some interesting conclusions. The level of personnel/training was found to have the greatest impact on the presence program elements and activities. Program elements and activities impact employee enthusiasm toward CQI for various groups of hospital employees. While one could argue that the causal arrow could run the other way, my path analysis is unable to determine this. In addition it is recognized that perhaps these variables reinforce each other.

Extent of upper management enthusiasm was found to be positively and significantly related to satisfaction with CQI while physician enthusiasm was positively and significantly related to two of the satisfaction areas. When looking

at which satisfaction reasons impact outcomes related to CQI, satisfaction with outcomes as a result of CQI was found to be significant.

All of the regressions relating to enthusiasm and commitment variables showed that the presence of CQI program elements/activities were the most significant variable in accounting for how employees, management and physicians felt toward their CQI program.

Chapter 13 will look at the overall question, "What leads to a successful CQI program?" using findings of this and previous chapters. The chapter will also explore the policy implications of my findings for CQI programs in Michigan hospitals.

CHAPTER 13

CQI IN MICHIGAN HOSPITALS: DIAGNOSIS, PROGNOSIS AND PRESCRIPTIONS

The purpose of this study was to assess the status of continuous quality improvement (CQI) in Michigan Hospitals. The study was based on data collected from a sample of 152 Michigan Hospitals.

The specific research questions driving the analysis were:

- 1) What is the extent and nature of CQI/TQM program elements and activities present in Michigan hospitals?
- 2) What types of barriers to CQI/TQM are Michigan hospitals facing?
- 3) How does the nature of the CQI program, and participation in and attitudes about CQI relate to perceptions of CQI outcomes?

This concluding chapter will begin with a diagnosis of the health of CQI in Michigan hospitals by revisiting each of these questions via a brief summary of the major findings reported in the preceding chapters. The chapter will then discuss the implications of these findings for hospital policy (prognosis) and make recommendations for improving CQI in Michigan hospitals (prescriptions). I will conclude with some recommendations for further research related to CQI programs.

DIAGNOSIS

What is the extent and nature of CQI/TQM program elements present in Michigan hospitals?

The vast majority of Michigan hospitals (81%) have reported making a long-term commitment to CQI. Given the fact that JCAHO has required hospitals to have an active quality improvement program in place for the past

several years, this should come as no surprise. Although all responding hospitals reported the presence of a CQI/TQM program, enthusiasm toward and commitment to the program were generally mediocre at best. Furthermore, coordinators generally reported satisfaction with the improvements in quality that have resulted from CQI, although they are only somewhat satisfied with the program itself. One wonders whether higher levels of enthusiasm and commitment toward a hospital's CQI program might affect the reported outcomes related to CQI.

Program elements/activities

When examining CQI program elements, findings were consistent with previous studies. The vast majority of responding hospitals reported the presence of program elements found in model quality improvement programs.

When examining how Michigan hospitals compare with a "model" CQI program, findings show that Michigan Hospitals are doing a good job in most areas. As discussed in chapter 8, many program elements/activities are reported to be present in the majority of Michigan hospitals. Although it should be noted that the percentage of hospitals using these elements/activities to at least a "moderate" extent is lower. One could argue that these elements/activities would need to be used more than "a little" for them to make a difference in a CQI program and consequent outcomes.

The responding Michigan hospitals appear to be very comparable to other health care organizations with regard to other factors as well. Involvement and training of physicians and non-management employees lags behind what a model CQI program should be doing. While hospitals often report the presence

of various "model" concepts, the extent to which they are used is often very low. Alas, this is often the case for other health care institutions as well, as a variety of studies over the past two decades have shown (Allen and Brady, 1997; Berwick, 1990; Boerstler, et al., 1997; Huq and Martin, 2001; McLaughlin and Kaluzny, 1990; Sheridan, 1994; Shortell, et al., 1995; and Westphal, et al., 1997).

Training

One of the essential cornerstones of CQI is that a hospital's quality improvement program must involve all employees at all levels of the organization. Given this fact, it is shocking that one hospital studied, with an established CQI program, reported that none of its employees, managers or physicians, had been trained in CQI! Overall, the percentage of employees trained in CQI was quite low. The literature suggests that this reduces the positive effects of the program. It would be useful to know why this training does not appear to be mandatory for employees.

The fact that approximately only one in three hospital employees is exposed to CQI training suggests that most hospitals are not yet serious about CQI. While this lack of commitment to CQI may be attributed to various causes, it suggests that hospitals are giving CQI only lip service and do not really see CQI, and the creation of value for a hospital's customers, as its ultimate goal. Given the low proportion of employees trained in CQI, it comes as no surprise that the number of employees participating in quality improvement teams was also small.

What types of barriers to CQI/TQM are Michigan hospitals facing?

Beyond the absence of sufficient training, other important barriers to CQI reported in the literature (NHQIS, 1993 and 1998) and found to exist in Michigan

hospitals include: the level of employee empowerment, physician indifference to CQI, the low numbers of medical staff actively involved in CQI and inadequate information systems. The most common barrier to full implementation of CQI appears to be insufficient personnel and training. This perceived lack of personnel/training, even more than other concrete resources devoted to the CQI effort, may get in the way of realizing the full potential of CQI programs.

How does the nature of the CQI program, and participation in and attitudes about CQI relate to perceptions of CQI outcomes?

It is clear that the elements of a CQI program and the activities necessary to implement the CQI program in a hospital setting are positively associated with a number of desirable conditions within hospital organizations, most importantly positive feelings about CQI itself.

Multivariate analysis reported in chapter 12 found that CQI program elements were a significant factor in predicting levels of enthusiasm and commitment to CQI, making it clear that these elements/activities are at the heart of CQI programs in Michigan Hospitals. The presence of CQI program elements/activities was also most significant in predicting the degree of enthusiasm or commitment of employees, managers and physicians regarding CQI.

PROGNOSIS

While the findings indicate that Michigan hospitals have made a respectable start with regard to their quality improvement programs, levels of

enthusiasm and commitment and perceived outcomes are nowhere near what are required for CQI to achieve its full potential for improving hospital performance. The literature suggests various reasons that such a situation is typical in Michigan hospitals. These include problems associated with the organizational culture (Messner, 1998); problems with management (Baird et al., 1993, p. 95); employee resistance (Lumsdon, 1993) and unrealistic short-term expectations (Berwick, 1990). Hospitals have devoted significant resources to implementing these quality improvement programs only to see modest results. Because Michigan hospitals have made long-term commitments to such quality improvement programs it is imperative that CQI coordinators look for ways to improve programs with respect to attitudes, commitments and outcomes while maintaining efficiency and effectiveness.

Based on the diagnosis of the state of CQI in Michigan hospitals one can pose three possible scenarios:

Scenario 1: Hospitals are "talking the talk, but not walking the walk." I do not believe findings in this study point to quite such a negative picture of CQI. While it may be true that hospitals' CQI programs are functioning at a level below what the literature suggests would be evident in a model program, hospitals on the whole have given more than lip service to CQI and its implementation. Even though the intensity of CQI efforts were found to be lukewarm, at best, the study showed that there is almost complete commitment to the use of some type of quality improvement program, that most model activities and program elements are present to at least some extent, and that management training in CQI is relatively widespread.

Scenario 2: Commitment to CQI will continue to deteriorate until CQI eventually disappears. Once again, I do not believe this is a scenario that will emerge as long as active quality improvement programs continue to be a requirement for accreditation by the Joint Commission. One could certainly make the argument that although hospitals might recognize the need for quality improvement, current quality improvement efforts represent ritual compliance in order to meet accreditation standards. In time we might find that CQI evolves to a quality improvement program that is called by a different name, but I believe the basic principles will remain the same. The fact that there is a relatively high level of variation in the use of individual program activities and elements suggests that some aspects of CQI are becoming more common or institutionalized than others. While the process of institutionalization might not be wholesale it is reasonable to expect that the most widely used elements will remain an integral part of hospital administration.

Scenario 3: Hospitals continue to make a sincere effort to “walk the walk” of CQI. While resources continue to be strained in hospitals across the nation, greater awareness of the cost saving potential of CQI may lead management to increase their commitment to and resources for quality improvement up front in the form of personnel and training, in order to reap greater savings in the future resulting from a strong CQI effort. Perhaps greater effort needs to be made to publicize the potential benefits of CQI. This might encourage more hospitals to strengthen CQI efforts, if only out of self interest in reducing costs.

There is little argument that there is a great deal of room for improvement when it comes to hospitals' implementation of CQI. That said, assuming that one

wishes the third scenario to happen, the following "prescription" section will discuss what must occur.

PRESCRIPTIONS

Recommendations for Michigan Hospitals

The results of this study make clear that CQI program elements/activities are extremely important to a hospital's CQI program. Because CQI program elements/activities are so crucial to a successful CQI program, a hospital that truly wants to do CQI must increase the amount of training it provides for all types of staff. Increased training of physicians, along with their greater engagement with quality improvement teams, is imperative. Physician participation in CQI remains a challenge for hospitals for several reasons. These include the issue of physician autonomy, heavy time commitments taking physicians away from patient care and a perceived threat to one's professional identity (Kaluzny, et al., 1994, p. 209; Argyris, 1991). When looking at the number of individuals who have participated in quality improvement teams, I found that both the number of physicians and total FTEs (employees as a whole) were low. Training additional numbers of employees along with increasing participation should lead not only to greater awareness of CQI, but also increase understanding of CQI program elements/activities.

A greater focus on CQI program elements/activities might also increase enthusiasm toward CQI especially on the part of non-management employees and physicians. This could be done if hospitals put more of a focus on training non-management employees and physicians. These groups need initial

training—training that is more than just a session on CQI awareness. Hospitals also should require periodic “refresher” courses on the subject.

The issue of doctor participation in CQI appears to warrant special consideration. Physician participation in CQI is lower than that for other groups yet they are instrumental in the delivery of patient care. Increased participation might be accomplished by identifying those physicians who are committed to CQI and recruiting them to oversee/support physician peer training. Physician training should not be an edict from “non-physician” administration. Physicians will be much more willing to buy into CQI if they can understand the benefits to them and not look at such a program as a threat (Strasen,1994).

In addition to the actions just noted, the success of CQI in hospitals would be enhanced if: 1) separate departments to implement and administer CQI efforts are established, 2) CQI participation is incorporated in employee (and especially doctor's) appraisal systems, and 3) the use of disease state management systems is increased. None of these three practices were common in the Michigan hospitals I studied. There would be no more effective way for management to show the importance of CQI than through expenditure of organizational resources to create a department dedicated to the effort. Similarly, organizations cannot show that they are fully serious about CQI until they change their reward systems appropriately. This means a well-publicized effort to indicate to employees that CQI is important and that their performance will be evaluated in par by their engagement in efforts to make it work. By the same token, it should be clear that an absence of individual CQI participation may lead to sanctions. Visible management activity in these two areas will

clearly signal the organizational commitment so necessary to participation and positive outcomes further down the line. While there is no literature that talks about sanctions resulting from not participating in CQI, programs that link rewards to CQI participation are few in number. Although time consuming to develop such a program, both Parkview Medical Center in Pueblo, CO and the University of Michigan Hospitals have reported that they have a reward system in place that avoids the traps identified by Deming (Gaucher and Coffey, 1993). Their system uses the strong incentive of financial awards while at the same time increases organization-wide teamwork and commitment to mission and goals.

Recommendations for Future Research

While this study yielded valuable findings and insights, there are many questions that remain to be investigated. All of the information from the current study was reported from the hospital's CQI coordinator's perspective. A future study could incorporate this information along with information, as reported directly by employees of all types (including physicians) throughout the organization, on their perceptions of enthusiasm, satisfaction and commitment toward the CQI program. Such perspectives might well prove to be less positive than those displayed by CQI coordinators.

The current study is limited in its focus on Michigan hospitals. While there is no particular reason to expect that hospitals in Michigan are systematically different from their counterparts in other states, similar studies of hospitals elsewhere need to be done.

Another potential area for future study would be to replicate this study in a sample of Veteran's Administration Hospitals across the country. This would

allow the comparison of Veteran's Administration hospitals' CQI programs with their non-government counterparts to determine if there is much of a difference in CQI programs across the two venues as the literature suggests there might be (Al-Assaf, et al., 1993).

Although the multivariate analysis used in this study was informative, the models used were clearly underspecified. Limited explanatory power of the equations begs for the inclusion of additional predictors. Among the additional factors that might impact on the implementation or impact of CQI are budgetary investment in CQI, the types of training modalities employed, and attributes of hospitals such as Medicare patient load, the types of patients treated, specialty areas, and mortality rates. It is also possible that environmental factors such as the regional economy, state health care legislation, or even the density of competition in the area might be worth exploring. Investigating the impact some of these factors would require a multi state study.

While the evaluation of CQI programs is not easy, there are several areas where more research is needed. These include:

- more cost-effectiveness and cost-benefit studies to examine the benefits of CQI relative to the cost of implementation.
- studies that examine whether health care organizations that have implemented CQI enjoy better relationships with physicians, are more innovative in developing new programs, or are better able to care for defined populations under today's capitation-based risk contracts.

- studies that link processes and outcomes. For example, do health care organizations that implement CQI experience better clinical outcomes of care and lower costs than those that do not? Can one achieve better outcomes and lower costs through CQI training in a specific department or clinical area within organizations that have made no overall commitment to CQI?
- studies of the learning behaviors and practice of health care organizations as they implement CQI. Do some hospitals appear to learn more quickly than others?

It appears that CQI in health care is here to stay. Hospitals should accept this fact and focus their attention on truly "doing CQI". It is unlikely that hospitals will be able to meet increased demands for accountability placed upon them or be able to manage risk, without greatly accelerating their efforts in CQI and value creation.

APPENDIX A

2001 MICHIGAN HOSPITAL CQI/TQM STUDY**GENERAL INFORMATION SHEET**

My name is Colleen Croxall and I am a Ph.D. candidate at Wayne State University. You are being asked to participate in my dissertation research project focusing on the use of CQI/TQM in Michigan Hospitals. The purpose of this survey is to better understand what hospitals in Michigan are doing with respect to quality improvement efforts. Your hospital is part of a scientifically selected sample, and the survey can be successful only with your cooperation and that of other quality improvement coordinators in hospitals throughout Michigan.

Although I hope that you will take the time to complete this survey, your participation in this study is completely voluntary. There are no foreseeable risks associated with your participation, nor are there any tangible or direct benefits associated with your completion of the survey. Your completion and return of the survey will be interpreted as signifying your voluntary willingness to participate in the study. Should you decide to complete the survey, please be assured that all of the information that you provide will be treated as confidential. None of your responses will be reported in any way that would make it possible to identify either you or your facility. The findings of this study will only be reported in summary form in research reports and publications. Do not write your name anywhere on the survey. The identification number included on the survey exists only so that we can determine which surveys have been returned and can send reminders to those who have not yet responded. If you have any questions about the purposes of this study, or your participation in it, please feel free to contact Colleen L. Croxall, the Project Director, at 734.439.7069. I can also be reached via e-mail at colleen.croxall@emich.edu. If you have other questions about your rights as a participant in this study you may contact the Wayne State University Behavioral Investigation Committee at 313.577.1628.

Your cooperation is critical to the success of this research effort and it is important that as many surveys as possible be completed and returned. Most of the questions below simply require you to select one among several possible responses. A few questions ask you to provide information in the form of several words or sentences. Hence, completing this questionnaire should not take too much of your valuable time. Although it may take some respondents more time than others to complete the survey, my pre-test suggests that the survey can be completed in approximately 20 minutes. Other than completing the survey, you will not be asked to do anything else to participate in the study. At the every end of the survey you will have an opportunity to expand upon your earlier answers if you wish to do so.

When you have completed the survey, please return it in the enclosed envelope to which I have affixed first-class postage. If this envelope has been misplaced, please mail the completed survey to:

**2001 Michigan Hospital CQI/TQM study
c/o Colleen L. Croxall
9845 Torrey Rd.
Willis, MI 48191**

THE SURVEY BEGINS ON THE NEXT PAGE. OVER, PLEASE.

A. GENERAL INFORMATION ABOUT THE CQI/TQM PROGRAM

1. Please indicate the extent to which each of the following characteristics apply to your hospital's quality improvement efforts (circle your response).

	Don't Know	Not At All	A Little	A Moderate Extent	A Large Extent	An Enormous Extent
a) Review of delinquent medical records	0	1	2	3	4	5
b) Use of structured problem-solving processes incorporating statistical methods and measurement to diagnose problems and monitor progress	0	1	2	3	4	5
c) Reliance on physician peer review of selected cases	0	1	2	3	4	5
d) A philosophy of continuous improvement of quality through improvement of organizational processes	0	1	2	3	4	5
e) Disciplinary action taken against physicians failing to comply with recommended standards of practice	0	1	2	3	4	5
f) Empowering employees to identify quality problems and improvement opportunities and to take action on these problems and opportunities	0	1	2	3	4	5
g) Morbidity and mortality conferences	0	1	2	3	4	5
h) An explicit focus on "customers" – both external and internal	0	1	2	3	4	5
i) Use of medical staff quality review committees	0	1	2	3	4	5
j) Use of quality improvement teams including employees from multiple departments and from different organizational levels as the major mechanism for introducing improvements in organizational processes	0	1	2	3	4	5

2. To what extent do your hospital's quality improvement efforts include the following units? (circle your response)

	Don't Know	Not At All	A Little	A Moderate Extent	A Large Extent	An enormous Extent	Don't have this unit
a) Acute inpatient care	0	1	2	3	4	5	N/A
b) Outpatient clinics	0	1	2	3	4	5	N/A
c) Major physician offices or group practices owned or affiliated	0	1	2	3	4	5	N/A
d) Home health agencies	0	1	2	3	4	5	N/A
e) Owned or affiliated nursing homes	0	1	2	3	4	5	N/A
f) Owned or affiliated ambulatory surgery centers	0	1	2	3	4	5	N/A
g) Owned or affiliated hospices	0	1	2	3	4	5	N/A

3A. Do you consider your hospital to be formally involved in CQI/TQM efforts? (circle your response)

Yes No

3B. IF YES, when did your hospital first become involved in CQI/TQM? By involved, we mean the first training of members and/or employees in CQI/TQM principles and methods and/or substantive investment of top management's time in organizing CQI/TQM implementation.

Month: _____ / Year: _____

10. Please indicate below the extent your hospital has been involved in the listed activities. (circle your response)

	Don't Know	Not At All	A Little	A Moderate Extent	A Large Extent	An enormous Extent
a) Integrated quality assurance, utilization review and risk management activities reporting to a single designated person	0	1	2	3	4	5
b) Development and/or use of clinical algorithms, practice-protocols/guidelines or critical pathways	0	1	2	3	4	5
c) Organized case management	0	1	2	3	4	5
d) Disease state management (i.e., organized programs to coordinate care for specific diseases/conditions)	0	1	2	3	4	5
e) Benchmarking (i.e., comparing) quality improvement results against those of other health care organizations	0	1	2	3	4	5
f) Have incorporated CQI/TQM criteria into the reward and performance appraisal systems for employees	0	1	2	3	4	5

11. On the scale from 1 to 7 below, please indicate the extent to which the following items have been barriers to your hospital's efforts to change or improve your quality assurance/improvement activities: (circle your response)

	No Barrier			Moderate Barrier			Great Barrier
a) Lack of board commitment/support	1	2	3	4	5	6	7
b) Lack of top management commitment and leadership	1	2	3	4	5	6	7
c) Lack of time	1	2	3	4	5	6	7
d) Too few resources committed	1	2	3	4	5	6	7
e) Lack of physician support	1	2	3	4	5	6	7
f) Inadequate employee training in relevant principles and methods	1	2	3	4	5	6	7
g) Perception that it costs too much	1	2	3	4	5	6	7
h) Insufficient knowledge/understanding of QA/QI approaches	1	2	3	4	5	6	7
i) Too many other changes going on in the organization	1	2	3	4	5	6	7
j) Inability to prioritize projects	1	2	3	4	5	6	7
k) Legal barriers to use personnel in new ways	1	2	3	4	5	6	7
l) Inadequate information systems	1	2	3	4	5	6	7
m) Current organizational structure not conducive to QA/QI	1	2	3	4	5	6	7
n) Lack of realistic goals	1	2	3	4	5	6	7

B. PERCEPTIONS OF CQI/TQM PROGRAM

The following questions ask for your judgments on the effects or consequences of your hospital's efforts in the area of Continuous Quality Improvement/Total Quality Management (CQI/TQM). Please read each item below and indicate if you **strongly agree**, **agree**, **neither agree nor disagree**, **disagree**, or **strongly disagree** with the following statements (Circle your response):

	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
1. The incorporation of CQI/TQM in my facility has increased the quality of care provided.	1	2	3	4	5
2. CQI/TQM process teams have been more successful in non-clinical areas of the hospital.	1	2	3	4	5
3. CQI/TQM is included in the daily activities of management.	1	2	3	4	5
4. Our hospital has made a long-term commitment to CQI/TQM.	1	2	3	4	5
5. CQI/TQM has decreased total healthcare costs in my facility.	1	2	3	4	5
6. CQI/TQM has resulted in a reduction of FTEs in my facility.	1	2	3	4	5
7. Physicians and Management at my facility work well together as a team.	1	2	3	4	5
8. Employees at all levels of the organization participate in CQI/TQM activities.	1	2	3	4	5
9. CQI/TQM has resulted in an increased emphasis on teamwork.	1	2	3	4	5
10. Employees in this institution understand the concepts of CQI/TQM implementation.	1	2	3	4	5
11. CQI/TQM has led to a breakdown of barriers between departments.	1	2	3	4	5
12. Use of CQI/TQM has improved treatment outcomes for patients in my hospital.	1	2	3	4	5
13. Use of CQI/TQM has increased patient satisfaction rates in my hospital.	1	2	3	4	5
14. Use of CQI/TQM has improved the health of patients in my hospital.	1	2	3	4	5
15. Use of CQI/TQM has reduced patient complaints in my hospital.	1	2	3	4	5

8. EDUCATION: High School
 Bachelor's Degree
 Master's Degree
 M.D.
 Ph.D.

Field of Study: _____

9. How many years experience do you have in working with CQI/TQM?

- Less than 1 year 5-6 years
 1-2 years 7-8 years
 3-4 years 9 or more years

10. How much continuing education training have you had during the past two years that relates to CQI/TQM issues?

- No training received 1-2 weeks
 1 day or less 3-4 weeks
 2-5 days Greater than 4 weeks

11. Current Position Title: _____

12. Previous Position Title: _____

13. Job Type: _____ A senior level manager (i.e., associate administrator or higher level)
 _____ A middle level manager
 _____ A nurse
 _____ A Physician

14. Please indicate the number of years you have been working in the institution: _____

15. Please indicate the number of years you have been working in your present position: _____

16. I am interested in receiving a copy of the results of this study. Yes No

PLEASE USE AREA BELOW FOR ANY ADDITIONAL COMMENTS
 THANK YOU VERY MUCH FOR YOUR TIME

PLEASE USE THE ENCLOSED POSTAGE-PAID ENVELOPE TO RETURN COMPLETED SURVEY

WAYNE STATE UNIVERSITY

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NOTICE OF EXPEDITED APPROVAL

TO: Colleen L. Crossell
(Liberal Arts)
8845 Torrey Road
Wills, MI 48191

FROM: Peter A. Lichtenberg, Ph.D. *Peter A. Lichtenberg*
Chairman, Behavioral Institutional Review Board (BIB)

DATE: June 4, 2001

RE: Protocol # 08-22-01(BIB)-EF: "What Factors Affect the Degree of Success of Implementation of CQ/TCM in a Hospital Setting?"

The above-referenced Protocol and Information Sheet were APPROVED following Expedited Review (Category 1) by the Chairman for the Wayne State University Institutional Review Board (BIB) for the period of June 4, 2001 through June 3, 2002.

EXPIRATION DATE: June 3, 2002

This approval does not replace any departmental or other approvals that may be required.

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date. You may not continue any research activity beyond the expiration date without HIC approval.

- If you wish to have your protocol approved for continuation after the above approval period, please submit a completed Continuation Form at least six weeks before the expiration date. It may take up to six weeks from the time of submission to the time of approval to process your continuation request.
- Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol on the expiration date. Information collected following suspension is unapproved research and can never be reported or published as research data.
- If you do not wish continued approval, please submit a completed Closure Form when the study is terminated.

All changes or amendments to your protocol or consent form require review and approval by the Human Investigation Committee (HIC) BEFORE implementation.

You are also required to submit a written description of any adverse reactions or unexpected events on the appropriate form (Adverse Reaction and Unexpected Event Form) within the specified time frame (see HIC policy):

- Based on the Expedited Review List, revised November, 1999.
- C: Richard C. Eling, Ph.D., 243 FAB

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ABSTRACT

2001 MICHIGAN HOSPITAL CQI/TQM STUDY

by

COLLEEN L. CROXALL

November 2003

Advisor: Dr. Richard C. Elling

Major: Political Science

Degree: Doctor of Philosophy

In recent years, there has been significant interest in the application of total quality management/continuous quality improvement (TQM/CQI) within health care organizations. The healthcare industry, in its quest to improve outcomes with fewer resources, began to look at CQI/TQM as a possible solution. To date, the most comprehensive and enthusiastic response to efforts to improve quality while containing or lowering costs is reflected in hospitals' commitment to continuous quality improvement/total quality management (CQI/TQM). The health care industry, particularly hospitals, has embraced the concepts of CQI/TQM with the belief that adoption will lead to an improvement in both the quality and efficiency of health service delivery (Shortell, 1995). The purpose of this study is to assess CQI/TQM program elements, activities and barriers and to evaluate perceptions of CQI/TQM program success in Michigan hospitals. The study focuses on answering the following central questions: What

do Michigan CQI programs look like?; To what extent do Michigan programs match model programs?; What are the perceived outcomes of CQI?; and, What leads to a successful CQI program? The hospitals included in this study were selected from a list of Michigan hospitals accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). As of June 2001 there were 152 JCAHO accredited hospitals in Michigan. A 50% random sample of these hospitals was taken. The first wave of surveys were sent in June and August 2001. Surveys were sent directly to the individual who was in charge of the hospital's CQI program. The results of this study make it clear that CQI program elements/activities are extremely important to a hospital's CQI program. In addition, the results of the study suggest that greater focus of CQI program elements/activities might increase enthusiasm toward CQI. Finally, Michigan hospitals need to commit to breaking down barriers to CQI—most importantly lack of management support. While Michigan hospitals appear to have made a good start with their programs, perceived outcomes, levels of enthusiasm or commitment toward are nowhere near what they could be. What remains to be seen is how Michigan hospitals will meet this challenge.

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