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**Encouraging Physician Involvement in Hospital Based  
Continuous Quality Improvement Programs**

**Geraldine Wilson Williams Yoest**

**A thesis presented to the  
Graduate Faculty of Middle Tennessee State University  
in partial fulfillment of the requirements  
for the degree of Master of Science**

**August 4, 1997**

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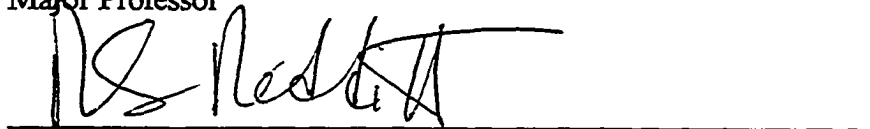
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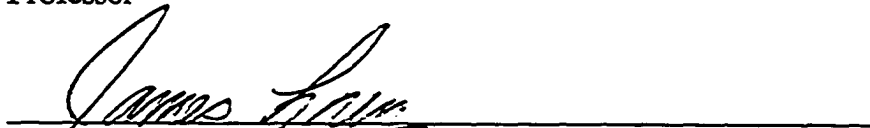
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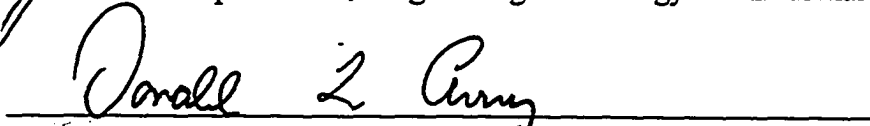
Major Professor



Professor



Head of the Department of Engineering Technology and Industrial Studies



Dean of the Graduate College

Abstract

Encouraging Physician Involvement in Hospital Based  
Continuous Quality Improvement Programs

Geraldine Wilson Williams Yoest

Results of continuous quality improvement (CQI) programs of 22 middle Tennessee hospitals were investigated. Barriers to physician involvement in CQI programs and incentives that hospitals could offer physicians to participate were also investigated. Questions were modified from the National Survey of Hospitals' Efforts to Improve Quality - 1993 (Shortell, S.M.). Two hundred physicians in the same area were surveyed. Results of the first survey indicate that hospitals in middle Tennessee are obtaining limited results from their CQI programs. Results of the second survey identified physician barriers to CQI that hospital managers can address. The majority of physicians reported that many incentives hospital quality managers say are in place to encourage physician involvement at their hospitals are not offered at the hospitals where they practice.

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## Dedication

This book is dedicated to Our Lord, Jesus Christ, and to the men and women in all areas of the health care, quality and industrial engineering professions.

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## Chapter 1

### Introduction

#### Cost versus Quality

A combination of factors, including what many have called the “health care crisis,” has forced health care executives to look for ways to adapt to the rapidly changing health care industry. Health care reform, with its regulatory threat, was pushed aside and replaced by marketplace demands for cost containment and more consistent treatment. As leaders in the health care field search for answers, many of them are incorporating the principles of Total Quality Management (TQM) into the health care industry. A major obstacle for health care executives, however, has been their experience that physicians will not participate in the Continuous Quality Improvement (CQI) activities of TQM. In this era of mergers and buyouts, physicians and health care professionals see their futures being turned over to cost cutting managers with little or no health care background. Physicians will participate in TQM activities if they can be shown that it is in the best interest of their patients, if their concerns are addressed and they are recognized for their contributions. The challenge for health care executives is to identify those concerns, or barriers, address the concerns and help the physicians cope in the midst of chaos.

Applying TQM principles to health care has resulted in a focus on the patient as the ultimate customer. This approach has become known as patient-centered care. Patient centered care includes management based on fact and the analysis of the processes of care. It includes the treatment of patients by a team of health professionals, utilizing the

most effective and efficient clinical care methods. These guidelines are established through consensus by clinicians in different disciplines, experienced in particular patient populations, disease processes and symptoms. The patient-centered care concept incorporates the monitoring of patient and family satisfaction and patient education in order to provide the highest quality care at the lowest cost. Several attempts have been made to control medical costs by both the government and the private sector. This study describes those attempts and the development of TQM in industry and health care in this country. The results of a particularly important study, the National Demonstration Project, are discussed.

One lesson learned by the National Demonstration Project participants is that for any type of continuous quality improvement program to be successful, the participation of physicians is imperative. They cannot be excluded or ignored when any health-related decision is made (Fried, 1992). Patients can only be admitted by physicians, so hospital revenues are directly tied to physician admission decisions. Research suggests that while physician fees only represent 20 percent of health care costs, their decisions cause 80 percent of health care expenditures (Eisenberg, 1986; Gibson, Waldo and Levitt, 1983; Wilensky & Rossiter, 1983).

As cost reduction become the dominant focus of health insurers, health benefit providers and local hospitals, physicians are finding themselves being examined for the cost versus quality of the care that they provide. The decision to renew a physician's credentials to practice at a particular health care institution in this new health care arena is

based on economic credentialing. The recredentialing decision reflects the impact of a physician's practice habits on the medical center's financial status (Thompson, 1991). Medical decisions are no longer left up to the medical practitioners alone. Physicians are experiencing a gradual erosion of their traditional professional dominance in the patient care process (Gaucher and Coffey, 1993). As more physicians become salaried employees of various health care systems, in a managed care environment, eradication of the private practitioner, along with his or her sole decision-making, is taking place.

Several factors contribute to physician reluctance to commit to the principles of TQM. Physicians are reluctant to become involved in anything new having to do with the quality assurance department. Historically, hospital quality assurance departments have used the "bad apple" theory to blame the "bad doctor" for adverse patient outcomes (Berwick, 1989). Quality assurance departments have historically held physicians responsible for all aspects of patient care, even though the actual treatment is carried out by many other health care professionals over whom the physicians have no direct control. There is a reluctance on the part of physicians to think of patients as customers. Many reject team-based decision making, claiming that it infringes on physician authority (Morrison and Heineke, 1992).

To be successful in implementing change, health care executives need ways to integrate continuous quality improvement into the culture of their health care facilities. They must facilitate the buy-in of physicians from strict authoritarian decision making to one of team-based decision making, and assist physicians in incorporating the industrial-



based concepts of CQI into their practices of patient-centered care.

#### Purposes of the Study

One purpose of this study is to report on what results have been experienced as continuous quality improvement principles, tools and methods have been deployed in middle Tennessee hospitals up to September 30, 1995, including:

1. the degree of personal involvement of the company executive officers in and satisfaction levels with their hospitals' quality improvement programs,
2. the number of employees, senior managers, affiliated physicians, and residents that have received training in quality improvement tools and methods,
3. the results of the hospital continuous improvement programs, including any measurable cost savings realized and where they occurred, along with those procedures or conditions with which improvement teams have been working to improve the processes of care,
4. the degree of involvement of middle Tennessee area physicians in CQI activities in area hospitals, as of January 31, 1996.

The second purpose of this study is to identify barriers that physicians have encountered to becoming involved in CQI at the hospitals where they practice. The third purpose of the study is to identify and determine if certain incentives to participate in CQI activities, as cited in the literature, are offered to physicians in the middle Tennessee area by the Chief Executive Officers (CEOs) of local hospitals.

### Justification of the Study

The results of this study are intended to provide information to hospital senior executives, senior medical staff members and quality improvement coordinators who are seeking ways to successfully encourage physician involvement in continuous improvement.

### Hypotheses

1. Hospitals in Middle Tennessee are beginning to document results from the deployment of their continuous quality improvement programs, based upon reported data from selected results-oriented answers from respondent hospitals.
2. Barriers that hinder physician involvement in hospital-based CQI activities can be identified for hospital managers to address, based upon the answers of at least 50% of the respondent physicians asked to directly identify barriers to their involvement in CQI-related activities.
3. Incentives are provided by hospital managers to offer support to physicians and to encourage their involvement in hospital-based CQI activities, based upon reported data from at least 50% of the respondent hospitals that were asked if they provided certain incentives that, as cited in the literature, would offer support to their affiliated physicians.

### Limitations

This study was limited to the hospitals within the seven counties of Davidson

(Metro Nashville), Robertson, Wilson, Williamson, Rutherford, Cheatham and Sumner. Hospital mailing addresses were provided by the Tennessee Hospital Association. Since the names of the participating hospitals and physicians have been kept anonymous, it is possible that the physicians who participated in their surveys do not practice at some or any of the hospitals that answered their surveys.

## Chapter 2

### Related Literature

To improve the current state of the American health care system, hospital executives are adopting re-organizational strategies based upon the industrial-based principles of continuous improvement. The aging of our population and the accompanying rise in the number of patients with chronic and degenerative diseases are straining the capacities of both long term and acute care facilities (Laffel, 1990). The United States infant mortality rate is well above that of other developed countries. Some 37 million Americans have no health insurance and have limited access to even basic care (Fried, 1992). AIDS continues to be a threat, with its consequential demand for intensive health care (Laffel, 1990).

Particularly disturbing is the striking variability seen in physician clinical practice patterns. According to an extensive study of physician clinical practice patterns, variations have been found to exist in comparisons between states, between counties, between doctors within the same group practice, and even in the practice of one doctor from one patient to another (Wennberg, 1986). The chances of a woman undergoing a hysterectomy in one community in Maine by age 75 was found to be 75%, but in another, only 30%. The probability of a patient in Boston receiving bypass surgery was found to be twice as high than if that patient was in Hartford (Showstack, Rosenfeld, Garnich, et al, 1987). General Motors and Chrysler are investigating regional and local variations in the practice of medicine. Doctors in Kokomo, Indiana treated auto workers and their families

for back sprains or back strains 61.1 times for each 1,000 workers compared with less than one time in Syracuse, New York and 39 times in Michigan (Blumenstein, 1996).

Added to the amount of variability in physician practice patterns is the enormous variability of hospital pricing patterns. The amount that Chrysler annually spends per employee for health care at its engine and transmission plant in Kokomo, Indiana, \$1,611, is 79% higher than the \$901 it pays annually per worker at its transmission and transfer-case unit in Syracuse, New York. Also in Kokomo, using the same doctors and hospitals as the Chrysler workers, GM spends \$2,445 per worker - 52% higher than the Chrysler workers. In Houston, a patient admissions and cost data survey of thirty-three local hospitals conducted for an employer coalition revealed that there was no cost correlation between the product they offered and the pricing they charged. The cost of an appendectomy in Houston varied as much as 800% between hospitals that were across the street from each other, and the procedures were performed by the same doctor (Appleby, 1995).

The number of lawsuits filed every year against medical practitioners continues to rise. "Malpractice litigation consumes enormous amounts of time and money and fosters the perception that incompetence might be widespread in medicine" (Laffel, 1992, p. 29). In 1980, three out of every 100 American physicians were sued by patients. In 1985, eleven out of every 100 were sued. In 1989, the annual malpractice premium of a Long Island obstetrician, neurosurgeon or orthopedist commonly exceeded \$50,000 (Berwick, Godfrey and Roessner, 1990). In health care, the trend towards liability litigation marks a

new level of suspicion between doctors and patients.

#### Attempts to Control Costs

The overriding consideration driving the health care crisis is cost. The 1989 health care bill for the United States was 661 billion dollars, representing over 11% of the Gross National Product for that year. "This was so large a sum that, if the American health care industry was declared a nation, it would have the sixth largest GNP of all nations on earth" (Berwick, Godfrey and Roessner, 1990, p. 5). Experts in the health care field correctly estimated that the GNP percentage would accelerate at the rate of 10 - 14% per year (American College of Health Care Executives, 1990). National health expenditures in 1995 were \$988.5 billion, up from \$937 billion in 1994. Nineteen ninety six health expenditures totaled almost \$1 trillion (Legislative Network for Nurses, 1997). These astounding figures have led the primary consumers of health care, insurance companies, employers and the U.S. government, to demand better care at a lower cost.

The United States Government is the largest single purchaser of health care services, paying 40% of the annual health care bill. In attempts to hold down costs over the years, the government has instituted various experiments based on differing theories of why costs grew so fast and how they could best be contained. Among these attempts have been the establishment of the payment system for Medicare, which represents two-thirds of all hospital revenues. Medicare reimburses hospitals and other providers according to a fixed schedule of fees based upon 470 categories of illnesses, referred to as Diagnostic Related Groups (DRG). Clusters of diseases and episodes of care were

defined and providers notified in advance that they would be paid only a fixed amount for the care of a patient in that condition (Berwick, Godfrey and Roessner, 1990).

In the 1990's, hospital reimbursement underwent another dramatic change. Medicare's physician payment reform plan, known as the Resource-Based Relative Value System (RBRVS), significantly redistributed income among physician specialties and across geographic locations (Rhodes, 1991). The Prospective Payment System (PPS) increased the income of primary providers and decreased the amount paid to specialists (Gaucher and Coffey, 1993).

Another attempt by the government to control costs was the establishment of the Certificate of Need program. This program was established by congress in an attempt to limit the redundant acquisition of expensive technology by hospitals. Limitations were set on the number of CT scanners, heart programs, etc., and hospitals were required to prove that they should be able to offer these most expensive services (Caldwell, 1990 ). Under this system, politically powerful hospitals, often the most expensive ones, became the "haves" and inhibited competition from the smaller "have not" hospitals. By convincing employers and public officials that if other hospitals were permitted to acquire CT scanners and open heart surgery programs, the overhead costs of health care would become overly burdensome, the "haves" created a protected market for providers holding Certificates of Need. There was no pressure on those hospitals holding the certificates of need to reduce costs and those without them could not compete on efficiency (Caldwell, McEachern, 1990).

The second largest purchaser of health care services are American corporations. Today, the largest supplier to U.S. automobile manufacturers is not a steel, plastic or tire manufacturer, it is Blue Cross Blue Shield (Gaucher and Coffey, 1993). As of December, 1996, the price of an average General Motors American-made car included \$1200 in employee and retiree health benefits that was passed on to consumers, \$700 more than it spends on a car's steel (Blumenstein, 1996). As the largest U.S. private employer, GM also is the largest private purchaser of health care. General Motors health benefits cover so many Americans that there are only three major zip codes in the U.S. where GM doesn't have a person covered (Blumenstein, 1996). General Motors and the other two members of the big three auto makers are beginning to treat their health care providers as they do their other suppliers.

Health care expenditures of \$1200 per auto for American auto manufacturers compare with as little as \$100 per car of automobile workers in U.S. factories of foreign auto makers (Blumenstein, 1996). Auto makers and other large American corporations are now demanding that health care providers find ways to increase productivity, reduce costs and show that they are serious about enforcing quality standards, just as they do with their suppliers of batteries, windshield wipers, and brakes. "This is the area for the rest of this century that will have the most impact on how health care is delivered to Americans and their families," says Woodrow A. Myers, a former New York City health commissioner and now Ford's director of health care management. As with their other suppliers, General Motors and other large corporations are willing to share their expertise



on improving productivity with their health care providers (Blumenstein, 1996).

In an attempt to hold down the cost of medical expense for their employees, their families and retirees, more and more corporations are negotiating contracts with managed care organizations and/or physician-hospital organizations, health care alliances made up of a mix of urban and rural hospitals. The rural hospitals, mainly concentrate on primary care, same-day surgery and preventive care, while the often larger, urban hospitals handle the more specialized types of care: cardiac, orthopedic, and pediatric specialties, to name a few.

Managed care organizations offer quality physician and hospital services to wide enrollment populations at lower costs than conventional fee-for-service health plans. Many employers are contracting with health maintenance organizations (HMOs). Both individual practice associations and group plans contract with independent physicians who provide services to HMO enrollees. In return, physicians receive a fee based on per capita, called a capitated rate, flat retainer or fee-for-service. In a group plan, payments are made to a physician group, who in turn, compensate individual doctors. Employers may contract with two or more group practices, physician-hospitals organizations (PHOs) or HMOs to provide care to their members.

Many employers and physicians are becoming disenchanted with health maintenance organizations. The drive to control costs have given the cost and accounting departments of HMOs the power to override decisions of physicians and the practitioner preferences of their patients. Physicians and employers alike are discovering that in their

zeal to cut costs in health care, some HMOs have treated patients and doctors very badly and left them extremely dissatisfied customers (Tankoos, 1997).

With American corporations actively courting the most cost efficient, highest quality health care alliances, the race is on for health care facilities to redesign their processes of care. The goal for health care organizations is to improve productivity and squeeze out waste while ensuring the best possible patient outcome and highest customer satisfaction from each procedure. Using a combination of strategies, the health care industry is concentrating on reducing lengths of hospital stay, more outpatient surgery, rehabilitation and therapy services, increasing the use of home health services and putting a new emphasis on preventive care.

The competition within the health care industry for market share coupled with the continued call for health care reform is challenging providers to maintain tight controls while reacting quickly to changing markets, payers and regulations. The key to meeting this challenge is to create an organizational culture in which proactive steps and leadership are valued and to define strategies and establish strong infrastructures for managing vital assets - human and information (Barrett, 1993). "A hospital's survival in this climate depends on its ability to develop new programs, acquire new technology, seize new opportunities and sustain a level of community service that justifies the continued special position of a not-for-profit public trust" (Claybaker and Picken, 1992, p. 103).

Even though the American system (of health care) has always done its best to deliver quality health care, the globalization of quality issues is driving health

care providers to think beyond technology and effective outcomes. Today, health care providers are spending more time responding to pressure for cost reduction. U.S. health care costs are twice those of competing countries (based on health care as a percentage of gross national product). Health care providers are also facing more complex regulations and market place demands. Therefore, they have begun to focus on quality to better understand what management practices work best and on how to develop an organizational culture responsive to complex consumer expectations and needs. Identifying those management practices that will ensure the highest quality health care at the lowest possible cost is now a priority (Anderson, 1992, p. 35).

Strategic planning has resurfaced as an essential process that providers need to maintain position in an ever-changing market. A key component of this strategic planning process is the implementation of a total quality management (TQM) program (Barrett, 1993).

#### The Evolution of Total Quality Improvement in Health Care

The history of Total Quality Improvement in health care dates back to ancient times. During the Roman Empire, the Hippocratic Oath was formulated. This creed was developed from the health beliefs of the Pythagoreans of Greece, who believed in exercise and surgery. Since its inception, the Hippocratic Oath has provided novice physicians the vision and the mission statement to abide by the "best practices" of medicine (Edelstein, 1943). In 1854, John Snow, an epidemiologist and statistician, plotted data to prove that the Broad Street water pump in London was the source of a cholera outbreak in England

(Dictionary of Scientific Biographies, 1986).

One of the most effective and influential figures in health care quality was Florence Nightengale (1820-1910). Ms. Nightengale pioneered the use of data-based decision making by using graphical statistics to prevent needless death and disease. During the Crimean War, Florence Nightengale and her staff documented a reduction in the mortality rate of soldiers within her war hospital from 42.7% to 2.2% in a six month period. "That quality of care improvement significantly reduced the total costs of war" (Cohen, 1984, p. 128). William Farr, a physician, colleague and professional statistician, called Nightingale's book, Notes on Matters Affecting Health Efficiency and Hospital Administration of the British Army, "the best thing written on statistical diagrams" (Cohen, 1984, pp. 128 - 37).

Modern quality control, or statistical quality control, began in the 1920's. In 1924, Walter A. Shewhart, a physicist and Bell Laboratory researcher, applied statistical methods to create the first process quality control chart. "Shewhart's quality control chart became an essential tool for predicting and controlling the quality of a process." (Sloan, 1994, p.3). In 1936, Shewhart "unknowingly began a quality revolution with the words, 'plan, do, check and act'" (Hutchinson, 1994, p.1). Shewhart wrote that the ideal model of continuous improvement is best represented as a circle (Sloan, 1994). The circular representation is meant to depict the continual nature of the process (Hutchinson, 1994). Shewhart's "plan, do, check and act" (PDCA) cycle is used to guide a process change. Any process change first goes through a planning stage, followed by limited deployment,

followed by modification if needed) and then, full-scale deployment (Hutchinson, 1994).

W. Edwards Deming was another pioneer in quality improvement. Deming earned his doctoral degree in mathematical physics from Yale University. In 1927, he became a student of Shewhart (Sloan, 1994). Deming reported that Shewhart once told him that Clarence Irving Lewis's book, Mind and the World Order : Outline of a Theory of Knowledge, published in 1929, influenced him the most. In his book, Lewis questioned traditional medical model beliefs about disease and wrote, "A good logic must be circular" (Lewis, 1956, p. 209).

Dr. Deming published frequently and became a recognized scholar in the field of sampling (Ishakawa, 1985). In June, 1942, Deming concluded an article in the Journal of the American Statistical Association entitled, "On the Classification of the Problem of Statistical Inference," by explaining how statistical methods could be used to prevent disease (Deming, 1942). In June of 1953, Deming suggested that control charts be used to modify patient treatment in hospitals, and described how quality control statistical methods could be used to judge the effectiveness of medical treatment (Sloan, 1994).

During that same year, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the organization that accredits health care facilities in the United States, published its first accreditation standards. These accreditation standards prescribed quality of care inspections, but offered no guidelines on how to improve the quality of health care (Joint Commission on Accreditation of Healthcare Organizations, 1991).

Dr. Deming tried unsuccessfully to get his quality concepts accepted in U.S.

industry. Unfortunately, in the post war U.S. economy, the timing was not right. The United States was heady over winning World War II and there was a pent up demand for goods and services when the servicemen came back home. At that time, products were manufactured with planned obsolescence built in (Ishakawa, 1985). In addition, “Deming’s “abrasive, critical attitude towards management caused him to be avoided and labeled as ‘somewhat of a crank’” (Halberstam, 1986, p. 313).

For many years, “Made in Japan” was a synonym for poor quality merchandise (Hutchinson, 1994). Prior to World War II, Japan had a reputation for the worst quality consumer goods in the world. In post-war Japan, the economy was in ruins. “Japan was devastated by the defeat in the Second World War. Practically all of its industries were destroyed; there was no food, clothing or housing. The people were close to starvation” (Ishakawa, 1985, p. 15). Rebuilding the economy of Japan proved to be an enormous task. Being devoid of natural resources that could be taken from its land, the only resource left from which Japan could draw was its people.

When the U.S. occupational forces landed in Japan, they were severely hampered by the poor quality of the telephone equipment. The U.S. forces ordered the Japanese telecommunications industry to begin the use of modern quality control. This was the beginning of statistical quality control in Japan, in May of 1946 (Ishakawa, 1985).

Dr. Deming joined the U.S. Census Bureau, and in that capacity, visited Japan in 1950. While visiting Japan the 1950s, Deming began to develop a following and made the acquaintance of a key figure of industry, Ichiro Ishikawa.

“Ishikawa, head of the Keidanren, an influential Japanese business society, used his authority to invite 35 of the foremost business leaders to hear Deming speak on his ideas. General Douglas MacArthur had said that the Japanese could have unions, and this group had founded the Japanese Union of Scientists and Engineers (JUSE)” (Huthinson, 1994, p.3).

In 1950, Deming delivered a historical series of lectures on quality control to the JUSE. The royalties that Deming received for his lectures were donated to the JUSE to fund a number of quality prizes, one of which later became known as the Deming Prize (Sloan, 1994).

In 1954, Dr. Joseph M. Juran also responded to an invitation of the JUSE and conducted seminars for top and middle level managers (Ishikawa, 1985). Juran had begun his quality career as an engineer at the Hawthorne Works of the Western Electric Company in 1924 (Juran, 1989). Dr. Juran’s 1954 visit marked a transition in Japan’s quality control efforts from factory technology to overall concern for management (Ishikawa, 1985). Quality control, or quality assurance, began with the notion that inspection had to be emphasized. However, shortly after the introduction of quality control to Japan, middle and top level managers abandoned it.

Strict inspection will not eliminate bad product if that bad product is produced at differing stages of the manufacturing process. If instead of relying on inspection, we produce no defective products, we can save a lot of the money that is expended for inspection (Ishikawa, 1985, p. 20).

The definition of quality, which was defined by Juran as “fitness for use,” was embraced by the Japanese. This concept required the complete reorientation of a company focus from one of “product-out” to “market-in”, a concept based on an obsessive soliciting of the customer’s view of quality as it relates to a particular product or service (Hutchinson, 1994).

In 1955, Juran convinced McGraw-Hill to publish Juran’s Quality Control Handbook. This encyclopedia reference provides a history of quality control and is a useful text for many quality control applications. The fourth edition of the book contains a section on hospital quality control (Juran, 1988).

In his address to the 1994 American Society of Quality Control Annual Quality Congress, Dr. Juran described the evolution of managing for quality in the United States. Of particular note was the admiration and high esteem that was bestowed upon the master craftsman up until the beginning of this century. The master craftsman owned his or her own tools and was responsible for the product he or she produced, from the planning phase to completion of the product.

The advent of scientific management, launched by the American industrial engineer, Frederick W. Taylor, brought about a basic change in managerial practice - the separation of planning from execution (Juran, 1994). The Taylor method, characterized by uneducated workers and educated managers, promoted the managerial theory that managers should make decisions affecting workers without worker input. The premise behind the change was that workers and their immediate supervisors of that era lacked the



educational base to plan. Taylor gave the planning function to managers and engineers, limiting the immediate supervisors and workers to the function of executing those plans (Juran, 1994). In its day, the Taylor model was stunningly successful in raising productivity.

Following World War II, servicemen, many of whom had come from low educational backgrounds, entered the labor market. Since the managerial hierarchy set up by Taylor was similar to that of armed forces, where the high ranking officers planned and made the decisions that were carried out by lower ranking officers and enlisted personnel, the work force at the time responded and produced. This managerial system was extended to non-production functions, and later, to service industries. Over time, upper managers moved inspectors out of the production process and into separate inspection departments. Eventually these central inspection departments grew into quality departments. In doing so, management shifted the responsibility for product quality from the production floor to the quality department (Juran, 1994).

In retrospect, the use of inspection to attain quality involved inherent weaknesses such as high costs and shaky habits. Nevertheless, it made companies competitive in quality, on condition that their competition used the same strategy. That condition was largely met until the Japanese quality revolution came over the horizon (Juran, 1994, p. 4).

In 1964, David challenged Goliath. Nissan, the first winner of the Deming Prize, cautiously introduced its first car in the United States. It was sold under the name of

Datsun, so as not to embarrass the parent company, should it not be accepted here. Cameras and small electrical appliances followed. "Now, 25 years later, Japanese cars are recognized for their quality just as many of the consumer products that are made in Japan" (Hutchinson, 1994, p.6).

Following the introduction of postwar Japanese products to the United States, and their acceptance by the general public, many American corporate leaders began to take notice and study Japan's success at rebuilding itself as a nation. In the years that followed, enlightened corporate leaders sought out and followed the teachings of Juran and Deming. Work by Armand Fiegenbaum, considered the father of industrial quality control in this country, was studied and utilized by many major manufacturing corporations. The truth uncovered by these corporate students was that the person doing the work knows the work the best. Like the master craftsman, the worker knows the work process, and what it takes to do it right.

In 1975, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) published its revised quality standards. Objective measures to examine and document health care quality were developed for the first time. According to the JCAHO however, these standards were retrospective, outcome-focused, and data were seldom put to use in systematic efforts to improve care (JCAHO, 1991). Instead of the quality assurance department of a medical facility, "standing guard" at the end of the process (patient outcome), quality assurance in health care would ideally be implemented at the beginning of the process, as soon as the patient arrives at the facility, and would dictate

the involvement of all employees, so that participation becomes both facility-wide and everyone's responsibility (Ishikawa, 1985).

In 1979, Philip Crosby published Quality is Free. Crosby's expression "quality is free" is based on balancing prevention and appraisal costs against failure costs (Crosby, 1979). "Failure costs include external costs, such as warranties and replacing goods, and internal costs, such as scrap and rework" (Hutchinson, 1994, p. 22). Crosby defined quality by calling it "conformance to customer requirements," later modifying the definition to "conformance to reasonable customer requirements." He defined this as a "zero-defects" goal. If the product met customer requirements, then it was considered free from defects (Hutchinson, 1994). Examples of defects, the visible, external costs of health care, include patient complaints, insurance billing errors, excessive overtime, QC department expenses and unnecessary, inaccurate, or lost lab and x-ray tests. The hidden, internal costs may be caused by things such as ineffective communication between doctors, nurses and patients, malfunctioning or outdated equipment, medication and prescription errors, dissatisfied patients, bad reputation, inaccurate or missing insurance information, turf issues caused by lack of team work among doctors, nurses, technicians and staff, or upset, frustrated, unmotivated staff (Greebler, 1989).

Avedis Donabedian, considered the founder of the field of health care quality assurance as a recognizable discipline, suggested "structure", "process" and "outcome" as three categories in which to gauge the assessment of care given to a patient. "Structures" are the resources assembled to deliver care, such as the credentials of the physicians, the

physical state of the buildings and the standard operating procedures used. "Process" means the care itself, how diagnoses are made, which medicines are used, and which procedures are performed. "Outcomes" are the valued results of care, such as relieving pain, lengthening life, or satisfying the consumer of care (Berwick, Godfrey and Roessner, 1990). Donabedian published Volume II of a three volume set entitled, Exploration in Quality Assessments and Monitoring. The Criteria and Standards of Quality in 1982. Donabedian's work detailed a process for health care quality by inspection and promoted the idea of quality through inspection (Sloan, 1994).

In 1986, Massachusetts Institute of Technology published a revised edition of Deming's book, Out of the Crisis, originally published in 1982. In the book, Deming contended that the quality improvement theory applies to service as well as to manufacturing organizations and called for a transformation of American management (Deming, 1986).

In November, 1989, Glen Laffel and David Blumenthal published an article in the Journal of the American Medical Association entitled, "The Case for Using Industrial Quality Management Science in Health Care Organizations." In that article, Laffel and Blumenthal questioned the rationale that the physician should be held totally responsible for an episode of patient care, when there are so many other highly educated persons involved in that process who can also affect the outcome of that patient. The authors went further and suggested that there is inherent variation in each step of the process of care and that when that variation is reduced, the process and patient outcome substantially

improve (Laffel and Blumenthal, 1989).

In 1991, the American Society of Quality Control (ASQC) published its first health care quality improvement reference text, The Quality Revolution and Health Care. In April, 1992, ASQC published its journal, Quality Progress, in which it devoted the entire issue to articles dealing with health care improvement. Since that time, more and more articles and books been published, documenting successes and lessons learned by health care organizations and individuals who have first-hand knowledge of continuous quality improvement in the health care industry.

In 1993, the Joint Commission on Accreditation of Health care Organizations adopted a patient-centered, systems approach to the delivery of health care that focuses on continuous improvement and incorporates measures of performance, including outcomes and patient satisfaction. With patient as customer concerns at the center, the focus of their evaluation expanded to include the health care organization's underlying activities, or organizational systems and processes. Their approach to assessing a health care organization's performance has become closely aligned to the criteria of the Malcolm Baldrige National Quality Award (Schyve, 1997). The Baldrige Award, however, has historically been limited to assessing the organizational systems and processes of large and small American owned manufacturing and service companies, using the industrial-based concepts of continuous quality and performance improvement.

#### The National Demonstration Project

In the Fall of 1987, the John A. Hartford Foundation funded and the Harvard

Community Health Plan hosted an experiment known as the National Demonstration Project (NDP). The project was an experiment which sought to answer the question, "Can the tools of modern quality improvement, which has produced performance breakthroughs in other industries, also help in health care?" (Berwick, Godfrey and Roessner, 1992). Twenty-one health organizations from around the country were represented by their leaders, and paired with quality leaders of industrial organizations which had proven track records for mature quality improvement successes. Teams were formed to explore real world operations of day to day activities and individual, specific pilot projects were identified for improvement.

In June, 1988, the results of that experiment were first published. The project supported their hypothesis that CQI can work in health care. Benefits included improved quality, lower costs and improved productivity (Berwick, Godfrey and Roessner, 1990). Those results, along with the lessons learned, appeared in the book, Curing Health Care: New Strategies for Health Care Improvement (Berwick, Godfrey and Roessner, 1990). The demonstration project itself led to the creation of a new non-profit organization, the Institute for Health Care Improvement, which will become a permanent hub for health care management activities (Berwick, Godfrey and Roessner, 1992).

The following are some of the lessons learned by the members of the National Demonstration Project.

1. Committed leadership is absolutely essential to developing effective quality management, demanding a deep investment of time and energy by company executive

officers, board members, and other senior executives in the organization. Executives must refrain from overdelegating quality tasks. The administrative directors, chiefs of staff and other top managers must devote time, energy and money to learn the principles of Total Quality Management (TQM) and then to live by them. Enthusiasm, almost an obsession, is indispensable, so that "when the leaders are walking the talk, the evidence lies in their own behavior and allocation of time, 'Something is different,' the people tell you. 'The executives are asking different questions, they seem obsessed with quality, and they are absolutely certain that this is the way we need to go'" (Berwick, Godfrey and Roessner, 1992, p. 24). The medical leadership of the organization is leading by example.

2. A common set of bottlenecks decelerate TQM including insufficient facilitation, too few facilitators, or too little progress in facilitative management. Numerous health care organizations report that they have devoted insufficient attention to resource allocation and planning. Health care organizations also need to plan for combating problems associated with the high turnover of executives and medical staff presidents. Insufficient executive board involvement and education is also frequently reported (Berwick, Godfrey and Roessner, 1992).

3. It's easier to begin than to keep going. The principles of TQM, being rooted in the scientific method, just make sense to people in the health care community. A common recipe for defeat, however, is for the organization's CEO to commit financial and other needed resources at the beginning TQM effort and then to get sidetracked on to other pressing issues, allowing it to wither and become another "program of the month".

“Events need to be embedded into a trajectory of change; moreover, that trajectory must be mapped and guided by the CEO’s continuing leadership and commitment” (Berwick, Godfrey and Roessner, 1992, p. 25).

4. Physician involvement is extremely important from the very beginning.

Processes that are improved within hospitals have much more staying power if they benefit the physician. Since physicians determine scheduling of patients and subsequent staffing, support for involvement in TQM activities by physicians is mandatory.

5. Structure is critical if TQM is to work. Some leading health care organizations have developed strategic quality plans that directly support their strategic business plans, vision and key objectives. “Each quality project directly supports an annual goal that, in turn, supports a five year goal and a key objective. These strategic quality plans provide an easy way for staff and senior executives to integrate quality activities and customer and business needs” (Berwick, Godfrey and Roessner, 1992, pp. 25-26). These plans also help members of the organization see how their work clearly supports the organization’s long term vision.

6. Quality management is much more than quality improvement projects. Total quality management involves a fundamental change in business strategy and management culture. Quality management includes many quality related activities, only one of which is the management of quality improvement projects.

7. Training alone is not enough. Training in quality improvement projects and benchmarking is a critical element of TQM, but the part should not be mistaken for the



whole. Training must be coupled with a concrete plan for change, developed and fiercely defended and supported by top leaders of the organization.

8. Measurement drives the TQM process. Health care organizations are learning that they cannot manage what they cannot measure. In order to produce results, measurements must be useful and the data collected must be effectively analyzed.

9. Health care quality improvement projects save money. Documented gains in financial and time savings are beginning to come in where improvement projects have been studied over time.

10. Customer focus is the key. The bottom line in any quality-focused organization is not money, it is the customer. Many health care organizations are just now beginning to focus on the ultimate customer: the patient. Many find that though the patients may not be qualified to judge the technical quality of care, they constantly judge the quality of the care they receive. The hospital patient judges the quality of care by such things as incorrect meal trays, malfunctioning beds and long waits for transportation. Health care organizations are finding that patients want clear explanations of test results, consistent treatment from all doctors and medical centers, better information about treatment and understandable information about symptoms and side effects (Berwick, Godfrey and Roessner, 1992, p. 27).

Darwin's concept of survival of the fittest applies to all institutions. Those that respond to customer needs survive. Those who do not are replaced by those competitors that provide society with lower prices and better service. This competition is taking place

in the health care industry. The National Demonstration Project highlights examples that establish publicly what has long been known to pioneering investigators: It is equally feasible to carry out quality improvement and cost reduction simultaneously in the health industry (Juran, 1990, xiii)

#### Reasons for Physician Resistance

There are several reasons why physicians resist becoming actively involved in quality improvement activities.

1. Most physicians are still independent practitioners - They work in hospitals, not for hospitals. Successful efforts to implement TQM and CQI require involvement and commitment from the senior executive to the nurse at the bedside, the unit clerk and the housekeeper. Hospitals, unlike other organizations, often do not directly employ physicians. "The typical medical staff is an independent legal entity comprising individual physicians with no contractual or other formal tie to the hospital" (Fried, 1992, p. 68). Physicians are prized by hospital administrators for the business they bring to the hospital, but they frequently maintain admitting privileges in several competing facilities to maximize their independence and productivity.

2. Physician offices typically have no training budgets. Only a small fraction of physician time is spent in the hospital, as opposed to the office. "While hospitals are the most visible form of health care organization, most medical care is delivered in the ambulatory setting. Most ambulatory care is not done in large group practices."(Fried, 1992, p. 68). Training budgets for a small office staff are virtually nonexistent. Physician

office staff members, especially those who schedule surgeries or other procedures at affiliated hospitals, can bring important perspectives to clinical improvement teams.

3. The physician's focus on quality is different than that of the hospital. The physician's definition of quality is traditionally focused on the individual patient for whom he/she is responsible. Providers are intensely concerned that their quality of care conform to standards because they want what is best for their patients. Physicians are also concerned about quality due to regulatory requirements and the threat of malpractice (Laffel, 1990). The current approach to quality focuses almost exclusively on physician performance as if they were accountable for all aspects of a medical encounter (Laffel, 1990). "Despite advances in health care technology, the fundamental patient care processes are driven by the knowledge base and experience of individual physicians, nurses and allied health care workers" (Wakefield and Wakefield, 1993, p. 83).

4. Physician financial goals are not aligned with those of the hospital. The board's focus must be on maintaining resources in order to provide high quality health care services to an entire community. The governing board of a health care institution is responsible for the financial status of that hospital. "Because clinical services for each hospitalized patient are ordered by the physician, physicians are the primary determinants of variable health care costs" (Thompson, 1991, p.16). "Reduced length of stay for a given diagnosis may lead to hospital financial benefit, but may lower physician reimbursement" (Gaucher and Coffey, 1993 p. 210). Yet, the governing board expects physicians to demonstrate high quality and efficient practice habits (Thompson, 1991). It

is imperative that the medical staff, administration and the board agree on how to use information regarding the financial impact of the medical staff members' practice habits.

5. Performance measures for physicians are not in line with hospital goals.

“Compared to other industries, health care’s current approach to quality is underdeveloped and too narrowly focused” (Laffel, 1990, p. 29). Traditional efforts of quality in health care monitor patient outcome - measuring whether the patient improved during his or her stay. The quality measures include peer review: the inspection and evaluation of health care structures, practices or results, conducted or guided by health care professionals. These involve standards or levels of performance that are acceptable. If acceptable levels of performance are met, managers and clinicians are not expected to respond with action plans. These committees are interested in deviation from the norm, surveillance for outliers, and deviation from the expected. “However, quality experts outside health care have long known the shortcomings of standard setting and inspection. It is particularly ironic that these techniques should represent the state-of-the-art in health care because the professional ethic of physicians is to continuously seek improvement in patient care” (Laffel, 1990, p. 29). The evolving field of quality management in health care is at about the same stage of development as was the field of financial accounting in the late 16th and early 17th centuries in Scotland. At that time, the importance of modern accounting was just being realized, formal training curricula were being developed, and the modern field of accounting was born. “The same evolution is going to take place in the field of health care quality management” (Couch, 1991, p. 35).

6. Physicians are skeptical of any new quality initiatives. The traditional concern of hospital based quality assurance (QA) is whether the right questions were asked of the patient, whether a particular test was ordered and the results acted upon, whether the right diagnoses were considered and whether the right treatments were presented. Managers in health care have long been preaching universal quality principles to physicians and nurses: share information across specialties, learn quality management lessons from others, fix the process, not the blame. Because patient outcomes, good or bad are considered a product of provider skills alone, physicians and nurses are afraid - afraid that their peers will think less of them when outcomes are not good, afraid that somehow, openly discussing cases will increase the risk of malpractice litigation and afraid that they might lose prestige and future patients (Morrison and Heineke, 1992, p. 52). Fear, caused by surveillance, finger-pointing and blame-fixing, causes physicians to balk at the very idea of becoming involved in another quality program.

7. Physicians have always done more to save lives, not less. The resistance to change stems from the self confidence and sense of control they must have to face those failures of human health that do occur. As a result, there is a common refusal by practitioners to stop maximum treatment even when the patient's condition is terminal. Practitioners often wish to do everything theoretically possible to simply delay the inevitable (Morrison and Heineke, 1992). The enormous importance of health care services cannot be understated. "Failures or adverse outcomes in health care services impose a huge emotional cost, not only to patients and their families, but also to health

care providers. Day after day, nurses and physicians face either the threat or the reality of patient pain, impairment or death” (Morrison and Heineke, 1992, p. 51). Control paradigms result from physicians’ needs to believe that they are in control of work outcomes. Bad outcomes hurt patients and are painful to nurses and physicians. If physicians lose confidence in themselves, they might not be able to make decisions quickly (Morrison and Heineke, 1992).

8. Physicians resist giving up the dominant role as decision maker in the health care process. In the control paradigm, physicians assume the dominant role in the relationship between themselves, their patients and the staff. Because of their dominant role, physicians are not by nature “team players”. They are trained to act in the best interest of their patient during the process of care, in order to ensure the best possible clinical outcome (Coffey and Gaucher, 1993). TQM requires teamwork. The idea of team decision making, empowerment of others and problem solving by and with the people affected is absolutely foreign to most physicians. Physician training emphasizes individual decision making and almost exclusive reliance on one’s own clinical judgment (Morrison and Heineke, 1992). Physicians hold themselves accountable for patient outcomes.

9. Lack of compensation for the time involved is another barrier to physician involvement. To have a clinical systems team, ultimately, there must be a physician who knows the particular care process involved with that team. He or she has to come to team meetings, away from the patients, and to allow for the free interchange of information and

ideas. That takes a time commitment, which typically is asked to be provided without compensation (Kendall, 1994).

#### Ways to Obtain Physician Support

Several health care organizations in recent years have begun sharing their successful ways of obtaining physician support. Among the suggestions are the following:

1. Provide results of successful and unsuccessful improvement projects, published in peer-reviewed journals, in department presentations, during grand round presentations, by outside speakers and formal CME seminars (Gaucher and Coffey, 1993). Scientific literature on the health care applications of quality management can be used to develop strategies for training, organizational change, and program development (Laffel, 1990). Physicians are trained to be skeptical of anything new. "They will remain skeptical until rigorous evaluations in the journals show that quality management techniques are effective" (Laffel, 1990, p. 31).

2. Select projects that benefit the physician's needs. Physicians will recognize the value of projects designed to improve turnover in procedure. "They will simultaneously recognize that such projects cannot succeed without their participation, and this in itself is a valuable lesson" (Laffel, 1990, p. 31). "As a hospital gains a reputation for meeting the needs of physicians, they will find it a more desirable place to practice, and the hospital can become more selective in building its professional staff" (Laffel, 1990, p. 31).

3. Explore a means to develop training for physician office staff members in TQM. Invite office clerks, nurses and other staff members to participate in TQM teams that focus

on community relations and processes that involve referring physicians (Gaucher and Coffey, 1993).

4. Establish a method to provide physicians with data about their clinical activities that can be objectively compared with their peers. Special attention should be given to positive incentives that physicians have available to them rather than punitive approaches, such as Diagnostic Related Groups (DRG), variance data about length of stay or costs per DRG. The approach should emphasize the process of care that yields the optimal clinical result as perceived by the practitioner. Emphasize the work of clinicians who are optimal performers rather than calling attention to the poor performers.

5. Educating physicians in the difference between traditional quality assurance and continuous quality improvement is crucial. Managing by fact based on data is the core of the quality improvement process. Most physicians will respond positively to data that is accurately collected and presented in a nonthreatening, understandable way (Gaucher and Coffey, 1993).

6. Introduce quality management concepts to medical students, because "they are acutely aware of the waste and rework now associated with health care organizations" (Laffel, 1990, p.31).

7. Identify and support physician TQM champions. Try to identify one or more respected and influential physicians who support TQM efforts and who will speak informally with peers and conduct presentations. Physicians are accustomed to communicating through informal channels such as brief phone conversations or



discussions in the corridor rather than through formal committees or memoranda. To enhance awareness of the process, involve physicians on teams that are working to improve processes that ultimately benefit physicians. Encourage effective team behavior, such as turning off beepers during meetings, attending meetings regularly, and agreeing to meet at reasonable times. Provide coverage for the medical appointments that they miss during the meetings (Laffel, 1990, p. 31).

8. Develop a curriculum sensitive to physicians' unique time constraints.

Hospitals need to bear in mind the hardships brought on their physicians and the greater unreimbursed time commitments required by some cost/quality efforts. Shortening the training sessions for education in key concepts and enlisting pairs of physicians that can substitute for each other at team meetings are some strategies that may be used (Gaucher and Coffey, 1993).

9. "Hold a retreat with clinical chairmen and department heads to enhance their awareness of TQM and its applications to clinical care. Invite physician speakers who can provide success stories from their institutions. Bring data about problems that need improvement to facilitate discussion" (Gaucher and Coffey, 1993, p. 211).

10. Designate staff to work closely with physician team leaders to support the efforts of the team. Provide adequate staffing to enable the team to attain its objective.

At the third annual Quest for Quality Conference in 1991, J.M. Juran gave a speech titled "Made in the USA: A Break in the Clouds." After years of doubt that the quality movement in the United States would ever take root, Juran confessed that "for the

first time since the quality crisis descended on us, I have become optimistic. I now feel that we have a fighting chance" (Juran, 1991). If TQM is to offer American health care the same promise that Juran now sees in manufacturing, it will have to acquire a level of maturity and breakthrough in performance that so far eludes us. As more hospitals and health care organizations experience success with continuous quality improvement principles, examples of successful clinical TQM programs will appear. TQM in health care is underway, and with patience and persistence, a break in the clouds is inevitable (Berwick, Godfrey and Roessner, 1992).

## Chapter 3

### Methodology

#### Introduction

Many factors, including the introduction of managed care and the requirement by the Joint Commission of American Healthcare Organizations that hospitals develop and use the tools and techniques of Continuous Quality Improvement (CQI), have resulted in a remarkable amount of change within the health care industry in middle Tennessee. Out of state managed care organizations were unable to acquire licenses to operate in the state of Tennessee until January, 1996. The most opportune time to conduct a baseline assessment of middle Tennessee hospitals and physicians in continuous improvement was in December, 1995, before any other major changes hit the health care industry in Tennessee.

#### Surveys Development

To determine the deployment and results from the continuous quality improvement programs of middle Tennessee hospitals and the satisfaction of those hospitals' CEOs with their programs, the Hospital Survey was developed and sent to area hospitals. The Hospital Survey consisted of 25 questions, including eight that addressed the personal involvement of the chief executive officer (see Appendix A). The remaining 17 questions were addressed to the hospital quality manager. The Hospital Survey was developed by modifying survey questions included in the National Survey of Hospitals' Efforts to Improve Quality-1993, which was developed for the American Hospital Association (Barsness, Z.I., Shortell, S.M., Gillies, R.R, Hughes, E.F, O'Brien, J.L., Bohr, D., Izui,

C., & Kralovec, P., 1993). A copy of the survey and verbal permission to adapt it to the author's purposes were obtained from the survey's principal author, Dr. Stephen M. Shortell, PhD., of the J.L. Kellogg Graduate School of Management, Northwestern University, Evanston, Illinois. Other questions relating to barriers to physician involvement in continuous improvement programs and incentives for physicians to become involved were developed from barriers/incentives listed in the book, Curing Health Care - New Strategies for Quality Improvement, by Drs. Donald M. Berwick and A. Blanton Godfrey and by Jane Roessner. There was a postcard attached to the hospital survey that asked whether the hospital had a quality program that included CQI and, if so, how long that program had been in existence. If a hospital had not incorporated CQI into its quality program, the hospital chief executive officer was asked only to return the postcard and not fill out the survey.

The Physician Survey consisted of 12 questions (see Appendix B). The questions addressed the degree of physician involvement in continuous improvement programs at their hospitals, barriers that physicians may have experienced at their affiliated hospitals and if their affiliated hospitals offered certain incentives to them to participate in their quality improvement programs. Questions for the physician survey were garnered from three sources: Curing Health Care - New Strategies for Quality Improvement by Drs. Donald M. Berwick and A. Blanton Godfrey and Jane Roessner, "Implementing Quality Management in Health Care, The Challenges Ahead," by Dr. Glenn Laffel and a JCAHO Journal of Continuous Improvement interview of Dr. Keith R. Wilson.

### Definition of Populations

Twenty-two hospitals, both public and private, in the area encompassing Davidson (Metro Nashville), Robertson, Sumner, Wilson, Rutherford, Williamson and Cheatham counties were identified. The names of the hospitals and their counties were obtained from a list of middle Tennessee hospitals named in the 1994 Directory of Tennessee Hospitals, published by the Tennessee Hospital Association. All hospitals were promised anonymity. All responding hospitals were to receive a summary report of responses.

A computer-generated, randomized sample of two hundred physicians was obtained from the Tennessee Department of Health Bureau of Health Statistics. The counties from which the physician names were generated were the same ones in which the hospitals were located. All physicians were promised anonymity. All responding physicians were to receive a summary report of responses.

### Mailing Contents

The hospital mailing included a cover letter on Middle Tennessee State University Industrial Studies Department letterhead stationary, an executive summary with instructions included, a list of definitions for the purpose of the study, and a copy of the survey instrument with a self-addressed stamped return envelope. A thank you card that included the titles of the hospital CEO, the executive secretary and the hospital quality manager, and a satin banner holding "Quality Happens Through People" buttons for each of the three was also included in the mailing (see Appendix A).

The physician mailing included a cover letter on Industrial Studies Department

letterhead stationary, a physician summary that included instructions, a list of definitions for the purpose of the study, a copy of the survey instrument with a self-addressed stamped envelope, a thank you card that included the titles of physician and office manager, and a satin banner holding two "Quality Happens Through People" buttons for each of them (see Appendix B).

The hospital mailings were sent out on November 9, 1995 and a response was requested to be returned by December 11, 1995. Physician mailings were sent out on February 16, 1996 and a response was requested to be returned by March 5, 1996.

## Chapter 4

### Results

The following are the results of the two surveys. Eleven of the 22 hospitals responded. One hospital returned only the postcard. Ten returned the postcard plus the survey, for a survey return rate of 45%. Fifty one of the 200 physicians returned the survey. Of those surveys returned, five were unusable (one physician had passed away, two had retired, one noted that he was a medical school resident who was not involved in any quality initiatives and one noted that he acted only as a consultant). The usable number of physician responses totaled 44, for a response rate of 22%. The physician responses were assessed as an entire group. They were also assessed according to those physicians who had experience as process improvement team members.

#### Results of the Hospital Survey

All ten of the hospitals that answered the survey had incorporated a CQI/TQM program into their organized effort to improve quality. The eleventh hospital had an organized effort to improve quality, but that effort did not involve CQI/TQM. That hospital planned to incorporate such a program within the next year. The majority of the hospitals with CQI/TQM programs had had them in place for one to four years, with half of them reporting a two to four year program length.

Eight of the ten hospital chief executive officers (CEOs) had served on their hospital quality improvement councils. Eight had regularly reported results of CQI/TQM activities to their hospital boards. Two hospitals did not report directly to hospital boards.

All of the CEOs reported using CQI/TQM methods with members of their senior management teams. Nine of the ten CEOs used CQI/TQM in strategic planning and for setting quality improvement goals for their organizations. Seven CEOs had used CQI tools and methods with their own staffs, but only three had actually formed process improvement teams within their own offices. Four of the ten CEOs had participated on quality process improvement teams within their hospitals. Three CEOs had participated in organization-wide improvement work with suppliers and customers. Three of the CEOs had taught CQI/TQM principles and methods to others. Seven of them said that they actively supported physician champions who had incorporated CQI/TQM methods into their daily work.

When asked about employee and physician participation and overall satisfaction with their CQI programs, five of the hospital CEOs reported that 40% of their employees used CQI/TQM tools and methods in their daily work. Three reported that as many as 60% of their employees used CQI/TQM methods daily. When asked how personally involved the affiliated physicians were in their hospital-based CQI/TQM programs, most of the CEOs responded with low to moderate participation. One hospital reported a moderately high participation by physicians.

Two CEOs were very satisfied with the results of their hospitals' continuous quality improvement programs. Seven were moderately satisfied with their program results. One CEO expressed a low to moderate satisfaction with the hospital quality improvement results.



The intensity of competition with other area hospitals for patients varied from not intense to highly intense. Four CEOs reported highly intense competition, five reported between some what intense and highly intense and one reported a low intensity of competition. At the time of the survey, the percentage of market share currently held by HMOs in the middle Tennessee area varied from 10 - 60%, with nine out of ten reporting between 10 and 30% and one reporting a higher percentage of 60%.

The percentage of patients paid for on a capitated rate (a set amount paid for one patient per year) yielded various results. Two hospital CEOs reported none and three reported a 10-30% captitation rate. Two reported a capitation rate of 50% and two reported a capitation rate of 80%. One CEO considered the question not applicable.

Competition for patients also varied widely. For in-patients, one hospital CEO reported one competitor. Two CEOs reported two competitors and three of them reported having three other hospitals as competitors. Two reported having six competitors and one hospital reported being in competition with ten other facilities for in-patients. The number of competitors listed for out-patients ranged from none by two hospitals, to a high of ten by one hospital. Most of the hospital CEOs reported out-patient competition with between one to six other hospitals. One medical facility reported that it did not treat out-patients.

The hospital quality managers indicated the relative importance of several objectives of their hospitals' quality improvement activities by scoring them on a scale of one to seven. As shown in Table 1, objectives relating to overall patient satisfaction,

patient outcome and productivity scored the highest. The objective for CQI activities that scored the lowest in importance was to recruit and retain nurses. In Table 2, the greatest degree of impact has been on improved patient satisfaction, improved continuity of patient care, and improved patient outcome. Barriers to hospital efforts to change or improve are shown in Table 3. Efforts to improve the quality of patient care, which the hospital managers indicated would assist their hospitals the most, can be found in Table 4.

The quality managers listed only one most prominent barrier to quality activities reported by physicians: inadequate time for meetings. The results are shown in Table 5.

There was a wide range of answers regarding incentives that hospitals provided to physicians for their CQI/TQI involvement. As shown in Table 6, all of the hospital quality managers felt that their hospitals had selected TQI projects of direct clinical relevance to physicians.

Several quality improvement activities had been completed at the hospitals. Nine of the ten hospitals had integrated their quality assurance, utilization review and risk management activities reporting to a single, designated person. Those nine had also conducted regular patient satisfaction surveys. Six hospitals reported that they were developing or using clinical algorithms, practice protocols/guidelines or critical pathways. These activities are listed in Table 7.

During the twelve months, from October 1, 1994 until September 30, 1995, four hospital boards had requested that specific quality of care data be collected and three had initiated special studies for specific quality problems. Two hospital boards had requested

Table 1.

Most Important Objectives for Hospital COI Programs

<u>Objective</u>	<u>Importance</u>
Increase patient satisfaction	6.9
Improve patient outcomes	6.7
Improve productivity	6.4
Meet anticipated JCAHO requirements	5.9
Reduce inappropriate treatment	5.8
Empower front line employees	5.7
Reduce costs	5.7
Increase nursing staff satisfaction	5.3
Improve management skills and practices	5.2
Reduce employee turnover	5.2
Increase market share	5.1
Improve hospital/physician relations	4.9
Increase physician commitment to the hospital	4.9
Increase ability to recruit and retain physicians	4.8
Increase profitability	4.6
<u>Recruit and retain nurses</u>	<u>4.3</u>

Note. A maximum score of 7.0 denotes a very important objective.

Table 2.

Objectives Upon Which COI Has Had the Greatest Degree of Impact

<u>Objective</u>	<u>Score</u>
Improved patient satisfaction	5.1
Improved continuity of patient care	5.0
Improved patient outcome	4.8
Ability to meet JCAHO requirements	4.6
Improved management skills; greater employee satisfaction	4.1
Increased profitability	3.9
Reduced errors/inappropriate treatment	3.8
Greater employee empowerment	3.7
Greater hospital/physician relations; improved productivity	3.5
Increased physician commitment to the hospital	3.4
Reduced cost; reduced employee turnover	3.1
Increased nursing staff satisfaction; increased market share	2.9
Ability to recruit and retain nurses	2.5
<u>Ability to recruit and retain physicians</u>	<u>2.4</u>

Note. Maximum score of 6.0 denotes a high degree of impact.

Table 3.

Barriers to Change or to Improve for Hospitals

<u>Barrier</u>	<u>Score</u>
Too many other changes	4.5
Lack of physician support	3.8
Insufficient time for staff to attend training sessions	3.7
Inadequate employee training	3.5
Too few resources	3.3
Inadequate information systems	3.2
Lack of training in communication and conflict resolution	3.1
Inability to prioritize projects	2.9
Insufficient senior management knowledge of TQM/CQI	2.8
Lack of realistic goals	2.8
Lack of senior management time commitment	2.6
Lack of middle management support	2.6
Inability of key people to work together	2.2
Inability to use personnel in new ways	2.1
Inadequate consulting support	1.9
Lack of hospital board commitment	1.8
<u>Frequent leadership turnover</u>	<u>1.5</u>

Note: Maximum score of 7 denotes the greatest barrier to change.

Table 4.

Items That Would Assist Hospital Efforts to Improve

<u>Item</u>	<u>Score</u>
Improved accuracy and timeliness of collecting and reporting clinical data	5.5
Better data on patient needs/preferences	5.4
Better methods to adjust data for disease severity	5.4
Better data on patient needs and satisfaction	5.1
Additional staff training in quality	4.9
Increased resources	4.9
Training in group processes and decision-making	4.8
Training in communication and conflict resolution	4.6
Training employees in the development of self-directed work teams	4.5
More opportunities to share results with others	4.4
Changes in the budget process	3.6
Outside consultation on QI activities	3.5
<u>Changes in employee evaluation and reward system</u>	<u>3.0</u>

Note: a Maximum score of 7 denotes an item of greatest assistance

Table 5.

Barriers to Physician Involvement in CQI According to Hospitals

<u>Item</u>	<u>Barrier</u>	<u>No Barrier</u>
Inadequate time for meetings	9	1
Perception that practicing medicine is not like building a Toyota	7	3
Unreimbursed time for meetings	5	5
Hesitance to discuss poor patient outcomes	5	5
Lack of education in CQI/TQI methods and principles	3	7
Unfamiliarity with cross-departmental teams	3	7
Inadequately trained facilitators, team leaders and members	3	7
Perception that quality teams are punitive	2	8
Unreimbursed mileage to and from meetings	1	9
Physicians are not asked to identify those processes care that would directly benefit their practices	1	8
Failure of teams to include physician office staff members	0	10
<u>Perception that physicians must always serve as team leaders</u>	<u>0</u>	<u>10</u>

Note: Not all 10 hospitals' quality managers responded to every barrier.

Table 6.

Incentives Provided to Physicians for CQI Involvement by Hospitals

<u>Incentive</u>	<u>Provided</u>	<u>Not Provided</u>
Selection of TQI projects of direct clinical relevance to physicians	10	0
Continuing medical education credits	8	2
Reimbursed meals	8	2
Objective comparisons of practice patterns	8	1
A current collection of CQI/TQI training materials in the library	7	3
Instruction of CQI by a physician who is well respected and knowledgeable of CQI in health care	6	4
Presentation by other physician speakers on CQI topics	6	4
Personal recognition by hospital board for CQI participation	6	4
Provision of adequate staffing to ensure team success	6	3
Solicit team participation by physicians' office staff	5	4
Support by human resources management of team performance	3	7



Table 6 (con't)

Incentives Provided to Physicians for COI Involvement by Hospitals

<u>Incentive</u>	<u>Provided</u>	<u>Not Provided</u>
Presentation of successful improvement projects in grand rounds	3	7
Encourage publication of team results in peer-reviewed journals	2	8
Hold retreats with clinical chairmen to enhance their awareness of CQI/TQI application to clinical care	2	8
Mileage to attend meetings	1	9
Include physician office staff in TQI training	1	8
Reimbursed time for meetings	1	7
Require the active participation of residents and other medical school students in hospital team activities and TQM training	1	5
Paid trips to showcase team improvement projects at conferences	0	8

Note: Not all 10 hospitals' quality managers responded to every incentive.

Note: Medical school residents are not present at all hospitals

Table 7.

Hospital Quality Activities and Year Started

<u>Activity</u>	<u>Number of Hospitals Involved</u>	<u>Year Started</u>
Integration of quality assurance, utilization review and risk management activities reporting to a single designated person	9	1984 - 1992
Conduct regular patient satisfaction surveys	9	1980 - 1993
Development and use of clinical algorithms, practice protocols/ guidelines or critical pathways	6	1993 -1995
Practice organizational case management	4	1988, 1994
Participate in research on patient outcomes	3	1980, '88, '95
Use of both clinical and cost data in reviewing physician privileges and credentials	2	1988, 1995
Practice just-in-time materials management	2	1995
Use of grand rounds by medical leaders to present cases of successful and unsuccessful improvement projects	1	1988

that a specific physician's work be more carefully reviewed and two had revoked the practice privileges of certain physicians. None of the hospitals had required the agreement of physicians to participate on improvement teams as a prerequisite to their obtaining practice privileges. None of the hospitals required that every hospital employee serve on a process improvement team over a specified time period.

The hospitals were surveyed for personal involvement in quality activities by senior managers, hospital personnel, affiliated physicians and medical school residents. Results of the senior management involvement in CQI are shown in Table 8. One hospital reported that all of its personnel had received CQI/TQI training. The numbers of employees from the other hospitals that have participated in quality activities varied greatly. The results of hospital personnel involvement in quality improvement are shown in Table 9. One hospital reported that all of its physicians (3) had received CQI/TQI training and one reported that half of its physicians had received the training. Results of the physician involvement survey are presented in Table 10. Only four of the responding hospitals had medical school residency programs. Of those four, only one hospital had one resident that was involved in any quality improvement activity. The resident had served on a process improvement team.

All of the respondent hospitals conducted periodic assessments of community needs. All hospitals had formed project teams to improve the quality of patient care and have had teams report their project results back to the hospital boards. Nine of the ten hospitals had formed quality councils or steering committees. Nine of them had also

Table 8.

Senior Managers - Personal Involvement in Hospital CQI Activities

Hospital #	Senior Managers	Trained in CQI	Have Team Experience	Conducted CQI Training	Quality Council Member
1	--	--	--	--	--
2	4	4	4	0	3
3	7	7	7	2	7
4	9	9	9	2	7
5	5	1	4	0	4
6	7	7	7	2	7
7	9	9	5	0	5
8	3	3	2	1	3
9	3	3	0	0	1
10	6	6	6	5	6

Note. -- denotes that the hospital chose not to answer or was unsure of number.

Table 9.

Hospital Personnel - Personal Involvement in Hospital CQI Activities

Hospital	Personnel	CQI Trained	Team Experience	Conducted CQI Training	Quality Council
1	--	--	--	--	--
2	375	375	100	4	12
3	405	31	21	--	7
4	1025	300	200	20	2
5	860	2	--	1	12
6	550	300	100	5	1
7	927	50	150	2	15
8	1310	1171	223	36	18
9	1300	50	100	0	14
10	560	300	100	3	3

Note. -- denotes that the hospital chose not to answer or was unsure of number.

Table 10.

Physicians - Personal Involvement In Hospital CQI Activities

Hospital	Physicians	CQI Trained	Team Experience	Conducted CQI Training	Quality Council
1	600	40	15	0	5
2	40	20	8	0	2
3	3	3	2	0	2
4	140	20	15	0	2
5	161	--	3	0	10
6	140	--	5	0	0
7	85	0	15	0	1
8	74	17	12	3	2
9	--	20	10	0	0
10	80	15	4	0	0

Note: -- denotes uncertainty of number.

benchmarked or compared quality improvement results against those of other health care organizations. Eight of the ten hospitals completed or were conducting senior and middle management training in CQI/TQM principles and methods. Eight of the hospitals had conducted an overall review and evaluation of their approach to improving quality. Four hospitals reported that they had trained physicians in CQI/TQM principles and methods. Four out of the ten hospitals reported that they had incorporated CQI/TQM criteria into the reward and appraisal system.

The use of quality improvement teams to improve the procedures or processes of care varied greatly among the hospitals. In the case of uncomplicated myocardial infarction (heart attack), all but one of the respondents answered that they performed the procedure. Of those nine, seven hospitals collected quality of care data on the procedure. Five of the nine hospitals incorporated clinical process improvement teams to improve the treatment of uncomplicated myocardial infarctions.

Three hospitals performed the procedure angioplasty. All three hospitals collected quality of care data on the procedure. Two of the hospitals incorporated clinical process improvement teams to improve the angioplasty procedure and process of care.

Eight hospitals reported that they treat pulmonary embolism. Five of those hospitals collected quality of care data on the procedure. None of the eight hospitals formed process improvement teams to improve the pulmonary embolism treatment or process of care.

Nine hospitals treated pneumonia. Seven of those hospitals collected quality of care data on the procedure. Three of the seven hospitals incorporated clinical process improvement teams to improve the process of treating pneumonia.

Seven hospitals performed hip replacements. All seven hospitals collected quality of care data on the procedure. Four of those hospitals incorporated clinical process improvement teams to improve the hip replacement procedure and process of care.

Nine hospitals performed the procedure, cholecystectomy, or removal of the gall bladder. Two of the hospitals collected quality of care data on the condition. None of the hospitals formed clinical process improvement teams to improve the cholecystectomy procedure and process of care.

Nine hospitals performed the transurethral resection of the prostate procedure. Five of those hospitals collected quality of care data on the procedure. One hospital incorporated a clinical process improvement team to improve the transurethral resection of prostate procedure and process of care.

Three hospitals performed coronary bypass surgery. All three collected quality of care data on the procedure and all three incorporated clinical process improvement teams to improve the coronary bypass procedure and process of care.

Six hospitals treated perioperative myocardial infarction. Two of those hospitals collected quality of care data on the condition and one of those hospitals incorporated a clinical process improvement team to improve the perioperative myocardial infarction condition and process of care.



Seven of the hospitals performed the Cesarean section procedure. All seven hospitals collected quality of care data on the procedure and two of those hospitals incorporated clinical process improvement teams to improve the Cesarean section procedure and process of care.

Seven hospitals performed hysterectomies. Three of them collected quality of care data on the procedure and one hospital incorporated a clinical process improvement team to improve the hysterectomy procedure and process of care.

Five hospitals treated asthma. One of those hospitals collected quality of care data on the condition. None of the hospitals incorporated a clinical process improvement team to improve the process of care for asthma.

Six hospitals treated diabetes. Three of those hospitals collected quality of care data on the condition. One hospital formed a clinical process improvement team to improve the process of care for diabetes.

Five of the hospitals treated congestive heart failure. Two hospitals collected quality of care data on the condition. Both hospitals incorporated clinical process improvement teams to improve the process of care for congestive heart failure.

Seven hospitals reported cost savings as a result of quality improvement efforts aimed at reducing the length of stay for a particular condition. Five hospitals reduced post-operative wound infection rates. Three hospitals reduced the inappropriate use of blood products. One hospital reduced overall mortality adjusted for severity of illness and one reduced Cesarean Section rates. None of the hospitals experienced reductions in

condition-specific mortality adjusted for severity of illness, unplanned readmission rates to the Intensive Care Unit or reductions in medication errors. Examples of hospital departments that experienced savings are shown in Table 11.

Several tools, methods and philosophies were used by the various hospitals involved in this survey. The quality improvement tool most familiar to the respondent hospitals was brainstorming. The results of the use of quality improvement tools is included in Table 12.

One hospital out of the ten respondent hospitals had determined that the total amount of money that it had saved in its efforts to improve quality was between \$100,000 and \$399,999. Three hospitals determined that their quality improvement efforts had resulted in a cost savings of less than \$100,000. The remaining six hospitals did not demonstrate a measurable cost savings as a result of quality improvement because it was too early in their quality improvement efforts, they have not actually experienced a cost savings, or they had been unable to determine the exact amount of money saved.

Only two of the ten responding hospitals had single integrated data bases that contained all of the hospitals' quality assurance/improvement data elements. Three of the hospitals had not adopted any specific approach or philosophy on continuous quality improvement. Four hospitals specified the Deming philosophy, three of which adapted it to their own use. Two hospitals reported using a combination of both Deming and Juran philosophies in the development of their quality programs. One hospital did not specify any philosophy by name, rather it reported using a mixture of several groups.

Table 11.

Achievement of Cost Savings by Individual Departments

<u>Department</u>	<u>Yes</u>	<u>No</u>	<u>Too Early/No Dept.</u>
Admissions	3	6	1
Ambulatory Surgery	3	6	1
Anesthesia		8	2
Billing	3	4	3
Emergency Room	2	6	2
Laboratory (including Blood Bank)	4	4	2
Medical Records	4	5	1
Operating Room	1	7	2
Patient Care Units	3	6	1
Pharmacy	3	5	2
Radiology	2	6	2
Over All Length of Stay for a Particular Condition	7	2	1

Table 12

Use of Quality Tools by the Ten Hospitals

<u>Quality Tools</u>	<u>Used by Many Teams</u>	<u>Used by Few Teams</u>	<u>Don't Know</u>	<u>Don't Use</u>
Brainstorming	9	1		
Process flow charts	7	3		
Ishikawa (Fishbone) Diagrams	3	6		1
Histograms	3	4		3
Run Charts	2	3		5
Pareto Diagrams	1	6		3
Scatter Diagrams	1	6		3
Control Charts	1	6		2
Nominal Group Methods	1	6		3
<u>Affinity Diagrams</u>	1	0		9

### Results of the Physician Survey

Of the 44 responding physicians, twenty four had practicing privileges at more than one hospital. Twenty physicians had practicing privileges at one hospital. Ten had practicing privileges at two facilities and 12 have privileges at three. One physician had practice privileges at four hospitals and one had privileges at five hospitals.

When asked how many hours per month they spent on continuous improvement activities, 12 of the 44 physicians answered none, 19 physicians answered between 1-5 hours per month, nine answered from 6 - 10 hours per month, and four answered between 11 - 15 hours per month.

Most of the physicians (26 out of 44) had participated on quality improvement teams at their affiliated hospitals. Eighteen physicians had not participated on CQI teams. Of the 26 who have participated on teams, ten had participated on one team, nine had been on two teams, three had served on three teams and one had served on as many as five teams. Three physicians did not furnish the number of process improvement teams on which they had served. One of the physicians who was very active in total quality improvement activities in California, had not been presented the opportunity to participate on teams or in any other quality related activities since moving the practice to Nashville, Tennessee.

The majority of teams on which the physicians served have been inter-disciplinary (24 inter-disciplinary, 2 non inter-disciplinary). Eighteen of the 26 physicians who have served on quality improvement process teams felt that the missions of the teams directly

benefited their patients. Five physicians felt that their patients had not benefited from the team missions. The physician who had served on five teams reported that some of the missions directly benefited the patients while others did not. One reported that he was unsure if his patients directly benefited from the team's mission and one reported "not yet."

The majority of physicians who had served on quality improvement teams had not been members of their hospital quality councils (15 no, 11 yes). Of the 18 physicians who had not participated on quality improvement teams, four had served on their hospital quality council and 14 had not. When all of the physicians were asked whether there was adequate physician representation on the hospital quality council, 21 physicians felt that there was adequate representation and 12 felt that there should be more physician representation. One felt that there should be fewer physicians on the hospital quality council, five were unsure and five chose not to answer.

Twenty six of the 44 physicians answering the survey had not received training in CQI tools and methods. Twelve of the 26 physicians who had served on teams had received CQI training and 14 had not. Six of the physicians who had not served on teams had also received CQI training in tools and methods. Only five of the responding 44 physicians had personally conducted training in CQI tools and methods.

Medical school residents were required to participate in CQI activities in the hospitals where eight of the physicians practiced. There was no requirement that residents participate in CQI/TQI activities at the hospitals where 15 physicians practiced. Fifteen

physicians practiced where there was no residency program and six of the physicians were unsure if medical school residents were required to participate in CQI activities at the hospitals where they practiced.

As seen in Table 13, time taken away from patient care was listed by the majority of physicians as the greatest barrier to their involvement in continuous improvement activities. The perception that incorporating industrial-based quality improvement into the practice of medicine is not realistic because practicing medicine is not like assembling cars on an assembly line was the second strongest barrier. Unreimbursed time for meetings and inadequate time for meetings were also barriers for them.

The results for barriers were slightly different for those physicians who had team experience. As seen in Table 14, participating on teams, taking time away from patient care and introducing industrial-based quality improvement concepts into the practice of medicine is unrealistic because practicing medicine is not like assembling cars on an assembly line were much larger barriers for them than for the physicians as a whole. Their lack of education in CQI tools and methods and having inadequate training budgets for training their own office staff in CQI were also greater barriers for them.

According to the physicians, none of the hospitals offered reimbursed mileage to them to attend CQI meetings or collect data. Of the 44 responding physicians, 20 reported that their hospitals did not offer reimbursement to them for meals during CQI activities and 19 reported that their hospitals did offer meal reimbursement. Five physicians did not answer the question regarding reimbursement. Of the 44 physicians, 39

Table 13

Barriers to Physician Involvement in COI Activities According to Physicians

<u>Barrier</u>	<u>Yes</u>	<u>No</u>
Participating on teams takes away time from patient care	26	15
Practicing medicine is not like assembling an auto on an assembly line	23	19
Inadequate time for meetings	20	20
Unreimbursed time for meetings	20	22
Inadequate training budget for training office staff in CQI	20	22
Lack of education in CQI tools and methods	19	22
Unfamiliarity with cross-departmental teams	18	24
Inadequately trained teams	13	29
Physician staff not included on hospital improvement teams	12	32
Hesitancy to discuss details of poor patient outcomes	11	31
Unreimbursed mileage	9	33
Aren't asked which processes of care benefit their patients	9	32
Perception that meetings dealing with quality are always punitive	8	34
Perception that physicians must always be team leaders	6	36

Note: n = 44. Not every item was answered by all 44 physicians.



Table 14.

Barriers to COI Involvement According to Physicians with Team Experience

<u>Barrier</u>	<u>Yes</u>	<u>No</u>
Participating on teams takes away time from patient care	20	5
Practicing medicine is not like building an auto on an assembly line	18	8
Unreimbursed time for meetings	14	12
Lack of education in CQI tools and methods	14	12
Inadequate training budget for training office staff in CQI	14	12
Inadequate time for meetings	13	12
Unfamiliarity with cross-departmental teams	11	15
Inadequately trained teams	7	19
Hesitancy to discuss details of poor patient outcomes	7	19
Aren't asked which processes of care benefit their patients	7	19
Physician staff not included on hospital improvement teams	6	20
Unreimbursed mileage	6	20
Perception that meetings dealing with quality are always punitive	4	22

Table 14 (con't)

Barriers to CQI Involvement According to Physicians With Team Experience

<u>Barrier</u>	<u>Yes</u>	<u>No</u>
<u>Perception that physicians must always be team leaders</u>	<u>4</u>	<u>22</u>

Note: n = 26. Not every item was answered by all 26 physicians.

reported that hospitals did not offer reimbursement to them for the time they spent to attend meetings or to collect data. One physician reported being offered reimbursement for team related time. Four physicians did not answer the question. Of the 26 physicians who have served on teams, 25 reported not being offered reimbursement for their time.

Thirty one of the 44 physicians were not offered continuing medical education credits for the CQI/TQI training they receive from their hospitals. Eight physicians reported that they were issued continuing medical education credits for their CQI/TQI training. Five physicians did not answer the question. Twenty one of the 26 physicians who had team experience were not offered continuing medical education for their CQI/TQI training.

Concerning their office staff, 29 of the 44 physicians reported that their office staff members were not included in hospital CQI/TQI training. Eleven physicians reported that their office staff members were included in the training. Four physicians did not answer the question. Nineteen of the twenty six physicians who had served on teams reported that their office staff members were not included in the hospital CQI training.

Twenty nine of the 44 physicians reported that presentations of CQI/TQI projects

were not made by physicians during grand rounds at their hospitals. Twelve physicians reported that CQI projects were presented by physicians during grand rounds. Three physicians did not respond to the question. Nineteen of the 26 physicians with team experience reported that presentations of CQI projects were not made during grand rounds at their hospitals.

Thirty of the 44 physicians reported that physician presentations of CQI/TQI projects were not made at continuing medical education seminars at their hospitals. Eleven physicians reported that presentations of CQI projects were made by physicians at continuing medical education seminars. Three physicians did not respond to the question. Nineteen of the 26 physicians who had team experience reported that physicians did not make presentations on CQI projects during continuing medical education seminars at the hospitals at which they practiced.

Twenty two of the 44 physicians reported that the CQI/TQI projects chosen by their hospitals had direct clinical relevance to physician practices. Seventeen physicians reported that the CQI projects chosen by the hospitals had no direct clinical relevance to physician practices. Five physicians chose not to respond to the question.

Twenty nine of the 44 physicians reported that their hospitals used objective ways to compare physician practices. Twelve physicians reported that their hospitals did not use objective ways to compare physician practices and three physicians chose not to answer the question.

Thirty one of the 44 physicians reported that their hospitals did not hold retreats

for clinical chairmen to inform them of CQI/TQI applications to clinical care. Ten physicians said that their hospitals did hold such retreats. Three physicians chose not to answer the question.

Sixteen of the 44 physicians reported that their hospital teams were supplied with adequate support staff to ensure team success. Twenty three physicians reported that the teams were not supplied with adequate support staff to ensure success. Five physicians chose not to answer. Sixteen of the 26 physicians with team experience reported that teams were not supplied with adequate support staff to ensure success.

Twenty three of the 44 physicians reported that the human resources departments at the hospitals in which they practiced did not support team performance over individual performance. Twelve physicians reported that the human resources departments did support team performance over individual performance. Nine physicians did not answer the question. Fourteen of the 26 physicians who had team experience reported that the hospitals at which they practiced had human resource departments that did not support team performance over individual performance.

Thirty three of the 44 physicians reported that at the hospitals where they practice, the hospital boards did not give them personal recognition for their CQI/TQI participation. Four physicians reported that they had received personal recognition by their hospital boards. Seven physicians did not respond to the question. Twenty one of the 26 physicians who had team experience reported that they had not received personal recognition by their hospital board.

Thirty six physicians reported that paid trips to showcase team improvement projects were not offered by the hospitals at which they practiced. One physician reported that the hospital at which he or she practiced did pay to showcase team improvement projects at conferences. Seven physicians did not respond to the question.

Thirty of the 44 physicians reported that the hospitals at which they practiced did not encourage publication of team project successes in peer reviewed journals. Seven physicians reported that their hospitals did encourage publication of team project successes. Seven physicians did not respond to the question.

Twenty seven of the 44 physicians reported that instruction of CQI methodologies and principles to physicians were not taught by another physician at the hospitals at which they practice. Eight physicians reported that CQI methodologies and principles were taught by physicians at their hospitals. Nine physicians did not respond to the question.

Thirty three of the 44 physicians reported that medical school residents were not required to participate in TQI activities while training at the hospitals at which they practice. Seven physicians reported that medical school residents were required to participate in TQI activities. Four physicians did not respond to the question. Twenty three of the twenty six physicians with team experience reported that medical school residents were not required to participate in CQI activities at the hospitals at which they practice.

Twenty six of the 44 responding physicians reported that physician office staff members were not solicited to participate on hospital process teams. Thirteen physicians

reported that physician office staff members were solicited to join hospital process teams. Five physicians did not respond to the question. Seventeen of the 26 physicians who had team experience reported that physician office staff members were not solicited to participate on hospital process teams.

Twenty three of the 44 physicians reported that a developed collection of current books, cassettes and videos on CQI/TQI is not available in the libraries of the hospitals at which they have privileges. Twelve physicians reported that the hospital libraries do contain a current collection of books, cassettes and videos on CQI/TQI. Nine physicians did not answer the question.

Table 15 shows the availability of incentives offered by the majority of hospitals to physicians (Table 6), according to the physicians.

Comments from both the quality managers as to why physicians were not involved and suggestions from the physicians (see Appendix C) as to how hospitals leaders can help them become more involved, were included in some of the responses.

Table 15.

Incentives Offered to Physicians - According to Physicians

<u>Incentive</u>	<u>Offered</u>	<u>Not Offered</u>
Personal recognition by hospital board	4	33
Continuing Medical Education credits	8	31
Instruction of CQI tools by a physician	8	27
CQI presentations by physicians	11	30
Current collection of CQI training material	12	23
Solicit team participation by office staff	13	26
Teams are supplied with adequate support	16	23
Reimbursed meals	19	20
CQI projects have clinical relevance	22	17
<u>Objective practice patterns</u>	<u>29</u>	<u>12</u>

Note: n = 44. Not all 44 physicians answered every question.

## Chapter 5

### Summary, Conclusions and Recommendations

#### Summary

This limited study attempted to assess the deployment and results of continuous improvement programs of hospitals in Davidson county and its immediate surrounding counties, to identify the barriers to involvement in continuous quality improvement programs that physicians experience and to identify incentives that hospital senior managers have offered to physicians to become involved in continuous improvement activities at their affiliated hospitals.

Hypothesis 1. Hospitals in middle Tennessee are beginning to document limited results from the deployment of their continuous quality improvement programs. The total quality improvement programs in middle Tennessee hospitals have, for the most part, been in place for one to four years, with the average year of implementation being 1993. Although most hospitals reported that they were beginning to experience cost savings as a result of their quality programs, only four hospitals were actually able to show measurable cost savings, one reporting a cost savings of between \$100,000 - \$399,999 and three reporting savings of less than \$100,000.

Several procedures and conditions, the most often being angioplasty, hip replacement, coronary bypass surgery and congestive heart failure, were being worked on for improvement by formally organized QA/QI project teams. Documented departmental quality improvement results that were reported included: reduced length of stay for a



particular condition, reduced post-operative wound infections, reduced inappropriate use of blood products from blood bank and improvement in the area of medical records.

The quality tools and methods most often used by many teams of the hospitals included brainstorming and process flow charts. Some hospital teams also used Ishikawa or Fishbone diagrams, histograms and run charts. A few hospitals had teams that employed Pareto diagrams, scatter diagrams, control charts and nominal group methods. Only one hospital had a few teams that used affinity diagrams.

The deployment of quality management activities showed that all but one hospital had assigned their quality assurance, risk management and utilization review responsibilities to one person. All but one hospital were conducting regular patient satisfaction surveys. More than half of them had begun the development and use of clinical pathways. Less than half of the hospitals were practicing organizational case management, or were participating in research on patient outcomes. Very few hospitals had begun reviewing clinical and cost data in physician credentialing. One hospital had begun just-in-time materials management and one hospital reported using grand rounds to present successful and unsuccessful improvement to medical practitioners.

During the twelve months, from October 1, 1994 until September 30, 1995, two hospitals had each requested that a specific physician's work be more carefully reviewed and two had each revoked the practice privileges of a certain physician. None of the hospitals had required the agreement of physicians to participate on improvement teams as a prerequisite to their obtaining practice privileges. None of the hospitals had required

that every hospital employee serve on a process improvement team over a specified time period.

Hospital quality managers reported these results as the main objectives of the hospital continuous quality improvement programs at their hospitals: to increase patient satisfaction, to improve patient outcomes, to improve productivity, to meet anticipated Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requirements, to reduce inappropriate treatment, to empower front line employees and to reduce costs. Objectives that dealt with employee relationships, employee turnover, and recruitment were not main objectives.

The greatest impact that the CQI programs have had on the hospitals included: improved patient satisfaction, improved patient outcomes, the ability to meet JCAHO requirements, improved management skills and greater employee satisfaction. With the exception of greater employee satisfaction, the results showed that the CQI programs had less impact on the cultural aspects of the organizations, such as increased nursing satisfaction, the ability to recruit and retain nurses and physicians, and reduced employee turnover. The results also showed that overall, the CQI programs had little effect on actually reducing costs.

Results of the main barriers to change or to improve, ranked in descending order by the quality managers of their hospitals, included: too many other changes taking place, a lack of physician involvement, insufficient time for the staff to attend CQI training, inadequate employee training in CQI tools and methods, too few resources, inadequate

information systems and a lack of training in communication and conflict resolution. In addition, only two hospital quality managers reported that their hospitals contained single integrated data bases that contained all of their hospitals' quality assurance or improvement data elements.

Results showed that those items that would most assist hospital leaders in deploying the hospital continuous improvement programs included: improved accuracy and timeliness of collecting and recording clinical data, better data on patient needs or preferences, better methods to adjust for disease severity, better data on patient satisfaction, additional training in CQI tools and methods, increased resources, and training in group processes and decision making.

The following results related to the deployment of CQI tools, principles and methods down through the hospitals' ranks of CEOs, other senior managers, personnel and affiliated physicians. Most CEOs were involved with CQI within the top levels of their organizations, and as members of their quality councils. The CEOs limited their experience with CQI tools and methods to strategic planning and goal setting with their senior managers, and to reporting results of CQI process improvement teams to their hospital boards. There was little CEO involvement in the day-to-day CQI activities around the hospitals. Less than half of the CEOs had personally participated on hospital process improvement teams and even fewer had personally conducted training in CQI tools and methods. Most CEOs reported that they actively supported physician champions who used CQI tools and methods in their daily work, however, they also

realized the lack of support for and participation in CQI activities by their hospitals' affiliated physicians. As to their hospitals' work forces, there was a discrepancy between the percentage of employees that each of the CEOs claimed were using CQI tools and methods in their daily work and the numbers of their employees who had even been trained in CQI tools and methods.

Senior managers were the most active hospital employees in the quality improvement programs. They received most of the TQI training compared to other employees, physicians or medical school residents. Comparatively, they were also the most involved on process action teams. Most senior members had been members of their quality councils. Very few senior managers, however, had personally conducted training in CQI tools and methods.

The people that received the least amount of training or served the least on process action teams were the hospital personnel and physicians, the very people that had the most direct customer contact and carried on the day-to-day business of caring for patients. These employees would be the ones who would incorporate improvements into their daily work, once those selected changes had been shown by pilot study to be effective. On average, less than half of the hospitals' employees had been trained in CQI tools and methods and only one fifth of them had served on process improvement teams. Very few employees, on average, had conducted training or had been members of their hospitals' quality councils.

Physicians showed the least amount of involvement in CQI activities, according to

the hospital survey, with less than one fifth of them having been trained in CQI tools and methods and just over one tenth having had team experience at their affiliated hospitals. None of the physicians had conducted CQI training and an average of three percent of them had been members of the quality councils of their affiliated hospitals.

According to the physicians who participated in the physician survey, most of them practiced medicine at more than one hospital. The majority of them reported that they spent either no time or 1-5 hours per month on quality related activities. Most of the physicians had not received CQI training in tools and methods. None of them had conducted CQI training. Most of them had not been members of the quality councils at their affiliated hospitals. Most of the physicians who responded to the physician survey, however, had participated on process improvement teams at their affiliated hospitals. Most of them felt that the missions of the teams on which they had served directly benefited their patients.

Hypothesis 2. Barriers were identified. The main barrier to physician involvement in CQI activities, according to at least 50% of the quality managers at middle Tennessee hospitals, was inadequate time for meetings. The other barrier was the belief by physicians that industrial-based quality concepts can not be applied to medicine because practicing medicine is not like building an automobile on an assembly line. The item that physicians identified as the greatest barrier to becoming involved in quality improvement activities, according to at least 50% of the respondent physicians, was the time taken away from patient care. Other barriers included the belief that industrial-based quality concepts

cannot be applied to medicine because practicing medicine is not like building an automobile on an assembly line, unreimbursed time and inadequate time for meetings. Physicians with team experience listed two additional barriers: a personal lack of education in CQI tools and methods and an inadequate training budget to train members of their own office staff.

Hypothesis 3. According to the hospital quality managers, incentives provided by hospitals to physicians to encourage their participation in CQI activities, as cited in the literature, included: the selection of TQI/CQI projects that were of direct clinical relevance to physicians, continuing medical education credits to physicians for quality improvement training, reimbursed meals, objective comparisons of practice patterns, a current collection of CQI/TQI training materials in the library, the instruction of CQI for physicians by a physician who is well respected and knowledgeable of CQI in health care, the presentation of CQI topics by other physician speakers, personal recognition by the hospital board for CQI participation, the provision of adequate staffing to ensure team success and the solicitation of members of the physicians' office staff for team participation.

CQI incentives that physicians said were not offered to them, based upon 50% of the respondent physicians, but that had been reported as being provided by the hospitals, according to the quality managers, included: personal recognition by the hospital board, continuing medical education credits for quality training, a current collection of CQI training material, the instruction of CQI tools and methods by a physician, CQI

presentations by a physician, adequate support supplied to teams to ensure their success, the solicitation of physician office staff members for team participation, and reimbursed meals.

### Conclusions

Hypothesis 1. The statement that hospitals in middle Tennessee are beginning to document results from the deployment of their continuous quality improvement programs was supported. Limited results were reported due to the limited deployment of the quality improvement programs at most of the middle Tennessee hospitals. Only those few hospitals that showed deployment throughout their organizations were beginning to show measurable cost savings and improvement results. The limited deployment of the continuous quality improvement programs overall was evident from the low numbers of CEOs, other senior managers, hospital personnel and physicians who had limited participation in their hospitals' continuous improvement activities.

Hypothesis 2. The statement that barriers which hinder physician involvement in hospital-based CQI activities can be identified for hospital managers to address was supported. Barriers to physician involvement were identified based upon a 50% response by members of a group of physicians who were asked directly to identify barriers to involvement in CQI-related activities at their affiliated hospitals. Although there were barriers reported at the 50% level of response, there were also significant responses at 41% for the general physician group and at 42% for those physicians from that group who had team experience. At those percentages, the barriers were identical for both groups,

though not listed in the exact same order.

When 50% was used for the significant cut off point for responses for what the quality managers felt were barriers to physician involvement, their list was similar to that of the physicians, with two exceptions. The quality managers were not given time away from patient care as a possible barrier, so they were unable to judge it as a barrier. The other notable barrier, according to the quality managers, was physicians are hesitant to discuss poor patient outcomes when discussing ways to improve treatments of certain conditions or ways to conduct procedures. That particular barrier was a very prominent one, according to the literature.

At the 33% response level for hospital quality managers, with the exceptions of time away from patient care and hesitance to discuss poor patient outcomes, the quality managers list matched both the general physician list at 41% and the list of physicians with team experience at 42%, though not in exactly the same order.

Hypothesis 3. The statement that incentives are provided by hospital leaders to support physicians and to encourage their involvement in hospital-based CQI activities, was not supported when tested. When the list of incentives that hospital quality managers reported to have in place to encourage physician involvement was compared to the list of physician responses, the majority of physicians reported that many of those incentives were not offered at the hospitals where they practiced. It is possible that the physicians were unaware that the incentives for their CQI participation existed at their affiliated hospitals. It is also possible that they did not have practicing privileges at the hospitals of



the responding quality managers.

In general, there were no mechanisms in place to give the CEOs direct feedback from employees on what was really happening with the training and implementation of teams, particularly within services. It was apparent that there were pockets of activities within different services where employees accomplished process improvements, but most were unable to convert those successes into an actual figures for dollars saved.

It was apparent that the responsibility of developing an environment that would allow for the establishment and growth of a vibrant CQI-based culture was delegated by several CEOs to their quality managers and senior staff members. Since an organization's culture includes the values, beliefs, and norms that shape the behavior of its members, and quality improvement requires a culture that develops employee learning, empowerment and participation, such an awesome responsibility belongs to the senior executive leader alone. The lack of commitment by many hospital CEOs was apparent from the lack of resources allotted to quality managers to develop and support physician champions or to motivate and train employees. The human resource management departments were not given the support to reward employees or physicians for team performance. Several physicians commented that they were not given credit for their participation in CQI activities at performance appraisal time or during physician recredentialing. Such support by health care leaders to the hospital-wide implementation of strong continuous quality improvement programs is absolutely necessary.

It was significant that the first eight items that were needed by quality managers to

improve the quality of patient care included better methods to collect data and more staff training in building strong, quality based cultures. Quality managers were spending much of their time searching for data, mostly without the assistance of integrated real-time information systems. Strong support by the hospital leadership was desperately needed to allow employees and physicians the time to attend meetings or to collect data.

### Recommendations

In order to understand the time commitment and frustrations of the physicians being asked to participate, personal participation by the CEOs in the team experience is vital. Hospital CEOs run the risk of getting their total quality management or continuous quality improvement programs off to a big start, only to lose their personal commitment to them over time and ending up with confused and disappointed work forces. By ignoring the concerns that physicians have with continuous quality improvement, hospital leaders also risk alienating the physicians. It is recommended that hospital leaders communicate with physicians, learn to understand and address their concerns and keep them informed on what is going on with their hospital's quality programs. Hospital executives may find it necessary to require the consent to participate on teams as a prerequisite to obtaining practice privileges at their hospitals, so medical leaders must recognize and reward physician champions and continue teaching them how to use the tools and methods of continuous improvement in their daily work.

The creation and nurturing of a caring, supportive culture is mandatory to developing a successful quality improvement program in which employees are encouraged

to express their ideas, take risks and give feedback. The people who do the work know the processes involved in that work the best. Those workers, therefore, are the best people to develop and implement improvements to those processes. Results from this study showed that management put little degree of importance on nursing satisfaction and physician relations. It is recommended that senior hospital leaders learn how to provide highly educated nurses and other health care professionals with opportunities to work creatively with physicians, offer advice and suggest alternatives that would improve patient outcomes. Many health care workers have post secondary educations, many with B.S. and M.S. or Ph.D. degrees. Seasoned nurses know volumes about the processes of care for particular types of patients that it would take young physicians years to learn.

It is recommended that successful health care improvement projects be presented in department meetings, during grand rounds, in certified medical education seminars for physicians, and in hospital-wide publications, to emphasize management's support of such successes to the physicians, employees, patients and visitors.

It is recommended that team-based quality improvement in health care be introduced as a vital part of the curriculum in medical schools. The importance of communicating with other members of the health care facilities staffs and valuing their depth of knowledge must be relayed to medical students before they begin their residencies, so they can benefit from the experience and knowledge of other health care professionals.

It is recommended that strategies to enable physicians and employees to attend

team meetings and to collect data be developed by the senior managers in order to demonstrate their support for their continuous improvement programs. Middle managers throughout the hospital must be reassured that they will not be threatened nor have their authority diminished by the decisions made by teams within their departments. Clerical support must be provided to the teams in order for team members to successfully communicate with each other, to collect data and to successfully develop their recommendations for improvement.

Communication is vital for any continuous improvement program to be successful. Employees and physicians must be able to communicate with other employees at all levels of the organization without fear or barricades. It is recommended that communication skills be taught and individual recommendations for improvement not be ignored.

It is recommended that medical leaders access the rich source of information that may be found by studying the quality improvement stories of successful health care organizations and how they overcame the barriers that they encountered. Dr. Donald M. Berwick, CEO of the Institute for Healthcare Improvement, Boston, Massachusetts, can offer guidance to health care executives on where they can look for such improvement stories. Dr. A. Blanton Godfrey, CEO of the Juran Institute, Wilton, CT, and Mr. Chip Caldwell, Vice-President, Juran Institute, are also sources of valuable information.

It is recommended that executives also look beyond health care for improvement strategies. They may study ways in which winners of national quality, manufacturing and service excellence awards motivated and educated the members of their work forces. The

chance to spark creative ideas and catalyze breakthrough improvement are enhanced by escaping one's own paradigm (health care) and studying the improvement stories of other industries.

Senior leaders may use the criteria included in the Malcolm Baldrige National Quality Award to assess the approach, deployment and results of the quality programs in place in their own health care organizations. In 1998, the Baldrige award will be available to educational and health care organizations for the first time. The criteria was written in 1995, and the pilot programs have been completed. Copies of the pilot criteria for both education and health care are available through the Baldrige office at the Institute for Standards and Technology in Gaithersburg, MD.

It is recommended that senior leaders take advantage of state and local quality award programs that can perform impartial, non-regulatory assessments for them. The Tennessee Quality Award program, sponsored by the Tennessee Department of Community and Economic Development, can perform Baldrige-based assessments for a reasonable cost. The American Society for Quality (ASQ), formerly known as the American Society for Quality Control (ASQC), The Association for Quality and Participation (AQP), and the Institute of Industrial Engineers (IIE) offer training in most quality related areas, particularly in quality management. These organizations keep rosters of current, competent, locally available quality professionals who can lend their expertise to those medical executives who are searching for ways to improve their organizations.

The ASQC Healthcare Division and the IIE Society for Health Systems (SHS) offer training in quality improvement that is specific to health care.

The leaders of health care organizations must not delegate the oversight of the quality improvement programs to any subordinates. It takes dedication and perseverance to deploy a quality system down and throughout the organization, along with the belief that people want to do their best if only they are given the opportunity. The business of running complex organizations no longer requires that the top managers be the best at every operation within their organizations. Success demands, however, that today's health care leaders hire the best qualified people for the job, appreciate their individual contributions, motivate them to look around their operations to find opportunities for improvement and then give them the tools, methods, authority and responsibility to make the best out of their particular operations.

The resources available at local colleges and universities can be of great assistance when searching for guidance and answers. The psychology and business administration departments can provide sources for employee psychological profiling, team management strategies and the latest in successful managerial methods. The engineering and industrial technology departments can hold the key to enormous resources of hands-on experience, such as statistical process control and data analysis, process management and the incorporation of robotics into certain processes. These departments typically communicate with manufacturing and service industries in their communities, and can act as liaisons between manufacturers and the health care leaders who would like to benchmark their operations. In the state of Michigan, General Motors is working with

Wayne State University's Karmanos Cancer Institute in Detroit, by sending in productivity experts to open bottlenecks in patient care processes just as they redesign processes to open up bottlenecks in bumper factories (Blumenstein, 1996).

The entire cornerstone of modern quality management, management by the use of data, was laid down by industrial engineers. The saying, "You can't manage what you can't measure" holds true in health care just as it does in manufacturing. Process redesign in health care will dominate organizational change in the remainder of this century. The psychology and business management areas of quality management will continue to grow in importance as these changes occur. The breakthrough improvements, however, will come through process redesigning of the nuts and bolts (sutures, scalpels and syringes) of health care as an industry. Quality professionals can play a vital role in its development by conducting studies of the economic impact of poor quality costs to the health care organizations.

#### Suggestions For Further Research

Hopefully, this study will serve as a baseline for others to study the evolution of continuous quality improvement in health care within Tennessee. A suggestion would be for the surveys to be run periodically and comparisons made of the improvements to the health care organizations and their relationships with physicians. If the surveys are repeated, it is recommended that 33% be the cut off point for barriers to physician involvement according to quality managers. It is also recommended that 41% be considered as a cut off point for barriers according to all physicians, and 42% being the

cut off point for those physicians with team experience.

There needs to be much further research by quality professionals on how they can best advise health care managers on developing quality based cultures and improving their processes of patient care in middle Tennessee.



**Appendices**

Appendix A  
Contents of Hospital Mailing



Phone: (615) 896-2776  
 Fax: (615) 896-5697

**Industrial Studies Department**  
 P.O. Box 19  
 Middle Tennessee State University  
 1500 Greentand Drive  
 Murfreesboro, Tennessee 37132

November 6, 1995

Dear Chief Executive Officer,

During this time of remarkable change, it is essential that quality patient care remain central to the health care reform debate. Hospitals have taken many different approaches to assessing and enhancing quality, with various experiences and results.

The attached survey is designed to gather information on how hospitals in Davidson County and the immediate surrounding counties are currently evaluating and improving quality. The questionnaire is designed to be completed by the CEO and the Quality Manager. The results of this survey will be shared, in aggregate form only, with all respondents.

Thank you in advance for your participation. Please accept these "Quality Happens Through People" buttons as a token of my appreciation for your efforts.

Sincerely,

Geraldine (Deanie) Yocst, MT(ASCP)  
 Graduate Student

Engineering Technology, Environmental Science and Technology, Industrial Education, and Industrial Technology degree programs  
 Pre-Engineering and Pre-Architecture transfer programs

MTSU is an equal opportunity, affirmative action, educational institution that does not discriminate against individuals with disabilities.

**METRO-NASHVILLE AND SURROUNDING COUNTIES SURVEY OF  
HOSPITALS' EFFORTS TO IMPROVE QUALITY OF PATIENT CARE**

**EXECUTIVE SUMMARY**

**PURPOSE:** To gather information on how hospitals view and improve the quality of patient care they provide and how they encourage physician involvement in continuous improvement activities related to patient care.

**UNIVERSE:** Hospitals within Metro Nashville and the immediate surrounding counties.

**DATA USE:** The results of this questionnaire will be shared with participating hospitals so that they can evaluate their own experience with other area hospitals. Quality patient care remains essential in the healthcare reform debate and this collected data will aid in that process.

**ESTIMATED TIME TO COMPLETE:** approximately forty-five minutes.

**STAFF NEEDED TO COMPLETE:** The CEO and the person(s) responsible for quality management of patient care at the hospital.

**PLEASE POSTMARK THE COMPLETED QUESTIONNAIRE IN THE ENCLOSED ENVELOPE BY MONDAY, DECEMBER 11, 1995.**

## KEY DEFINITIONS

**QUALITY IMPROVEMENT** refers to all hospital activities directed at improving patient care.

**QUALITY ASSURANCE** refers to hospital efforts to develop and maintain recognized standards of care primarily by screening for problems and adverse patient care events. It utilizes peer review of individual cases and/or practitioners and may also include staff review and educational and disciplinary activities.

**CONTINUOUS QUALITY IMPROVEMENT/TOTAL QUALITY IMPROVEMENT (CQI/TQI)** are not distinguished for the purposes of this questionnaire. For the purposes of this questionnaire, a hospital has adopted CQI/TQI only if it has committed to an initiative which incorporates all five of the following characteristics:

1. a philosophy of continuous improvement of quality through improvement of organizational processes;
2. the use of structured problem-solving processes incorporating statistical methods and measurement to diagnose problems and monitor progress;
3. the 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;
4. empowering employees to identify quality problems and improvement opportunities and to take action on these problems and opportunities;
5. an explicit focus on "customers" - both external and internal.

**QUALITY ASSURANCE/QUALITY IMPROVEMENT PROJECT;** A quality assurance/improvement project is an organized effort on the part of three or more individuals with a designated team leader/facilitator to resolve a specific problem(s) or undertake activities to improve upon current practices that goes beyond the routine daily operation of the department or functional activity or the normal responsibilities of a quality assurance committee.

## INSTRUCTIONS

Please read the definitions provided on the facing page before answering the questions.

Having read the definitions, if you have determined that the quality efforts of your hospital **DO NOT** include CQI/TQM, please check the applicable choice on the return post card and drop the card in the mail. The questionnaire may then be added to your recycle bin.

If you determine that your hospital efforts **DO** include CQI/TQM, please complete the questionnaire and mail it back in the enclosed envelope.

The first eight questions should be completed by you, the CEO. These questions deal with your own use of CQI/TQM methods, your level of satisfaction with your CQI/TQM program and the type of competition for patients that your hospital is experiencing. Questions nine through twenty-five may be completed by the persons(s) who has lead responsibility for quality management of patient care at your hospital. They are more specific questions about your hospital's CQI/TQM program.

Please provide your most realistic assessment of each item. **The focus is on your hospital's current experience, not on what you wish were true or what you plan to do in the future.**

**DATA WILL BE COMPILED SO THAT NO INDIVIDUAL DATUM WILL BE AVAILABLE. CONFIDENTIALITY WILL BE STRICTLY MAINTAINED.**

Thank you for consenting to participate in this research by filling out and sending in the questionnaire. A self-addressed, stamped envelope has been provided for your convenience.

You will receive a copy of the final report to compare your experience with those of other hospitals participating in the study. Please keep a copy of your completed questionnaire for your records.

**PLEASE POSTMARK THE COMPLETED QUESTIONNAIRE NO LATER THAN MONDAY, DECEMBER 11, 1995.**

1. CHECK THE FOLLOWING STATEMENT THAT **BEST DESCRIBES YOUR HOSPITAL'S EFFORTS TO IMPROVE QUALITY**. PLEASE REFER TO THE FIVE CHARACTERISTICS OF A CQI/TQM APPROACH ON THE KEY DEFINITIONS PAGE.

A  We have an organized effort to improve quality, but it does not involve CQI/TQM.

\* B  We have an organized effort to improve quality that involves CQI/TQM.

(Please indicate the number of years involved).

less than 2 years       2 years to 4 years       more than 4 years

2. If you are **not** currently involved in CQI/TQM approaches, (you checked option A above), do you plan to become involved in the next 12 months?

Yes       No

\* If you chose option B, please mail this postcard back with the questionnaire.

**QUESTIONS 1-8: CHIEF EXECUTIVE OFFICER**

1. In which of the following CQI/TQM activities do you, the CEO, personally participate? Please check YES or NO for each item.

- |    | YES                      | NO   |
|----|--------------------------|--|
| A. | <input type="checkbox"/> | <input type="checkbox"/> serve on the quality improvement management council or steering committee.                              |
| B. | <input type="checkbox"/> | <input type="checkbox"/> teach CQI/TQM principles and methods to others.   |
| C. | <input type="checkbox"/> | <input type="checkbox"/> participate in quality improvement project teams.   |
| D. | <input type="checkbox"/> | <input type="checkbox"/> use CQI/TQM techniques in working with senior management team.  |
| E. | <input type="checkbox"/> | <input type="checkbox"/> use CQI/TQM techniques in working with secretary and other administrative support staff                 |
| F. | <input type="checkbox"/> | <input type="checkbox"/> form team(s) within your own office to accomplish process improvements.                                 |
| G. | <input type="checkbox"/> | <input type="checkbox"/> participate in organization-wide improvement work with suppliers and customers.                         |
| H. | <input type="checkbox"/> | <input type="checkbox"/> regularly report results of CQI/TQM activities to hospital board.                                       |
| I. | <input type="checkbox"/> | <input type="checkbox"/> use CQI/TQM techniques in doing strategic planning.   |
| J. | <input type="checkbox"/> | <input type="checkbox"/> set quality improvement goals for the organization  |
| K. | <input type="checkbox"/> | <input type="checkbox"/> actively support physician champions who have incorporated CQI/TQM in their daily work at the hospital. |



2. Please indicate on the scale below the extent to which you believe that at this point in time CQI/TQM philosophy, principles and methods have been implemented throughout your hospital. IN ANSWERING THIS QUESTION, PLEASE CONSIDER THE EXTENT TO WHICH PEOPLE AT YOUR HOSPITAL UNDERSTAND CQI/TQM AND HAVE INTEGRATED IT INTO THEIR DAILY WORK OF DIRECTLY OR INDIRECTLY CARING FOR PATIENTS.

<u>not at all</u> <u>implemented</u>	<u>about half</u> <u>actively using</u>	<u>100%</u> <u>actively using</u>
10	20	30
40	50	60
70	80	90
100		

3. To date, how satisfied are you with the results of your efforts to improve quality of patient care using CQI/TQM methods?

<u>Not at all</u> <u>Satisfied</u>	<u>Somewhat</u> <u>Satisfied</u>	<u>Very</u> <u>Satisfied</u>
1	2	3
4	5	6
7	8	9
10		

4. On the scale below, please indicate the intensity of competition for patients between your hospital and other hospitals in your market (i.e., as you define your market).

<u>NOT AT</u> <u>ALL INTENSE</u>	<u>SOME WHAT</u> <u>INTENSE</u>	<u>HIGHLY</u> <u>INTENSE</u>
1	2	3
4	5	6
7	8	9
10		

5. What percentage of the market share do HMO's currently hold in your service area?

0 10 20 30 40 50 60 70 80 90 100%

6. Excluding Medicare and Medicaid, for what percentage of your patients are you paid on a capitated, negotiated per case, or discounted basis? Please provide your best estimate.

0 10 20 30 40 50 60 70 80 90 100%

7. With how many other hospitals do you directly compete for patients on an inpatient and/or outpatient basis?

in \_\_\_\_\_ / out \_\_\_\_\_

8. Please indicate the overall extent to which **physicians** who are affiliated with your hospital have **personally participated** in continuous improvement projects involving the hospital?

LOW

MEDIUM

HIGH

1 2 3 4 5 6 7 8 9 10

QUESTIONS 9-25: QUALITY MANAGER

9. On the scale below, please indicate the extent to which each of the following items is an important objective of your hospital's continuous quality improvement activities:

	NOT		SOMEWHAT			VERY	
	<u>IMPORTANT</u>		<u>IMPORTANT</u>			<u>IMPORTANT</u>	
	1	2	3	4	5	6	7
a. reduce costs	1	2	3	4	5	6	7
b. improve production/ efficiency	1	2	3	4	5	6	7
c. improve patient outcomes	1	2	3	4	5	6	7
d. increase patient satisfaction	1	2	3	4	5	6	7
e. reduce employee turnover	1	2	3	4	5	6	7
f. reduce inappropriate treatment	1	2	3	4	5	6	7
g. improve management skills and practices	1	2	3	4	5	6	7
h. improve hospital/physician relations	1	2	3	4	5	6	7
i. increase physician commitment to the hospital	1	2	3	4	5	6	7
j. increase nursing staff satisfaction.	1	2	3	4	5	6	7
k. empower front line employees	1	2	3	4	5	6	7
l. increase market share	1	2	3	4	5	6	7
m. increase ability to recruit and retain physicians	1	2	3	4	5	6	7
n. increase ability to recruit and retain nurses	1	2	3	4	5	6	7
o. meet anticipated JCAHO requirements.	1	2	3	4	5	6	7
p. increase profitability	1	2	3	4	5	6	7

10. Please indicate the degree of impact which your continuous quality improvement activities have had to date in the following areas:

	LOW		MEDIUM		HIGH		TOO SOON TO EVALUATE	
	1	2	3	4	5	6	7	8
a. reduced costs	1	2	3	4	5	6	7	8
b. improved productivity	1	2	3	4	5	6	7	8
c. improved patient outcome	1	2	3	4	5	6	7	8
d. increased patient satisfaction	1	2	3	4	5	6	7	8
e. reduced employee turnover	1	2	3	4	5	6	7	8
f. reduced errors/inappropriate treatment	1	2	3	4	5	6	7	8
g. improved management skills	1	2	3	4	5	6	7	8
h. improved hospital/physician relations	1	2	3	4	5	6	7	8
i. increased physician commitment to the hospital	1	2	3	4	5	6	7	8
j. increased nursing staff satisfaction	1	2	3	4	5	6	7	8
k. greater employee empowerment	1	2	3	4	5	6	7	8
l. increased market share	1	2	3	4	5	6	7	8
m. greater employee satisfaction	1	2	3	4	5	6	7	8
n. increased ability to recruit and retain physicians	1	2	3	4	5	6	7	8
o. ability to recruit and retain nurses	1	2	3	4	5	6	7	8
p. ability to meet JCAHO criteria	1	2	3	4	5	6	7	8
q. increased profitability	1	2	3	4	5	6	7	8
r. improved continuity of patient care	1	2	3	4	5	6	7	8

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 continuous quality improvement activities:

	<u>No</u>		<u>Moderate</u>			<u>Great</u>	
	<u>Barrier</u>		<u>Barrier</u>			<u>Barrier</u>	
a. lack of board commitment/ support.	1	2	3	4	5	6	7
b. lack of senior management time commitment.	1	2	3	4	5	6	7
c. frequent leadership turnover.	1	2	3	4	5	6	7
d. too few resources.	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. lack of middle management support.	1	2	3	4	5	6	7
h. insufficient senior management knowledge of TQM/CQI.	1	2	3	4	5	6	7
i. insufficient time for staff to attend training sessions.	1	2	3	4	5	6	7
j. too many other changes going on in the organization.	1	2	3	4	5	6	7
k. inability to prioritize projects.	1	2	3	4	5	6	7
l. inadequate consulting support.	1	2	3	4	5	6	7
m. inability of key people to work together.	1	2	3	4	5	6	7
n. inability to use personnel in new ways.	1	2	3	4	5	6	7
o. inadequate information systems.	1	2	3	4	5	6	7
p. lack of realistic goals.	1	2	3	4	5	6	7
r. lack of training in communication skills and conflict resolution.	1	2	3	4	5	6	7

12. Please indicate below the extent to which the following items would assist your hospital in its efforts to improve the quality of patient care:

	<u>no or little</u> <u>assistance</u>			<u>of some</u> <u>assistance</u>		<u>of great</u> <u>assistance</u>	
a. additional staff training in quality assurance and improvement.	1	2	3	4	5	6	7
b. better data on patient satisfaction.	1	2	3	4	5	6	7
c. better data on patients' needs and preferences.	1	2	3	4	5	6	7
d. improved accuracy and timeliness of collecting and reporting clinical data.	1	2	3	4	5	6	7
e. better methods to adjust data for disease severity.	1	2	3	4	5	6	7
f. training in group processes and decision-making.	1	2	3	4	5	6	7
g. training in communication and conflict resolution.	1	2	3	4	5	6	7
h. more opportunities to share results with others.	1	2	3	4	5	6	7
i. outside consultation on quality assurance/ improvement activities.	1	2	3	4	5	6	7
j. increased resources.	1	2	3	4	5	6	7
k. changes in the budget process.	1	2	3	4	5	6	7
l. changes in employee evaluation and reward system.	1	2	3	4	5	6	7
m. training employees in development of self-directed work teams.	1	2	3	4	5	6	7
n. please add any other factors that could be of assistance.							

13. Have physicians affiliated with your hospital expressed these items as barriers regarding participation in continuous improvement projects?

YES NO

- a.   Unreimbursed time for meetings
- b.   Inadequate time for meetings
- c.   Perception that quality teams are only punitive
- d.   Inadequately trained facilitators, team leaders or team members
- e.   Perception that physicians must always serve as team leaders
- f.   Hesitance to openly discuss details of poor patient outcomes
- g.   Physicians are not asked to identify those processes of care that would be of most benefit to their clinical practices
- h.   Unreimbursed mileage to and from physician office
- i.   Inadequate training budget to educate physician office staff members in CQI/TQM principles and methods
- j.   Failure of hospital process improvement teams to include member(s) of affiliated physician office staff
- k.   Lack of education in CQI/TQI methods and principles
- l.   Unfamiliarity with cross-departmental and multi-level teams
- m.   Practicing medicine is not like building a Toyota.
- n. Please list other barriers that cause physician lack of involvement below.

14. Does your hospital offer any of the following assistance for physicians to actively participate in CQI/TQM activities within the hospital?

**YES**    **NO**

- a.      reimbursed mileage to attend meeting or collect data
- b.      continuing education credits
- c.      reimbursed meals or provision of meals
- d.      personal recognition for participation by the hospital board
- e.      include physician office staff members in hospital TQM training
- f.      presentation of successful improvement projects in grand rounds
- g.      presentations of successful TQM/CQI projects by outside physician speakers and formal CME seminars
- h.      selection of TQM projects that are of direct clinical relevance in improved patient outcome.
- i.      objective, not punitive, ways of comparing physician practice patterns
- j.      hold retreats with clinical chairmen to enhance their awareness of TQM and its applications to clinical care.
- k.      provision of adequate staffing to enable the teams to be successful
- l.      support by human resources management of team performance rather than solely individual and departmental performance.
- m.      reimbursed time for meetings
- n.      paid trips to showcase team improvement projects at conferences
- o.      encourage publication of team results in peer reviewed journals
- p.      instruction of TQM methodologies and principles to physicians by a physician who is well respected and knowledgeable of TQM in healthcare.
- q.      require the active participation of residents and other medical school students in hospital team activities and TQM training.
- r.      solicit the participation of physician office staff members on teams whose projects involve communication between hospital and physician office.
- s.      development of a current collection of books, cassettes and videotape series in TQM/CQI training materials in the library.
- t. Please add ways that your hospital has encouraged physician involvement.



15. Please indicate below whether your hospital has been involved in the listed activities by checking YES or NO for each item, and for the YES responses please list the year that the activities began.

	YES	NO		<u>YEAR</u>
a.	<input type="checkbox"/>	<input type="checkbox"/>	integration of quality assurance, utilization review and risk management activities reporting to a single designated person	_____
b.	<input type="checkbox"/>	<input type="checkbox"/>	use of both clinical and cost data in reviewing physician privileges and credentials	_____
c.	<input type="checkbox"/>	<input type="checkbox"/>	conduct regular patient satisfaction surveys	_____
d.	<input type="checkbox"/>	<input type="checkbox"/>	development and use of clinical algorithms, practice protocols/guidelines or critical pathways	_____
e.	<input type="checkbox"/>	<input type="checkbox"/>	participate in research on patient outcomes.	_____
f.	<input type="checkbox"/>	<input type="checkbox"/>	practice just-in-time materials management	_____
g.	<input type="checkbox"/>	<input type="checkbox"/>	practice organized case management	_____
h.	<input type="checkbox"/>	<input type="checkbox"/>	use of grand rounds by medical leaders to present cases of successful and unsuccessful improvement projects	_____

16. In the past 12 months, has the governing board of the hospital taken any of the following actions?

- |    | YES                      | NO                       |   |
|----|--------------------------|--------------------------|---|
| a. | <input type="checkbox"/> | <input type="checkbox"/> | directed the hospital to initiate a special study of a specific quality problem   |
| b. | <input type="checkbox"/> | <input type="checkbox"/> | requested that specific quality of care data be collected   |
| c. | <input type="checkbox"/> | <input type="checkbox"/> | requested that a specific physician(s) work be more carefully reviewed  |
| d. | <input type="checkbox"/> | <input type="checkbox"/> | revoked the privileges of a given physician   |
| e. | <input type="checkbox"/> | <input type="checkbox"/> | required the agreement of physicians to participate on improvement teams as a prerequisite to obtaining practice privileges |
| f. | <input type="checkbox"/> | <input type="checkbox"/> | required every hospital employee to serve on a process improvement team over a specified time period                        |
| g. | <input type="checkbox"/> | <input type="checkbox"/> | directed the hospital to initiate a special study of a specific quality problem   |

17. Please indicate which of the following activities your hospital has completed or is currently involved in by checking yes or no to each item.

- |    | YES                      | NO                       |   |
|----|--------------------------|--------------------------|---|
| a. | <input type="checkbox"/> | <input type="checkbox"/> | Conducted periodic assessments of community needs.  |
| b. | <input type="checkbox"/> | <input type="checkbox"/> | Benchmarking (i.e. comparing) quality improvement results against those of other health care organizations. |
| c. | <input type="checkbox"/> | <input type="checkbox"/> | Formation of project teams to improve quality of patient care.  |
| d. | <input type="checkbox"/> | <input type="checkbox"/> | Reporting by teams of project results to improve patient care.  |
| e. | <input type="checkbox"/> | <input type="checkbox"/> | Formation of a Quality Improvement Council or Steering Committee.   |
| f. | <input type="checkbox"/> | <input type="checkbox"/> | Senior management training in CQI/TQM principles and methods.   |
| g. | <input type="checkbox"/> | <input type="checkbox"/> | Middle management training in CQI/TQM principles and methods.   |
| h. | <input type="checkbox"/> | <input type="checkbox"/> | Physician training in CQI/TQM principles and methods.   |
| i. | <input type="checkbox"/> | <input type="checkbox"/> | Conducted an overall review and evaluation of our approach to improving quality.                            |
| j. | <input type="checkbox"/> | <input type="checkbox"/> | Have incorporated CQI/TQM criteria into the reward and appraisal system.                                    |

18. Please provide your best estimates of numbers for the following items as of the end of the third quarter of calendar year 1995.

	Senior Managers (Associate Administrator and Above)	Hospital Staff Personnel	Current Practicing Physicians	Medical/ Surgical Residents
A. Total number in organization?	_____	_____	_____	_____
B. Number having received formal quality improvement training?	_____	_____	_____	_____
C. Number who have participated on quality improvement teams?	_____	_____	_____	_____
D. Number who have personally conducted CQI/TQM training	_____	_____	_____	_____
E. Number who have served on hospital quality council.	_____	_____	_____	_____

19. Is there a single integrated data base that contains all of the hospital's quality assurance/improvement data elements?

Yes

No

20. For each of the following conditions/procedures, please provide the requested information regarding : 1) whether or not the condition/procedure is performed; 2) whether quality of care data are regularly compiled for all patients with these conditions; and 3) whether the data have been used by any formally organized quality assurance/improvement project teams as previously defined. **Please remember that a formally organized project means having a team leader/facilitator.** DEFINITION: A quality assurance/improvement project is an organized effort on the part of three or more individuals with a designated team leader/facilitator to resolve a specific problem(s) or undertake activities to improve upon current practices that goes beyond the routine daily operation of the department or functional activity or the normal responsibilities of a quality assurance committee).

	Procedure or condition performed by hospital		Quality of Care Data compiled		Data have been used by formally organized QA/QI project teams	
	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
<u>Medical</u>						
a. Uncomplicated MI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Angioplasty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Pulmonary Embolism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Pneumonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Surgical</u>						
f. Hip replacement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Cholecystectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Transurethral Resection of Prostate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Coronary Bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Perioperative MI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Obstetrics-Gynecology</u>						
k. Caesarian Section	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Hysterectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Outpatient</u>						
m. Asthma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Congestive heart failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. To date, have your quality improvement efforts resulted in any statistically significant, measurable improvement in patient outcomes of care in the following areas? Please check Yes or No for each item. If it is too early to know, please check (✓) the "No" box.

	<u>YES</u>	<u>NO</u>
a. Reduction in overall mortality adjusted for severity of illness	[ ]	[ ]
b. Reduction in condition-specific mortality adjusted for severity of illness	[ ]	[ ]
c. Reduction in post-operative wound infection rates	[ ]	[ ]
d. Reduction in C-Section rates	[ ]	[ ]
e. Reduction in unplanned readmission rates to the ICU	[ ]	[ ]
f. Reduction in medication errors.	[ ]	[ ]
g. Reduction in inappropriate use of blood products	[ ]	[ ]
h. Increase in patient satisfaction survey scores	[ ]	[ ]

22. To date, have your quality improvement efforts resulted in any statistically significant, measurable cost savings in the following areas? Please check YES or NO for each item. If it is too early to know, please check (✓) the "NO" box.

	<u>YES</u>	<u>NO</u>	<u>DG NOT HAVE DEPT</u>
a. Admitting Department	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Ambulatory Surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Anesthesia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Billing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Emergency Department	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Laboratory (including blood bank)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Medical Records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Operating Room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Outpatient Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Patient care units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Pharmacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Radiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Significantly reduced average length-of-stay, overall or for a particular condition	<input type="checkbox"/>	<input type="checkbox"/>	

23. What is your best estimate of the total cost savings that can be realistically be attributed to your efforts to improve quality over the past twelve months? NOTE: DO NOT INCLUDE THE COSTS OF IMPLEMENTING YOUR EFFORTS TO IMPROVE QUALITY.

No savings yet, too early in efforts	<input type="checkbox"/>
Less than \$100,000	<input type="checkbox"/>
\$ 100,000 - \$ 399,999	<input type="checkbox"/>
\$ 400,000 - \$749,000	<input type="checkbox"/>
\$ 750,000 - \$999,999	<input type="checkbox"/>
\$ 1,000,000 plus	<input type="checkbox"/>

24. Please indicate below the extent to which your hospital uses the following quality assurance/improvement tools:

	Don't use at all	Used by a few Depts/Teams	Used by Many Depts/Teams	Don't Know
a. Pareto diagrams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause and effect or "Fishbone Diagrams"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Control charts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Run Charts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Histograms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Scatter diagrams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Process flow charts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Affinity diagrams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Nominal group methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Brainstorming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25. Which of the following CQI/TQM approaches is your hospital using?  
(Check all that apply).

Deming

Juran

Crosby

Other (specify \_\_\_\_\_)

None, have not selected a specific approach

**Appendix B**  
**Contents of Physician Mailing**



**Industrial Studies Department**

P.O. Box 19  
 Middle Tennessee State University  
 1500 Greenland Drive  
 Murfreesboro, Tennessee 37132



Phone: (615) 896-2776  
 FAX: (615) 896-5697

February 5, 1996

To: Practicing Physicians in Davidson County and Surrounding Counties

Subject: Survey of Physician Involvement in Total Quality Improvement Programs at Area Hospitals.

During this time of remarkable change, it is essential that quality patient care remain the central goal for all involved in health care. Hospitals have taken many different approaches to assessing and enhancing quality, with different experiences and results. One crucial factor in the success of such programs is the involvement of practicing physicians.

The attached survey is designed to gather information on how physicians perceive their involvement in the total quality improvement initiatives at the hospitals at which they practice. Your name was chosen from of all of the practicing physicians in Davidson County and its surrounding counties in Middle Tennessee, along with 199 others, for this project using a carefully selected, scientific random sampling technique. The questionnaire is designed to be completed in approximately ten to fifteen minutes. Please refer to the definitions provided on the following page before answering the questions.

Please provide your most realistic assessment of each item. The focus is on your experience with your affiliated hospital(s). All data will be compiled so that no individual datum will be available. Confidentiality will be strictly maintained. The results will be shared, in aggregate form only, with respondents.

Thank you in advance for your participation. Please direct questions regarding this survey to Deanie Yoest at (615) 893-1360, ext. 3713.

Geraldine (Deanie) W. Yoest, MT(ASCP)  
 Graduate Student

Engineering Technology, Environmental Science and Technology, Industrial Education, and Industrial Technology degree programs  
 Pre-Engineering and Pre-Architecture transfer programs

A Tennessee Board of Regents Institution

MTSU is an equal opportunity, non-discriminatory institution. All persons are encouraged to report violations of this policy to the appropriate authority.

**PHYSICIAN SUMMARY****METRO NASHVILLE AND SURROUNDING COUNTIES SURVEY OF PHYSICIAN INVOLVEMENT IN TOTAL QUALITY IMPROVEMENT: WHAT PHYSICIANS CONSIDER TO BE THE MOST EFFECTIVE WAYS TO ENCOURAGE THEIR PARTICIPATION IN HOSPITAL-BASED PROGRAMS.**

**PURPOSE:** To gather information on how physicians view their level of involvement in Total Quality Improvement activities at their affiliated hospital(s) and what they consider to be the most effective ways to encourage their participation.

**UNIVERSE:** Davidson County and the immediate surrounding counties.

**DATA USE:** The results of this questionnaire will be shared with participating physicians. Quality patient care remains essential in the healthcare reform debate and this collected data will aid in that process.

**ESTIMATED TIME TO COMPLETE:** approximately ten to fifteen minutes.

**INSTRUCTIONS:** Enclosed you will find a 12 item questionnaire. Please refer to the key definitions provided on the following page before answering the questions.

Thank you for consenting to participate in this research by filling out and sending in the questionnaire. A self-addressed, stamped envelope has been provided for your convenience. Please postmark the return envelope by February 5, 1996.

### KEY DEFINITIONS

**QUALITY IMPROVEMENT** refers to all hospital activities directed at improving patient care.

**QUALITY ASSURANCE** refers to hospital efforts to develop and maintain recognized standards of care primarily by screening for problems and adverse patient care events. It utilizes peer review of individual cases and/or practitioners and may also include staff review and educational and disciplinary activities.

**CONTINUOUS QUALITY IMPROVEMENT/TOTAL QUALITY IMPROVEMENT (CQI/TQI)** are not distinguished for the purposes of this questionnaire. For the purposes of this questionnaire, a hospital has adopted CQI/TQI only if it has committed to an initiative which incorporates all five of the following characteristics:

1. a philosophy of continuous improvement of quality through improvement of organizational processes;
2. the use of structured problem-solving processes incorporating statistical methods and measurement to diagnose problems and monitor progress;
3. the 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;
4. empowering employees to identify quality problems and improvement opportunities and to take action on these problems and opportunities;
5. an explicit focus on "customers" - both external and internal..

**QUALITY ASSURANCE/QUALITY IMPROVEMENT PROJECT;** A quality assurance/improvement project is an organized effort on the part of three or more individuals with a designated team leader/facilitator to resolve a specific problem(s) or undertake activities to improve upon current practices that goes beyond the routine daily operation of the department or functional activity or the normal responsibilities of a quality assurance committee.

**Metro Nashville and Surrounding Counties Survey of Physician Involvement in Total Quality Improvement: What Physicians Consider To Be the Most Effective Ways to Encourage Their Participation in Hospital-based Programs.**

1. At how many hospitals do you maintain practicing privileges?

one

two

three

2. How active have you been in participating in continuous quality improvement projects at the hospital(s) at which you maintain practice privileges?

none at all

1 - 5 hrs./ month

6 - 10 hrs./month

11 - 15 hrs./month

more

3. Have you participated on process improvement (including clinical pathway) teams at your hospital(s)?

no

yes    If so, how many have you participated on? \_\_\_\_\_

4. If you have participated on process improvement teams, were these teams made up of members from other disciplines around the hospital (nursing, medical records, laboratory, pharmacy, etc.)?

yes

no

5. If you have participated on clinical process improvement teams, did the mission of the team(s) directly benefit your patients?

yes

no

6. Have you served as a member of your hospital(s) quality council?

yes

no

7. As to the adequacy of physician representation on the hospital(s) quality council at any one time, please state your opinion.

There should be more physicians on the council

There should be fewer physicians on the council

There is adequate physician representation on the council

Not sure

8. Have you received training in total quality improvement methods and tools?

yes

no

9. Have you personally conducted training in total quality improvement methods and tools to your colleagues and/or other members of the hospital staff where you practice?

yes

no

10. At the hospital(s) where you practice, are the medical school residents required to participate in process improvement teams?

yes

no

there is no medical residency program at the facility.

11a. Have you found any of these to be **barriers** to participating in continuous improvement projects at the hospital(s) where you practice?

- |    | YES                      | NO                       |   |
|----|--------------------------|--------------------------|---|
| a. | <input type="checkbox"/> | <input type="checkbox"/> | <u>Unreimbursed</u> time for meetings or to collect data  |
| b. | <input type="checkbox"/> | <input type="checkbox"/> | <u>Unreimbursed</u> mileage to and from the hospital  |
| c. | <input type="checkbox"/> | <input type="checkbox"/> | Meetings dealing with "quality" are punitive ( blame sessions)  |
| d. | <input type="checkbox"/> | <input type="checkbox"/> | Inadequately trained facilitators, team leaders or team members   |
| e. | <input type="checkbox"/> | <input type="checkbox"/> | Perception that physicians must always serve as team leaders  |
| f. | <input type="checkbox"/> | <input type="checkbox"/> | Hesitance to openly discuss details of poor patient outcomes  |
| g. | <input type="checkbox"/> | <input type="checkbox"/> | Physicians are not asked to identify those process of care which would most benefit their patients      |
| h. | <input type="checkbox"/> | <input type="checkbox"/> | Inadequate time for meetings or to collect data   |
| i. | <input type="checkbox"/> | <input type="checkbox"/> | Inadequate training budget to educate physician office staff members in CQI/TQI methods and tools       |
| j. | <input type="checkbox"/> | <input type="checkbox"/> | Failure of hospital process improvement teams to include member(s) of affiliated physician office staff |
| k. | <input type="checkbox"/> | <input type="checkbox"/> | Lack of education in CQI/TQI methods and tools  |
| l. | <input type="checkbox"/> | <input type="checkbox"/> | Unfamiliarity with cross-departmental and multi-level teams   |
| m. | <input type="checkbox"/> | <input type="checkbox"/> | Practicing medicine is not like assembling an automobile on a production assembly line                  |
| n. | <input type="checkbox"/> | <input type="checkbox"/> | Participating in team activities takes time away from patient care                                      |

11b. Please list other reasons that may cause barriers to physician involvement.

12. Does the hospital(s) at which you practice offer any of the following incentives for physicians to actively participate in CQI/TQI activities within the hospital(s)?

- |    | YES                      | NO                       |   |
|----|--------------------------|--------------------------|---|
| a. | <input type="checkbox"/> | <input type="checkbox"/> | Reimbursed mileage to attend meetings or collect data   |
| b. | <input type="checkbox"/> | <input type="checkbox"/> | Reimbursed meals or provision of meals  |
| c. | <input type="checkbox"/> | <input type="checkbox"/> | Reimbursed time to attend meetings or to collect data   |
| d. | <input type="checkbox"/> | <input type="checkbox"/> | Continuing education credits for CQI/TQI training   |
| e. | <input type="checkbox"/> | <input type="checkbox"/> | Include physician office staff members in hospital TQI training   |
| f. | <input type="checkbox"/> | <input type="checkbox"/> | Presentation of successful improvement projects in grand rounds   |
| g. | <input type="checkbox"/> | <input type="checkbox"/> | Presentation of successful TQI/CQI projects by outside physician speakers at formal CME seminars  |
| h. | <input type="checkbox"/> | <input type="checkbox"/> | Selection of TQI/CQI projects that are of direct clinical relevance in improved patient outcome   |
| i. | <input type="checkbox"/> | <input type="checkbox"/> | Objective, not punitive ways of comparing physician practice patterns   |
| j. | <input type="checkbox"/> | <input type="checkbox"/> | Hold retreats with clinical chairmen to enhance their awareness of TQI and its applications to clinical care                              |
| k. | <input type="checkbox"/> | <input type="checkbox"/> | Provision of adequate staffing to enable the teams to be successful   |
| l. | <input type="checkbox"/> | <input type="checkbox"/> | Support by human resources management of team performance rather than solely individual and departmental performance                      |
| m. | <input type="checkbox"/> | <input type="checkbox"/> | Personal recognition for participation by the hospital board  |
| n. | <input type="checkbox"/> | <input type="checkbox"/> | Paid trips to showcase team improvement projects at conferences   |
| o. | <input type="checkbox"/> | <input type="checkbox"/> | Encourage publication of team results in peer reviewed journals   |
| p. | <input type="checkbox"/> | <input type="checkbox"/> | Instruction of TQI methodologies and principles to physicians by a physician who is well respected and knowledgeable of TQM in healthcare |

- |    | YES                      | NO                       |   |
|----|--------------------------|--------------------------|---|
| q. | <input type="checkbox"/> | <input type="checkbox"/> | Require the active participation of residents and other medical school students in hospital team activities and TQI training                    |
| r. | <input type="checkbox"/> | <input type="checkbox"/> | Solicit the participation of physician office staff members on teams whose projects involve communication between hospital and physician office |
| s. | <input type="checkbox"/> | <input type="checkbox"/> | Development of a current collection of books, cassettes and videotape series on TQI/CQI training in the hospital library                        |

12b. Please add incentives that your hospital could initiate in order to increase physician involvement.

THANK YOU FOR YOUR PARTICIPATION



**Appendix C**  
**General Comments**

Comments from Hospital Quality Managers

1. When asked to please list other barriers that cause lack of physician involvement, these were the responses:

“(Physicians) perceive it as the latest “flavor of the month” and therefore, don’t want to commit.”

“Lack of interest, (they) don’t see it as relative to their practice, (they’re) doing because (they’re) told to do it.”

“(They) don’t want to deal with “peers” issues.

“(It’s the) good old boys network.”

“Involvement in peer-review activities of a physician referral source, inability to determine cost from charges and staff turnover.”

2. When asked to please add ways that your hospital has encouraged physician involvement, these were the responses:

“CMEs (Continuing Medical Education credits)

“ (We) provide data at medical staff meetings.”

Comments from the Physicians

1. When asked to please add other reasons that may cause barriers to physician involvement, here were the responses:

“I have questions regarding the cost-effectiveness of CQI/TQI programs.”

“Other health care professionals may lack a full understanding of the clinical problems which make the overall effort less effective.”

“Hospital administrators are not interested in this process.”

“Administration (is)not focus(ed) on all aspects of CQI - just its own areas of cost control.”

2. When asked to please add incentives that your hospital could initiate in order to increase physician involvement, these were the responses:

“Become interested in physicians as the most important customers then proceed to educate us on TQM methods.”

“Give recognition to physicians/faculty members who are involved in CQI/TQI when it comes time to review for promotion/tenure.”

“Arrange hospital/out patient coverage for physicians so that physicians may have a designated time period (such as every second Wednesday afternoon) free of patient care responsibilities in order to gather/analyze data.”

“I have been in Nashville only one year. When I was in Los Angeles, I was on a medical executive committee and chiefs of various departments, including the old “utilization review.” I was very active in CQI there. I am just getting started here but I have heard little of CQI at my two hospitals.”

“I don’t know any thing about this subject, would be willing to learn.”

“Demonstrate the cost-effectiveness, taking into account the time of physicians and staff involved who are away from their usual duties, (particularly) salaries of employees whose primary job involves CQI/TQI, etc.”

“Add more players to the team.”

One physician response to barriers/incentives came in the form of a letter. The letter basically said that the physician had, at one time, been very optimistic and involved in continuous improvement in health care. Unfortunately, the hospital administration began to concentrate more and more on cost, treating the physician as only a cost generator and not as a health care provider. The physician is no longer involved in continuous improvement, but hopes that in time, that hospitals will treat physicians as valued customers for the services that they provide, and can once again become involved in continuous improvement of our health care delivery system.

**Appendix D**

**Letter of Permission to Copyright Hospital Survey**

# Kellogg

J.L. Kellogg Graduate School of Management Northwestern University

Stephen M. Shortell, Ph.D.  
*A. C. Buchler Distinguished Professor  
of Health Services Management  
Professor of Organization Behavior*

July 23, 1997

Geraldine W. Yoest  
14 Statesville Main Street  
Watertown, TN 37184

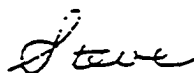
Dear Ms. Yoest:

You have my permission to use the National Survey of Hospital Efforts to Improve Quality (1993) for purposes of use by university microfilms. You may also need to obtain the permission of the American Hospital Association. Your contact person there should be Peter Kralovec.

I would be very interested in receiving a copy of your work when it is completed.

My best wishes.

Sincerely,



Stephen M. Shortell, Ph.D.

mk77-23-97.let



Leverone Hall 2001 Sheridan Road Evanston, Illinois 60208-2007 847-491-5540 Fax: 847-491-2607

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