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U.S. ARMY-BAYLOR UNIVERSITY GRADUATE PROGRAM
IN HEALTH CARE ADMINISTRATION

THE PRACTICE OF TOTAL QUALITY
MANAGEMENT IN THE CLINICAL SETTING

GRADUATE MANAGEMENT PROJECT
SUBMITTED TO THE FACULTY OF BAYLOR UNIVERSITY
IN PARTIAL FULFILLMENT OF THE DEGREE OF
MASTER OF HEALTH ADMINISTRATION

BY

CAPTAIN JOSEPH B. HOUSER

TRIPLER ARMY MEDICAL CENTER, HAWAII

MAY 1, 1996

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- John Henry, Director of Quality Management
- My wife, Colleen, whose support of and patience with me was endless.

ABSTRACT

The institution of Total Quality Management at Tripler Army Medical Center is occurring in various stages. TAMC is implementing TQM using the FOCUS-PDCA methodology to improve performance throughout the facility. The use of this methodology assumes that some benefit will accrue.

This paper examines the implementation of the FOCUS-PDCA methodology to determine if performance improvement techniques can be applied successfully at the unit level within TAMC to reduce patient waiting times. A participative observational study is used to analyze the effectiveness of TQM in the orthopedic clinic using a template adapted from the Hospital Corporation of America's FOCUS-PDCA model.

Results indicate that average patient waiting times decreased by 27 percent using the FOCUS-PDCA performance improvement methodology but barriers to implementation exist that limit the effectiveness of the model. Institutionalization of TQM can only be achieved through acceptance by both senior leadership and physician groups.

TABLE OF CONTENTS

Chapter

I.	INTRODUCTION.	1
	Conditions that Prompted the Study.	3
	Statement of the Management Issue.	4
	Literature Review.	4
	Purpose Statement	13
II.	METHODS AND PROCEDURES.	13
	Study Design	14
	Instrumentation.	15
	Procedures.	15
	Collection Instrument.	17
	Statistical Methods for Quantitative Analysis.	18
III.	RESULTS.	19
	Find a Process to Improve.	19
	Organize a Team That Knows the Process.	21
	Clarify Current Knowledge of the Process.	22
	Understand Sources of Process Variation.	25
	Select an Opportunity for Improvement.	26
	Plan, Do, Check, Act.	27
IV.	DISCUSSION.	28
	Factors for Successful Implementation.	28
	TQM as a Process.	29
	TQM as a Philosophy.	32
	Inherent Barriers.	33
	Limitations of the Study.	38
V.	RECOMMENDATIONS.	38
VI.	CONCLUSION	43

LIST OF TABLES

TABLE

1. Process Variables.	20
2. Courses of Action.	26
3. Descriptive Statistics	27

LIST OF FIGURES

Figure

1. FOCUS-PDCA	8
2. Macro Flow Chart (Orthopedic Clinic)	16
3. Mean Wait Times by Clinic	24
4. Mean Wait Time by Process (Fracture Clinic)	25
5. Stages of the Adoption Process	33
6. Service Guarantee	41

CHAPTER I

INTRODUCTION

There is an evolution occurring in modern health care. Hospitals have always been "big business," but changing times are forcing administrators and their related organizations to operate as real businesses. Changing demographics, technology, rising costs, shrinking budgets and a host of other external factors are responsible for this new paradigm of practice (Newhouse 1992). In the past, physicians and hospital personnel have defined quality in professional and technical terms and now, with the increasing involvement of third party payers and patients, the definitions of quality are no longer left to the sole propriety of the provider. Third-party payers, patients and the community at large are becoming better educated in health services and are demanding more value for their investment as a result (Nordlund 1991). These phenomena have compelled hospitals to refine their practices. This refinement of business practices comes at a time when hospitals and similar health care organizations must also compete in tumultuous market forces. Shrinking Medicare dollars and in-patient populations are forcing once monolithic organizations to downsize, merge with other organizations and declare bankruptcy.

Military hospitals are not immune to these competitive forces, and managed care initiatives like TRICARE¹ give clear choices to military family members and retirees for their health care needs. A business as usual mentality also gives way to fiscal viability as shrinking budgets gouge hospital war chests. Hospitals as business has become even more pervasive in the military as the TRICARE initiative gains momentum. LTG LaNoue

¹ TRICARE is the Department of Defense managed care initiative to provide DoD beneficiaries better cost, quality and access.

contends that Total Quality Management (TQM) is the basic underpinning of the TRICARE effort. Like their civilian counterparts, military beneficiaries are also better educated about their health care options. Just as “consumers are switching from company to company, not just for reduced price, [but] better service: reliability, accessibility and courtesy (Berry 1991),” so too will patients seek better quality healthcare organizations. Therefore, military medicine has recognized the importance of meeting the needs of its eligible beneficiaries. To remain competitive, military medicine must “delight” the customer² (note the use of customers as a deliberate shift in how we talk about patients) and be the first choice for health care. Delighting the customer is the hallmark of TQM, a management philosophy used by the Japanese after World War II to rebuild their organizations and improve product quality. Military medicine has looked to TQM to improve its operations and increase customer satisfaction (LaNoue 1996).

Since 1992, Tripler Army Medical Center (TAMC) has adopted TQM as a philosophy to improve the quality of its health care (Kiefer 1993). To facilitate this management philosophy, the command has spent thousands of dollars, countless numbers of hours in training personnel, and has conducted several meetings to develop strategic plans, a mission statement and a vision. The medical center has developed a Performance Improvement Council (PIC), whose purpose is to administer the quality process. TAMC has commissioned several process action teams whose mission is to design and implement the actual process improvements at the unit level.

² Physicians see the use of the word “customer” as degrading and offensive and resist this term though it is clearly an acceptably used word in TQM to describe the receiver of goods and services.

Consequently, by adopting the TQM philosophy, TAMC is staking its success in the business of healthcare on the fundamental principles of quality to ensure a market share of dollars from a modified pool of beneficiaries.

CONDITIONS WHICH PROMPTED THE STUDY

In 1995, TAMC adopted the FOCUS-PDCA³ methodology of process improvement in preparation for the 1995 Joint Commission on Accreditation of Healthcare Organization survey. Improving performance has been at the heart of the Joint Commission's Agenda for Change since its inception in 1992 (JCAHO 1995). Each department within TAMC has used process action teams to facilitate process improvement using the FOCUS-PDCA methodology (Hospital Corporation of America 1989).

Although, performance improvement activity abounds, very little is known *about* the performance improvement efforts conducted at the operational level at TAMC. It is also not clear to what extent process improvements actually improve the process as advocates claim. Therefore, it is essential that an assessment of a performance improvement effort be conducted at TAMC to better understand the actual implementation of process improvement at the unit level and determine if the FOCUS PDCA methodology of process improvement is a worthwhile endeavor.

² FOCUS-PDCA is a nine step methodology, developed by Hospital Corporation of America ,used to implement quality improvement.

STATEMENT OF THE MANAGEMENT ISSUE

The current management problem at TAMC is knowing whether the FOCUS PDCA methodology, as implemented, yields the desired results of improved processes. Knowing how operational units implement process improvements based on strategic goals and whether these process improvements result in any substantial gain is necessary to aid in future decisions concerning the direction of TQM at TAMC. Published sources suggest that TQM initiatives be evaluated in terms of efficiency and effectiveness (Glandon et al. 1993). The efficacy of such programs can then be determined. In other words, hospitals need to look at the bottom line to see if TQM is really worth their time, money and effort.

LITERATURE REVIEW

TQM, sometimes referred to as Continuous Quality Improvement (CQI), is defined as “an ongoing, organization-wide framework in which Health Service Organizations and their employees are committed to and involved in monitoring and evaluating all aspects of the Health Service Organization’s activities (inputs and processes) and outputs in order to continuously improve them (AHA 1991).” Unlike Quality Assurance programs in the past that based their standards on meeting preset minimum standards, TQM constantly strives for improvement (Walker 1993). It has four attributes that distinguish it from other management styles: a quality of output that includes meeting the customers needs; monitoring and evaluating quality outputs must be done both retrospectively and prospectively; quality improvement is the responsibility of everyone not just one person; and quality improvement is a product of process improvement and outcomes improvement (Rakich, Longest, and Darr 1992).

TQM is also a philosophy. W. Edwards Deming wrote that an organization must "adopt a new philosophy [of management]" (Deming 1982; Arndt and Bigelow 1995). As a philosophy, TQM involves the commitment of the corporation, from all levels of the establishment, to a set of values, beliefs and a vision. "...TQM requires a change in an organization's culture and lifestyle. This change is unambiguously the responsibility of the Chief Executive Officer and top management (Deming 1986)." The change in management styles demands increased personal autonomy and an ability to adjust to change (Walker 1993). Executives are spending more time directing and reviewing quality activities. On average they are spending 16.8 percent of their typical workweek on TQM (Eubanks 1992). A survey of United States Veterans Affairs Medical Center Chief Operating Officers suggested that there was considerable involvement with TQM initiatives and that the respondents indicated their willingness to support it, however, they did not believe that TQM would decrease health care costs, (fiscal or human). The successful implementation of TQM also requires a sizable commitment of time and money for training. There are estimates as high as \$300,000 in direct expenditures and a number much higher than that for indirect costs. The TQM journey is estimated to take from 5 to 7 years for any return on investment (Sherer 1994). "While TQM requires considerable investment of time and money it is not known what benefits accrue or to whom" (Arndt and Bigelow 1995).

Regardless of the cost, TQM has been widely accepted as a management philosophy with over 60 percent of the health care facilities saying that they have instituted some form of TQM and 30 percent more saying they intend to implement it in the future (Arndt and Bigelow 1995). Stanford University Hospital attributed a 50 million cut and

highest patient satisfaction levels in years to TQM initiatives (Hollander 1994). TQM claims to build organizational effectiveness by reducing conflict and building teamwork. A study examining the effects of TQM on employee job satisfaction and organizational climate found that participants in the program exhibited higher levels of job satisfaction and more favorable opinions regarding both organization and their work (Counte 1992).

TQM has been implemented successfully in hierarchical systems such as the military (Matthews 1992). An Airforce 35 bed facility melded TQM principles into their group level organization using a four stage plan (Laws 1993).

- Phase I--Command Buy-in and interdepartmental quality improvement teams.
- Phase II--quality improvement teams create mission, vision,
- Phase III -- continuous training.
- Phase IV -- broad based departmental QITs that focused on interdepartmental and cross functional processes.

Chiefs of Staff in the military medical system believe its structure compatible with TQM (Provost 1992). TAMC's TQM effort remains in various stages of implementation. An external consultant from the Juran institute provided feed back on TAMC's TQM position (Halder 1996). His remarks suggest that TAMC is between phase II and phase III on the TQM journey. Halder noted several opportunities for improvement existed including, empowerment, supportive leadership and continued refinement of the organizational structure. A study a year prior by Floro concluded that successful implementation depended upon TAMC's ability to present a clear picture of expectations, the ability to promote a vision and the necessity to acquire methods for measuring compliance (Floro 1995).

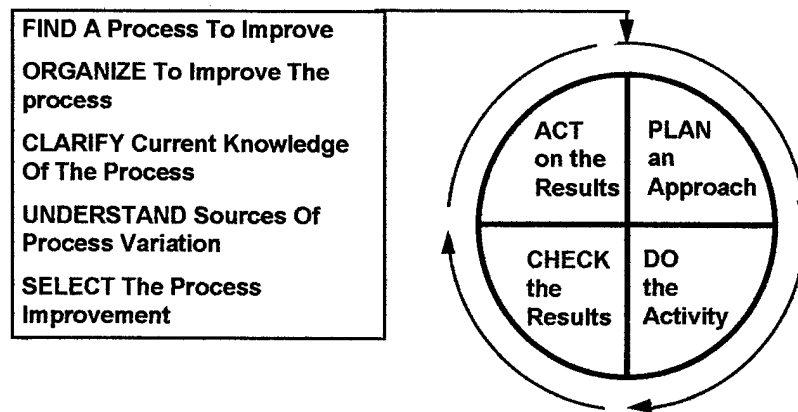
Regardless of its acceptance in the health service industry, measurement of TQM's success is lacking (Arndt and Bigelow 1995). The health care industry, as a service industry, has not expended many resources to provide baseline data for benchmarking the successes of process improvement (Barrett 1992). Barrett postulated that "an organization cannot know if the evolution to a TQM approach and philosophy is successful if the conditions of their institution 'before' and 'after' are not measured (Barrett 1992)."

The effectiveness of TQM can be measured on two levels: strategic and operational. These levels have been characterized in a two-track process (Ziegenfuss 1994). The macro track outlines the strategic tasks that are carried out while the second track, which is simultaneously being carried out with the first track, describes the process improvement at the team level (Ziegenfuss 1994). The macro track provides direction for the organization. At TAMC, the command group, in conjunction with the Quality Improvement Council, completes the strategic tasks that guide the organization with quality as its core value.

The micro track involves the team level application of a process improvement methodology, many times based on the Shewhart Cycle. The Shewhart cycle, developed by Walter Shewhart, is the process improvement methodology that uses the Plan-Do-Check-Act concept (Deming 1986). The FOCUS-PDCA model has a fairly structured approach to problem solving, wherein a team: finds a process to improve, organizes a team that knows the process, clarifies current knowledge of the process, understands the sources of the process variation and selects a process for improvement. The team then:

plans for the process improvement, does the improvement, checks for process improvement, and then acts to hold the gains made by the improvement (Rakich, Longest, & Darr 1992). The FOCUS-PDCA methodology also allows a team to proceed sequentially through steps to facilitate implementation of TQM. The standard format of the FOCUS-PDCA model is depicted below (Figure 1).

FOCUS PDCA (Shewhart Cycle)



Source: HCA Quality Resource Group

Figure 1

The following is a description of FOCUS-PDCA

- (F)ind a process to improve.
 - Look for feedback from customers: internal and external.
 - Determine if a problem exists and define that problem in a concise opportunity to improve.
- (O)rganize a team⁴
 - Identify and organize appropriate individuals with knowledge of the process to be analyzed.
 - Members must be willing and active participants in the process.

⁴ This is the most crucial step in gathering data, for those involved in the process will provide the most input in any given situation.

- Define process boundaries aligned with the opportunity statement.
- (C)larify the process using flow chart.
 - Realign process boundaries if necessary based on the flow charting.
 - Examine problems more closely to determine faulty processes.
 - Create an ideal process for implementation later.
- (U)nderstand sources of process variation⁵.
 - Project variation using run charts to detail variation along a continuum of the process. This allows members to measure the stability of key quality characteristics.
 - Identify variables with the strongest relationship to variation.
 - Place variables into a Pareto chart to identify the critical few.
- (S)elect an opportunity for improvement and plan the intervention strategies.
 - (P)lan for the implementation
 - Key step in the PDCA methodology.
 - Pilot programs to test interventions on a smaller scale may be used in this phase.
 - Educate all participants on the proposed remedies of the plan.
 - Determine and refine data collection methods
 - (D)o the performance improvement⁶
 - data collection
 - Analysis
 - Improvement
 - (C)heck to see if the implementation yielded any conclusive results.
 - (A)ct to hold the gains achieved.
 - If successful the team then acts to hold the gains made by the intervention.

The FOCUS-PDCA methodology is a step-by-step plan of attack for any management problem. It is important to understand that this not just a project but a lasting methodology. It may take as long as 5 years for the institutionalization of the principles that this systems employs. Normally, process improvements span 6 to 12 months (Duncan 1991).

⁵ Typically this is the most difficult step in the process.

⁶ Longitudinal studies are normally used to determine changes key quality characteristics over time.

There are several process improvement methodologies in use by process action teams. The Quality Measurement Management Project (QMMP), VALUE-PDCA, another process by the Florida Power and Light Company, Quality In Work (QIW) and several other processes all utilize, in some fashion, the Shewhart model (Ziegenfuss 1994). The FOCUS-PDCA model, developed by the Hospital Corporation of America in 1989, that also uses the Shewhart cycle, appears most often in the literature. Whatever the strategy employed, process improvement is the goal for process action teams. These strategies rely on data, bench marking and outcomes measurement to determine the processes to improve, make necessary process corrections and evaluate whether process improvement efforts have been effective.

The benefits of process improvement, and TQM in general, are said to be improved profitability and competitiveness, improved organizational effectiveness, and improved customer satisfaction (Berry 1991). All three are worthy goals in any organization but profitability, competitiveness and even organizational effectiveness are difficult to measure in the military setting. Customer satisfaction is therefore the chosen measure for success in many organizations. Over 90 percent of hospitals use some sort of patient satisfaction survey (Labovitz 1991).

Although patient satisfaction is relatively easy to collect, its interpretation is difficult and subject to some degree of variability. Patient satisfaction is comprised of four ideas: stimuli, value judgments, reactions and individual differences. Stimuli are the cues in a patient's environment that elicit some response. A person reacts to the stimuli, such as a lengthy wait in the waiting room, and attempts to assign meaning to it, expressed in

terms of good, bad, positive or negative. This assignment of meaning is a value judgment. The value judgment can change based on the stimuli. A person waiting four hours in a clinical setting will assign different values to the wait depending on the amount of information provided. The wait may not be assigned bad value, if the patient was told of the wait time and then allowed to run errands before the appointment. Finally, individual differences, such as personality, need, structure, values, beliefs, personal life and prior health care experiences can modify our responses to stimuli (Strasser and Davis 1991). These differences create variability among responses to patient satisfaction that tend to reduce validity and reliability.

TAMC has measured customer satisfaction and with the adoption of TQM in 1991, its importance has become apparent to the senior leadership. In 1993, Smith developed and implemented a survey instrument to assess levels of outpatient satisfaction (Smith 1993). Her study served as a baseline of outpatient satisfaction for another study conducted a year later using the same instrument (Kiefer 1994). Smith's study concluded that TQM could be used to improve overall patient satisfaction while Kiefer's study suggested that an increase in mean scores of patient satisfaction over the year suggested that small incremental improvements were made (Kiefer 1994).

In recent months, TAMC has spawned a vigorous attempt to capture patient comments, both favorably and unfavorably, that has led to a new method of computing patient complaints (Rippel 1995). Patient complaints for the orthopedic department remain relatively low each month at approximately .14 per 1000. Some of these complaints, approximately 25%, result from access to care, specifically, waiting times for

appointment and treatment. A study looked at predictors for patient satisfaction in military treatment facilities and found that negative comments generated from the surveys included patient waiting time at the office (Mangelsdorff 1994). Although the patient complaints are relatively low compared to overall outpatient population, the orthopedic clinic chief was not satisfied with the number of complaints occurring. The orthopedic clinic at TAMC is the only orthopedic clinic that services the entire military population in the Pacific basin. Four military services use the orthopedic clinic for their care. This generates over 3000 clinic visits per month, second only to the OB/GYN clinic (Wilson, 1995).

Kiefer determined through his survey that patient satisfaction significantly declined when patients waited more than 30 minutes. Anecdotal accounts of patient waiting times in the orthopedic clinic show some patients waiting on average from one to one and a half hours for their treatment (Wilson 1995). If managers are concerned about what the consumer as patient feels about the services they receive then they must also be sensitive to the experience of waiting (Minden 1994) Patient complaints and concerned staff at the orthopedic clinic became the impetus for change.

The orthopedic clinic assembled a process action team to determine the flow of patients through the clinic, the root causes of patient delay, and the possible solutions to minimize waiting time.

Clearly TAMC has an interest in determining whether TQM works at the unit level and the orthopedic clinic process improvement effort is the perfect instrument for this evaluation.

PURPOSE STATEMENT

The objective of this study is to determine whether performance improvement techniques can be applied successfully within the orthopedic service, in accordance with the guidelines of the FOCUS-PDCA model, to solve a common problem at TAMC, namely excessive wait times in an outpatient clinic. The variables to be studied are those outlined in the FOCUS-PDCA model: find a process to improve, organize a team that knows the process, clarify current knowledge of the process, understand sources of process variation, select a process to improve, plan for the process improvement, do the improvement, check the data to determine if the process improved, and act to hold the gain (Hospital Corporation of America 1987).

CHAPTER II

METHODS AND PROCEDURES

A participatory observational study of the TAMC orthopedic service was conducted to evaluate quality management techniques used to reduce patient wait times. The orthopedic service at TAMC is a board certified residency training site that provides outpatient services for over 2000 persons a month needing specialty and subspecialty care ranging from general surgery to adult reconstructive surgery including total joint replacement and hand surgery. It employs seven full time staff physicians, thirteen residents, one registered nurse, one licensed practical nurse, eight cast technicians, and eight clerical workers. The faculty and residents of the TAMC Orthopedic Service are divided equally into three teams for the purpose of caring for patients. Members of each

team work together in the operating room, outpatient clinic, inpatient wards, and on-call. Each team has emergency and general orthopedic treatment responsibilities as well as individual subspecialty focus. Residents rotate among the teams every four months, serving on each team every year. Full time faculty members of the teams supervise the residents in patient care. Residents conduct the majority of their moment to moment daily work without staff direct supervision as residents do not have clinical privileges at TAMC. Residents legally function under the direction of staff members who have such privileges to practice in a given specialty. Consequently, residents do not engage in any clinical activity that is not approved by the appropriately credentialed supervising staff member. This does not preclude a resident working temporarily under the supervision of staff from another specialty when that staff member assumes the clinical and fiduciary responsibility (Taylor 1996).

Study Design

A qualitative design, participant observation, was used to understand the mechanisms involved with implementation of performance improvement in the orthopedic service. The participant observation methodology included active involvement in the everyday activities of the process action team under study as described by Kuzel who "emphasized a lengthy residence in the context of study" (Kuzel et al. 1994). A template analysis organized and identified the various units of interest within the framework of the FOCUS-PDCA methodology (Miller and Crabtree 1994). The FOCUS-PDCA model is currently the model of choice for TAMC and is described in Appendix A. The application of the FOCUS-PDCA methodology in health care settings is well represented in the

literature (Bigelow and Arndt 1995). Comparable studies have also used FOCUS-PDCA methodologies to determine applicability of TQM in the Military Medical System (Laws 1993). Intra-rater reliability was ensured throughout the process.

Instrumentation

The method of data collection consisted of observations and interviews. Interviews were conducted using generally open-ended questions. Interviews and observations were gathered from each of the various sections within the clinic and a triangulation method was employed to increase the validity and reliability of the responses (Kuzel 1994). Triangulating the responses was necessary to place responses in the context of the performance improvement initiative.

Procedures

The orthopedic clinic at TAMC used the FOCUS-PDCA methodology of performance improvement, (HCA 1986) in an attempt to reduce the waiting times of patients within its clinic. The orthopedic service assembled a process action team made up of members of the clinic who understood the processes. The team consisted of the clinic head nurse (team leader), the chief orthopedics, chief of podiatry, the non-commissioned officer in charge (NCOIC) of orthopedics, the NCOIC of podiatry, the licensed practical nurse from the wound clinic, and the lead medical clerk. They examined the process of patient flow through the outpatient clinic from the time patients registered at the front desk--were called back to a physicians office--were treated by the physician--to the time they departed the clinic. During the course of a normal clinic visit, a patient may have one or several encounters of a number clinical functions within the clinic, but only four

distinct functions were evaluated. They included: office visits for initial consultation and follow-up visits; a wound clinic, for wound checks and dressing changes; fracture clinic for applying casting materials and setting fractures; and podiatry. The Process Action Team chose waiting times as a process to improve because increased patient complaints and anecdotal observations were increasing stress among the employees of the clinic. Also, the clinic staff had voiced concerns over the impact of patient delays on overall workload and morale. The team met 15 times during the period of approximately eight months and each meeting lasted about an hour.

The team clarified the current knowledge of the processes through the use of a macro flowchart (Figure 2). The group then further developed the flow charts for each of the specific areas: wound, fracture, podiatry and office visits. At the same time, the PAT constructed an instrument (Appendix A) for collecting patient waiting times.

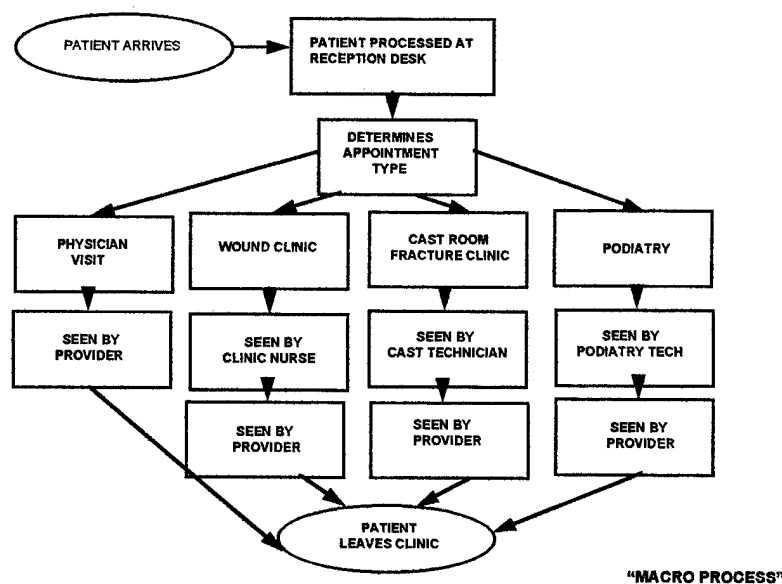


Figure 2

MCHK-DCA (MCHK-DCA-A/30APR96) (351)

1 May 1996

MEMORANDUM THRU Chief of Staff, Tripler Army Medical Center, TAMC, HI
96859-5000

FOR U.S. AMEDD Center and School, Bldg 2841 MCCA-HRA (Rene L. Pryor), 3151
Scott Road, Fort Sam Houston, TX 78234-6135

Subject: Graduate Management Project

Captain Joseph B. Houser has completed the Graduate Management Project (GMP) requirement for the U.S. Army-Baylor University Graduate Program in Healthcare Administration. The GMP is of sound research, academically correct and should be approve immediately.

Encls



IRA F. WALTON III
Colonel, MS
Chief of Staff/Preceptor

Collection Instrument

The collection instrument was designed to be self-explanatory and required little effort on the part of the participants. The form had two parts: the first part captured nominal data describing the type of appointment and the attending physician. The second part captured patient movement through the system using a self-report methodology. The team devised a longitudinal study, recommended by Glandon, to measure the differences in wait time (Glandon et al. 1993). Baseline data would be compared against a second sample collected some time after a treatment was implemented. The group then gathered baseline data in the first week using a random method of dispersal to patients who had appointments. In the baseline effort of collection, patients entered data on the instrument while members of the team observed their performance. Once collected, the instruments provided information on five steps within the patient visit process. The PAT targeted these areas for possible delay.

Once areas of delay were identified, the team developed cause and effect diagrams to understand the sources of process variation. The PAT constructed histograms and Pareto charts to understand the key contributors to patient waiting in the orthopedic clinic. The team selected courses of action that included the following: instituting a clinic coordinator to assist patients through the system; streamlining the processes through better flowcharting; and ensuring the availability of a secondary physician in support of the primary physician.

After implementing recommended changes, data were gathered and analyzed. To ensure comparability of the data, the team chose a week similar to that which produced the baseline data. The team then analyzed the data using quantitative methods.

Statistical Methods for Quantitative Analysis

An independent students t test was used to calculate the functional relationship between two independent groups of patients selected randomly. Two independent samples of patients ($n=199$) were drawn from a population of 700 patients who were treated in the orthopedic clinic for a given week. The dependent variable Y is total patient wait times in the orthopedic clinic and it is a continuous measure. The independent variable X is the property of process improvement intervention and it is binary, coded 1 if process improvement, 0 if otherwise. The tested hypothesis was: did patient wait times vary as a function of process improvement; The null hypothesis was: there was no systematic relationship between patient wait times and process improvement techniques. The probability level was set at .05 as a base line statistical decision rule.

Clinic personnel collected sample wait times using a voluntary self report instrument where the patient tracked his/her time throughout the clinic during their visit. To increase reliability, clinic personnel set each of the clinic clocks to one time and patients were instructed to use only the clinic clocks.

CHAPTER III

RESULTS

After eight months, the orthopedic performance improvement initiative reached the "Check" stage of the FOCUS-PDCA model which meant that they gathered information concerning the process, made judgments about the necessary improvements, implemented corrections to the process and gathered data to analyze the impact from those interventions. Results of the clinic's use of the FOCUS-PDCA methodology revealed an improvised use of the methodology.

FIND A PROCESS TO IMPROVE

The orthopedic clinic administration, consisting of the orthopedic nurse, senior non-commissioned officer, and lead clerk identified a problem through analysis of patient complaints and clerk morale. The clinic identified the following statement of the problem:

There has been an increase in the number of patient complaints regarding wait times in the clinic. The clinic staff has voiced concerns over the impact of patient delays on overall clinic workload and morale. The patient representative reports prolonged wait times as the most common complaint of orthopedic patients.

The PAT team leader initially chose to focus on clinic wait times because random conversations and informal sampling of patients indicated a level of dissatisfaction. Observation rather than quantitative measurement was the deciding factor for choosing to study patient wait times. This team demonstrated a variation of the typical TQM mechanism for finding a process to improve. Once the team was well under way with

data collection, it was quantitatively verified that patient complaints had been relatively high for this clinic. As a result, the clinic leaders targeted patient wait times as an important improvement opportunity and chartered an improvement team to work on improving overall patient wait time. Initially, the PAT leader just wanted a “snap shot” of clinic operations using a simple collection instrument. A patient self-report instrument was generated to collect the data.

At this point in the process, the team did not generate an opportunity statement. Orthopedic clinic staff assumed that everyone would benefit from the improvement so no formal statement of benefit from the improvement was generated. The process improvement was tied to the hospital system as a function of its strategic plan. The clinic PAT organized its approach around the vision “To be the choice for orthopedics.” The orthopedic clinic PAT identified their suppliers, inputs, processes, outputs, and customers of the wait time process as follows.

	Process Variables
What	Who
Suppliers:.	x-ray, outlying clinics, physicians
Inputs:	records, x-rays, labs,
Process:	clinic flow
Outputs:	patients
Customers:	patient's, other clinics, clerks

Table 1

The PAT understood patients to be their customers, as physicians were identified as suppliers to the process. Later, physicians were also deemed customers. The PAT identified clear suppliers as x-ray, and outlying clinics. They did not include any of these internal customers on the team. Multi-disciplinary teams are considered vital to successful process improvement efforts (Bluth 1991).

The team set out to measure patient wait times with the belief that if they reduced wait times the result would relieve pressures on the staff and reception clerks and ultimately improve patient satisfaction. Delays also impacted operations and overall workload. No initial attempt was made to establish what a reasonable wait time would be. PAT members determined that acceptable wait times would vary among individuals. The PAT decided on the DoD's suggested benchmark of 30 minutes at any given point along the continuum of care in the orthopedic clinic. Benchmarks with other local institutions such as Kaiser-Permanente and Queen's Medical Center showed a relatively short period of no more than 20 minutes. Patients might tolerate time well spent but not time lags in which no progress was made toward their departure from the clinic.

ORGANIZE A TEAM THAT KNOWS THE PROCESS

The Process Action Team consisted of the following members:

Clinic Head Nurse
Chief, Orthopedics
Chief, Podiatry
NCOIC, Orthopedics
Nurse, Wound Clinic
Lead Medical Clerk/ Supervisor
Facilitator.

Every organic element of the clinic was represented by the PAT team, although membership did not indicate participation. In every instance of a PAT meeting, one or more of the representatives was absent during the course of the study. While physicians were represented in name on the team, none were present for any of the meetings. Physician involvement did occur but only on a "report-back" basis. Similar reports were made to other members absent from meetings. The PAT adequately represented the four main processes: office visits, podiatry, wound and fracture clinics, but was lacking in the inter-departmental representation. For example, suppliers to the clinic were identified as x-ray, other clinics, and laboratory, but it appeared that they were not solicited for participation even though they were consulted on a periodic basis.

CLARIFY CURRENT KNOWLEDGE OF THE PROCESS

Selected members of the PAT mapped out the current patient flow on a macro scale and then mapped out each of the flows to the various sections within the clinic. Much of the clinic mapping was done with the PAT leader, lead clerk, cast technicians, LPN, and the NCOIC. The team presented the process at a level of detail that identified possible causes of variation. The flow charting served to enhance understanding of actual vs. perceived operations. The team was able to identify a single flow for each clinic: office, fracture, wound and podiatry. The flow diagram proved to be the most beneficial portion of the process improvement, in that, many of the team members immediately saw the problem areas. The team members wanted to make corrections immediately, but the team leader was able to delay their desire to "plunge ahead." This decision averted the

possibility of a short sighted solution. Additionally, data collection for the baseline was occurring and any repair to the process at this point would have skewed the data.

Key quality characteristics (KQC) are points along the process where a PAT can collect data that will satisfy the expectation of the customer (Walton 1991). The PAT did not collectively design the survey instrument, but the schematic captured the specific points where a patient waits. The logic survives that if patients wait less along the course of their treatment, then they will derive greater benefit, which in turn would satisfy the expectations of the customer. Ironically, the operational definition of patient wait times was also not clearly understood by the PAT. In fact, there remains some debate as to whether a patient's wait time includes the early-arrival time, an average of about 30 minutes.

There were three collection periods in this performance improvement effort. The first collection used patient report methods. The data collection plan called for a random sampling of the population of patients with scheduled appointments. The registration clerks handed out surveys were at their convenience, which meant that when the clinic was busy, the surveys were not necessarily distributed. Consequently, there is some question as to the validity of the first effort. The second collection involved use of the patient chart as the means of delivery. This method employed the most accurate method of disbursement although physician participation was limited. Twenty-eight percent of the chart-distributed surveys were unusable. The third iteration of survey collection again involved the patients and their self report. The data collection plan as of the third collection was initiated with less enthusiasm. This underscored the fact that many of the

PAT members did not know the performance improvement initiative would take as long to complete. Some members could not understand why an easy decision making process was delayed for what amounted to “make work.”

Using a Pareto chart, (Figure 3) team members found that the longest patient waits were occurring in the fracture clinic. The team constructed Pareto charts of mean wait times by clinic and by category of wait: wait to process records; wait before being called; wait before being seen by physician; wait for radiology, demonstrated a significant wait time as depicted by Figure 4.

Mean Wait Time by Clinic

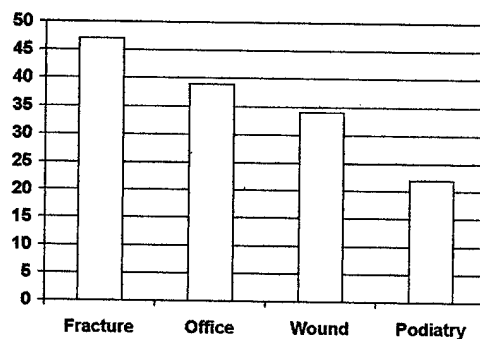


Figure 3

The team also collected practice patterns of each physician in the clinic: time spent with the patient, mean wait time before being seen by physician, number of surveys collected, etc.

Fracture Clinic Wait Time

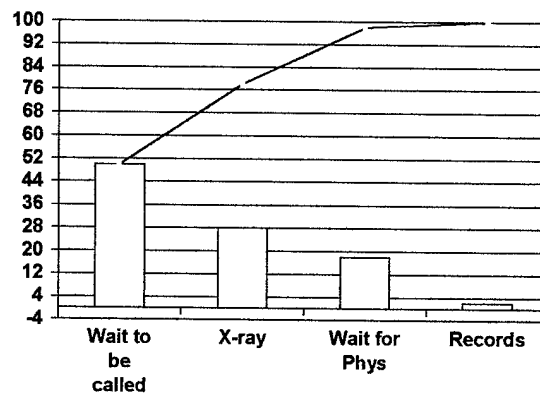


Figure 4

The team constructed a cause and effect diagram (Appendix C) to pinpoint root causes of delay in the cast room and in the wound clinic, the two most significant variants in the process. As the team worked on the cause and effect diagrams, they briefed the clinic chief on the findings.

The clinic chief decided that a new data collection effort should pinpoint the variation in the fracture clinic. The PAT working on the cause and effect diagram outlined problems within the cast room that they would be able to control. Other variables over which they had no control, such as physician availability, patient availability, x-ray and scheduling would not be changed. Again, physician involvement was not evident at this stage in the process.

UNDERSTAND SOURCES OF PROCESS VARIATION

The PAT leader called a meeting to brainstorm possible solutions to the key problems in the fracture clinic: no monitor of wait times or inefficient flow, physicians in

wound clinic often unavailable, team physicians not available as resource to residents in the fracture clinic, clinic consultants not readily available, x-rays and laboratory test not available for physicians. The team selected the following solutions to the problems noted above.

Courses of Action	
Problem	Solution
Physician availability	Clinic Coordinator assists physicians
Inefficient process	Implement new flow
Bottlenecks	Clinic Coordinator reviews charts and assists

Table 2

There was no formal decision making matrix used to evaluate the different courses of action as the team was anxious to produce a product after seven months of data collection. Additionally, for the orthopedic clinic, the clinic personnel had lost the motivation to endure another round of data collection.

SELECT A PROCESS IMPROVEMENT

The team decided on the intervention and immediately instituted the changes that they could effect locally. They briefed the clinic chief on the elements that needed his support. The plan included selecting a "Clinic Coordinator" whose responsibilities included: monitoring clinic flow, keeping patients informed of delays, escorting patients to the rooms, screening records for completeness and collaborating with the patient representative for patient complaint. The clinic coordinator was to be a senior cast technician. Institution of the clinic coordinator occurred with little or no marketing. This

led to some teasing from other members of the cast team who didn't understand the need for such a function. Even the new clinic coordinator did not feel his job was necessary.

PLAN, DO, CHECK, ACT

The orthopedic clinic executed the new plan with little fanfare and ran it for approximately two months. The team decided to wait for a month before starting to collect data to allow for any possible unexpected contingencies. The clinic coordinator proved to be of significant benefit as a patient advocate accruing several positive comments from patients. After a month in operation, data were collected using the patient self report survey instrument. The team met all the dates on the data collection.

Index	Name	n	Mean	STD	Var	Error Sum2
1	8-Jan	199	59.33	47.73	2278.35	451113.8
2	21-Mar	199	42.20	34.65	1200.96	237790.0

Table 3

As a result of the changes instituted by the clinic, the average waiting times for patients decreased from 59 minutes to 43 minutes for a 27 percent decrease in waiting times. This decrease was a statistically significant difference at $p > .01$ for statistical decision rule.

This study looked at two samples of total patient wait times in an orthopedic clinic; one sample ($n=199$) was drawn prior to a performance improvement intervention, the other sample ($n=199$) was drawn after the intervention. A comparison was made using an independent group t test which yielded the results located in Table 1. The difference in

wait times between the January collection and the March collection was statistically significant difference ($p > .01$).

The results indicate that the total waiting time for patients decreased and that there is less than one percent probability that these results were due to chance alone.

Specifically an analysis of the fracture clinic wait times yielded a statistically significant decline in the time a patient waits to be called ($p < .002$).

CHAPTER IV

DISCUSSION

The purpose of this study was to determine whether performance improvement techniques, using the guidelines of the FOCUS-PDCA methodology, could be applied successfully within the orthopedic service to solve the problem of lengthy patient waits. The results suggest that a quality management implementation of FOCUS-PDCA can be used in the orthopedic clinic to achieve the desired outcomes as demonstrated by the decreased aggregate wait times, but barriers exist that inhibit the institutionalization of TQM and therefore may have reduced its overall impact at the unit level. The reduction in aggregate wait times that the orthopedic clinic achieved are consistent with other case studies concerning TQM implementation in the clinic setting (Bluth et al 1992) and demonstrate the effectiveness of using such a management technique in this instance.

FACTORS FOR SUCCESSFUL IMPLEMENTATION

As mentioned earlier, TQM is a process as well as a philosophy (Arndt and Bigelow 1995) and as such, the measurement of its practice must be evaluated on both

levels. Although the PAT team, using the FOCUS-PDCA methodology appeared effective in reducing clinic waiting times, the implementation was not complete and still remains a challenge in the orthopedic clinic setting. The methodology, as practiced, was modified to some extent and key principles of successful implementation were excluded to accommodate nuances in the clinic setting.

TQM AS A PROCESS

The FOCUS-PDCA methodology was generally followed throughout the period of study with few exceptions. Bluth describes essential elements of the TQM process to be (1) an understanding of customer-supplier relations, (2) understanding of causes of variations, (3) applying basic statistical methods, (4) an involvement of all members of the process to be improved as part of the team (Bluth et al. 1992). Each element in this process deserves scrutiny in this case.

The customer-supplier relationship on its face seems simple to define. In reality, within the typical clinic setting, it becomes apparent that such distinction is amorphous at best. For the orthopedic PAT the realization that other customers besides their patients were present in the process did not manifest itself until well into the process. This was evident in the lack of radiology, laboratory and other inpatient representation on the team. Another difficulty arose in determining when a person became a customer and when a person became a supplier. Physicians invariably are suppliers of services that direct patient flow, but they immediately become customers of clinic personnel concerning issues of patient flow. In many institutions, the lack of success of TQM may be attributed in large

part to the fact that many of the programs in place do not adequately deal with the most important customer of the hospital, the physician (Socha 1993). The inability to understand customer-supplier relationships presented problems for PAT team members during the "Plan Stage" of the FOCUS-PDCA process because information on the total process was incomplete.

The physicians in the clinic clearly thought that they understood the causes of variation within the clinic: the inefficient x-ray and clinic management. Some of the PAT members believed that they understood the causes of variation within the clinic: physician practices. Clearly, each of these views is short sighted. Flow charting the process and the analysis of data using the Pareto diagram illuminated for the members of the PAT and the clinic leadership the apparent causes of variation within the clinic. This was the crucial step that provided the most valuable aspect of performance improvement for the management of the clinic.

The application of basic statistical methods demands that one be cognizant of the principles of reliability and validity. The clinic leadership was deeply aware of the importance of reliability and validity. Validity, measuring what we need to measure, was appropriately stated, in that, the key quality characteristics of wait time were captured on the instrument. The unfortunate aspect of data collection in the clinic setting is the difficulty in maintaining reliability. Elimination of sources of error becomes exceedingly difficult because of the complexity of the processes and the variability of human behaviors. Arndt and Bigelow suggest that due to the inherent contrasts from the manufacturing industry, health care may not be a suitable environment for which TQM will work (Arndt

and Bigelow 1995). Total involvement of clinic personnel is the key to enhancing reliability in this study.

The fourth element of TQM is the involvement of all the members of a process. All members involved in the process must be members of the team. Without optimal team composition, the complexity of processes involved in the patient flow process would not have been able to identify all the root changes in the process that were necessary (Bluth et al 1992). Many hospitals are cautious about involving physicians early on. The Process Action Team solicited participation from the physicians at first, but after their initial attempt failed to generate support, the PAT then attempted to improve the patient flow process around them.

The ability to amass total support for TQM at the unit level is difficult because of the varying perspectives within the clinic. Some of the physicians did not wish to cooperate with the nurse in "her" quality improvement program simply because they saw no real benefit to this exercise. The nurse and other clinic members did not see the point in trying to persuade reluctant members of the clinic to participate, albeit this group was the physicians. Eubanks posits that successful quality improvement efforts must start with an improvement in the relations between physicians and nurses (Eubanks 1991). Medicine has evolved to the point where distinct lines have been drawn regarding clinical and administrative responsibilities. TQM and clinical quality improvement efforts can minimize such conflict between members of an organization's staff by focusing on faulty process rather than personality and professional parochialism driven motivations (Dieter 1993).

Many of the players on the PAT felt that they were not process owners. Berwick points out that, process ownership does not necessarily imply direct control over all of the elements of the process, but it does imply responsibility, authority to maintain a view of the entire process through the use of relevant information systems, convening groups to respond to problems in the process, and proposing opportunities for improvement.

Barriers to physician involvement may turn out to be the most important single issue impeding the success of quality improvement in medical care. Physicians must be able to witness the benefit derived from process improvement. Organizations must avoid the make work reputation quality assurance has attained and demonstrate TQM's effectiveness in enhancing their delivery of care. Lewis describes five early warning signs for CQI/TQM imminent failure: lack of employee interest, activity versus results oriented CQI programs, mistaken priorities, physician indifference and failing to define quality (Lewis 1992). The orthopedic service implementation of TQM revealed a certain amount of physician indifference. Similar studies corroborate this finding (Moss 1995).

TQM AS A PHILOSOPHY

It is important to realize that TQM is a philosophy. It must become integrated into the culture. You can not just educate people and walk away (Sherer 1994). Kaluzny describes the transition to TQM as a philosophy as a five stage process (Figure 6)

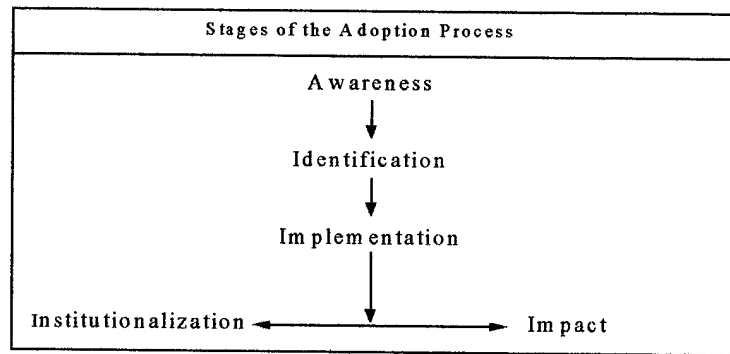


Figure 5

Awareness occurs when the organization realizes a need for change and a new paradigm of quality begins leading to sequential steps of identification. The next step is identification. The organization becomes familiar with TQM as a possible solution to improving processes and performance. Implementation is referred to the presence of TQM in the organization. Institutionalization is the final process and it is achieved when the organization accepts TQM and is comfortable with its underlying concepts. Finally, the impact of TQM can only be achieved when institutionalization occurs. The orthopedic service is poised between implementation and institutionalization. To achieve true impact, the successes achieved by their effort for wait time improvement must be captured, marketed and maintained.

INHERENT BARRIERS

The difficulties in actualizing the principles of TQM are consistent with those experienced by health service organizations as a whole; the structure and process of health care organizations are different and thus inhibit adoption of a "total" management philosophy (Sherman 1991; McCarthy 1991; D'Aunno 1996). This effect can be attributed to the complexity of TQM, the structure, process and differing roles within a

complex system. The findings of this study are consistent with the literature concerning the inherent problems of health service organization's use of TQM (Bigelow and Arndt, 1995).

Several barriers to successful TQM initiatives exist. TQM takes an extended period of time to integrate into an organization. Maxwell suggests that the 10 month time frame caused problems with coordinating scheduling, project focus and team morale. This phenomena manifested itself in the orthopedic effort. Ideally, shorter time periods coupled with a positive approach should begin to exploit successes and understand failures. Regular reviews by the Quality Council is key to keeping the senior leadership actively engaged in the implementation and integration of TQM initiatives (Maxwell 1994). Several case studies document the length of time for implementing performance improvement at nearly one year (Arndt and Bigelow 1995). The orthopedic effort continues well into some ten months. Additionally, the complexity of the material creates barriers for implementation. Management tools such as the Pareto chart, control chart and cause and effect diagram are more effective when trained facilitators assist in their use. Unfortunately, this limits involvement of those already resistant to invest the time needed to learn the use of statistical modalities begging off in the issues of providing patient care. This may explain why there was little physician involvement in the process improvement activity of this study. Ill fated efforts of TQM in health service organizations are clearly demonstrated in the literature, with much of the blame for failure resting on poor implementation (Bigelow and Arndt 1995). There is evidence to suggest that the hospital structure may be a contributing factor to this problem as well. A quasi-experimental study

suggested that hospital organizations are 20 times more complex than industry counterparts (Murphy 1992). Work roles are 6 to 8 times more complex. Hospital workers spend an average of 31 percent of their time overcoming roadblocks to service and cross-functional cooperation (Murphy 1992). These factors likely contribute to the difficulties of implementing TQM in a health care setting.

Clearly there are complex and differing roles for the variety of occupational specialties operating within a unit such as the orthopedic clinic. Physicians in the orthopedic clinic have a myriad of responsibilities: to their patients, graduate medical requirements and readiness demands just to name a few. The technicians, clerks and nurses also respond to similar demands: the hospital hierarchy, customers, both internal and external, and other role specific responsibilities. Individual physicians drive the patient care process. Historically TQM was conceived around the aspect of production and quality control in manufacturing. Therefore it is difficult to overlay the systematic approaches of TQM directly to health care processes. The orthopedic PAT could not control differences in physician practices, although some variation in the process is certainly expected and a teaching facility has built-in delays inherent in the nature and climate of graduate medical education (Wakefield 1993). The special role of the physician makes it difficult to determine what level of their involvement is necessary to conduct a successful campaign (O'Connor 1993). In the case of the orthopedic clinic process, physician participation was kept to a minimum. TQM presents a challenge to the health care system because TQM "represents a double form of increased interdependence for personnel in work process; work groups rather than individuals are used to make

innovations in work processes. A gap often exists between the aspirations for multidisciplinary work groups and the achievements of these groups. Ours is still a society deeply rooted in individualism (D'Anno 1996).” Demonstration projects, case studies and local efforts also show a reduced or delayed physician involvement. Membership by physicians on the process action team is essential to provide adequate information and teamwork for successful goal accomplishment. The profession of medicine tends to build persons with strong, action-oriented personalities. This is true in the case of surgeons, who tend to push for quick deliberations and rapid adoption of their solutions to their clinical problems (Strasser 1992).

It is important to remember that the patient's response in a given situation also impacts the overall waiting time. Consequently, improving wait times must also include the education of the patient. Patients endure a process of not being seen in a timely manner when they are ignorant of what a normal wait should be. Patients may positively change their perception of waiting simply by adding additional information concerning the reason for their wait (Hacquebord 1994).

Differing views of the TQM effort within the clinic have manifested frustrations from various members both from within and outside the PAT. These frustrations may be linked to the inability of TQM to rapidly obtain results, the lack of participation of the clinic physicians, and the feeling that the clinic performance improvement was just a “paper drill”. (There was suspicion that this project was the real driver for the clinic process improvement.) The variables mentioned previously may have contributed to the perception that “things were not working” when in fact, the preliminary statistical analysis

showed that they had been working. When briefed of their success, some clinic staff members were amazed at the results. Others, including some PAT members, were skeptical of the reliability of the data. There seemed to be feeling of relief upon completion of this phase in the journey.

The process improvement effort allowed the orthopedic service the ability to begin thinking objectively. Since TQM focuses on process improvement through statistical analysis, it reduces the tendency to make uninformed and intuitive opinions about a problem and to further blame individuals for that problem. Early on in the "clarify process stage," some of the clinic personnel immediately identified individuals who they thought were causing the delays. After conducting the first session of flow charting, they discovered that their own ways of doing business caused delays in patient care. This aspect of management by objective data facilitated an open dialogue for a resolution of patient wait time problems. Another benefit from the implementation of TQM principles is that the focus on faulty processes minimizes conflict between the different professional members within the clinic (Murphy 1991). Lastly, TQM implementation strives to put the needs of the customer first. A clinic that has institutionalized TQM modalities is one in which every aspect of patient care revolves around delighting the customer. A conflict exists between putting the customer first and obtaining an adequate selection of graduate medical surgical cases. Delighting the customer is not totally the focus in the orthopedic clinic. Satisfying the customer to minimize waiting time may be a means to an end and usually a more effective management technique of the clinic.

Limitations of the Study.

The findings are pertinent to the orthopedic clinic at TAMC and therefore may not reflect the conditions at other clinics within TAMC. These findings also may not necessarily be representative of TQM as a whole at TAMC. This study looked at the methodologies of the process action team and the aggregate clinic wait times. The activities of a dynamic orthopedic clinic are difficult to encapsulate and measure and consequently it is unknown whether extraneous variables have had a any impact on the outcome of this study. The unknown influence of physician practice variability, radiology technician variability and patient acuity may exert on patient waiting were previously identified. These properties are difficult to measure and are constantly changing. Under active research, one participates in the learning process and evaluates the process at the same time. This method presents problems of objectivity when the observer appears to have a vested interest in the outcome

CHAPTER V

RECOMMENDATIONS

Successful implementation of Quality Management efforts using the FOCUS-PDCA methodology must begin with training. Management must ensure that work groups and various ad hoc groups are receiving the necessary skills and receiving "just in time" support to improve overall group effectiveness. Training for senior executives is also important. Crosby says that you cannot teach executives within their own company,

because they will not take their peers seriously. It must be done by a competent outsider (Crosby 1989).

Snyder suggests that TQM is nothing more than the practice of good medicine and physicians have been practicing the FOCUS-PDCA model all along (Snyder 1993). To get physicians to buy-in to TQM, TAMC must have three variables: a solid foundation of support; a respected physician champion; and physicians who are interested in participating on quality teams (Mathews 1992; unknown 1993). Lewis, in his efforts to reinvigorate physician involvement, suggests that one should not point fingers [at physicians] nor tolerate medical staff indifference as characterized by the orthopedic physician group, but draw support from physicians by determining why they resist participation (Lewis 1993). Those that have employed TQM agree that early involvement of the medical staff in the planning stages has facilitated a smoother transition to cultural change in their organizations (Hughes 1992).

Another element of a successful implementation of TQM is that of having clear expectations. People need to know what their job responsibilities are and what is expected of them, and how their performance will be evaluated (McCabe, 1992). Also the organization must concentrate TQM efforts on the biggest problems and not waste resources trying to 'just train everybody'. TAMC must celebrate the results by not allowing the successful performance improvement efforts to go unnoticed. Recognition for quality practices must permeate the organization at every level.

Critical to the successful institutionalization of TQM at TAMC is the necessity to promote cooperation and interdepartmental sharing. It may be necessary to change the

reward systems at TAMC to focus on performance that crosses departmental boundaries. (Nordlund 1991). Group successes rather than individual success should merit reward. Management must also lead and live the process improvement efforts by faithfully attending TQM meetings. They may need to make changes in staffing and in their own schedules to support TQM (Koska 1990). Institutionalization requires that TQM be incorporated in the daily activities of all concerned. The orthopedic clinic must allow scheduling of TQM meetings during business hours, just as they schedule case reviews and clinical briefings.

One of the reasons why TQM fails is lack of commitment from senior leadership. Senior leadership involvement must manifest itself at the lowest level, from local visits to QITs, to accountability on quality service. A novel idea sweeping service oriented facilities is the service guarantee. A service guarantee is a pledge that if the service is below quality standards (concept of quality standard defined in the eyes of the patient), then a report mechanism is provided, plus a recompense to the patient is issued based on the level of dissatisfaction registered. In other words, patients who experiences poor quality would receive some sort of recompense for their suffering and inconvenience resulting from shoddy service.

ORTHOPAEDIC CLINIC
Service Guarantee Card (Grey)

I was disappointed today because:

☐ Now that you are aware of it don't let it happen again;

-or-

☐ I am extremely upset - please have

☐ the clinic's supervisor
☐ the patient representative
☐ the hospital commander
 call me.

Sincerely,

Note: This card may be returned anonymously

Tel. # _____

☐ Days
☐ Evenings

Figure 6

A study of the implementation of service guarantees concluded that service guarantees are an ideal tool for measuring service quality and capturing dissatisfaction about all aspects of a patient's experience. "The two card program is a singularly effective TQM instrument, a focused generator of service refinements, and a gratifying result of service improvements in a single, easily implemented easily analyzed management tool" (Lewis 1993).

TQM must have clear benchmarking data to capture what ought to be measured as opposed to mere "factoid" data. Factoids are data collected simply for collection sake.

This type of data spends man hours but contributes nothing toward the learning organization. TAMC must translate requirements of data collection into elements of the information systems management by asking the users what type of information they need to make decisions and produce accurate reports for action (Gauccher 1990).

Organizations that do not catch the vision in the quality movement are designed to repeat the mistakes of the past. Ironically, it seems that in the evolution of the health service quality journey, a "business as usual" mentality still prevails. Every organization that has embraced the concepts of TQM has first identified a need for change; instituted change through process improvement; recognized the requirements for truly institutionalizing TQM as an organizational philosophy; and finally resisted the change when it becomes too uncomfortable to let go of old practices. While this ideological evolution is occurring, administrators, physicians nurses and other essential personnel, struggle in vain to evaluate the efficacy, efficiency and effectiveness of their endeavor. This logic is inherently flawed because TQM is not just about using a management tool to improve business processes, but about "satisfying customers and getting the company in better shape"(Crosby 1989).

TQM is now an anachronism. Use of the words evoke actions and words of disdain from many in health care. Unfortunately, TQM is often construed as the "flavor of the month" business fad rather than a major shift in a management philosophy. Following on the heels of the quality revolution is the re-engineering health care concept or the radical change of processes toward effectiveness, efficiency and efficacy. TAMC must protect against delivering a negative message concerning implementation of TQM as

a fact while real leadership steps forward to embrace not only a true paradigm shift in the practice of health care but its delivery as well.

CHAPTER VI

CONCLUSION

Much of the literature surrounding TQM describes a recipe for successful implementation: a step-by-step process that identifies the customers, puts quality at its core, uses statistical analysis and focuses on system improvement. The key ingredient in the recipe is management. In many instances, performance improvement initiatives get bogged down, taking almost a year to demonstrate results. This is due, in large measure, to the belief that the rigid adherence to the step-by-step methods is essential for success. It is important to remember that the Japanese did not manage just by fact and data but by using good judgment and using the experience and talents of their people (Gabor 1992).

Award winning companies identify, meet and exceed customer requirements. Health service organizations are increasingly being targeted with intense, rigorous and persistent scrutiny regarding the quality and the value of the care services they provide. Success in the medical market depends on doing the right things better and with less cost (Lansky 1995). TAMC stands at a crossroads in its total quality journey. Studies demonstrate that TQM promotes many enduring principles that are the hallmark of successful organizations (Gustafson 1995). Innovation and improvement are hallmarks of TAMC's quest for excellence.

The FOCUS-PDCA methodology was successful in the orthopedic clinic at TAMC. Clearly there is a need to canvass TAMC's patient population and staff to

determine levels of satisfaction so that a definitive picture of customer expectations can be established. Additional studies should include the orthopedic clinic's patient satisfaction. This study only demonstrated the implementation of the FOCUS-PDCA methodology at one clinic. Further study is needed to determine if the implementation of TQM is affected by differing departments, clinics and services. Another study should be undertaken to analyze the affect of TQM on physician, nurse, and technician behaviors in the hospital. TAMC is renewing its efforts of quality management. Recently, it contracted the services of the Juran Institute to conduct an evaluation of TAMC's readiness for advancement in TQM (Halder 1996).

The orthopedic clinic at TAMC achieved a moderate level of success without full participation of the clinical staff. An even greater achievement lies hidden just beyond the next turn in TAMC's total quality journey.

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APPENDIX A



ORTHOPEDIC CLINIC PATIENT WAIT TIME SURVEY

Please document actual times to each area in the orthopedic clinic, as applicable.

Appointment Date _____
 Appointment Time _____

Type Appointment/Clinic _____
 Physician Name _____

Reception/Sign In _____
 Records Processing _____

Start

↓

1st Stop _____ (Place O, W, C, P, or X)
 Called by Physician _____ (e.g. 0930)
 Seen by Physician _____ (e.g. 0945)
 Departure _____ (e.g. 1100)

or

2nd Stop _____ (Place)
 Arrival Sign-in _____ (Time)
 Seen by Phys/Tech _____ (Time)
 Departure/Sign out _____ (Time)

or

3rd Stop _____ (Place)
 Arrival Sign in _____ (Time)
 Seen by Phys/Tech _____ (Time)
 Departure _____ (Time)

or

4th Stop _____ (Place)
 Arrival/Sign-in _____ (Time)
 Seen by Phys/Tech _____ (Time)
 Departure _____ (Time)

End

Follow the arrows
as applicable

**A STOP *could*
be:**

O- Office visit
 W- Wound Clinic
 F- Fracture Clinic
 P - Podiatry
 X - X-ray

_____ (e.g. 1102)

Departure/Sign-out of clinic

APPENDIX B

FIND A PROCESS TO IMPROVE

Did the team determine who is the customer?
Did the team name the process to be improved?
Did the team determine process boundaries?
Is there an opportunity statement?
Did the team tie the process to the hospital as a system?

ORGANIZE A TEAM THAT KNOWS THE PROCESS

Is the team of a reasonable size?
Do the members represent people who work in the process?
Does the team: knowledge of the process align with the boundaries in the opportunity statement?

CLARIFY CURRENT KNOWLEDGE OF THE PROCESS

Is the process presented at a level of detail that identifies possible causes of variation?
Is there evidence of agreement on a best method as represented by a single flow diagram?
Do the boundaries of the flow diagram align with the opportunity statement and the team?
Were there quick and easy improvements made in the "C" phase using PDCA: Did the team defer any improvements to the "S" phase?
Is there evidence that the "actual" flow of the process was documented rather than some perceived flow?

UNDERSTAND SOURCES OF PROCESS VARIATION

How did the team identify the key quality characteristics and potential key process variables?
Is there an operational definition for the KQC and the KPV?
Is there a data collection plan? Who will collect them?
Does the team understand how long it will take to collect enough data to make a decision?
How does the performance of the process vary over time?
Can the team show a relationship between the KQC and the KPV?

SELECT THE PROCESS IMPROVEMENT

How did the team select the opportunity for improvement?
Are there any data or other evidence to support the selection?
What were the criteria for making the decision?

PLAN

Does the team have a plan for piloting the improvement and collecting data?
Does the pilot plan indicate dates, communications, and ownership of specific steps?
What training was necessary?

DO

How was the plan executed?
Did any contingencies arise?
Were dates on the data collection plan met?

CHECK

Do the data on the run chart suggest that the process changed?
How did the data change?
Does the team know anything that helps explain any evident change?
Is the team comfortable that enough data are present to support action?
If the team is not comfortable with the amount of data or the knowledge provided by the data, what is the plan for obtaining more?

ACT

Did the team act to implement the process gain beyond the pilot?
Did the team act to generalize the lessons learned from the pilot? Or did the team act to discard the planned improvement?
Can the team find another opportunity for improvement within this process?
What did the team learn from the effort?

Appendix C

Patient Wait Times: Cast Room

