Running head: CYCLE TIME

Analysis of Patient Cycle Times at the Urgent Care Clinic at

Moncrief Army Community Hospital

A Graduate Management Project Submitted to the United States Army-Baylor University

Residency Committee in Candidacy for the Degree of Masters in Health Care Administration

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ABSTRACT

This study evaluated the patient processing system at the Urgent Care Clinic at Moncrief Army

Community Hospital, Fort Jackson, SC to assess its timeliness and efficiency. Analysis of patient

cycle times at two separate time intervals made it possible to identify the different time periods

and assess the patient's access to care. A questionnaire was used to evaluate the effects of

changes in this process. Although overall wait and access to care improved ($p < .05$), no

significant improvement in overall satisfaction was found between the two time intervals.

Written patient comments indicated a greater concern for personal treatment experienced rather

than access time to receive care. This study underscores the difficulties in identifying and

meeting patient satisfaction and demand.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Introduction

In 2001, the Institute of Medicine (IOM) proposed six aims for health care improvement in the 21st century: safety, effectiveness, patient-centeredness, timeliness, efficiency, and equitability (Institute of Medicine, 2001). In essence, any effort by an organization to improve access to health care supports most of the IOM's aims. Improving access to care results in reduced waiting times for rendering the appropriate care when desired (timeliness) (thereby enhancing patient health, safety, effectiveness, and equity). Activities related to improving patient access to quality care involve enhancements in efficiency and reverberate a culture of patient-centeredness. Any attempt to improve access is a benefit to the patient. In light of these efforts there is still a growing number of Americans lacking basic access to health care. According to a national tracking study by Strunk and Cunningham (2002), despite a strong economy, slower population growth of uninsured people and record low unemployment, overall rates of people foregoing or delaying needed care failed to improve between 1997 and 2001. This study also found people increasingly facing problems getting timely physician and clinic appointments.

Twenty-two to twenty-eight percent of the population report waiting longer than seven days for an appointment and encountering difficulties scheduling appointments. In 2001, 5 percent of Americans failed to receive or postponed care because they could not get an appointment soon enough. This is compared to 3.4 percent in 1997 (Strunk and Cunningham, 2002). Further complicating the issue is the notion that the health care marketplace has shifted with the demise of managed care. The elimination of health plan restrictions typical of the managed care era, such as gate-keeping and pre-authorizations, seems to have created an imbalance between patients seeking medical care and physician capacity, as more physicians are

reporting having inadequate time with patients (Trude, 2003). What may help to reverse this imbalance will be measures such as: employers shifting toward increased cost sharing for those who seek care, their reluctance to pay rising health insurance rates, and increases in unemployment. Incidentally, these shifts may also contribute to the numbers of uninsured Americans. Currently over 44 million uninsured, this number is projected to increase at the rate of about one million per year (Custer and Ketsche, 1999).

While lack of insurance is not always a concern for military health care beneficiaries, this certainly has not immunized the military system from the same issues that have plagued the civilian community. Testifying before Congress in 2002, military beneficiaries described some of their problems accessing care from civilian medical providers. Serving approximately 8.7 million eligible beneficiaries, the Department of Defense (DOD) operates one of the largest health maintenance organizations in the world through the United States Military Health Care System (MHS). Relying on a civilian provider network to supplement health care delivery by its military treatment facilities, the DOD MHS is responsible for providing medical care to these beneficiaries. It delegates oversight of this network to regional TRICARE lead agents and has established time standards for appointment wait, office wait, and travel to ensure timely access to care. Even with TRICARE oversight, the DOD's ability to effectively oversee the network is hindered in several ways. First of all, the determinations for providing sufficient mix and numbers of providers does not always account for regional variations of beneficiaries seeking care. This shortfall results in an underestimation of providers needed in an area. Secondly, poor reporting by providers on their access standards makes it difficult to assess access compliance. Finally, the DOD does not routinely collect and analyze beneficiary *complaints* which could be used to improve network oversight (Hunter and Warner, 2003).

With health care expenditures totaling over 15 percent of the Gross Domestic Product

(GDP) in 2003 and an expected growth to over 17 percent of GDP by 2012, it comes as no

surprise that the need and demand for quality health care has become a critical issue nationwide

(Heffler, Smith, Keehan, Clemens, Won, and Zezza, 2003). The current and future status of the

health care market mandates a strong sense of urgency for finding innovative ways to improve

access to health care services. One such innovative system is the Open Access (OA) model. OA

has been implemented throughout a growing number of civilian and military health care

organizations. Arming them with the ability to provide care at the time of the patients' choosing,

it has reformed these health care organizations. It is not uncommon to find organizations

implementing OA and eliminating wait times in their patient care processes (Murray,

Bodenheimer, Rittenhouse and Grumbach, 2003).

<u>Conditions Which Prompted The Study</u>

Starting in fiscal year 2003 and during the next two fiscal years, new Tricare contracts

(T-Nex) will be implemented to provide purchased care to the direct health care system for

beneficiaries (Tricare Management Activity, 2004). Although a civilian network of contract

physicians and other health care providers in the MHS provides much of this health care, Tricare

primarily uses military treatment facilities (MTFs) located on DOD installations as the main

delivery system. These contracts are intended to make a strong program better by focusing

improvement in three general areas: responsiveness to patient needs, customer service, and

access to health care. T-Nex will also establish revised financing under which MTF

Commanders will be judged on their performance in managing their health care budget. While

its intent is to give the MTF more control over funds used to care for their beneficiaries, the

ultimate purpose of revised financing is to provide stronger incentives and support for

maximizing care availability for beneficiaries within the MTF or in the supporting provider network. The OA model and concepts will assist MTFs in this endeavor by facilitating and improving patient care capacity. It provides the health care organization a tool with which to maximize provider supply to meet its patient demand. Under revised financing, it is imperative that MTF commanders ensure all efforts are made to optimize their operations to expand capacity with maximum retention of eligible beneficiaries within their MTFs. Doing so will inevitably result in reducing the overall cost of the care given to our patients, ensuring quality of care, and improving patient satisfaction.

Implementation of the OA model in a health care organization will require the organization to establish baselines and track certain performance measures. Hospital information systems can be used to facilitate the tracking of some measures; in other cases, metrics have to be determined locally. The measures that must be established and tracked prior to implementation of the OA model are: appointment availability (having sufficient numbers of providers and support staff), demand (the total number of patients seeking services), continuity (patients appointed with their assigned provider), panel size (equalizing panel sizes), productivity (improving provider performance), no-shows (patients that fail to show for appointments), cycle times (time from clinic arrival to departure), and satisfaction measures (patient and staff).

<u>Statement of the Problem</u>

Cycle time and long patient waiting times are important aspects of care that impact upon patient satisfaction. Patient waiting times in the Moncrief Army Community Hospital (MACH) Urgent Care Clinic (UCC) vary greatly. The organization continues to receive patient complaints and criticism regarding excessive wait times at the UCC. The simple unanswered question facing a health care administrator remains; "what is the total time spent by UCC

patients receiving care through the UCC?" Are there steps or processes in the patient cycle time (arrival to departure) that can be changed to decrease patient waiting times?

Literature Review

OA is an innovative process of developing schedules and booking medical appointments. Many organizations that have adopted the principles of OA have dramatically improved access for their patients (Murray, Bodenheimer, Rittenhouse and Grumbach, 2003). In fact, several U.S. Air Force, Army, and Navy health care facilities have instituted OA with provable success. According to Mr. George Sherman (personal communication, March 22, 2004) of the European Regional Medical Command (ERMC) office of clinical operations, ERMC successfully implemented this initiative in December 2000. As of November, 2001, there were 11 Army, 2 Air Force, and 3 Navy military health care facilities operating under OA: Heidelberg, Wuerzburg, and Landstuhl MTFs (Army); Rota, Sigonella, and Keflavik MTFs (Navy); Ramstein and Aviano MTFs (Air Force), to name a few. It is not uncommon to hear reports of clinics improving their waiting times from weeks to days and specialty practices improving appointment availability from up to one year to within two weeks for routine specialty care (Murray, 2000).

The basic premise of OA appointing is that beneficiaries see providers on the same day they request an appointment. Murray and Tantau (1999) recommend defining access as the patient's ability to seek and receive care from the provider of their choice at the time of their choosing. Murray and Berwick (2003) describe this as a system "to do today's work today" (p.1037).

OA is a system of multiple steps that must be addressed by the implementing organization. In order for OA to succeed, an organization must implement key elements of the

process. According to Dr. Mark Murray (personal communication, September 22, 2003), a leading consultant in OA, the following elements are critical to a successful implementation of the model: leadership emphasis, physician involvement, engagement of the entire team, and measurement. Dr. Murray believes that organizational leadership must clearly set the tone for change and help set specific goals of OA in the organization. Leadership must firmly believe in the proven process and set of principles that can change what was done in the past to achieve improvement in patient access to care in the future.

Provider buy-in is a must because OA will impact the organization at the clinic operational level. Physician involvement is crucial if the organization is to succeed at attaining buy-in. According to Dr. Murray (personal communication, September 22, 2003), "If the physicians are on board, this does not necessarily guarantee success, however, if they are not it will not be successful." In fact, organizations that were successful with OA initiatives have shown that although all four of the key elements above are important, physician buy-in was the most critical for successful implementation.

If changes are to endure, any effort at improving access must be spearheaded by organizational teams. Teamwork is paramount to OA success for it is this team effort that ultimately ensures that all practices implemented are sustained to become a part of the culture and way of doing business.

Measurement of certain aspects of the operations helps to identify areas needing improvement and shows the efficacy of any changes implemented. With the advent of OA and increased interest in this aspect of practice activity, access to appointments in primary care was not routinely measured. Thus, there are many challenges in attempting to establish standardized

data or benchmarks for access. It comes as no surprise that there are no standardized methods for measuring access to care.

Jones, Elwyn, Edwards, Edwards, Emmerson, and Hibbs (2003) assessed different methods, published or being developed, for the purpose of measuring access. In their search, the authors noted a lack of an accepted definition of patient access. Their study identified two broad approaches to the measurement of waiting times: analysis of appointment systems and patient perceptions. Appointment system analyses were found to facilitate an objective approach utilizing numerical data and eliminated many of the problems inherent in defining different variables peculiar to these studies such as the subjectivity in differentiating between routine and urgent needs. Of the methods identified, the "Third Appointment" system (p.6.) was found to be the most widely used. This system measures the average length of time in days between the day a patient makes a request for an appointment and the third *available* appointment for a new patient. The third next available appointment is a more sensitive reflection of true appointment availability rather than the next available. For example, an appointment may be open at the time of a request because of a cancellation or other unexpected event. Using the "third next available" appointment eliminates these chance occurrences from the measure of appointment availability.

Whatever method is ultimately determined to be best suited to the organization for measuring access, it is important to remember that access to care represents an important aspect in perceptions about the quality of the care received (Campbell and Roland, 2000). Quality rapidly developed into a strategic issue when health care leaders became painfully aware of the less apparent, less tangible costs that a perceived lack of quality had on their organizations. Unsatisfied patients, who quickly became ex-customers, would generate negative word-of-mouth communication about the organization (Sherden, 1988). If the care received is perceived as poor

quality, these patients can, and usually do, vote with their feet. Under T-Nex, this will be critical

for all health care organizations in the MHS, since unsatisfied health care beneficiaries will now

have the option of seeking their care elsewhere, to include civilian providers, directly impacting

MTF funding. Patient satisfaction has emerged as an increasingly important parameter in the

assessment of health care quality.

Satisfaction questionnaires capture patient perceptions of the health care they receive. In

their study, Jones, et al. (2003) were able to locate several validated patient questionnaires

containing access assessments used around the globe. Many of the satisfaction questionnaires

allow the patient the opportunity to assess their access to care in terms of the time required for

them to receive an appointment and the time required to be seen by their provider.

Understanding patient perceptions and expectations is essential for the health care organization.

Recognizing that patient perceptions are an important gauge in measuring how well military

MTFs are performing in their health care mission, the DOD has been performing patient attitude

assessments since the late 1970s (Mangelsdorff, 1979, 1980, 1994; Mangelsdorff and Finstuen,

2003). Implemented as a requirement by the 1993 National Defense Authorization Act, the

Health Care Survey of DOD Beneficiaries (HCSDB) provides a comprehensive look at

beneficiary opinions about the health services received from the MHS (Tricare Management

Activity, 2004). Mangelsdorff and Finstuen (2003) studied these survey results and generated a

model for predicting patient satisfaction. Of those analyzed, waiting time (access) was among

several significant variables identified in predicting overall satisfaction with health care received.

Other authors have identified similar findings (Jackson and Kroenke, 1997; Levesque, Bogoch,

Cooney, Johnston and Wright, 2000; Bar-dayan, Leiba, Weiss, Carroll, and Benedek, 2002;

Murray, 2003).

Determining what factors contribute most to patient satisfaction can assist in improving the quality of care. As discussed above, waiting time (access) and quality of care (real or perceived) have a direct impact on patient satisfaction. Patients' perception of waiting time in the health clinic can greatly affect their satisfaction with their service (Minden, 1994). Thus, delivering *real* quality care is not enough. For patients, even a *perceived* reduction in waiting times is interpreted as a quality care issue. Patients must perceive they are receiving timely quality care. Expressing interest in the patients' perception of the care they receive makes them feel valued and important (Mangelsdorff and Finstuen, 2003). Some authors recommend focusing on improving patients' perceptions that wait intervals are appropriate rather than simply shortening the wait intervals (Hedges, Trout and Magnusson, 2002; Boudreaux, Friedman, Chansky and Baumann, 2004). The authors found that overall satisfaction was more strongly associated with the perception of the waiting time than with the actual (measured) wait.

In some instances, prompt patient processing is more important to the patients than waiting for their needs to be addressed (Davis and Maggard, 1990). Frank-Soltysiak and Court (2002) found that even expected delays, by way of a staff member providing the reasons for delay, result in greater satisfaction than those patients who have to wait an equal amount of time with no explanation for the delays. The perception of a delay is lessened when sufficient information is provided to the patient. Arendt, Sadosty, Weaver, Brent, and Boie (2003) interviewed a group of patients who left the Emergency Department without being seen and found that nearly 85 percent of those respondents indicated that more frequent updates on expected waiting time would have helped them wait longer. Oermann (2003) examined the effects of engaging the patients waiting in the clinic on their satisfaction with the clinic visit. This study found that patients who were distracted while they waited in the clinics, such as using

the time for patient education, were more satisfied. The studies presented above provide alternatives that can easily be implemented in clinics that are struggling with increased patient waits and patient complaints. An assessment of the viability of these alternatives should be included in any evaluation of clinic wait times.

In addition to poor patient satisfaction, delays in access to health care can result in deterioration of clinical outcomes. Lengthy waits can lead to delays in diagnosis and treatment and can prevent the timely delivery of recommended preventive services (Murray, 2000). A national survey of emergency room directors found that waiting more than 1 hour to see a physician was considered likely to result in adverse clinical outcomes (Lambe, Washington, Fink, Laouri, Liu, Scura Fosse, et al., 2003). Furthermore, minimizing patient waiting times has been shown to result in positive clinical outcomes. Baltic, Schlosser and Bedell (2002), studied the timeliness of treatment for oncology patients receiving their initial dose of antibiotics and found that the sooner a patient was seen by their provider for treatment, the greater the likelihood of positive clinical outcomes.

Measuring cycle time may be a more beneficial alternative to measuring wait time. Wait time measures how long a patient sits in the waiting room, but ignores other "waits" like waiting in the exam room, waiting for a phlebotomist, and so on. Cycle time measures the time of the total patient encounter, starting when the patient enters the clinic until the time he or she leaves the clinic. Thus, cycle time evaluation may uncover opportunities for improvement in different aspects of clinic management, such as staffing problems or poor clinic preparation concerning medical records or ancillary test result unavailability. In a study of California emergency departments, Lambe, Washington, Fink, Laouri, Liu, Scura Fosse, et al. (2003) found that lower inappropriate staffing ratios of physicians and triage nurses were correlated to longer patient

waits. Their conclusions recommend concentrating on physician and nurse staffing as a means to reduce waiting times.

Evaluating patient cycle times in the patient processing system can help identify bottlenecks that may be modified to reduce the overall patient waiting times. Shortened cycle time is a good indication of improvements in office efficiency in terms of both patient flow and workflow, which in turn improves overall capacity in the clinic.

Purpose (Variables/Working hypothesis)

Moncrief Army Community Hospital (MACH) is a 12-story DOD MTF located on Fort Jackson, South Carolina. MACH serves the 60,500 beneficiaries at Fort Jackson and greater Columbia, South Carolina. Staffing is comprised of approximately 368 military and 508 civilian personnel. A wide range of specialties is provided in the facility including Family Practice, Dermatology, Mental Health, Optometry, Orthopedic Surgery, and soon Gynecology. The daily census for inpatients, including psychiatric, is 17. Some daily statistics for MACH: 1,250 patient visits are seen in the clinics, 1035 laboratory procedures are performed, 1,795 prescriptions are filled and 317 radiology procedures are done. MACH is part of the Southeast Region of the Army Medical Department with Regional Headquarters located at Eisenhower Army Medical Center, Fort Gordon in Augusta, Georgia.

According to The Surgeon General's satisfaction survey reports, MACH has consistently scored at or above average among other Army MTFs within the MHS for overall satisfaction with clinics and medical care. However, when analyzing the specific clinic performance, the Urgent Care Clinic (UCC) is among the lower scoring clinics. The purpose of this study was to determine the patient cycle times through the UCC and how each time period can be addressed to improve the quality and efficiency of patient services through the clinic. This information will

be used to recommend changes to the patient processing system to improve the patient cycle time (wait time) and patient satisfaction with the UCC.

The objectives of the study were to conduct time and motion studies to quantify the time periods comprising the total cycle time, collect data on patient satisfaction with the care received and with wait times, conduct statistical analyses of the resulting data from the time and motion studies as they relate to patient satisfaction, and use the results of the analyses as a basis for recommending changes that may improve cycle times and ultimately, patient satisfaction with the care received at the UCC.

The independent variables include the different time periods comprising the total patient cycle time. They are operationally defined as: (1) artock (the time from the patient's arrival to the clinic until being checked in at the front desk); (2) cktorm (the time from check-in to being called into an exam room); (3) doctorm (the time the patient waits until the provider enters the exam room); (4) doctime (the patient time with the provider); (5) down time (the time the patient waits for additional activities such as phlebotomy or administration of medication); (6) disposet (the time from the patient being dispositioned by the provider until discharged by nurse). The unit of measure for all variables is minutes.

The dependent variable for this study was overall patient satisfaction as assessed by a patient questionnaire that was given to patients at the end of their visit and before leaving the clinic.

The null hypothesis in this study states that overall patient satisfaction does not vary as a function of the cycle time (waiting and processing time). The alternate hypothesis in this study states that overall patient satisfaction does vary as a function of the cycle time (waiting and processing time).

Method and Procedures

This is a prospective longitudinal study. Given the body of research supporting the argument that wait times (access) are important to patient satisfaction, patient wait times were measured (cycle time) and analyzed against patient satisfaction.

The patient cycle time focuses on the patient clinical processing system. Cycle time is the amount of time in minutes that a patient spends in a visit. The cycle begins at the time of arrival to the clinic and ends when the patient leaves the clinic. This analysis of cycle time entailed documenting the waiting times experienced by patients from their arrival at the MACH Urgent Care Clinic through their departure from the Clinic. A Patient Cycle Tool (PCT) (Appendix A) was used to facilitate the documentation process. The PCT was originally developed and made freely available online through the Institute for Healthcare Improvement for use in other organizations (Batalden, Godfrey, Nelson, 2003). Although the authors gave no validity or reliability data from their original tool, reliability and validity of the MACH PCT were established through the use of an expert panel consisting of clinic management personnel. First, the form was modified by clinic management with the criteria that only the actual time periods experienced by the patient in the Urgent Care Clinic patient processing would be reflected in the PCT. An effort was made to clearly identify only those time periods that were of interest to the study. Second, a pilot study was performed with a sample of seventy-five UCC patients (n=75). The pilot study identified areas in the PCT form in need of further refining that either confused the staff during the data collection process or were of no interest to clinic management, such as ancillary services data. Those aspects of the form were eliminated. The remaining time periods listed in the MACH cycle tool are specific to the patient processing system used in the UCC. Data collection with the PCT after these initial modifications was less confusing to the staff and

resulted in more accurate data. Validity and reliability of the instrument were achieved through

these revisions by MACH UCC management and those revisions made as a result of the pilot

test. These revisions modified the tool according to the clinic's needs, assuring that it was

measuring what it was intended to measure. The PCT required patients to document

demographic data (patient category, age and gender) in addition to their arrival date and time at

the clinic. UCC staff documented the time periods at each step in the patients' episode of care as

the patient flowed through the clinic.

Patient perception data were collected through a patient questionnaire to assess the effects

of changes in cycle times that were observed (Appendix B). Patients were asked to complete the

questionnaire before they left the clinic. The questionnaire consisted of nineteen questions rated

using a five-point Likert scale (1-poor, 5-excellent and 1-completely disagree, 5-completely

agree). According to White (1999), the practice of medicine has three general patient goals:

provision of quality health care, easy access to that care and the treatment of all patients with

courtesy and respect. Thus, when surveying patients, White recommends health care

organizations cover three general areas: quality issues, access issues (waiting times), and

interpersonal issues. The questions in our patient questionnaire addressed five domains of

specific satisfaction: (1) satisfaction with the facility and environment, (2) satisfaction with

waiting times, (3) satisfaction with the clarity of the information received from the staff, (4)

satisfaction with the staff's personal relations and helpfulness, (5) overall satisfaction with the

visit. Additionally, each patient was asked to rate his or her health status, as well as indicate his

or her patient category. The survey tool domains were modeled after the Army Patient

Satisfaction Survey mailed to patients after each visit to an MTF. Some questions were also

obtained through a literature review identifying previous work on the subject. Additionally,

some of the questions were selected from the Health Care Survey of DOD Beneficiaries

(HCSDB) based on their measurement of those domains of interest to this study. The HCSDB

questions are modeled after a nationally recognized set of standardized questions from the

Consumer Assessment of Health Plans Survey (CAHPS) program. CAHPS questions have been

thoroughly studied and validated (Agency for Health Care Research and Quality, 2004). The

UCC patient surveys and PCTs were individually numbered to correspond with each other to

ensure patient cycle times were directly tied to survey results and vice versa. No individual-

specific identifying data were collected to ensure patient confidentiality. Validity of the

questionnaire was ascertained through an evaluation by a local 5-person panel, to include clinic

management as well as other administrative Baylor graduate personnel. As a result of their input,

questions that were either considered redundant or unnecessary by at least two members were

either revised or eliminated. After these revisions were made, survey tool reliability was assessed

through a pilot sample of patients from the UCC. Reliability of the instrument (internal

consistency) was assessed using Cronbach's coefficient alpha reliability analysis. This analysis

resulted in a Cronbach's alpha value of .96, which is well over the accepted level of .80 (UCLA

Academic Technology Services, n.d.).

Data were collected during two separate two-week time periods. Univariate Analysis of

Variance (ANOVA) (General Linear Model) was performed to identify the effects, if any, of

changes in the cycle time periods (the independent variables) on overall patient satisfaction (the

dependent variable). One-way ANOVA was applied between the total cycle times for time

periods 1 and 2 to assess if any cycle time differences were realized. The ANOVA was then

applied between time periods 1 and 2 on the survey results for overall satisfaction to identify if

any significant differences in overall patient satisfaction had been achieved. These analyses

helped to identify and correlate the effects of changes in individual cycle times on patient

satisfaction. All statistical analyses were performed with the Statistical Program for the Social

Sciences (SPSS) 11.0 (student version).

<div align="center">Findings</div>

The demographic characteristics of the sample population are shown in Table 1. The

sample size for the first and second data collection period was 181 (n=181) and 210 (n=210),

respectively. A significant number of patients seen in the UCC during the first and second data

collection periods were Soldiers in training (SITs), 41and 34 percent, respectively. The visits by

permanent party active duty personnel were almost identical for both time periods (28 and 29

percent). The lowest number of patient category observed in the UCC was military retirees and

their dependents.

Table 1
Patient Categories (%)

	(n=181)	(n=210)
	Time Period 1	Time Period 2
Soldier in training	41.4	34.0
Active duty dependent	27.6	28.7
Active duty	24.3	21.1
Retiree	5.0	11.5
Retiree dependent	1.7	4.3

The patient population was almost equally distributed by gender with males at a frequency

of 52.6% and females at 47.4%. Table 2 lists the patient age distribution.

Table 2
Patient Age Demographics

	Percent Observed
<17	26.1
18-24	45.9
25-34	10.6
35-44	7.7
45-64	1.9
65+	7.7

Descriptive statistics for the cycle times are listed in Tables 3 and 4. With the exception of the doctime and disposet variables, the means for all variables were lower in the second cycle time. A Univariate ANOVA was applied to both time periods to evaluate for significant differences. The results of these analyses are displayed in Table 5. The differences in Total Cycle Times were found to be statistically significant, with time period 2 being lower than time period 1 (Fig. 1). When each individual time variable was analyzed in the same way, all but disposet were significantly lower. Of the two variables with increased means in the second time period, only doctime was statistically significantly ($p < .05$) indicating an increase in the mean amount of time the patients spent with their health care provider.

Table 3
Descriptive Statistics for Cycle Times (Time period 1)

Time period*	minimum	maximum	mean	s.d.
Arrival to check-in/SAC'd	0	232	32.66	37.07
Check-in/SAC'd to room	0	264	62.41	53.33
Provider to room	0	170	32.18	29.53
Provider time with patient	1	45	7.54	6.29
Down time	0	270	36.10	48.50
Disposition to discharge by RN	0	196	18.94	26.24
Total cycle time	36	568	213.28	97.88

* minutes

Table 4
Descriptive Statistics for Cycle Times (Time period 2)

Time period*	minimum	maximum	mean	s.d.
Arrival to check-in/SAC'd	0	185	20.30	30.99
Check-in/SAC'd to room	0	211	31.04	32.65
Provider to room	0	200	21.43	23.12
Provider time with patient	1	45	9.97	7.44
Down time	0	110	7.90	15.83
Disposition to discharge by RN	0	225	19.20	26.84
Total cycle time	30	406	139.78	76.94

* minutes

Table 5

Analysis of Variance Results Between Time Period 1 and 2

Source		Sum of Squares	df	Mean Square	F
Artock	Between Groups	14186.37	1	14186.37	12.30*
	Within Groups	447677.12	388	1153.81	
	Total	461863.50	389		
Cktorm	Between Groups	93885.51	1	93885.51	49.56**
	Within Groups	735070.10	388	1894.51	
	Total	828955.60	389		
Doctorm	Between Groups	10906.98	1	10906.98	15.77**
	Within Groups	268437.90	388	691.850	
	Total	279344.87	389		
Doctime	Between Groups	553.47	1	553.48	11.52*
	Within Groups	18589.32	387	48.03	
	Total	19142.80	388		
Downtime	Between Groups	75902.53	1	75902.53	61.78**
	Within Groups	476720.41	388	1228.66	
	Total	552622.94	389		
Disposet	Between Groups	17.33	1	17.33	.03†
	Within Groups	273104.03	387	705.70	
	Total	273121.37	388		
Total time	Between Groups	502282.72	1	502282.72	65.58**
	Within Groups	2941116.30	384	7659.16	
	Total	3443399.00	385		

Artock (patient arrival to check-in); Cktorm (time from check-in/SAC to room); Doctorm (time delay for provider to room); Doctime (provider time with patient); Downtime (self-explanatory); Disposet (disposition time to discharge by RN); Total time (total cycle time)
** p < .001
 * p < .05
  † = not significant
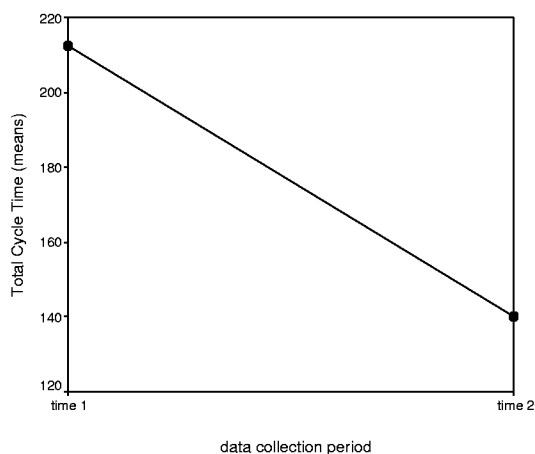
Figure 1. Means plot depicting the relationship between the two time periods and Total

Cycle Time.

Satisfaction survey statistics are displayed in Tables 6 and 7. There were a total of 391

surveys delivered to clinic patients with 192 returned complete for an overall response rate of

49%. Return rate for the first time period was 46% (83/181) and 52% (109/210) for the second

time period. The patient questionnaires were included with the patient documentation as they

were checked in at the front desk to ensure all patients received a questionnaire. The nurse then

handed the survey to each patient at discharge.

The correlation results for the survey items can be found in Appendices C and D for time

periods 1 and 2, respectively. The correlations between the survey items were all very

significant. Survey one results range from 0.28 to 0.88 (p < .01) while survey two results range

from 0.25 to 0.90 (p < .01).

Table 6
Descriptive Statistics For The Survey Results (Time period 1)   *(n=83)*

	mean	s.d
Clinic cleanliness.[a]	4.37	0.89
Clinic comfort.[a]	4.31	0.95
Clinic privacy.[a]	4.29	1.12
Waiting time to be checked in at front desk.[a]	4.11	1.14
Waiting time to see a provider.[a]	3.84	1.33
Time spent with provider.[a]	4.17	1.17
Treatment (solved the problem).[a]	4.05	1.30
Clarity of information provided by provider.[a]	4.33	1.08
Provider's patience.[a]	4.47	0.93
Medic's patience.[a]	4.30	1.21
Staff attitude.[a]	4.47	1.06
Staff professionalism.[a]	4.45	1.16
Overall satisfaction with visit today.[a]	4.35	1.11
Physician clearly explained problem and treatment.[b]	4.47	1.14
Provider treated me with courtesy and respect.[b]	4.72	0.86
The medics and clerks were helpful.[b]	4.64	1.08
Clinic staff was responsive.[b]	4.57	1.13
Clinic staff cares about their patients.[b]	4.55	1.12

Cronbach's α = 0.96

[a] 5-point Likert scale: 1, poor; 2, fair; 3, good; 4, very good; 5, excellent

[b] 5-point Likert scale: 1, completely disagree; 2, somewhat disagree; 3, neither agree nor disagree; 4, somewhat agree; 5, completely agree

Table 7
Descriptive Statistics For The Survey Results (Time period 2)   *(n=109)*

	mean	s.d
Overall, how would you rate your health? [a]	3.52	1.20
Clinic cleanliness.[a]	4.13	0.91
Clinic comfort.[a]	3.85	1.09
Clinic privacy.[a]	4.06	1.03
Waiting time to be checked in at front desk.[a]	3.63	1.34
Waiting time to see a provider.[a]	3.23	1.40
Time spent with provider.[a]	3.68	1.21
Treatment (solved the problem).[a]	3.91	1.22
Clarity of information provided by provider.[a]	4.12	1.08
Provider's patience.[a]	4.20	1.05
Medic's patience.[a]	4.27	1.00
Staff attitude.[a]	4.19	1.07
Staff professionalism.[a]	4.28	0.98
Overall satisfaction with visit today.[a]	3.98	1.14
Physician clearly explained problem and treatment.[b]	4.43	0.98
Provider treated me with courtesy and respect.[b]	4.63	0.87
The medics and clerks were helpful.[b]	4.53	0.85
Clinic staff was responsive.[b]	4.50	0.94
Clinic staff cares about their patients.[b]	4.53	0.92

Cronbach's α = 0.96
a. 5-point Likert scale: 1, poor; 2, fair; 3, good; 4, very good; 5, excellent
b. 5-point Likert scale: 1, completely disagree; 2, somewhat disagree; 3, neither agree nor disagree; 4, somewhat agree; 5, completely agree

Univariate ANOVA was performed between time periods 1 and 2 for Overall satisfaction. Results of this analysis are found in Table 8. It was interesting to find overall satisfaction (the dependent variable) decreased in the second data collection period ($p < .05$), although cycle times were decreased.

While difficult to tabulate, verbatim comments bring meaning to the survey scores. Patient handwritten comments help to explain or understand what is behind their survey scores (White, 1999). This was an important component of the patient satisfaction survey. Space was provided for patient comments to the question: "What, if anything, could we do to improve your next visit?" Approximately 40 percent of the surveys returned contained handwritten comments. All comments were assessed for commonalities and could be grouped into seven general categories (Table 9): (1) overall treatment, (2) access (waiting time), (3) facility issues (e.g. waiting room), (4) staffing, (5) staff attitudes, (6) communication and information, and (7) service quality.

Approximately 59 percent of the positive comments were related to the overall treatment received in the clinic. Fourteen percent of the positive comments were related to staff attitudes (e.g. caring and courtesy). Approximately 11 percent of the positive comments addressed service quality, followed by access (wait times) and communication/information clarity at 9 and 7 percent, respectively.

Approximately 41 percent of the negative comments were comprised of issues related to access (waiting time). Issues related to the facility (waiting room) and staffing problems or "recommendations" comprised 18% of the negative comments. Another 11 percent of the negative comments were related to staff attitudes (e.g. rudeness), while communication and information problems were noted on 7 percent. The final 5 percent of the negative comments related to the patients' perception of the overall treatment in the clinic.

Table 8

Analysis of Variance Results For The Patient Satisfaction Surveys

Source		Sum of Squares	df	Mean Square	F
Cleanliness	Between Groups	2.830	1	2.83	3.46†
	Within Groups	155.62	190	0.82	
	Total	158.45	191		
Comfort	Between Groups	9.97	1	9.97	9.40*
	Within Groups	201.51	190	1.06	
	Total	211.48	191		
Privacy	Between Groups	2.36	1	2.36	2.07†
	Within Groups	215.61	189	1.14	
	Total	217.97	190		
Wait at desk	Between Groups	10.87	1	10.87	6.88**
	Within Groups	297.07	188	1.58	
	Total	307.94	189		
Wait for provider	Between Groups	17.52	1	17.52	9.33**
	Within Groups	349.48	186	1.88	
	Total	367.00	187		
Time with provider	Between Groups	11.24	1	11.24	7.90**
	Within Groups	264.63	186	1.42	
	Total	275.87	187		
Treatment	Between Groups	0.83	1	0.83	0.53†
	Within Groups	292.04	186	1.57	
	Total	292.87	187		
Information	Between Groups	1.88	1	1.88	1.61†
	Within Groups	217.61	186	1.17	
	Total	219.49	187		
Provider patience	Between Groups	3.31	1	3.31	3.34†
	Within Groups	183.43	185	0.99	
	Total	186.75	186		
Medic patience	Between Groups	0.05	1	0.05	0.04†
	Within Groups	209.90	176	1.19	
	Total	209.96	177		

** $p < .01$;
 * $p < .05$;
  † = not significant

Analysis of Variance Results For The Patient Satisfaction Surveys (cont'd)

Source		Sum of Squares	df	Mean Square	F
Staff attitude	Between Groups	3.68	1	3.68	3.23†
	Within Groups	212.90	187	1.14	
	Total	216.58	188		
Staff professionalism	Between Groups	1.23	1	1.23	1.09†
	Within Groups	212.02	384	1.13	
	Total	213.25	385		
Overall satisfaction	Between Groups	6.29	1	6.29	4.94*
	Within Groups	236.83	384	1.27	
	Total	243.12	385		
Provider explain	Between Groups	0.08	1	0.08	0.07†
	Within Groups	206.39	384	1.11	
	Total	206.47	385		
Provider courtesy	Between Groups	0.38	1	0.38	0.52†
	Within Groups	139.28	384	0.75	
	Total	139.66	385		
Medics/clerks helpful	Between Groups	0.57	1	0.57	0.62†
	Within Groups	171.57	384	0.92	
	Total	172.14	385		
Staff responsive	Between Groups	0.20	1	0.20	0.19†
	Within Groups	198.89	384	1.06	
	Total	199.09	385		
Staff cares	Between Groups	0.03	1	0.03	0.03†
	Within Groups	190.92	384	1.02	
	Total	190.95	385		

* $p < .05$
** $p < .01$
† = not significant

Table 9
Survey Written Comments (percentage of category totals)

Category	Positive	Negative
Overall treatment	59	5
Waiting (access)	9	41
Facility issues	none	18
Staffing	none	18
Staff attitude	14	11
Communication/information	7	7
Service quality	11	none

Demographic person variables served as control variables in the study. Age, gender, and self-reported health status data were only collected for the second time period. These variables, in addition to patient category, were evaluated for effects on overall satisfaction. ANOVA (univariate) results are found in Table 10. Self-reported health status was the only significant factor affecting the reported levels of overall patient satisfaction for the second time period. No statistically significant effects on patient satisfaction were observed for age, gender, or patient category. However, when reviewing the means for the satisfaction results, the highest satisfaction was found to be that reported by retiree dependents, followed by retired personnel. Active duty patients and their dependents reported the same means. The lowest mean scores were reported by Soldiers-In-Training (SITs) (Figure 2).

Table 10

Analysis of Variance for Overall Patient Satisfaction by Demographic Variables   *(n=210)*

Source		Sum of Squares	df	Mean Square	F
Health	Between Groups	19.54	4	4.89	4.20*
	Within Groups	116.42	100	1.16	
	Total	135.96	104		
Patient category	Between Groups	2.16	4	0.54	0.41†
	Within Groups	107.80	81	1.33	
	Total	109.95	85		
Gender	Between Groups	0.01	4	0.01	0.00†
	Within Groups	109.96	84	1.31	
	Total	109.95	85		
Age category	Between Groups	5.16	5	1.03	0.79†
	Within Groups	103.83	79	1.31	
	Total	108.99	84		

* $p < .05$
† = not significant

To further validate these findings, the self-reported health variable was divided into two groups (group 1 combining those reporting poor or fair health and group 0 for all others) to evaluate their effects on overall satisfaction. Those in group 1 (reporting poor or fair health) had a mean overall satisfaction of 3.36 while those in group 0, the "healthier" group, reported a mean of 4.14 overall satisfaction. The difference was statistically significant ($p < .01$).

(a)

(b)

(c)

(d)
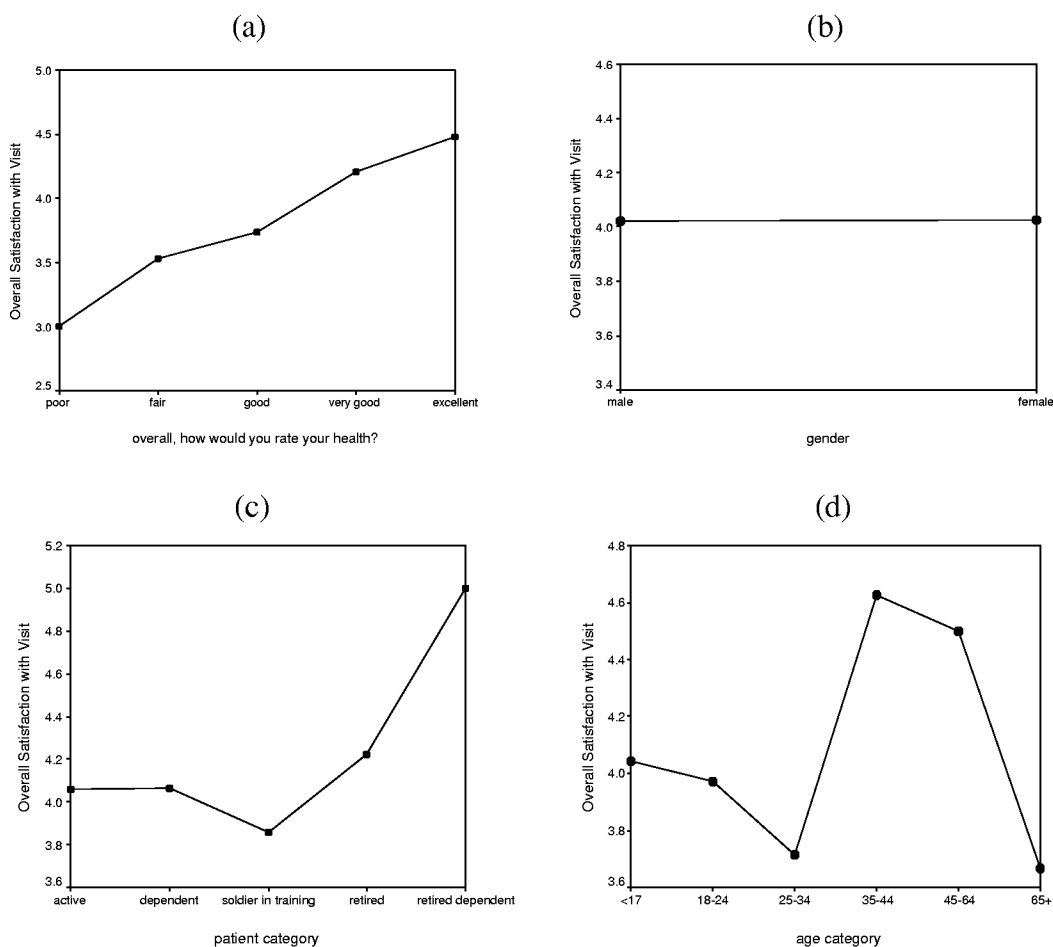
Figure 2. Means plots depicting the relationships for overall satisfaction and (a) self-reported health; (b) gender; (c) patient category; (d) age category.

<u>Discussion</u>

The comparison of the cycle tool results between the two time periods indicated a significant decrease in the cycle time, which includes patient waiting times. Many studies have found patient waiting times to be an important influence on patient satisfaction (Mangelsdorff, 1994, Mangelsdorff and Finstuen, 2003; Murray, 2003; Murray and Berwick, 2003). Others have found no significance between waiting times in the clinic and overall satisfaction (Chung, Hammil, Kim, Walters and Wilkins, 1999). When the patient satisfaction survey results were analyzed for this study, significant differences among the two time periods were found.

However, considering that the overall patient cycle times in time period 2 were decreased, it was surprising to see a decrease in time period 2 in the overall patient satisfaction as well. This might indicate that waiting time was not the only important issue for this population. The fact that decreased patient cycle times had no significant effect on patient satisfaction could be an indication that there are other variables more important to this patient population. A review of the written comments received from the patient questionnaires was undertaken to find any information that might elucidate the results. Although 41% of the negative comments were related to waiting times (access), almost 60% of the positive comments were for issues related to overall treatment. This might indicate a tendency for our patient study group to be more concerned about the care or treatment they receive, rather than the waiting time for that treatment. In fact, the actual waiting time at the front desk decreased, the actual waiting time to see the provider decreased, and the time spent with the provider increased (Table 8). In spite of this, not only did overall patient satisfaction decrease in time period 2, but the patient's satisfaction with each of these variables separately and individually in time period 2 decreased as well. One would expect that the favorable changes in the cycle time during time period 2 would have had a favorable effect on patient satisfaction. These findings would support the reasoning that something else is more important to this patient sample.

In their study, Jackson, Chanberlin, and Kroenke (2001) found that unmet patient expectations significantly decreased patient satisfaction. When patients arrive to the health care organization, usually they are ill, not happy, and expect their condition to be improved. A lack of unmet expectations at any point in the visit, the authors found, was a powerful predictor of satisfaction. Patient perceptions are often as important, if not more so, than more objective measures in determining whether a clinic visit is considered satisfactory. It is well documented in

the literature that patient perceptions play a significant role in the outcomes for studies on patient satisfaction (Davis and Maggard, 1990; Frank-Soltysiak and Court, 2002; Arendt, Sadosty, Weaver, Brent, and Boie, 2003; Oermann, 2003). Hedges, Trout, and Magnusson (2002) found satisfaction more strongly related to the patient's perception of the wait, rather than the actual waiting time. Waghorn and McKee (2000), found that "How a patient viewed his or her waiting time depended on how long they perceived it to be" (p. 278). According to Minden (1994), "What is perceived and what is expected are psychological – they are not reality" (p. 85). Consequently, customer expectations and perceptions about the service received are what truly influence satisfaction. For this study, it is possible that while the total cycle times were decreased, patient *perceptions* of the wait did not change, for other reasons, resulting in decreased satisfaction.

When analyzing the demographic variables age, gender, patient category, and self-reported health status, only health status was found significant to overall satisfaction. The significance of health status for overall satisfaction supports those findings by other authors (Mangelsdorff, 1994; Mangelsdorff and Finstuen, 2003; Cleary and McNeil, 1988). It is possible that the health status variable could be affecting or confounding the satisfaction results strongly enough to mitigate any impact from the decreased cycle times. It could very well be that the satisfaction differences observed are being effected by demographic differences among the study groups for each time period. Unfortunately, demographic data were only collected for the second time period; thus, no comparative analyses were feasible.

This study demonstrates the difficulty a clinic will have in attempting to improve patient satisfaction once it has been tarnished by a negative reputation. While the explanations provided above may not be the right answers to what satisfies our patient population, it is important to

remember that the survey method and the patient sample influence these results. Obviously, satisfaction is a complex concept that is related to and affected by various factors.

Age category proved to be non-significant to overall patient satisfaction for this study. However, distinctions can be made as we evaluate the means plots for these variables compared to overall satisfaction (Figure 2). The 35 to 64 year-old group as well as retirees and their dependents reported the highest mean satisfaction, while the lowest was reported by SITs. These results are consistent with the literature. Hall and Dornan (1990) found that young patients are generally less satisfied than older ones. Waghorn and McKee (2000) identified younger patients as also more likely to overestimate the waiting time. In this study, the lowest and largest sample sizes were seen in the retiree and SIT patient categories, respectively. The effects of both groups might be reflected in the outcome for overall patient satisfaction. The former group is perhaps too small a sample size to make a difference in the overall satisfaction results and the latter group, the largest category, may have affected those results, although neither significantly.

During the most recent balanced scorecard update for Moncrief Army Community Hospital, patient satisfaction results for Moncrief were reported from the DOD Quarterly Patient Satisfaction Report (as of 29 April 2004). It was surprising to see that all of the satisfaction results for the first quarter FY04 demonstrated a downward trend. The following results were specifically addressed: Question 5: Overall satisfaction with medical care – prior quarterly score of 6.05 – now reported at 5.65, Questions 3j, 3i, 3c, 3h, and 3d: "Quality Average Score – prior quarterly score of approximately 4.12 – now reported at approximately 3.75; Questions 3e, b, f, g, and a: "Interpersonal relationship average score" – previously reported quarterly score of approximately 4.20 – now reported at 3.80; and finally, Question 12: Overall satisfaction with clinics – previous quarterly score of approximately 6.05 – now reported at approximately 5.50.

While it is uncertain if these drops are statistically significant, it is interesting to find overall

negative trends for these questions. These DOD patient satisfaction results for Moncrief lend

additional support to this study for they are consistent with our findings.

Soldiers-in-training (SITs) constituted a significant percentage of the patient population for

the UCC during the study time periods. This has been an ongoing concern for clinic management

and is believed by many staff members to be one cause for the increased complaints received in

the past regarding delays in care for non-SIT patients in the UCC. Efforts to improve (decrease)

these numbers have been an ongoing challenge. Clinic management has concentrated efforts at

redirecting SITs to their normal health care entities on Fort Jackson, primarily the battalion aide

stations and the troop medical clinic. A considerable number of SITs reported being held back

from attending their normal sick call during duty hours in lieu of continued training. These

Soldiers are then accumulated over the week and transported en masse to the hospital over the

weekends, when the TMC is closed. The only available source for their health care during these

times is then the UCC. These actions become ever more important due to impending seasonal

increases in the SIT population, affectionately termed "summer surge".

The first step in the study was to obtain a baseline measurement of patient cycle times that

was to be used to identify components of the process that could be improved. Several meetings

were held with clinic management to discuss ideas and potential actions to implement in the

patient processing cycle once the initial measurements were obtained for time period 1.

Brainstorm sessions with staff resulted in some potential ideas for implementation such as

employing an "ambassador" to maintain continuous communication with the patients. This has

been shown to be an effective intervention that helps patients to decrease the anxiety of not

knowing how long they will be waiting. Even expected delays, by way of a staff member

providing the reasons for the delay, result in greater satisfaction than those patients who have to wait an equal amount of time with no explanation for the delays (Frank-Soltysiak and Court, 2002). Arendt, Sadosty, Weaver, Brent, and Boie (2003) found that frequent updates on expected waiting time would have helped patients wait longer (as opposed to leaving the clinic without being seen).

Other ideas generated involved increased communication with patients and even posting signs with approximate wait times based on the time and day of the week. Even discussed was the possibility of allowing patients in the waiting room the opportunity to step out without loosing their place in line, giving them the first priority to the next available exam room upon their return. The focus of these ideas was to impact the patients' perceptions, providing them with information on expected delays and giving them options for their health care. Hudson (1992) found that if patients received more information about treatment, treatment options and cost, they were more likely to overlook their dissatisfaction about waiting time.

Although these and other ideas were considered, nothing was truly implemented. During the study, multiple meetings were held with clinic leadership, and it became apparent that their problems went far beyond being overcrowded with patients in their clinic. Several critical factors were encountered that rapidly made it evident that the clinic was primarily "personality-driven" as opposed to process-driven. Observations [with specific examples in brackets] made by the author include: (1) Key staff displaying negative attitude. [None of the ideas proposed were acceptable, the common response to brainstormed ideas was that it "had been tried before and not worked"; therefore, the idea was rapidly discarded]; (2) Personnel not following internal policies. [During staff outages due to illness or otherwise: instead of calling for backup for coverage, the charge nurse decided to "handle it" only to find out that she could not, resulting in

excessive patient waits]; (3) Display of poor communication among the clinic leadership. [Key

personnel were scheduled for leave during the same time periods, not knowing each other was to

be out, resulting in no management coverage during the time period]; (4) Disorganized

organizational rating scheme or chain-of-command. [Each clinic leadership position is evaluated

by personnel external to the UCC rather than keeping this process corresponding as nearly as

practicable to the existing chain-of-command as recommended by Army Regulation (AR 623-

205). The current arrangement is not conducive to effective leadership performance.]

This current operating environment in the UCC and the fact that total cycle times for data

collection period 2 were decreased in spite of no management intervention raise the important

and obvious question: "Why did the total cycle time change in the second time period?"

Although it is possible that the improved cycle time may represent a true observation, it is likely

that the results may have been illustrative of what is called the Hawthorne effect. The Hawthorne

effect is often mentioned as a possible explanation for positive results in intervention studies. It

is used to explain many phenomena to include behavioral change due to an awareness of being

observed. The term is sometimes used as the social equivalent of a "placebo effect" (Wickstrom

and Bendix, 2000). This phenomenon was originally identified at the Hawthorne Works Plant of

the Western Electric Company in Chicago (Roethlisberger and Dickson, 1939). Investigators at

this plant found that worker productivity increased regardless of working conditions when

workers were aware that their productivity was being measured.

It could be argued that the UCC staff participation in this study may have altered their

behavior, thereby contributing to the improvement in patient waiting times. In fact, the clinic

chief stated that someone among his staff communicated to him that they felt "relieved that we

finished the study" because they were "not comfortable with someone looking over their

shoulder" (personal communication, February 13, 2004).

In this study, the alternative hypothesis presumed that patient satisfaction results varied as a

function of total cycle time. Since we saw no improvement in overall patient satisfaction, the

dependent variable, we must discard the alternative and accept the null hypothesis: patient

satisfaction does not vary as a function of total cycle time. However, a word of warning is

offered here. Since our study sample population consisted primarily of ambulatory patients in an

urgent care setting, caution should be used in extrapolating these results to patients in other

clinics or facilities. For example, it is difficult to ascertain the impact that differences in patient

demographics between the two time periods have on these findings. Although soldiers-in-

training (SITs) comprised the largest group in both time periods, there were significantly more

SITs in time period 1 than in time period 2. Active Duty and their dependents did not vary much

between both time periods; however, retirees and their dependents were different. It is possible

that these differences in patient categories could have affected the results.

Conclusion

As demand for health care increases and available resources diminish, health care providers

must attempt to measure the overall quality and effectiveness of the services they provide.

Evaluation of patient satisfaction has become an important quality indicator in health care. To

improve the delivery of health care, medical treatment facilities must continue to monitor the

different aspects of patient satisfaction and focus resources on those areas targeted by such tools.

For Moncrief Army Community Hospital, and other military medical facilities, patient

satisfaction will become a critical component for maintaining their patient base. Dissatisfied

patients will tolerate a limited amount of poor quality care, actual or perceived, and will opt to

search for better care elsewhere. With T-NEX (next generation of TRICARE contracts), a continued outflow of patients under similar circumstances will directly impact the funding and resources for these organizations, as they must now absorb the costs for the care their patients receive elsewhere. Once these organizations begin the slide down this slippery slope, it will be difficult to reverse directions. Further complicating MACH's effort to retain their non-SIT patient base, is the fact that Fort Jackson is an Army initial entry training (IET) post. Unlike other non-IET posts, a large portion of the population seen at MACH is comprised of SITs. This patient population does not have the option for care elsewhere and this population is expected to grow by an additional training brigade comprised of over one thousand trainees and supporting cadre plus family members in the near future. It is MACH's mission (and duty) to ensure every effort is made to meet these patients' health care needs. Meeting the needs of the additional SIT patient workload while maintaining a satisfied non-SIT patient population will be a challenging task.

This study highlights the difficulties in identifying areas that are critical for patient satisfaction. Although we saw a decreased total patient cycle time (indicative of improved wait times), satisfaction results showed no improvement.

<u>Recommendations</u>

The literature is filled with evidence for patients placing access issues at the top of their satisfaction list. The findings from this study suggest that there are other issues for this patient population more important than waiting time. It might be tempting to think that quality of care issues are less important than access issues, but we must understand that patients might think otherwise. Patient perceptions of care, regardless of what facet of care is being provided, are a critical component when attempting to meet their expectations. While making the right diagnosis

and prescribing the right treatment are important, patient perceptions must be made an integral

target when attempting to measure patient satisfaction. Perceptions cannot and should not be

ignored. The organization can only benefit from a focused effort on encapsulating patient

perceptions for those patients receiving care at the MACH Urgent Care Clinic, identifying those

variables that are critical to the patient. Additionally, efforts should be made to continually

monitor cycle times, identifying and improving upon those timing bottlenecks. These actions will

help to ensure the organization is fulfilling not only the patients' health care needs, but also their

desired needs. Doing so will truly make Moncrief Army Community Hospital a patient-centered

organization.

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Appendix A
Cycle Tool

<u>Patient Instructions</u>: Please complete items 1 thru 5 below on your arrival to the clinic. Hand form to clinic personnel upon being called to check-in desk.

1. Date: _____

2. Time:(e.g. 15:30) _____

3. Patient Category
   a. S-I-T
   b. Active Duty (non-SIT)
   c. AD Dependent
   d. Retiree
   e. Retiree Dependent

4. Age Category
   a. <17
   b. 18 - 24
   c. 25 - 34
   d. 35 - 44
   e. 45 - 64
   f. 65 +

5. Gender
   a. Male
   b. Female

(to be completed by clinic staff)

Time (e.g. 15:30)

6. Time patient checked in/SAC'd   _____

7. Time patient called to exam room*   _____

8. Time provider (Doc/PA) came into the room   _____

9. Time provider left the room   _____

10. Time seen by provider (after diagnostic studies).   _____

11. Time dispositioned by provider   _____

12. Time discharged by RN (patient survey)   _____

Comments / Observations: *note LWOBS

_____
_____
_____
_____

Control
Number

Appendix B

WE NEED YOUR HELP!

Please help us to improve the quality of care at the Urgent Care Clinic. We need your honest assessment of the care you received today. This is an anonymous survey. <u>Please answer all questions</u> by circling a response. Thank you.

Patient Status (circle):   Active Duty / Dependent / Soldier-In-Training / Retiree / Retiree Dependent

		<u>Poor</u>	<u>Fair</u>	<u>Good</u>	Very <u>Good</u>	<u>Excellent</u>
1.	Overall, how would you describe your health?	1	2	3	4	5
2.	Clinic cleanliness	1	2	3	4	5
3.	Clinic comfort	1	2	3	4	5
4.	Clinic privacy	1	2	3	4	5
5.	Waiting time to be checked in at front desk	1	2	3	4	5
6.	Waiting time to see a provider	1	2	3	4	5
7.	Time spent with provider	1	2	3	4	5
8.	Treatment (solved the problem)	1	2	3	4	5
9.	Clarity of information provided by provider	1	2	3	4	5
10.	Provider's patience	1	2	3	4	5
11.	Medic's patience	1	2	3	4	5
12.	Staff attitude	1	2	3	4	5
13.	Staff professionalism	1	2	3	4	5
14.	Overall satisfaction with visit today	1	2	3	4	5

		Completely Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Completely Agree
15.	Physician clearly explained problem and treatment.	1	2	3	4	5
16.	Provider treated me with courtesy and respect.	1	2	3	4	5
17.	The medics and clerks were helpful.	1	2	3	4	5
18.	Clinic staff was responsive.	1	2	3	4	5
19.	Clinic staff cares about their patients.	1	2	3	4	5

What, if anything, could we do to improve your next visit? (use back if needed)

_____

_____

Thank you for your valuable time and response!
Please drop off the completed survey in the Patient Comment box at the entrance to the clinic or with any clinic personnel.

Control Number

Correlation Matrix (Survey Time Period 1)

	cc	cf	cp	wd	wp	tp	ts	ic	pp	mp	sa	sp	pet	pcr	mch	csr	scp+
Overall satisfaction with visit (osv)	0.68	0.71	0.46	0.64	0.68	0.70	0.51	0.63	0.72	0.54	0.66	0.55	0.48	0.42	0.41	0.53	0.55
Clinic cleanliness (cc)		0.88	0.55	0.57	0.62	0.64	0.54	0.67	0.77	0.60	0.69	0.58	0.47	0.55	0.45	0.53	0.56
Clinic comfort (cf)			0.53	0.61	0.67	0.66	0.58	0.67	0.74	0.54	0.64	0.51	0.51	0.59	0.48	0.57	0.62
Clinic privacy (cp)				0.42	0.49	0.44	0.51	0.45	0.54	0.28*	0.43	0.60	0.30	0.31	0.47	0.29	0.33
Wait time at front desk (wd)					0.75	0.62	0.51	0.59	0.60	0.60	0.61	0.52	0.42	0.34	0.43	0.46	0.49
Wait to see a provider (wp)						0.73	0.70	0.57	0.62	0.47	0.59	0.62	0.39	0.30	0.47	0.41	0.44
Time with provider (tp)							0.57	0.67	0.80	0.56	0.69	0.64	0.53	0.49	0.52	0.54	0.58
Treatment (solved) (ts)								0.74	0.57	0.37	0.51	0.62	0.43	0.37	0.55	0.44	0.48
Information clarity (ic)									0.78	0.54	0.64	0.53	0.51	0.52	0.46	0.54	0.56
Provider patience (pp)										0.66	0.74	0.64	0.61	0.64	0.59	0.69	0.67
Medic patience (mp)											0.83	0.71	0.41	0.45	0.43	0.51	0.50
Staff attitude (sa)												0.87	0.53	0.53	0.50	0.59	0.61
Staff professionalism (sp)													0.43	0.42	0.65	0.48	0.50
Provider explained problem & treatment (pet)														0.76	0.66	0.71	0.76
Provider courtesy & respect (pcr)															0.77	0.76	0.77
Medics & clerks helpful (mch)																0.71	0.70
Clinic staff responsive (csr)																	0.95

* p < .05, all others p < .01
+scp (clinic staff cares about their patients)
n=83

Appendix C

Correlation Matrix (Survey Time Period 2)

	osv	cc	cf	cp	wd	wp	tp	ts	ic	pp	mp	sa	sp	pet	pcr	mch	csr	scp+
Health Status (hs)	0.38	0.39	0.36	0.31	0.32	0.42	0.44	0.47	0.35	0.31	0.38	0.43	0.33	0.34	0.30	0.31	0.27	0.25
Overall satisfaction with visit (osv)		0.55	0.59	0.60	0.61	0.72	0.75	0.74	0.80	0.70	0.77	0.79	0.74	0.53	0.47	0.53	0.55	0.56
Clinic cleanliness (cc)			0.78	0.77	0.56	0.53	0.62	0.55	0.62	0.56	0.59	0.58	0.62	0.36	0.38	0.40	0.41	0.44
Clinic comfort (cf)				0.70	0.58	0.56	0.65	0.53	0.60	0.52	0.56	0.55	0.60	0.32	0.36	0.46	0.41	0.46
Clinic privacy (cp)					0.64	0.50	0.71	0.60	0.64	0.61	0.64	0.61	0.69	0.37	0.37	0.44	0.40	0.45
Wait time at front desk (wd)						0.76	0.66	0.55	0.50	0.45	0.58	0.56	0.52	0.39	0.34	0.43	0.43	0.39
Wait to see a provider (wp)							0.72	0.63	0.60	0.50	0.62	0.62	0.58	0.46	0.43	0.47	0.48	0.47
Time with provider (tp)								0.79	0.78	0.71	0.72	0.72	0.66	0.51	0.39	0.44	0.42	0.42
Treatment (solved) (ts)									0.80	0.73	0.81	0.80	0.71	0.64	0.39	0.49	0.47	0.48
Information clarity (ic)										0.82	0.83	0.77	0.74	0.61	0.49	0.52	0.54	0.54
Provider patience (pp)											0.87	0.78	0.73	0.56	0.48	0.53	0.47	0.46
Medic patience (mp)												0.87	0.82	0.58	0.53	0.58	0.55	0.55
Staff attitude (sa)													0.90	0.56	0.45	0.53	0.56	0.51
Staff professionalism (sp)														0.44	0.48	0.58	0.56	0.53
Provider explained problem & treatment (pet)															0.75	0.74	0.65	0.64
Provider courtesy & respect (pcr)																0.72	0.66	0.74
Medics & clerks helpful (mch)																	0.80	0.78
Clinic staff responsive (csr)																		0.86

p < .01,
+ scp (clinic staff cares about their patients)
n=109

Appendix D