Running head: JOB SATISFACTION CASE STUDY MACH

Graduate Management Project: A Case Study of Job Satisfaction in Surgical Services at Martin Army Community Hospital

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14. ABSTRACT
The purpose of this case study was to understand, assess, describe, and improve job satisfaction among providers of patient care in surgical services at Martin Army Community Hospital (MACH), Fort Benning, Georgia. The case study employed the nominal group technique to garner job factors specific to the professionals involved in surgical services at MACH. Job satisfaction was structured under the framework of Herzbergs two-factor theory. Operating room time, equality, and professional development emerged as the factors most closely associated with dissatisfaction. Geographic location, challenging work, and patient care were most closely associated with satisfaction. The analytic findings resulted in support for the recommendation to obtain funding for additional nursing staff through a venture capital initiative. This solution incorporated major job factors identified through the research as well as the organizational resource constraints facing the organization.

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Abstract

The purpose of this case study was to understand, assess, describe, and improve job satisfaction among providers of patient care in surgical services at Martin Army Community Hospital (MACH), Fort Benning, Georgia. The case study employed the nominal group technique to garner job factors specific to the professionals involved in surgical services at MACH. Job satisfaction was structured under the framework of Herzberg's two-factor theory. Operating room time, equality, and professional development emerged as the factors most closely associated with dissatisfaction. Geographic location, challenging work, and patient care were most closely associated with satisfaction. The analytic findings resulted in support for the recommendation to obtain funding for additional nursing staff through a venture capital initiative. This solution incorporated major job factors identified through the research as well as the organizational resource constraints facing the organization.

Table of Contents

List of Tables

List of Figures

Graduate Management Project: A Case Study of Job Satisfaction in Surgical Services at Martin Army Community Hospital

Introduction

The purpose of this case study was to understand, assess, describe, and improve job satisfaction among providers of patient care in surgical services at Martin Army Community Hospital (MACH), Fort Benning, Georgia. Verbal feedback and retention rates have repeatedly indicated that many of these providers were dissatisfied. Given the highly trained and specialized nature of professionals working in a surgical capacity, the need to retain qualified and talented individuals is obvious. A scientific approach to the study of factors affecting job satisfaction allows the command to focus its attention both efficiently and effectively. Although literature is abundant on the study of physician and nurse satisfaction, the vast majority concerns primary care services. Research focusing on specialty services is scarce and similarly rare are studies that examine physicians and nurses in tandem. This study approached surgical services as an integrated unit, under the theoretical umbrella of Herzberg's two-factor theory, by comparing the factors influencing job satisfaction and dissatisfaction of both surgeons and nurses. Many survey designs present in the literature impose independent variables on the subjects by relying on established factors from a pre-validated

survey. This study's chosen method, the nominal group technique, provided grassroots generation of the independent variables by involving the subjects throughout the process. As a result of this design, the study reliably captures the true issues surrounding job satisfaction within MACH's particular surgical services, so that solutions are closely aligned. Results of the two round questioning suggested a consensus with Herzberg's two-factor theory and provided a clear picture of the factors of job satisfaction at MACH, with operating room time being the greatest dissatisfier and geographic location being the greatest satisfier.

Conditions Which Prompted the Study

The healthcare industry is indisputably dynamic and intricately complex (Barton, 1999). Even slight changes in the industry create ripple effects on delivery systems. Regardless of any qualitative impact, federal interventions impose demands on the system. Recent legislation, such as the Health Insurance Portability and Accountability Act, safeguards patient interests but administratively burdens the healthcare provider. National staffing shortages, as evidenced by the recent nursing crisis, affect the ability of providers to maintain a quality environment of care (Joint Commission on Accreditation of Healthcare Organizations, 2002). Managed care, exploding technology, increased demand for care, and rising malpractice

premiums, all test the flexibility of management and staff alike in the healthcare setting. These changes are not unique to the civilian setting. The Army Medical Department (AMEDD) is faced with similar challenges, many directly tied to the national healthcare climate.

The reason that these forces bear mentioning is because they contribute to the healthcare provider's motivation to perform his or her job. Contemporary theory holds that overall satisfaction consists of two parts: the lack of dissatisfaction and the presence of satisfaction. Satisfaction may exert a strong influence a worker's motivation, which may in turn directly affect the worker's job performance (Shortell, 2000). Therefore, the sustainment of satisfaction is necessary in order to ensure motivation and the achievement of organizational goals.

A successful management team copiously monitors satisfaction levels throughout the organization. The Commander of MACH discovers potential issues of employee satisfaction through such monitoring. The Commander established a practice of conducting at least weekly walkthroughs (referred to as grand rounds) of the hospital in order to provide a direct line of communication with senior management and the staff. These rounds culminated in her ability to identify areas requiring command attention before such issues compounded to the extent that they

affected patient care. The grand round surfaced the issue of job satisfaction in surgical services. The Commander learned that the employees in these areas perceived that they were being neglected in favor of a focus on primary care. Because historical workload reports indicate that primary care services traditionally account for over 60% of the hospital's workload volume, leadership typically tended to favor strategic focus on these. A $7.1 million renovation of the family practice and pediatric clinic in 2002 attests to this prioritization. The large project alone demanded a majority of the resources and attention of the command and administrative divisions over the past few years.

Strict adherence to the TRICARE access standards also promoted a focus on primary care. Resources are devoted to the care of active duty soldiers and their family members in accordance with the mission and strategic goals of the hospital. Space available care, which allowed access for non-enrolled patients, was eliminated. As a result, many specialty care cases were referred to the local healthcare network. Staff shortages, specifically among anesthesiologists, Certified Registered Nurse Anesthetists (CRNAs), and operating room nurses, also caused external referrals that could have been seen within the Medical Treatment Facility (MTF). The internal lack of emphasis on specialty services along with external factors such as

insufficient pay and increased readiness demands began to surface in the form of verbal discontent and low retention.

Provider dissatisfaction causes concern on several fronts. Recent studies exist showing a direct relationship between job satisfaction and the patient's perceived quality of care provided (Williams, Konrad, & Linzer, 1999). The criticality of this issue is currently well published, especially in light the release of the National Health Institute's recent report on medical errors. Furthermore, low job satisfaction often results in time-consuming personnel issues, high turnover rates, and the organization's overall inability to meet strategic objectives (Johnson, 1997). Within the last three years, less than half of the departing surgeons and operating room nurses remained in the Army. Of those who did not leave the service, many were not eligible for separation due to an active duty service obligation incurred through educational benefits. The Army bears a large financial burden—a portion of which may be avoidable—produced by such elevated turnover rates. Therefore, management must remain closely in tune with job satisfaction in order to prevent the loss of qualified and talented providers.

This research was initiated due to the leadership's need for a valid and reliable assessment of the climate specific to their own hospital, not a prevailing climate at higher levels of organization. Consequently, the problem required the direct

input of MACH employees in the generation and prioritization of issues that needed address.

Statement of Problem or Question

This study attempts to answer the following three central questions:

1. What factors are contributing to and/or detracting from job satisfaction of professionals in surgical services?
2. What factors are causing the greatest degree of satisfaction or dissatisfaction? In other words, what factors deserve the greatest attention?
3. How can Martin Army Community Hospital leadership improve job satisfaction and retention of surgeons, anesthesiologists, and nurses employed in support of surgical services?

Literature Review

Theoretical Review: Motivation and Job Satisfaction

In an examination of the definitions of motivation and job satisfaction, fundamental differences demonstrate that the two are not synonymous. Motivation is a "state of feeling or thinking in which one is energized or aroused to perform a task or engage in a particular behavior" (Shortell & Kaluzny, 2000, p. 66). Job satisfaction is "a measure of an individual's perception of how well his expected needs are met by his job and its related environment" (Scoville, 1976, p. 12). Although both

definitions deal with cognitive feelings or perceptions, the definition of motivation centers around action and the definition of job satisfaction focuses on a more passive fulfillment of expectations. This difference has led theorists to surmise that motivation is likely a part of, but not sufficient for, job satisfaction. The question then becomes: what other dimensions influence job satisfaction?

In order to fully understand and assess the aspects of job satisfaction, management must consider the available theories to assure that key elements are not omitted from the study. Satisfaction is critical to the realization of organizational objectives and workers must be motivated to achieve their optimal performance levels (Shortell & Kaluzny, 2000). Leaders, in turn, are faced with the challenge of ensuring motivation by positively influencing as many of aspects of the worker's job as possible. However, employee motivation is intricately complex (Shortell & Kaluzny). What motivates one employee may not motivate another employee. In fact, a change in the work environment could motivate one employee while simultaneously demotivating another employee (Longest, Rakich, & Darr, 2000). Leaders must resolve this dilemma by dedicating their efforts toward the greatest collective motivation in support of organizational goals and objectives. Widespread disagreement exists, however, among theories of human motivation (Shortell &

Kaluzny, 2000). One category, content theories, focus on the more tangible aspects of what motivates individuals (i.e., internal needs and desires). The other category consists of process theories, which attempt to address how motivation occurs. The true strength of each of these theory categories lies in their integration, however. One of the most universally applied content theories is Herzberg's two-factor theory. Although this concept has garnered much professional criticism for its apparent simplicity and refusal of the hygiene factor's ability to motivate, the theory is a solid base for addressing job satisfaction (Shortell & Kaluzny, 2000). Herzberg's research resulted in the identification of two unique dimensions of job satisfaction. The first dimension was comprised of motivational factors, or satisfiers. These factors result in satisfaction when present (Shortell & Kaluzny). Hygiene factors, on the other hand, cause dissatisfaction when lacking (Shortell & Kaluzny). In essence, hygiene factors become expectations of the employees. Herzberg further emphasized that these two factor categories were not opposites—a point which some authors consider the foundation of the theory (Longest, Rakich, & Darr, 2000). In other words, fulfillment of a hygiene factor will not lead to motivation and the establishment of a motivational factor will not necessarily lead to the eradication of dissatisfaction. The mutually exclusive aspect of Herzberg's

theory has been frequently refuted through research showing that some hygiene factors actually can influence motivation (Shortell & Kaluzny). However, the strength of his theory, especially for the healthcare manager, is in its acknowledgement that the two dimensions exist separately and are not always related. Additionally, these dimensions capture a wide array of factors in job satisfaction that might be overlooked in other theories focusing on motivation alone.

As previously mentioned, Herzberg's study determined multiple job factors. Job factors are those aspects of a job that impact overall job satisfaction. Included among those determined in Herzberg's study are: achievement, recognition, the work itself, responsibility, advancement, growth, company policy and administration, salary, supervision, relationships with supervisors, working conditions, relationships with peers, personal life, relationships with subordinates, status, and security (Noell, 1976). Of these, the first six were labeled motivators and the rest hygiene factors. Although several fell within both domains, Herzberg was able to statistically assign each factor exclusively to one domain. In essence, motivators were intrinsic to the job and hygiene factors were extrinsic to the job. According to this content theory, true job satisfaction would entail the elimination of dissatisfaction and support of motivation (Shortell & Kaluzny).

Both content and process theories are critical in approaching job satisfaction. Most importantly, as Herzberg concluded, managers must realize that both satisfying and dissatisfying factors must be assessed and resolved in order to achieve optimal performance (Noell, 1976). However, not all factors equally influence employee motivation. In fact, other content theorists have demonstrated that individuals are likely to prioritize their needs in some hierarchical fashion (Shortell & Kaluzny, 2000). The manager must also realize that individual needs and priorities may differ from their coworkers. In order to affect change, the manager must act upon those factors that are most important to the collective majority of the employees under consideration. In addition, employees are likely to assess the equitable distribution of resources and rewards within the organization. Finally, as the process theories espouse, individuals are not likely to act on these needs unless they believe that their efforts will lead to performance that, in turn, will lead to a valued outcome. Therefore, any assessment of job satisfaction must capture a wide array of factors, recognize priorities, identify some level of agreement among the workers, and then include solutions as part of any process to generate desired performance levels.

Integrative Review

A multitude of studies exist within the military concerning physician satisfaction, and with the recent inventory shortage, the number of studies addressing nurse satisfaction is rapidly on the rise. The vast majority of these studies, however, only target primary care settings. These studies vary in methodological approaches and none of these have presented both physician and nurse levels together so that the service can be studied as an integrated unit. A service-oriented approach enhances the manager's understanding of the job satisfaction within the process of healthcare delivery because all key employees involved in direct patient care are solicited. Not only does this approach provide multiple perspectives of the service, but it also allows for comparison in order to better evaluate problems and build solutions.

Byers (1999) conducted a study within the military health system that focused on provider type and practice style variables. Using data gathered from several U.S. Army Medical Department (AMEDD) medical treatment facilities, this study showed that no significant differences in overall satisfaction existed among the three groups of providers examined: physicians, nurse practitioners, and physician assistants. These results are an important testimony in support of the service-oriented approach because providers observed the same factors

regardless of specific profession. Autonomy and collaboration were found to be significant predictors of job satisfaction for all providers (Byers). This study, however, did not include support staff, which are necessary to full service-line analysis.

A second physician study within the AMEDD examined satisfaction at Keller Army Community Hospital, West Point, New York. This was a cross-sectional study designed to provide the hospital leadership with a point in time perspective of physician satisfaction (Vancosky, 1998). The three highest rated factors were quality of the pharmacy staff, ability to practice according to best judgment, and professional abilities of the physicians within the facility. The three lowest rated factors were practice efficiency, ability to help form policy, and income (Vancosky). The factors largely coincided with Herzberg's theory.

Another recent study assessed the factors influencing job satisfaction and the intent to remain on active duty of Army advanced practice nurses. Of the factors included in the survey instrument, reward prevailed as the most significant predictor of intent to remain, although overall satisfaction, support staff, and clinical time also evidenced positive correlations (Johnson, 1997).

A final study researched tested the two-factor theory with

students enrolled in the Air Force Institute of Technology's School of Engineering and Systems and Logistics. This study utilized the Automatic Interaction Detector algorithm, multivariate step-wise regression, and the Spearman rank order correlation to establish relationships among the variables. The population sample was divided into high satisfaction and low satisfaction groups in order to explore related job factors. In all cases, significant relationships were defined that contradicted the two-factor theory.

The majority of the studies in the literature were designed to gain an overall assessment of a particular profession or group of professions from a system perspective. The study at Keller Army Community Hospital is more useful to the design of this research, however, because its purpose was to provide information for immediate use by the hospital command. Such a cross-sectional analysis of job satisfaction lends itself well to the stand-alone hospital level of organization. The last study, a test of Herzberg's theory, also provided a useful framework for approaching the case and identified critical limitations that required address.

Methodological Review

The vast majority of job satisfaction assessments are quantitative analyses of qualitative surveys. They are based on previously validated job satisfaction questionnaires and the

assumption that the generality of previous studies will prove applicable to subject. As presented in the literature review, however, employee motivation is often a very unique phenomenon, specific to individual needs. A key limitation repeatedly identified in previous tests of the two-factor theory is that the analysis is based on a questionnaire bounded by the actual questions themselves (Scoville, 1976). Other, unexplored jobs factors could exist that have more meaning to the subject under consideration. This study was less concerned with prevailing factors than organization-specific factors. Therefore, the research instrument must allow for the fact that unique issues may be significantly impacting the local environment.

The nominal group technique (NGT) is an evaluative research tool that is appropriate in settings where potentially disparate beliefs and perceptions exist. The NGT attempts to identify the extent of agreement among respondents and resolve disagreement in order to identify and prioritize issues requiring attention (Pope & Mays, 1999). The nominal group is defined as "a group in which individuals work in the presence of others but do not verbally interact" (Nassar-McMillan, 2000, p. 2). Delbecq, Van de Ven, and Gustavson first reported use of the nominal group technique in 1975 (Schuman & Schwarz, 1998). The technique has been widely applied to problems in social services, education, government, industry, and health care (Pope & Mays, 1999).

Although the process of gathering information through the NGT has elements in common with the typical survey methods, it is not designed or utilized in an identical fashion. Like the survey, the NGT can be used to test hypotheses, but it is more typically targeted for exploring, identifying and relating variables (Nassar-McMillan, 2000). The NGT diverges from the survey in the fact that it is meant to brainstorm variables from within a particular group rather than impose a set of variables on subjects as in a survey. Consequently, the NGT is especially appropriate when the research question is not as concerned with external validity as it is with internal validity. The technique is also appropriate when conflicting or no evidence exists on which to base decisions or when evidence is of a form unsuitable for synthesis. The NGT provides the opportunity for subjects to generate variables from within and allows the respondents to interact, albeit in a controlled environment (Pope & Mays, 1999).

The NGT is also reputed to increase internal validity and reliability (Pope & Mays, 1999). The technique capitalizes on elements of process gain while avoiding process loss elements common to the focus group, in which participants freely interact. First, the NGT allows for less social inhibition than in the focus group (Pope & Mays). One or a few individuals with vested interests frequently dominate group decision-making.

These individuals may be unrelenting in their stated opinion and gain group consensus through sheer force of will and vocality. Furthermore, focus groups may rut around one train of thought that could preclude the development of other trains. In this respect, the NGT is more likely than the ordinary focus group to develop a wide range of diverse variables. Although scientific research has not been able to exact one particular format for the NGT, electronic methods are gaining popularity over face-to-face groups. One advantage of the electronic technique is that anonymity is assured to an even greater extent than in the collocated format. For instance, handwriting cannot be used even on an unconscious level to bias the researcher or the respondents (Schuman & Schwarz, 1998). Second, the electronic technique allows for synchronous or parallel submission of ideas. Because respondents are not forced to wait for their turn, ideas will not be influenced by other responses (Schuman & Schwarz).

Purpose (Variables/Working Hypothesis)

The purpose of this research is to gain an holistic understanding of the factors contributing to the satisfaction and dissatisfaction of employees involved in direct patient care within surgical services and compare these factors among surgeons and nurses in order to allow hospital management to develop solutions to improve overall job satisfaction and

retention. Multiple-item scales will be used to quantitatively assess the relationships between the constructs (factors) generated through the nominal group technique. Three hypotheses about these relationships were evaluated during the research.

The first hypothesis is that satisfiers and dissatisfiers will be inversely related. An inverse relationship is expected because factors should be strongly associated with either satisfaction or dissatisfaction, but rarely both. Herzberg, however, even acknowledged that some factors could bridge the two categories (Noell, 1976). Therefore, some factors are expected to be equally associated to some degree with both satisfaction and dissatisfaction.

The second hypothesis is that agreement within a professional group will be greater than within the overall group. Because the research is focused on one particular service line (surgical services) in which the employees work closely in teams during daily operations, agreement on factors of satisfaction and dissatisfaction are expected to be high. The addition of factors specific to each specific job type should promote even higher levels of intraclass correlation, though. For instance, if staff support were a dissatisfier and the problem was closely linked to nursing competence, nurses would not be expected to introduce agreement into the overall measure of intraclass correlation because they would likely not perceive

the problem. A particular job class, such as the providers, would be more likely to have high agreement over such an issue.

The third hypothesis is that observed categorization of job factors will be closely related to expected categorization based on Herzberg's work. Although the factors identified by the group in this research may slightly differ in nomenclature from the factors identified in Herzberg's studies, each factor from this study should be able to be assigned an equivalent Herzberg factor. Once a Herzberg factor can be associated with each factor identified by the group, an expected categorization as either a satisfier or dissatisfier may be noted. These expected values will be compared to actual values determined in the course of the study.

Method and Procedures

The chosen method was a cross-sectional case study. A case study is "an intensive, holistic description and analysis of a single entity, phenomenon, or social unit" (Merriam, 1988, p. 16). The unit of study is the collective consortia of services responsible for and in support of surgical care within the hospital. Primary surgical services include: anesthesia and operative, general surgery, ophthalmology, otolaryngology, obstetrics and gynecology, orthopedics, and urology. Support services include the intensive care unit, the ambulatory procedure unit, the medical/surgical ward, and the post anesthesia care unit. The sample was comprised of only surgeons, anesthesiologists, and registered nurses. The research was qualitative in nature, primarily employing comprehensive nonprobability sampling.

Primary data collection was conducted via an adapted, electronic NGT. No concrete rules apply concerning eligibility for participation; however, a participant must be considered an expert or knowledgeable authority on the issue under consideration. For the purposes of this study, clinical professionals providing direct patient care in support of surgical services at MACH were considered experts. Surgeons, anesthesiologists, certified registered nurse anesthetists , and registered nurses were included in the group. The NGT is

predicated on the theory that experts, particularly if in consensus, are more likely than non-experts to be correct about questions in their field. Additionally, the method is designed to promote feedback, eliminate the negative aspects of roundtable meetings, and provide a grassroots approach to survey implementation (Pope & Mays, 1999).

The validity and reliability of the NGT have been well researched and debated. Internal validity is the minimal requirement for a study to be interpretable (Campbell & Stanley, 1963). This study addresses internal validity in several ways. First, it is unobtrusive. Respondents are permitted to participate in the process on their own time; however, timelines for each round will be structured to prevent history and maturation from acting as confounders. Instrumentation is controlled because the same open-ended question and factor rankings are presented to each participant. No effort will be made to purify responses and the electronic format will guard against transcription error. Finally, experimental mortality is minimized through the involvement of the participants in all phases of the process. Respondents prioritized the variables though a Likert-scale rating of each factor and received timely feedback from each round. The typical NGT has been adapted to promote validity in this study. Due to similar themes in each individual comment, an expert panel categorized responses into

content domains that were used to facilitate factor rating.

External validity amounts to the generalizability of the research (Campbell & Stanley, 1963). This is of less concern than internal validity in NGT because the researcher is mainly concerned about issues within a particular social unit (Pope & Mays, 1999). The reader is left to determine the applicability of the research to his or her own organization or problem (Pope & Mays).

The reliability of the nominal group technique is widely debated in literature. Although adversaries argue that the method forces consensus, proponents argue that the process promotes consensus by providing a structured forum for interaction (Pope & Mays, 1999). The NGT is only expected to produce the same results within the group under examination. The results are not designed to be replicable for other similar or greater samples. However, the continuous and direct involvement of the participants in the process is purported to maximize reliability in identifying and prioritizing issues for further consideration (Pope & Mays).

Ethical considerations were addressed in this research. First, all subjects were informed via electronic instruction of all relevant features of the study, including the overall purpose and utilization of the research. Second, the anonymity and confidentiality of the subjects was protected. The

electronic submission prevented any ability to link subjects to responses. Finally, to guard against interpretation error, responses were collected electronically and no attempt was made to edit or purify these data.

Two rounds were self-administered to the subjects via an Internet website. The first round was an open-ended questionnaire. This iteration was designed to solicit unbounded brainstorming from the group and is intended to identify factors of employment that are causing both satisfaction and dissatisfaction in accordance with Herzberg's two-factor theory. The second round presented the factors or domains developed in round one for Likert-scale rating based on degree of agreement as to whether the factor contributes to satisfaction and dissatisfaction. The only demographic information collected during each round was the professional category, so that intrarater agreement among occupations could be tested.

This case study also employed quantitative methods in pursuit of a heuristic understanding of the issue. Based on factors identified through the nominal group technique, an expert panel tailored solutions for possible implementation by management. When appropriate, quantitative assessments of these solutions were conducted.

Three statistical methods were employed in this research. First, frequencies, means, and ranks associated with derived

factors were calculated and described. Secondly, correlation analysis was done using Pearson's product-moment correlation (r) and Spearman's rho (r_s). Finally, Cronbach's alpha was employed as a tool to measure the internal reliability of the study. The study also evaluated, through direct comparison, the relationship between satisfying factors and dissatisfying factors.

The first hypothesis, concerning the correlation between satisfaction and dissatisfaction, was tested using r and r_s. The second hypothesis involved intraclass rater correlation and was tested with Cronbach's alpha. The third hypothesis was statistically tested with a chi-square test of k probabilities, simply comparing expected values with actual values. Satisfiers were coded as 1 and dissatisfiers were coded as 0. A mean score of less than 3 qualified a factor for the category against which it was tested. For instance, when tested as a satisfier, the factor *peers* had a mean of 2.60. Therefore, peers qualified as a satisfier and would be coded 1.

Results

Narrative responses were collected electronically from the website submission form via an anonymous e-mail medium. These responses were compiled and grouped into like domains that were considered the present factors of job satisfaction. These factors were presented in alphabetical order to the group for ranking as to the degree that the factor contributes to satisfaction or dissatisfaction in their current job. Several themes emerged as satisfiers and dissatisfiers during the first round of the nominal group technique. Many raw responses addressed the same general areas as other responses, but were simply worded differently. These similar responses were grouped into like categories, and the researcher assigned a domain name to each category. For instance, one raw response was, “Not being noticed by my senior rater for things I do.” Another was, “Lack of appreciation for the clinical skills provided.” Both of these comments addressed recognition. The researcher assigned the domain name recognition and presented the raw responses with their domain categories to members of the command group. Serving as an expert panel, the command group in turn validated the groupings and category assignments. As directed by this group, I shifted raw responses to another domain or separated into individual domains. The left column of Table 1 depicts the major themes as validated by the expert panel.

Table 1

Factors and Herzberg Equivalents

Factors of Job Satisfaction	**Herzberg Equivalent**
Admin Respons	Company policy and administration
All Coworkers	Interpersonal relations
Ancillary Support	Interpersonal relations
Applying Skills	Work itself
Appropriateness of Work	Interpersonal relations
Autonomy	Responsibility
Challenging	Growth; achievement
Compensation	Salary
Continuity of Care	Work itself
Equality	Status
Facility Quality	Working conditions
Geographic Location	Working conditions
Leadership	Supervision
Mentorship Teaching	Leadership
Military Service	Work itself
OR Time	Company policy and administration
Patient	Work itself
Peers	Interpersonal relations
Professional Development	Growth; advancement
Recognition	Recognition
Responsibility	Responsibility
Staff	Interpersonal relations
Stress	Work itself
Technology Equipment	Working conditions
Variety	Work itself; growth
Work Hours	Working conditions

Depicted in the left column of Table 1 are the Herzberg equivalent factors. In order to test the results' fit with Herzberg's theory, each factor from the nominal group was compared to a specific factor that was actually tested during Herzberg's studies. Again, the researcher assigned the original association, which was then validated by the expert panel.

Table 2 presents the descriptive statistics and correlation testing for the means and rankings of the 26 factors. The means for satisfiers and dissatisfiers were 3.0 and 2.9, respectively, indicating a central tendency toward a neutral association. The means for satisfiers and dissatisfiers were both 13.5, as expected in an ordinal ranking. The relationship between factors (n = 26) was evaluated using Pearson's r and Spearman's rho. A significant negative correlation exists between the raw scores (means) that correspond with satisfiers and dissatisfiers ((r = -0.894, p < .01). A similarly strong relationship emerged using ranked data: The rank-order correlation of the factors was –0.926 (p < .01). The results of both of these correlation procedures provide strong support for the first hypothesis.

Table 2

Descriptive Statistics and Correlations for Means

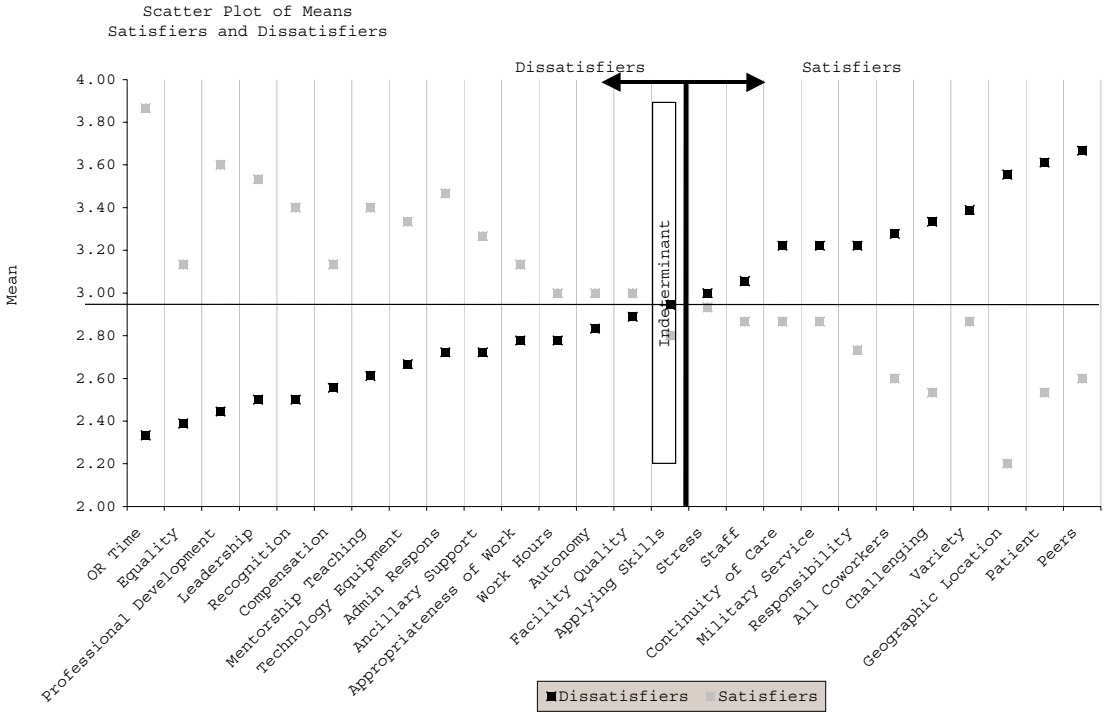
	n	Mean	Std. Dev.	r	r_s
Satisfiers (Mean)	26	3.02	0.39	-0.894***	
Dissatisfiers (Mean)	26	2.93	0.39		
Satisfiers (Rank)	26	13.5	7.62		-0.926***
Dissatisfiers (Rank)	26	13.5	7.64		

*** p < .01

Both satisfiers and dissatisfiers were present as factors in the subjects' job satisfaction. A nearly perfect inverse correlation was present between the rankings and means of each factor (see Figures 1 and 2).

Figure 1.

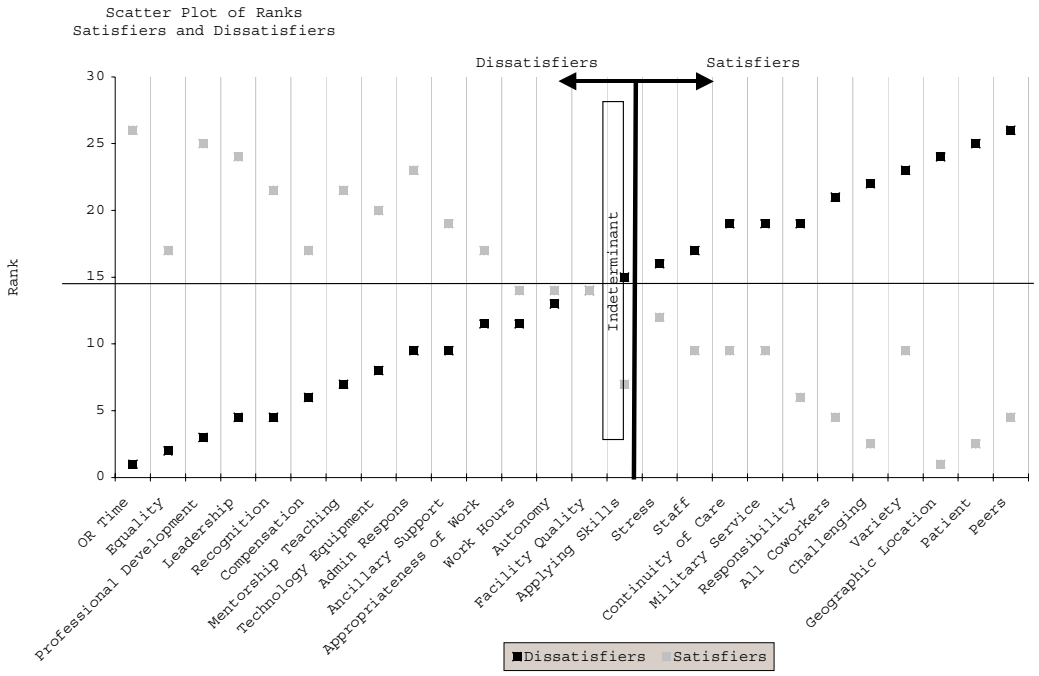
Scatter Plot of Means



As depicted in Figure 1, factors that were strongly associated with satisfaction were correspondingly strongly disassociated with dissatisfaction, and vice versa. However, as the association with either category decreased, so did the disassociation for each factor. The factor Applying Skills was indeterminate as either satisfier or dissatisfier because it was associated with both categories.

Figure 2.

Scatter Plot of Ranks

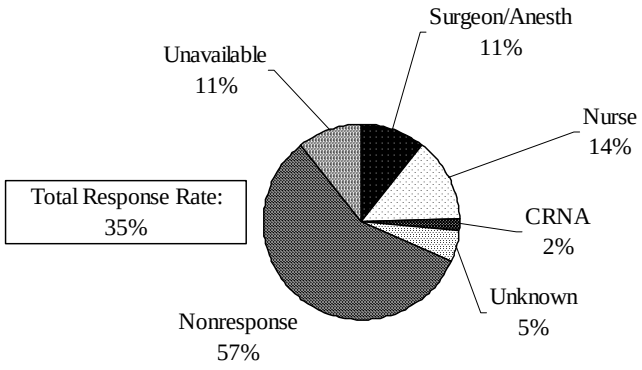


As depicted in Figure 2, a strongly inverse relationship between categories existed in the ranks. As the association of a factor with a category increased or decreased, the corresponding relationship with the other category decreased or increased. Again, the factor Applying Skills was indeterminate because it qualified as both.

The first round of the nominal group technique consisted of 17 respondents, for a 30% response rate. Response rate by profession is depicted in Figure 3.

Figure 3.

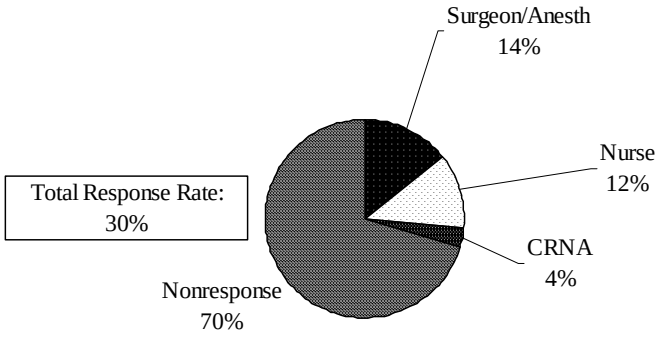
Round One Response



The second round consisted of 18 respondents with breakout by profession depicted in Figure 4. The second round response rate was slightly impacted by the deployment of some members to support the war in Iraq.

Figure 4.

Round Two Response



Round II ranks and means, in order of degree of association with dissatisfaction, are presented in Tables 3 and 4.

Table 3

Round II Means

Means

	Satisfiers	Dissatisfiers
OR Time	3.87	2.33
Equality	3.13	2.39
Professional Development	3.60	2.44
Leadership	3.53	2.50
Recognition	3.40	2.50
Compensation	3.13	2.56
Mentorship Teaching	3.40	2.61
Technology Equipment	3.33	2.67
Admin Respons	3.47	2.72
Ancillary Support	3.27	2.72
Appropriateness of Work	3.13	2.78
Work Hours	3.00	2.78
Autonomy	3.00	2.83
Facility Quality	3.00	2.89
Applying Skills	2.80	2.94
Stress	2.93	3.00
Staff	2.87	3.06
Continuity of Care	2.87	3.22
Military Service	2.87	3.22
Responsibility	2.73	3.22
All Coworkers	2.60	3.28
Challenging	2.53	3.33
Variety	2.87	3.39
Geographic Location	2.20	3.56
Patient	2.53	3.61
Peers	2.60	3.67

Note. The lowest mean indicates the top factor for satisfiers. Factor association with satisfaction will be read on this table from bottom to top.

The top three factors associated with satisfaction according to means were Geographic Location, Patient Care, and Challenging Work. The top three factors associated with dissatisfaction

according to mean were Operating Room Time, Equality, and Professional Development.

Table 4

Round II Ranks

Ranks

	Satisfiers	Dissatisfiers
OR Time	26	1
Equality	17	2
Professional Development	25	3
Leadership	24	4.5
Recognition	21.5	4.5
Compensation	17	6
Mentorship Teaching	21.5	7
Technology Equipment	20	8
Admin Respons	23	9.5
Ancillary Support	19	9.5
Appropriateness of Work	17	11.5
Work Hours	14	11.5
Autonomy	14	13
Facility Quality	14	14
Applying Skills	7	15
Stress	12	16
Staff	9.5	17
Continuity of Care	9.5	19
Military Service	9.5	19
Responsibility	6	19
All Coworkers	4.5	21
Challenging	2.5	22
Variety	9.5	23
Geographic Location	1	24
Patient	2.5	25
Peers	4.5	26

The top three factors associated with satisfaction according to rank were Geographic Location, Patient Care, and Challenging Work. The top three factors associated with

dissatisfaction according to rank were Operating Room Time, Equality, and Professional Development.

Table 5 presents intraclass correlations among each profession. The estimated coefficients provide support for the second hypothesis: Compared to the aggregate, agreement on factors considered satisfiers was stronger among surgeons. However, surgeon agreement on satisfiers was the sole instance of professional agreement being stronger than the aggregate or service line agreement. In all other cases, the data provided support for the null hypotheses; the aggregate alpha values of 0.71 and 0.75 for satisfiers and dissatisfiers, respectively, were higher than the alpha values for each individual profession.

Table 5

Intraclass Correlation

Reliability: Average Measure Intraclass Correlation		
Profession	Alpha	
	Satisfier	Dissatisfier
Surgeon	0.7536	0.7306
Nurse	0.5065	0.6001
Aggregate	0.7116	0.7596

A list of motivators and hygiene factors in rank order by mean follows in Table 6.

Table 6.

Satisfiers and Dissatisfiers

Satisfiers		Dissatisfiers	
Factor	**Mean**	**Factor**	**Mean**
Geographic Location	2.20	OR Time	2.33
Challenging	2.53	Equality	2.39
Patient	2.53	Professional Development	2.44
All Coworkers	2.60	Leadership	2.50
Peers	2.60	Recognition	2.50
Responsibility	2.73	Compensation	2.56
Applying Skills	2.80	Mentorship Teaching	2.61
Staff	2.87	Technology Equipment	2.67
Continuity of Care	2.87	Admin Respons	2.72
Military Service	2.87	Ancillary Support	2.72
Variety	2.87	Appropriateness of Work	2.78
		Work Hours	2.78
		Autonomy	2.83
		Facility Quality	2.89
		Applying Skills	2.94

A lower mean rank indicates that the employees collectively consider that factor more strongly associated with the domain. Hierarchical content theories contend that hygiene factors must be met before motivation can be achieved, so the primary factor associated with dissatisfaction, Operating Room Time, was investigated in detail. Raw responses from the first round provided substantial insight into the more specific cause of dissatisfaction. These responses are available from the author

upon request. Finally, a determination for each factor was made on whether it was a satisfier or dissatisfier. This determination was based on the mean response, with a value of less than 3 indicating that the factor tested positive as the type. For instance, a mean of 3.87 as a satisfier and 2.33 as a dissatisfier, indicates that Operating Room Time is not a satisfier but is a dissatisfier. A comparison of the expected outcome versus the actual outcome is presented in Table 7. Chi-square results were significant ($p < .01$) for both satisfiers and dissatisfiers.

Table 7

Comparison of Results with Herzberg's Theory

Herzberg Equivalent	Expected		Actual			Target?
	Satisfier	Dissatisfier	Satisfier	Dissatisfier	Indeterminant	
Company policy and administration		X		X		X
Interpersonal relations		X	X			
Interpersonal relations		X		X		X
Work itself	X				X	
Interpersonal relations		X		X		X
Responsibility	X			X		
Growth; achievement	X		X			X
Salary		X		X		X
Work itself	X		X			X
Status		X		X		X
Working conditions		X		X		X
Working conditions		X	X			
Supervision		X		X		X
Leadership		X		X		X
Work itself	X		X			X
Company policy and administration		X		X		X
Work itself	X		X			X
Interpersonal relations		X	X			
Growth; advancement	X			X		
Recognition	X			X		
Responsibility	X		X			X
Interpersonal relations		X	X			
Work itself	X					X
Working conditions		X		X		X
Work itself; growth	X		X			X
Working conditions		X		X		X

Agreed with Herzberg	69%
Disagreed with Herzberg	27%
Indeterminant*	4%

*Qualified as both or neither

The chi-square goodness of fit test indicated that the actual associations were a poor fit with the expected associations. For the satisfaction category, the null hypothesis was rejected (χ^2 = 91.73, *df* = 11, p < .01). Similar results were obtained when evaluating dissatisfiers (χ^2 = 125.56, *df* = 14, p < .01), again rejecting the null hypothesis. For both satisfiers and dissatisfiers, observed results did not significantly fit with expected results. Factors expected to be perfectly associated with satisfaction were not always strongly associated by the respondents. The same disparity held true for factor association with dissatisfaction.

Discussion

In consideration of the results of this study, the central questions must be revisited. The first central question was: What factors are contributing to and/or detracting from job satisfaction of professionals in surgical services? To answer this, the instrument must be called into question. In other words, was the nominal group technique an appropriate choice for unveiling the roots of job satisfaction? The intrarater agreement present in the responses attests to the reliability of the technique. Very likely the strength of the agreement is predicated on the design allowing for grass roots generation of the variables. Reliance on a prevalidated survey may have introduced a wider range of variables, which although not necessarily pertinent to the case, could have increased the overall discordance of the raters. Along the same lines, variables that can be accurately identified may be masked within another question or overlooked altogether. An example of this is the issue with operating room time. Most generic job satisfaction surveys, even those that are medical in nature, mask or miss this factor because they are not specific to surgical services. Additionally, since the factors generated by the respondents are likely to be dominant or strongly present at the current point in time, it can be more reasonably expected that raters would express considerable agreement over these than

factors that are less influential. Finally, the nominal group maintains buy-in from the participants once established. This fact is evidenced by the stability in response rates between rounds one and two. Consequently, the nominal group technique demonstrated appropriate utility in this study.

The second issue requiring attention in answering the first central question is whether or not the theoretical framework was appropriate for the study. Although Herzberg's two-factor theory has garnered considerable criticism, it was largely substantiated in this study. Sixty-nine percent of the factors were revealed to agree with Herzberg's predictions based on the mean score from respondents. Twenty-seven percent disagreed and one factor was indeterminate because it tested as both a satisfier and dissatisfier.

Among the factors that contraindicated Herzberg's theory were primarily those related to work itself and interpersonal relations. Although Herzberg statistically differentiated between categories, these factors tended to bleed over into both satisfiers and dissatisfiers. This indicates that although a factor is a source for one category, it can also be a source for the other. So while most factors clearly were more strongly associated with one category over the other, the notion that a hygiene factor cannot contribute to satisfaction and vice versa is questionable when applied to all cases. However, because a

nearly perfect inverse correlation exists between associations, the distinction between satisfaction and dissatisfaction is somewhat substantiated. For instance, this would lead the observer to believe that operating room time could in no manner be associated with satisfaction, just as patient care could not be associated with dissatisfaction.

However, an important consideration as well as one limitation of this study is that the respondents could be interpreting the only condition of the factor and not the factor in a general sense. As an example, because professional development opportunities are inversely associated between the two categories, this may be a reflection of only the degree of dissatisfaction on the part of the respondents that they perceive professional development opportunities to be limited. Because they are very upset at the perceived lack of opportunity, the respondents want to send a clear message by communicating that the factor is also strongly disassociated with satisfaction. However, if professional development opportunities were abundant, it is conceivable that the ability of the individual to advance and develop his or her skills could greatly contribute to satisfaction.

The aspect of Herzberg's theory that lent the greatest utilization to this study was the mere concept that job satisfaction is composed of two categories, which must be

examined in tandem in order to arrive at an accurate understanding and assessment. If this aspect is not acknowledged, management could potentially make changes to factors of one category that could adversely impact factors that are highly associated with the other overlooked category. For instance, professional development emerged as an important factor when focusing on dissatisfiers. One possible solution to alleviating the dissatisfaction caused by this factor could be to establish more frequent grand round sessions, which are approximately hour-long presentations on a pertinent subject. However, looking at the strength of certain satisfiers, patient care obviously stands out as something that motivates the employees. Any additional demands on the provider's time should carefully be scheduled so as not to eliminate opportunities for patient encounters.

Consequently, the true strength of Herzberg's theory is that it allows the leadership to take a more heuristic approach to job satisfaction. Solutions can be tailored according to the strength of the hygiene factors and motivators present, eliminating dissatisfaction and promoting satisfaction. By only focusing on hygiene factors, leadership would never theoretically know how to motivate its employees; and, conversely, by only focusing on motivators, leadership would never eliminate dissatisfaction or discover its causes. As

evidenced by the results, Herzberg's two-factor theory was an appropriate framework through which to understand and assess the components of job satisfaction in the study group.

The mean rankings of these factors lie at the heart of the study's second central question. The second central question concerned what factors caused the greatest degree of satisfaction and dissatisfaction. The answer to this question is clearly depicted in the results section.

Operating Room Time

In general, respondents expressed discontent at a lack of operating room time. One surgeon specifically mentioned elective cases, although another noted slow turnover and inefficiency. Operating room time is primarily based on room availability and support staff. Martin Army Community hospital has facility space for eight rooms and equipment to support at least four. Historical surgery schedules indicate that the hospital has run an average of 2.5 rooms per day. Consensus from discussion with members of the group is that the rate-limiting factor has been the availability of support staff. This issue delves into a whole separate matter concerning the basis for staffing within the Army, but until the date of publication, staffing has been predicated on historical workload. Consequently, inability to meet demand because of staffing translated into no relief unless the means could be obtained through another avenue. Staff

shortages also limit the flexibility of the Perioperative Section and impact the speed with which rooms can be prepared for the next case. Although the demand for additional surgery is present, operating room utilization rates have historically dropped with the addition of a third room. Therefore, the addition of a third operating room may provide the capacity necessary to cost effectively recapture network surgeries. However, demand does not apparently necessitate going beyond the third room.

Financially, cost savings and cost avoidance opportunities exist by preventing cases from leaking to the managed care network. Additional schedule time may also allow for some elective cases and longer, more complex cases to be performed that may have been referred externally in favor of volume. Some of the variety, however, cannot feasibly be recaptured (even with additional operating room time) due to the current state of health benefits.

A large portion of the more complex surgeries is provided for Medicare eligible beneficiaries, who typically qualify for coverage under a program called TRICARE for Life. Although the MTF incurs the cost of the procedure as well as any ancillary support required, it is not reimbursed unless the beneficiary has other health insurance, which is typically not the case considering that Medicare is the first payor and TRICARE for

Life picks up the lion's share of the balance. Furthermore, these surgeries do not translate into workload credit with the contractor, so no bid-price adjustment is achieved. In effect, the facility loses money on each Medicare-eligible patient seen. Although such cases are crucial to the experience of the provider, stark financial realities prevail in the face of scarce resources. Other avenues of training such as privileging at other local facilities may be examined; however, these solutions often neglect the support staff.

The final central question of the case study is addressed in the proceeding recommendation. This question dealt with how the organization could improve job satisfaction and retention of its professional surgical staff.

Conclusions and Recommendation

In conclusion, both satisfiers and dissatisfiers were present in the study. Based on the degree of association with the domain, satisfier or dissatisfier, a hierarchical ranking of job factors was established. Content theorists contend that sources of dissatisfaction must be addressed prior to motivators (Longest, Rakich, & Darr, 2000). Given this concept, an appropriate solution to MACH's dissatisfaction in surgical services would focus on the hygiene factor with the lowest mean rank, while simultaneously capitalizing on highly associated motivators. Furthermore, the solution should not adversely impact other highly associated factors.

As presented in the results, the top hygiene factor was Operating Room Time. The expert panel considered avenues for increasing operating room time, however, limitations imposed by scarce resources and funding severely restricted internal solutions such as simply hiring additional staff and equipment. Alternative funding streams were then considered. The U.S. Army Medical Department established a program that makes competitive funding available for venture capital projects that will increase productivity and efficiency within the healthcare delivery system. The panel agreed that the surgical expansion was appropriate for evaluation as a venture capital submission. If the business case analysis yielded a favorable savings to

investment ratio, then the solution would be apt for both management and staff. The business case analysis did, in fact, yield a positive savings to investment ratio of 1.48 for the addition of a CRNA, an operating room nurse, and an operating room technologist. These staff additions will allow for an additional half-day of operating room capacity daily. In addition, the solution capitalized on the motivators of patient care, challenging work, and the opportunity to interact with peers and staff.

The quantitative business case analysis is presented in the U.S. Army Medical Command's format in the Appendix and is recommended as an immediate and initial solution to job satisfaction issues in surgical services. Although the tables presented are particular to the programs of the Army Medical Department, they also reflect quantitative assessments that would be included in many healthcare business cases.

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Appendix. Business Case Analysis for Surgical Recapture

Table A1.

Initiative Narrative

1.0 Initiative description. Martin Army Community Hospital (MACH) intends to recapture surgical healthcare costs for institutional and noninstitutional network care. The initiative is to fund the staffing and marginal costs to maximize the use of 3 operating rooms. This will reduce civilian network referrals and provide additional operating time for surgeons in order for them to practice their skills. In FY02, purchased surgical care determined to have realistic recapture potential totaled 195 cases at $937,576. These figures reflect MACH's targets for 75% recapture of these services. Diagnostic and surgery-related tails associated with projected recapture total 524 services at $29,689. Total workload brought back into the MTF will be 213 visits/SDSs and 60 admissions.

2.0 Background - Staffing constraints have prohibited the Department of Surgery and the Department of Nursing from being able to maintain 3 operating rooms on a daily basis. As a result, the OR averaged approximately 2.4 rooms per available day over a one year period. This, in turn, has forced referral of surgical care to the network that could otherwise have been

Appendix, Table A1 (continued)

done within the MTF. The addition of 1 CRNA, 1 OR Nurse and 1 OR tech would provide the appropriate level of staffing to maintain 3 rooms on a regular basis and recapture workload that could be performed at MACH.

3.0 Initiative Goals & Objectives. Reduce network referrals through recapture of CHAMPUS claims that have been determined to be within the surgical capabilities at MACH.

Required 36-month investment. $1652 K

Net (after investment) return on 36-month investment: $1130K
Location in which the initiative will be implemented. Martin ACH, Fort Benning, Georgia.

Tangible (economic) Benefit. Targeted recapture of 60 inpatient admissions, 135 same-day surgeries, and 79 visits annually.

Intangible Benefit. Demonstrate how your Clinical Practice Guidelines, Evidenced Based Medicine process, and Patient Safety and Near Miss guidance will benefit the community served.

Appendix, Table A1 (continued)

Increased efficiency of OR through maintenance of 3 rooms per day, allowing greater flexibility in scheduling and patient management. MTF retains management of patient during specialty care. Expect increase in patient satisfaction due to ability to remain within the military system. Improvement of staff skills and job satisfaction due to ability to perform additional workload.

4.0 Metrics - What are the metrics used to support the initiative, including Clinical Practice Guideline metrics, Evidenced Based Medicine metrics and Patient Safety and Near Miss guidance metrics?(1) Number/amount of surgical services performed in MTF (with delta from historical workload). (2) OR utilization rate.

5.0 Process Design. What are the constraints to current ways of providing these services/capabilities and how can these be reduced or eliminated? Include examples of Clinical Practice Guidelines, Evidenced Based Medicine and Patient Safety and Near Miss issues.OR utilization can be impacted by experience and skill level of surgical team. The increase in OR time provided

Appendix, Table A1 (continued)

through this initiative will assist in alleviating this problem and better prepare our surgical staff for their readiness mission. Instability of military providers (frequent turnover, PROFIS training, deployments) will affect the amount and frequency of required network referrals.

6.0 Link to BSC Strategy Map and BSC Measures: Specify if applicable (1) Which Command Balanced Scorecard this project supports (2) Which Strategic Objective on the BSC Strategy Map (3) Which Score Care Measure(s) this project affects (1) This initiative supports both the Martin ACH and AMEDD Balanced Scorecards. (2) The following AMEDD strategic objectives are supported: IP-10 Streamline Access to Care, L-4 Train the Medical Force, L-1 Recruit and Retain a Quality AMEDD Force, F-4 Predict and Secure Levels of Funding Required, F-5 Operate within Budget. (3) The following measures are affected: IP-10b Number of scheduled OR cases cancelled per 100 scheduled cases monthly; F-3a-d,f Measures pertaining to direct/purchased care costs and acuity.; L-1b Change in employee satisfaction results, F-5 Obligation Rates by MDEP, BAG, and Commodity Group.

Appendix, Table A1 (continued)

7.0 Implementation Plan & Benchmark Events. Indicate key milestones, which at a minimum will include pre-implementation events (including contract negotiations, personnel recruiting/training, facility modification, and equipment acquisition), project start dates, period evaluations, contract renewals, and anticipated payback points. Necessary contracts awarded and personnel recruitment/training conducted from Jul-Sep 03. First patient seen 1 OCT, 2003.

Table A2.

Performance and Financial Summary: Recapture Targets (36 Month Total)

	FY04	FY05	FY06	FY07
Admissions	0	0	0	0
Supp Care (AD)	0	0	0	0
CHAMPUS	60	60	60	
Revised Financing	0	0	0	0
Over-65	0	0	0	0
Sub-Total	60	60	60	0
Clinic Visits	0	0	0	0
Supp Care (AD)	0	0	0	0
CHAMPUS	79	79	79	0
Revised Financing	0	0	0	0
Over-65	0	0	0	0
Sub-Total	79	79	79	0
Surgical Procedures	0	0	0	0
Supp Care (AD)	0	0	0	0
CHAMPUS	135	135	135	0
Revised Financing	0	0	0	0
Over-65	0	0	0	0
Sub-Total	135	135	135	0

Appendix

Table A3.

Net Savings & Loss Calculations (in Thousands of Dollars)

Savings to Investment Ratio	Net Present Value		FY04	FY05	FY06	FY07	36-Month Program Total
		Personnel	322.00	322.00	322.00		
		Travel					
		Leases/Rents					
		Contracts					
		Supplies	228.70	228.70	228.70		
		Equipment					
		Facility Mod					Outflow
		Housekeeping					Total
1.67	(1,618.30)	Investment Requirement	550.70	550.70	550.70		1,652.00
		MCSC					
		T-Nex		859.40	937.60	78.10	
		CHAMPUS					
		Supp Care					
	1,814.60	Cost Avoidance		859.40	937.60	78.10	
		MCSC		723.30			
		T-Nex	156.30				
		CHAMPUS					
		Supp Care					
	864.70	Cost Savings	156.30	723.30			
Discount Rate		3rd Party Collections	8.50	9.30	9.30	0.80	Inflow
		Other					Total
2.10%	27.30	Revenue	8.50	9.30	9.30	0.80	2,782.50
							36-Month ROI
		Net Savings or Loss	(385.90)	1,041.30	396.20	78.90	1,130.50

Appendix

Table A4.

Change in Workload in the MTF

	FY04	FY05	FY06	FY07
Outpatient ADD Visits/SDS	118	118	118	118
Outpatient NADD Visits/SDS	96	96	96	96
Total CHAMPUS Visits	213	214	214	214
Outpatient AD Visits/SDS	0	0	0	0
Total Outpatient Visits/SDS	427	428	428	428
Inpatient ADD Admissions	23	23	23	23
Inpatient NADD Admissions	37	37	37	37
Total CHAMPUS Admissions	60	60	60	60
Inpatient AD Admissions	0	0	0	0
Total Admissions	120	120	120	120

Table A5.

Change in Labor Costs (O&M, MilPers)

	FY04	FY05	FY06	FY07
# of Months Personnel will be employed	12	12	12	12
Number of Provider FTEs	0	0	0	0
Total Provider Cost	0	0	0	0
Number of Support Staff FTEs	3	3	3	3
Total Medical Technician Cost	322,027.50	322,027.50	322,027.50	322,027.50
Change in Labor Costs	322,027.50	322,027.50	322,027.50	322,027.50

Appendix

Table A6.

Change in Marginal (Supply) Costs

	FY04	FY05	FY06	FY07
Change in Outpatient Workload	212.75	212.75	212.75	212.75
Marginal Cost Per Outpatient Unit	563.01	563.01	563.01	563.01
Total Outpatient Marginal Costs	(119,780.38)	(119,780.38)	(119,780.38)	(119,780.38)
Change in Inpatient Workload	60.25	60.25	60.25	60.25
Marginal Cost Per Inpatient Unit	1,807.00	1,807.00	1,807.00	1,807.00
Total Inpatient Marginal Costs	(108,871.75)	(108,871.75)	(108,871.75)	(108,871.75)
Total Change in Marginal Cost	(228,652.13)	(228,652.13)	(228,652.13)	(228,652.13)

Table A7.

Change in Third Party Collections

	FY04	FY05	FY06	FY07
Change in MTF ADD Outpatient Visits	118	118	118	118
Avg ADD Outpatient TPC	$64.87	$64.87	$64.87	$64.87
Visits X OHI X Collection %	5.67	5.67	5.67	5.67
Potential MTF TPC for ADD Care	$368.00	$368.00	$368.00	$368.00
Change in MTF NADD Outpatient Visits	96	96	96	96
Avg NADD Outpatient TPC	$64.87	$64.87	$64.87	$64.87
Visits X OHI X Collection %	4.59	4.59	4.59	4.59
Potential MTF TPC for NADD Care	$298.00	$298.00	$298.00	$298.00
Change in Outpatient TPC	$666.00	$666.00	$666.00	$666.00
Change in MTF ADD Admissions	23	23	23	23
Avg ADD Inpatient TPC	$3,032.14	$3,032.14	$3,032.14	$3,032.14
Visits X OHI X Collection %	1.08	1.08	1.08	1.08
Potential MTF TPC for ADD Care	$3,275.00	$3,275.00	$3,275.00	$3,275.00
Change in MTF NADD Admissions	37	37	37	37
Avg NADD Inpatient TPC	$3,032.14	$3,032.14	$3,032.14	$3,032.14
Visits X OHI X Collection %	1.76	1.76	1.76	1.76
Potential MTF TPC for NADD Care	$5,349.00	$5,349.00	$5,349.00	$5,349.00
Total Change in TPC*	$9,289.00	$9,289.00	$9,289.00	$9,289.00

*OHI % = 8
Collection % = 60

Appendix

Table A8.

Managed Care Support Contract Change in Bid Price

MCSC Bid Price Effect	NASs	Marg Cost of NAS	NAS Bid Price Impact	OPVs	Marg Cost of OPV	OPV Bid Price Impact	Total MCSC Effect
ADDs	23	$2,885.00	$66,355.00	118	$100.00	$11,813.00	$78,168.00
NADDs	37	$4,177.00	$154,549.00	96	$87.00	$8,319.00	$162,868.00
Total	60	$7,062.00	$220,904.00	214	$221,118.00	$20,132.00	$241,036.00

Risk Sharing Effect	
Bid Price Effect	($241,036.00)
Acutal MCSC Cost Impact	($937,575.93)
Variance	($696,540.00)
Risk Sharing Effect	($626,886.00)
Total Govt Cost Savings Avoidance Impact	($867,922.00)