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The next generation of TRICARE contracts makes substantial changes in the business operation of our military health care delivery system. The largest area of change is in utilization management (UM). Under the new contract, the government will be responsible for all aspects of health care management of prime enrolled beneficiaries to include underwriting the cost of care in both the direct care and purchased care sectors. The new contract makes the government responsible for the purchased care authorization process to include medical necessity review, continued stay review and coding of all medical, surgical and behavioral health episodes of care. The government also becomes responsible for the appeals process for any denied episode of care. This research project was conducted to determine the optimal UM structure for Martin Army Community Hospital (MACH) under the new contract considering the current UM structure at MACH, the impact on beneficiaries, and fiscal constraints. Four models were developed and analyzed using the criteria of least negative impact on the beneficiaries and financial viability. The optimal model costs $451,000 and has minimal impact on the beneficiary population.

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Running head: UTILIZATION MANAGEMENT MODEL

The Optimal Utilization Management Model for Martin Army Community Hospital under the Next Generation of TRICARE Contracts

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A Graduate Management Project

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Abstract

The next generation of TRICARE contracts makes substantial changes in the business operation of our military health care delivery system. The largest area of change is in utilization management (UM). Under the new contract, the government will be responsible for all aspects of health care management of prime enrolled beneficiaries to include underwriting the cost of care in both the direct care and purchased care sectors. The new contract makes the government responsible for the purchased care authorization process to include medical necessity review, continued stay review and coding of all medical, surgical and behavioral health episodes of care. The government also becomes responsible for the appeals process for any denied episode of care. This research project was conducted to determine the optimal UM structure for Martin Army Community Hospital (MACH) under the new contract considering the current UM structure at MACH, the impact on beneficiaries, and fiscal constraints. Four models were developed and analyzed using the criteria of least negative impact on the beneficiaries and financial viability. The optimal model costs $451,000 and has minimal impact on the beneficiary population.

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The Optimal Utilization Management Model for Martin Army Community Hospital under the Next Generation of TRICARE Contracts

Introduction

Martin Army Community Hospital (MACH) is the second largest community hospital in the United States Army Medical Command. The MACH health care delivery system consists of the main hospital on Fort Benning, Georgia with 10 outlying primary care clinics located on Fort Benning, Georgia, Eglin Air Force Base, Florida, and Dahlonega, Georgia (Fort Benning Medical Activity, 2003). The main hospital operates five inpatient wards with an average daily census of 34. MACH's services include 30 ambulatory clinics, obstetrics and gynecology, a labor and delivery unit, and a surgical service with four operating suites. An average day of health care delivery at MACH consists of 1,500 outpatient encounters, 3 births, and over 2,000 prescriptions filled (Fort Benning Medical Activity, 2003). MACH also executes a family practice residency program. The MACH catchment area has 74,833 eligible beneficiaries (MCFAS, 2004) with 55,032 (Thornton, 2003, p. 1) enrolled to the facility.

As a community hospital, MACH provides a fairly robust medical product line to its beneficiaries (see Appendix A). Some specialties are not available at MACH and many have limited capacity. When a product line has limited capacity, the active duty (AD) beneficiaries are first priority. All other beneficiary categories will be disengaged and sent to the civilian network when the product line is limited to AD

beneficiaries. The managed care support contractor (MCSC) has developed a network of civilian providers and services that complement the MACH health care delivery system in the greater Columbus metropolitan area. The MCSC network offers an extensive list of medical product lines (see Appendix B). The civilian network provides the health care delivery system with some flexibility to shift beneficiaries to the appropriate setting for health care and meet peak demands.

Conditions that Prompted the Study

MACH is in its eighth and final option year of the current TRICARE support contract with Humana Military Healthcare Services as the MCSC. On August 1, 2004 MACH will begin a newly structured contract named the next generation of TRICARE contracts (TNEX). This new contract will have substantial changes in structure, financing, and services. The MHS currently contracts for managed care support in 11 TRICARE regions. Under TNEX these regions will consolidate and form three regions. MACH is currently in Region 3 under the existing TRICARE contract. Under the next generation of TRICARE contracts MACH will fall into TRICARE region South (TRO South). This new region will provide services to 2,238,774 eligible beneficiaries (McNeill, 2003). The three regional headquarters have some unique relationships and contractual obligations with their managed care support contractor (MCSC). Under the next generation of contracts, each of the three regions will have a set of standardized business rules and agreements with a single MCSC across the new region. The regional contracts have been

initially awarded as follows, TRO North - HealthNet, TRO South - Humana, and TRO West - Triwest. The next generation of TRICARE contracts changes the financing mechanism for TRICARE prime enrollees. Enrolled beneficiary network care dollars are currently managed by the MCSC, under the new contract these funds will go to the military treatment facility to manage. One of the most substantial changes in services and structure falls in the area of utilization management (UM).

The next generation of TRICARE contracts makes several major changes in UM. These changes fall into the following three broad categories, which include outpatient/ambulatory referrals, behavioral health inpatient episodes, and medical/surgical inpatient episodes. The first category is outpatient/ambulatory referrals. Under the current contract, Humana performs medical necessity and covered benefit review on all MTF referrals that are sent to the TRICARE network. Under the next generation of contracts MACH will be responsible for medical necessity review before sending the referral to Humana. Humana is only responsible for performing a covered benefit review (Shafiq, 2003). The current contract also specifies the number of visits and the length of time that each referral is valid: Under the next generation of contracts, MACH is responsible for specifying the term and periodicity of visits for which each referral is valid (Shafiq, 2003).

The second category of major change is behavioral health inpatient admissions and outpatient episodes of care. The contractor currently preauthorizes all behavioral health

services through their subcontractor Choice Behavioral Health. Under the new contract, MACH will be responsible for making medical necessity determinations and preauthorizing all behavioral health inpatient admissions (Shafiq, 2003). Choice Behavioral Health also preauthorizes all outpatient behavioral health visits beyond the first eight-unmanaged visits. Under the new contract, MACH will take on the responsibility of authorizing all outpatient behavioral health visits.

The third category, medical and surgical admissions and concurrent review, has two major changes. The contractor now preauthorizes all medical/surgical routine admissions for Prime enrollees on the network. Under the new contract MACH will determine the medical necessity and preauthorize routine medical/surgical admissions for Prime enrollees on the network. Humana now performs concurrent review of all inpatients in the network. Under the new contract Humana will send the continued stay review outliers to MACH, and MACH will be responsible for making a determination of what to do with these patients (Shafiq, 2003).

The new TRICARE contract focuses on changes to the management of the enrolled beneficiary population. The new contract makes the MTF responsible for all network purchased care for the enrolled population. The new contract also places all utilization management functions under the control of the MTF. A summary of the UM changes are in Table 1.

Table 1

UM Comparison of Current TRICARE Contract with the Next Generation of TRICARE Contracts

Category	Current Contract UM Function Performed by MCSC	Next generation Contract
Referrals	Medical Necessity Review and Coding	MTF Responsibility
Medical/ Surgical Routine Admissions	Preauthorization Review	MTF Responsibility
Behavioral Health Admissions	Preauthorization Review	MTF Responsibility
Behavioral Health Outpatient Beyond First Eight Visits	Preauthorization Review	MTF Responsibility

Some of the UM functions provided by Humana under the existing contract fall under utilization review and have formal requirements set forth by federal regulations and U.S. code.

These requirements are also governed by the Utilization Review Accreditation Commission (URAC), American Accreditation Healthcare Commission, and succinctly delineated in the 15 April 1998 Health Affairs Policy 98-31 titled Revised Utilization Management Policy for the Direct Care (Health Affairs, 15 April 1998). If a potential for denial of medical services exists, a formal five level review process must be in place to protect the integrity of the health care delivery system. The first level of review is a screening process that must be performed by at least a licensed registered nurse (Health Affairs). The second level review is the first level that the care can be denied and the reviewer must be a licensed physician that meets the definition of clinical peer to the requesting physician (Health Affairs). The third level of review is the reconsideration review and must be performed by a licensed, board certified specialist in the specialty of the requesting physician (Health Affairs). The fourth level of review is an appeal to a disinterested third party, the National Quality Monitoring Contract (NQMC; Health Affairs). The fifth level of review is to the MTF commander for the direct care system (DCS) and the TRICARE Management Activity (TMA) for all TRICARE network appeals (Health Affairs). The process is summarized in Table 2.

Under the next generation of contracts medical necessity review of specialty referrals, medical/surgical inpatient preauthorization, concurrent review of outlier length of stays, and behavioral health inpatient preauthorization all will require a formal five level review process. Humana currently

performs these functions sans behavioral health at the local level performing a portion of the first level review with four full time equivalent (FTE) registered nurses. Humana also has a consolidated Central Review Center (CRC) that currently operates 24 hours per day year round, resourced with 75 FTEs for admission and selected outpatient procedure preauthorization for Regions 3 and 4 (see Table 3). Humana's second and third level review infrastructure consists of two full time and eight part time physician second level reviewers and 20 contracted specialist physicians for third level review (Humana Military Healthcare Services, 2003).

Choice Behavioral health is the subcontractor performing all behavioral health UM functions under the current contract. Choice has organization structure for all five levels of review at a consolidated site located in Jacksonville, Florida, for TRICARE Regions 3 and 4.

Table 2

Utilization Management Medical Necessity Appeals Structure

Level	Function	Performed By
1	Screen	Registered Nurse
2	Peer Review	Physician
3	Reconsideration	Physician in Same Specialty
4	National Quality Monitoring Contract	Key Pro Quality Assurance
5	Final Review	MTF Commander (DCS) TMA (Network)

Table 3

Current TRICARE Contract Network Levels of Review Performed by Humana Military Healthcare Services for TRICARE Regions 3 and 4

Level	Function	Required Skill	FTE
1	Screen	Registered Nurse	4-Local TRICARE Service Center 75-CRC
2	Review	Physician	2-Full Time, 8-Part Time
3	Reconsideration	Physician	20-Contracted

Note. From Humana Military Healthcare Services (2003, October). HMHS utilization management plan for option year 8 (HMHS # 03-0287.08).

The UM functions that become the responsibility of each MTF under the new contract are not solely clinically related with UM and appeals process functions, they also have a business claims aspect to them. Currently, the MCSC also codes each outgoing referral with a range of possible ICD-9 and CPT codes for the actual health care episode. These codes are placed into the claims authorization system as an authorized episode of care against which future claims will be adjudicated. In summary, under the new contract, the government assumes performance of all UM and claims related activities for enrolled beneficiaries with each MTF functioning as a peer review organization.

Statement of the Problem

MACH is experiencing a $1.6 million shortfall from the projected required base budget of $84 million for FY 2004 (Mindingall, 2003). With this resource constraint in mind and the loss of utilization management functions from the MCSC under the next generation of contracts, MACH must determine an optimal method to provide UM functions. A key element to MACH's strategic plan is, "Absolute Patient Focus, we will be committed to providing exemplary health services to all entrusted to our care" (Fort Benning Medical Activity, 2003). A key supporting factor to the balanced scorecard is to "reduce the hassle factor" of patients (Martin Army Community Hospital, 11 Feb 2003). MACH has is reporting a relatively stationary overall patient satisfaction rate with the health care plan of 77% (Fort Benning Medical Activity). Patient satisfaction is an area of critical concern for the leadership of MACH. The challenge is to find the balance between resourcing the required UM functions for the new contract in a budget shortfall year while minimizing any degradation of services experienced by MACH's enrolled beneficiary population. Several factors influence what the optimal UM structure should be at MACH to include, beneficiary population needs, limited resources, best practices for UM in the civilian market, and UM requirements that will be mandated from the Department of Defense.

Literature Review

Utilization Management Overview

Health care costs in America continue to grow at rates greater than normal inflation rates. The growth in health care costs has outpaced the rise in real income since the 1970s (Shapiro, 1999). In the civilian health care market, hospital expenditures increased by $83.6 billion from 1997 to 2001 and increased utilization accounts for 34.4% of the change (PriceWaterhouseCoopers, 2003). In the ever-changing health care market, expenditures for Department of Defense (DoD) health care services nearly doubled when adjusted for inflation from 1988 ($14.6 billion) to 2003 ($27.2 billion; Congressional Budget Office, 2003).

The managed care industry had a tremendous effect on lowering the medical rate of inflation during the late 1990s. One of the powerful tools successfully employed in managed care is utilization management (UM). Utilization management has many definitions to include, "An organization wide, interdisciplinary approach to balancing cost, quality and risk concerns in the provision of patient care" (Brown, 2001, p. 1). Ultimately UM is a process that places the right patient with the right provider in the right location at the right time providing the right services producing the right outcome at the right cost (Patch, 2003).

History of UM in the civilian sector

Utilization management is a cost containment and quality assurance tool used within the managed care environment. Managed

care organizations have existed for 73 years dating back to Dr. Michael Shadid in Elk City, Oklahoma, and UM functions have accompanied this form of health care delivery since nearly its inception (Kongstvedt, 2001). The roots of UM, in the form of utilization review, date back to 1959 with Blue Cross of Western Pennsylvania (Kongstvedt, p. 8). As the United States health care system was exposed to dramatic inflationary pressures from the landmark Medicare legislation of 1965, the environment was set for managed care penetration. The HMO act of 1973 encouraged growth of the managed care industry (Carneal, 2002). After the introduction of prospective payment in 1983, UM was still nascent in most health care plans, but by 1990 the majority of Americans were covered by health care plans that employed UM strategies in one form or another (Bailit & Sennett, 1991).

In response to the widespread use of utilization review (UR) as a major UM tool, the Utilization Review Accreditation Commission (URAC) was formed in 1990. This organization was formed to evaluate and standardize the utilization review process (Kongstvedt, 2001). URAC is the standard setting organization for UR and many other aspects of UM in managed care.

History of UM in MHS

The military health care system transformed into a more disciplined managed care organization in the late 1980s and early 1990s with the implementation of a program called Gateway to Care and the CHAMPUS reform initiative. Gateway to Care was an Army initiative introduced by Lieutenant General Lanoue

whereas CRI was the result of legislation allowing a pilot project in California and Virginia. These programs, later followed by TRICARE, were implemented in response to rising health care expenditures. The MHS developed 11 TRICARE regions and moved to adopt best practices utilized in the civilian managed care industry. One set of tools that the MHS attempted to incorporate into its business practices was utilization management. The initial concept of UM allowed MTF commanders to implement a plan based upon their own perceived need (Army Regulation 40-68, 1989). The concept and definition of utilization management has become more prescriptive as it matured from 1994 to present. In 1994, the MHS utilization management policy focused on utilization review functions, discharge planning, and case management (CM; Health Affairs, 1994). The focus in the MHS placed a premium on quality and access rather than cost avoidance as described by Dr. Joseph in the 1994 UM policy, which described UM in terms of "processes (that) are patient focused, ensuring delivery of necessary and appropriate care at the most effective level without jeopardizing quality or access" (p. 1). In 1998, the utilization management philosophy built upon the 1994 definition and added demand/referral management, disease management (DM), education, and health promotion and prevention (Health Affairs, 1998). According to the draft medical management Department of Defense instruction (DoDi) dated 12 January 2004, which will replace the current HA utilization management policies 94-005, 97-046, and 98-031, utilization management will be replaced with a medical

management model. This model includes many of the facets of prior utilization management strategies, but it also integrates UM, CM and DM to gain a synergistic effect relying upon dramatic quality improvements to drive down costs (Department of Defense, 2004). The model also accounts for new business rules which will take effect under the next generation of TRICARE contracts.

Under the concept of the next generation of TRICARE contracts, the MTF will manage all facets of health care for its enrolled patient population. This includes all facets of UM that are now being performed by the MCSC. In February of 2003, MEDCOM issued a data call to the MTFs to ascertain how many FTEs the MCSC provides to each MTF to perform UM (P. Barrett, personal communication, February 6, 2004). The message had a short suspense and focused solely on UM support provided inside the MTF by the MCSC. It did not include UM support provided by the MCSC for enrolled beneficiary care received outside the MTF. MACH gave a negative response, as did five other MTFs in South East Regional Medical Command (SERMC; McNeill, 2003). The entire analysis failed to identify the workload associated with health care delivered in the purchased care arena for MTF prime beneficiaries. Essentially the data call down to the MTFs, which was used to appropriate funds down to MTFs for preparation to execute TNEX, failed to account for the UM workload within MTFs.

History of UM at MACH

Following the direction of Health Affairs and the MHS, MACH started performing UM functions in 1994 under the Gateway to Care initiative with two DA civilian nurse consultants that focused on utilization review functions for inpatients at MACH (S. Lockhart, personal communication, November 14, 2003). The major focus in 1994 was prospective review of patients admitted through the emergency department, concurrent and retrospective review of inpatient diagnosis related groups (DRG), and screening for medical necessity and length of stays (LOS) utilizing Interqual criteria. The UM staff slowly took on a more prominent role in discharge planning and some case management duties through 1996-1999. During this period the UM staff were part of the patient administration division of the hospital. In 1999 two more nurse consultants were hired and the preponderance of duties had shifted to case management and discharge planning, as utilization review became less important. Since 1999, the nurse consultants have moved from Patient Administration Division to the Healthcare Management Division, to the Quality Management Office, to clinic functional areas, and finally at the present time to the department of nursing. MACH has four nurse consultants who all perform duties in case management, discharge planning, utilization review, and disease management (S. Lockhart, personal communication, November 19, 2003).

Under the current definition of UM, MACH has 4 full time equivalent (FTE) nurse consultants functioning in the roles of utilization review, case management, disease management, with

social work providing one FTE to perform discharge planning and the UR for all durable medical equipment (DME). The MACH 2004 table of distribution and allowances (TDA) document authorizes seven nurse consultants and one clerk for UM functions. The clerk authorization is vacant and only four of the nurse consultant positions are filled (Martin Army Community Hospital TDA, 2003). Martin Army Community Hospital's nurse consultants are empanelled well above the nation's average for case managers. The average government CM nurse's caseload is 37 active patients at any given time (Case Management Society of America, 2003). The average MACH CM nurse caseload is 69.75 (Martin Army Community Hospital Case Management Data Base, 2004). Not only are MACH's nurse consultants over-empanelled when compared to the national CM average, they also perform internal UR on all MACH inpatients and are part of the disease management team.

Best Practices

Many changes have occurred within the UM discipline since its inception in 1959. Two common themes, however, underlie all changes in the UM field: cost savings and quality of care improvements. In 1999 United Healthcare, a large health care insurance company eliminated the requirement for prior authorization for procedures and treatments (Galdabini, 1999). They found that they spent over $100 million maintaining this portion of UM and denied only 1% of all requests. United's new strategy profiles physician's practice patterns and compares the results to best practices and peer physician norms. If

participating physicians do not self-correct over utilization referral patterns, United can drop them from their health care plan. One senior health care executive said United's change represents, "a revolutionary move in the evolution of managed care, a milestone" (Galdabini, p. 2). UM is the backbone of managed care and eliminating prior authorization requirements for most specialty care referrals radically changes the face of managed care. Experts in the field opine that after years of discipline, physicians' practice patterns have permanently changed and preauthorization is not needed in many facets of health care delivery (Galdabini). Although United eliminated most of the referral preauthorization requirements, they still retained preauthorization requirements for all inpatient admissions, home health care and certain types of durable medical equipment (Galdabini).

Humana Military Healthcare Systems (HMHS) has years of experience in delivering health care and has developed best practices that are similar to other health care plans throughout the nation. HMHS has also found that the return on investment for many traditional utilization review functions is negative. Under the guidelines of the current TRICARE contract, federal law, and Humana's own experience, prior authorization is now only required for non-emergency inpatient admissions including admission to behavioral health and rehabilitation facilities, selected outpatient procedures, and durable medical equipment over five hundred dollars. Over the years, prior authorization has been eliminated from many procedures. Currently HMHS

requires prior authorization for 26 categories of procedures which can be seen in Table 4 (Humana Military Healthcare Services web site, January 2004).

Table 4
Humana Military Healthcare Services TRICARE Prior Authorization List

Total Abdominal Hysterectomy
Laparoscopy surgical; w/vaginal Hysterectomy
Hysterectomy to terminate pregnancy
Abortion
Aspiration curettage of Uterus for Termination
PET Scans: Brains, Heart Tumor
Scar Revision
Rhinoplasty
Septoplasty
Uvulopalatopharyngoplasty
Reduction Mammoplasty
Speech Therapy
Gastric Bypass, Stapling
TMJ Surgery
Oral Maxillofacial Surgery
Radiation therapy for Oral or Facial Cancer
Ginival Hyperplasia
Loss of Jaw Substance
Intaoral Abscess
Extraoral Abscess
Cellulitis & Osteitis
Facial Trauma w/Removal of Teeth or Teeth Fragments
Myofacial Pain Dysfunction Syndrome
Total or Complete Ankyloglossia
Iatrogenic Dental Trauma Orthodontia
Mercury Hypersensitivity - Removal of Dental Amalgam

Note. From Humana Military Healthcare Services Region 3/TRICARE Southeast, Provider Information. Retrieved January 6, 2004 from humana-military.com web site:http://www.humana-military.com/Region34/PROVIDER/information/newsletter/hotnews/PriorAuthLetter.pdf

In 2002, magnetic resonance imaging (MRI) was eliminated from the prior authorization list because only 5% of all requests were initially denied for medical necessity and of those 80% were overturned (C. Ramey, personal communication, April 21, 2004). Despite the move in industry to eliminate many prior authorizations, the workload related to DME and inpatient/outpatient preauthorization is still fairly substantial. The preauthorization categories that have been

typically eliminated include specialty outpatient visits, select outpatient procedures, and most low dollar DME (C. Ramey, personal communication, March 30, 2004).

According to Greenberg UM is, "evolving away from the strict authorization and denial mode into a more coordinated care model of using UM to identify potentially high-cost, high utilization cases, and referring them into care management programs like case management or disease management" (Managed Care Outlook, 2002, p.1). Companies are moving away from traditional UM functions while embracing case and disease management strategies. By combining UM, CM, and DM, health care plans can capture candidates for care management and readily refer them to CM and DM. According to Kathleen Leone, the Intracorp Vice President of Human Resources UM has become the catch phrase for UR and case management (Blassingame, 2002). Intracorp, a health care and disability management company, is not using UM to deny or affirm medical episodes, but to harness the UM function as a tool to enter the proper portal of the health care system (Blassingame). According to Blassingame, disease management has become much more popular. These programs have proven very effective if data are used to identify potential patients (Blassingame).

Although UM and CM are heavily regulated throughout the country, very few regulations exist for DM and none exist addressing the interaction of these medical management disciplines (Carneal, 2002). The new UM philosophy adopted by the MHS is outlined in the draft Medical Management DoDi dated

12 January 2004. This document adopts the integrated strategy that has evolved in the civilian sector. The same utilization management functions exist that have been present in the MHS since the HA policy on UM in 1998, but now these functions will be harnessed to work together to produce higher patient quality of care.

Purpose

This case study is designed to outline the optimal utilization management structure for Martin Army Community Hospital under the next generation of TRICARE contracts. The purpose of this study is to quantitatively describe MACH's enrolled population, determine the costs associated with creating a comprehensive utilization management program, and analyze the impact of different UM models on the beneficiary population and MACH's financial viability. This study will identify the optimal UM structure that provides for the least negative effect on beneficiaries and MACH under the next generation of TRICARE contracts within a resource constrained environment. For the purpose of this study utilization management includes utilization review, case management, discharge planning, and disease management.

Method and Procedures

This project is an exploratory case study that will evaluate the current UM structure at MACH given changes in the next generation of TRICARE contracts. The first portion of the study will identify and analyze the MACH Prime enrolled population. I will use the first two steps of the seven Population Health

Improvement (PHI) Plan and Guide key process elements to explore characteristics of the MACH beneficiary population and compare these with other populations for applicability of the staffing model for utilization management.

After the enrolled population is analyzed, four different UM staffing models will be described, compared and analyzed based on effect on beneficiary and cost to the MTF. The four models are; population based, full time equivalent replacement based, minimum function based, and zero resource based. Each model utilizes the five FTEs that currently work at MACH. Each model requires a physician medical director and UM coordinator nurse supervisor as prescribed in Kongsvestadt and Plochers (1998). The medical director position fulfills the second level review function and lends credibility to the UM team in the eyes of a physician. The UM coordinator works in concert with the medical director and ensures that all UM functions are synergistically working together. Each model utilizes the clerk support staff ratio from the MACH 2004 TDA document of one clerk for every seven nurse consultants. The first two models provide for a comprehensive UM program at MACH. The last two models provide the absolute minimal critical UM functions required at MACH under the next generation of TRICARE contracts.

The first staffing model selected is a mathematical deterministic model (Austin & Boxerman, 1995). For utilization management personnel, Kongstvedt presents a model based upon a staffing ratio per 1000 enrolled population (Kongstvedt, 2001, p. 221). For the mean surveyed large managed care organization

in 1999 (see Table 4), the ratio used is .26 FTE per 1,000 enrollees for all UM functions.

Table 5

Staffing Model for Utilization Management Registered Nurses

Function	FTE per 1,000 members
All UM functions	.26
Hospital pre-certification and Concurrent review	.18
Case management	.04
Referral authorization	.03
Ambulatory diagnostic testing And procedure authorization	.002

Note. From Managed Care Measures: Results of the 1999 Benchmarking Study (Washington, DC and Walnut Creek California: Ernst & Young LLP, 2000).

The model delineates four UM categories, pre-certification and concurrent inpatient review, .18 FTE per 1,000 members, case management, .04 FTE per 1,000 members, referral authorization, .03 FTE per 1,000 members, and preauthorization for selected ambulatory procedures, .002 FTE per 1,000 members (Kongstvedt, 2001). For the purpose of this study, the case management category includes discharge planning and disease management. When this model's .26 FTE per 1,000 members factor is applied, the yield is 14.3 nurse consultants. After accounting for the current organic five UM nurse FTEs, nine new FTEs are required

to perform all required UM functions for the 55,032 enrolled beneficiary population for MACH.

The second model combines known medical and surgical HMHS FTEs that currently support UM functions and FTE estimates from known workload supporting the behavioral health UM mission. This model examines the functions, currently performed by HMHS and their subcontractor for behavioral health, which will become the responsibility of the MTF under the new contracts. These functions are broken down into the medical/surgical category and the behavioral health category. HMHS currently has a two-tiered structure to perform medical and surgical UM functions. The first tier consists of four nurse consultants located at the Tricare Service Center (TSC) on the Martin Army Community Hospital campus. HMHS will downsize the TSC nurse consultants from four to one FTE for the new contract for a net loss of three FTEs (J. Herman, personal communication, March 7, 2004). The second tier for medical/surgical UM functions are performed at HMHS's combined review center (CRC) for TRICARE Regions 3 and 4 in Jacksonville, Florida. The CRC employs 75 professional FTEs to perform UM for the 878,619 enrolled beneficiaries in TRICARE Regions 3 and 4(J. Herman, personal communication, March 30, 04). Based on these numbers, the existing UM is resourced on an allocation factor of .856 per 1,000 beneficiaries. Utilizing the .856 allocation factor and MACH's enrolled population of 55,032 yields five FTEs nurse consultants to replace the workload performed at the CRC. The five FTEs from the CRC and the three FTEs from the TSC yields eight FTEs to replace HMHS's current

medical and surgical UM workload performed for MACH's beneficiaries.

The staffing levels for Choice Behavioral Health were not available, but the paid claims data for behavioral health can be used to estimate the current behavioral health UM workload for MACH's enrolled beneficiaries. The two behavioral health UM functions include inpatient preauthorization and the preauthorization of outpatient behavioral health visits beyond the first eight unmanaged visits allowed by the TRICARE Policy Manual. Analysis of claims data from calendar year 2003 reveals that MACH processed 1,435 inpatient claims and 11,519 outpatient visits. Each of the 1,435-inpatient claims requires UR for medical necessity, covered benefit review, and coding for preauthorization. Each inpatient claim also requires a concurrent review. Since each claim represent two UM workload units, a workload factor of two is applied to the inpatient claims yielding 2870 inpatient UM workload units. Outpatient encounters do not require UR for medical necessity, covered benefit review, and coding until the beneficiary goes beyond the first eight visits. A workload factor of .125 is applied to the 11,519 outpatient visits and yields 1440 outpatient UM workload units. These calculations added together yield 4310 behavioral health UM workload units. Assuming that each behavioral health workload unit takes 30 minutes and the available man-days for a UM nurse is 200 days working an eight hour day, 1.35 FTEs are required. The FTE requirement must be rounded up to two FTEs to account for unavailable time and continuous coverage by this

specialized position. This FTE replacement based model suggests that 8 nurse consultants are required to replace the medical/surgical UM functions and two nurse consultants are required to replace the behavioral health UM functions for a total of 10 FTEs nurse consultants.

The third model is a limited resourced model. This model is based on fulfilling the minimum critical UM functions as identified by the Martin Army Community Hospital MM PAT. The MM PAT determined that six FTEs were required to perform all network authorization processes, three FTEs to provide case management service to all beneficiaries, including the PFPWD program, and one LPN FTE for management of active duty in the civilian health care sector. When the current organic five FTEs nurse consultants are accounted for this model yields an additional four FTEs nurse consultants and one LPN assistant UM nurse. The MM PAT decided that the medical director position could be performed by the hospital's Deputy Commander for Clinical Services (DCCS), a lieutenant colonel position.

The fourth model freezes current staffing levels despite the new UM missions under the next generation of TRICARE contracts. This model allows for no increases in FTE authorizations and assumes that all critical UM positions identified by the MM PAT will be filled using current FTEs working at MACH. The model utilizes the current organic five FTEs for UM at MACH. The FTE requirement is six nurse consultants for network authorization processes, three nurse consultants for case management and PFPWD, and one licensed practical nurse (LPN) for management of

active duty personnel in civilian health care. This model calls for eight nurse consultants and currently has only five. The additional three required would come from military nursing junior officer staff in the hospital to be trained in UM. The UM coordinator would come from existing military staff and would be in the rank of major or lieutenant colonel. The MD would be the DCCS as in the third model above.

Validity and reliability

This study is designed to explore the optimal structure for UM at MACH. Although internal validity is inapplicable in exploratory case study methods (Yin, 2003), external validity is important and relevant to this study. The theory in this case study can be utilized by other military health care facilities to compare current UM structure with required structure under the TRICARE next generation of contracts. Further case studies of different military health care facilities are needed to validate this study's finding. This framework will provide similar military hospitals a guide that can be used to study their own UM structures, which may assist leaders of these facilities in decision-making related to structural optimality in light of the new TRICARE support contract and their local health care environment.

This study utilizes the first two steps from the validated MHS wide protocol PHI. The data used in this study include population statistics, paid claims, and referral encounters from MHS and MACH data systems. Since 2000, MACH has participated in the data quality program prescribed by the Secretary of Defense

(Assistant Secretary of Defense, 2000). The methodology for this case study follows accepted guidelines outlined in Yin (2003).

Expected findings and utility of results

The results of this study will create a model for the optimal structure for utilization management at MACH. This exploratory case study will determine whether the current utilization management structure at MACH is adequate for the new business rules under the next generation of TRICARE contracts. After the optimal model for UM structure is determined, the facility can fine-tune the processes to reach a desired end state in keeping with the organization's mission, "to promote and ensure healthy and ready soldiers, and provide quality beneficiary health care in partnership with our communities and goals" (Fort Benning Medical Activity, 2003). The result of this study is pertinent to the business planning preparing to transition into the next generation of TRICARE contracts.

Results

In January 2004, MACH created a medical management (MM) process action team (PAT) to examine the UM issue in the context of the new contract. The MM PAT was made up of experts working at MACH in the MM field. The membership included the four case management nurses, the social workers from behavioral health, the ambulatory nursing consultant, the Department of Nursing nurse methods analyst, the Chief of Healthcare Management Division, a family practice physician, Chief of the Quality Management Office, Chief of Social Work Services, and the Baylor

Administrative Resident. The MM PAT team analyzed all of the UM functions, identified the UM functions currently performed at MACH, and the UM functions the MTF will assume under the new TRICARE contract. The functions were broken down into seven areas, network authorization process, internal UR, case management, disease management, management of active duty in the civilian care setting (absent sick), management of the program for persons with disabilities (PFPWD), and data mining/analysis. The minimum critical UM functions that were identified and prioritized included the network authorization process, strictly limited case management, management of absent sick, and management of PFPWD. The functions that were deemed less critical by priority were internal UM processes, disease management, and data mining capability. A complete break down of each UM function in order of priority is displayed in Appendix C.

Demographics

The MACH eligible beneficiary population is 72,497 (MCFAS, Jan 04). As seen in Table 5, the current enrolled beneficiary population is 55,032. The majority (74%) of the beneficiary population is made up of active duty and active duty dependents. Although the over 65 year old population makes up 14% of the eligible population it represents only 4% of the enrolled population. Out of the 10,174 eligible beneficiaries who are 65 years or older, only 2,378 are allowed to enroll in the TRICARE Plus program. The projected enrolled population for FY05 is 67,282 (Thornton, 2004). The increased population results from

the projected increase in the training mission at Fort Benning, GA. The additional 12,500 enrolled beneficiaries include 8,750 trainees, 1,250 permanent party training cadre, and 2,500 cadre dependents (Thornton, 2004). For the purpose of this study, the Fiscal year (FY) 2004 enrolled population numbers will be utilized. The FY2005 enrolled population numbers are presented here to introduce the many competing factors for existing resources. If the enrolled population increases by 12,500, that increase represents a $7.2 million un-financed requirement for health care delivery (Thornton, 2004).

Table 6

Martin Army Community Hospital Enrollment

Category	FY04	FY05
Active Duty	21,469	31,469
Active Duty Dependent	19,007	21,257
Non-Active Duty Dependent	11,941	11,941
TRICARE Plus	2,378	2,378
Other	237	237
	55,032	67,282

Note. From Martin Army Community Hospital Business Plan, February 2004, Joe Thornton.

The next step is analyzing the enrolled population at MACH and comparing it to national averages. The vast majority of health care delivered inside MACH is to enrolled beneficiaries. The average length of stay at MACH is 3.6, and the case mix index at MACH is 1.28 (Draper, 2004). For a comparably sized urban hospital in the United States, the average length of stay

is 3.8 and average case mix index is 1.25 (Centers for Medicare and Medicaid Services 2001; Health Forum, 2004). These statistics depict the similarity of MACH's enrolled beneficiary population to a comparable civilian health care plan.

Staffing and cost data

Estimation of salary costs associated with the creation of the optimal utilization management program for MACH follow commonly accepted U.S. Army MEDCOM resource management practices. The salaries are calculated from the 2004 federal civilian salary table using the step five level of the grade of the position as the base salary figure. The base salaries are multiplied by 1.28 to account for the 28% of base benefits costs of each employee (J. Thornton, personal communication, March 7, 2004).

The first option, the population based model, requires hiring one physician, one nurse UM coordinator, nine nurse consultants, and two clerks at a total annual salary plus benefits cost of $948,800. The model provides an additional 14 FTEs and a total of 19 FTEs. Model one has 14 nurse consultants and one UM coordinator. All major functions in UM can be performed in this model. The breakdown of nurses is as follows, seven nurse consultants for network authorization processes, two nurse consultants for MACH internal UM processes, four nurse consultants for case management, one nurse consultant for disease management, and the UM coordinator as the data analyst.

The second option, the FTE replacement based model, costs $1,019,000 and requires hiring one physician, one nurse UM

coordinator, ten nurse consultants, and two clerks. This model requires 19 FTEs, five organic and 14 new hires. The 15 nurse consultant FTEs and one UM coordinator provides ample professional nursing staff to cover all UM requirements. Nursing requirements include seven nurse consultants for network authorization processes, two nurse consultants for MACH internal UM processes, five nurses for case management, one nurse for disease management and the UM coordinator as the data analyst.

The third option, the minimum function model, costs $451,000 and requires hiring one UM coordinator, four nurse consultants, one UM licensed practical nurse (LPN), and one clerk. This model requires 13 FTEs, five organic and eight new hires. This model is restricted in its capability to perform all UM functions. This model has nine nurse consultants, one LPN, and a UM coordinator. The nursing assets are applied against the following UM functions, six nurse consultants for network authorization processes and three nurses and one LPN for case management. Internal UM processes, disease management and data analysis would not be performed under this model. The medical director is the Deputy Commander for Clinical Services (DCCS) in this model. The DCCS position is currently working at full capacity and would be able to perform minimal duties as the medical director. Many of the medical director functions would be performed by the UM coordinator.

The fourth option, the zero based resource model, has no up-front hiring costs. This model provides 11 FTEs for the UM program. The staff includes the current five FTEs nurse

consultants and augments them with an additional seven FTEs performing other functions in the MTF. The medical director is the DCCS. The UM coordinator would be filled by a major or lieutenant colonel nurse from within the facility. The likely candidates are the Department of Nursing (DON) Administrative Staff Officer, the DON Ambulatory Nursing Consultant, or one of the section chief nurses. This model also requires four nursing staff (captain or lieutenant) and one LPN from within the organization. This bare essential model has nine nurse consultants and one LPN. Six nurse consultants would perform network authorization processes and three nurse consultants and one LPN would perform case management.

Each of the four courses of action results in additional facility costs. The first three options range from $1,019,000 to $451,000 in personnel hires costs. The fourth option also incurs labor costs as it requires manpower from within the facility to perform new functions. The next section addresses resourcing and impacts on the beneficiary population.

Discussion

Creating the necessary UM functions to operate under the new business rules of the next generation of TRICARE contracts clearly requires substantial resources, which may in turn have an adverse impact on health services delivery for beneficiaries not directly affected by UM. Any new resource requirement will compete for scarce dollars in a year that is constrained by a $1.6 million budget decrement. This year already has new un-financed requirements (UFRs), which include a $7.2 million UFR

for projected enrolled beneficiary growth, a $550,000 UFR for central appointment shortfalls under the new contract, and a $2.5 million UFR to civilianize MACH's mobilization and demobilization mission (T. Mindingall, personal communication, February 3, 2004).

The new UM functions that the government assumes responsibility for require skill sets and expertise not currently found at MACH. The weakest area is embedded in network authorization processes. These processes include best practices in preauthorization review, coding of outgoing referrals, and an appeals process resulting from a denial. The preauthorization review process has many nuanced best practices. For example, rehabilitation facilities are not currently reimbursed on a prospective payment system and many have exorbitant master charge schedules (C. Ramey, personal communication, April 10, 2004). During the preauthorization process, the nurse consultant must contact the potential rehabilitation facilities and negotiate a global fee for each individual episode of care.

Properly entering referral codes into the claims data system requires expertise on the techniques for coding complex episodes of care to ensure that health care delivered will be paid. The coding skill set and the best practices come only with experience, which are absent at MACH. MACH currently does not deny any internal referrals for medical care, thus an appeals process does not currently exist. MACH will be responsible for the first two levels of the appeals process under the new contracts, and lacks the experience performing these two levels

of review. The lack of experience will adversely affect both MACH's beneficiary population and MACH's financial integrity. Beneficiaries are likely to experience a breakdown in the preauthorization process or the appeals process. If the proper codes are not placed on an outgoing referral, the beneficiary has the potential to have care denied or delayed, a claim payment denied, or charged with a point of service fee of 50% of billed charges. The four UM models will be evaluated for the negative impact on the beneficiary population and probability of resourcing under the business rules of the new contract.

Options one and two are very similar in their requirements. Analysis of each results in similar conclusions and provides validation for the requirements produced by each model. Option one and two perform all of the required UM functions under the new contract. These properly resourced models allow for specialization within each UM functional area. MACH currently lacks the civilian best practice experience in the network authorization process, particularly the coding of referrals function. Models one and two require hiring 10 and 11 new UM nursing staff respectively. This provides an opportunity to procure the missing UM expertise from the civilian market. The medical director position provides many positive capabilities. This position can interact with MACH's primary care providers and specialists, perform second level review of denied care, and ensure all UM policies are working in concert throughout the health care plan. Both models provide ample professional nursing staff to complete all UM functions under the new contract.

The second option has one more professional nurse, and this position can be well leveraged in the case management arena especially in light of MACH's current CM over-empanelment problem. The UM coordinator position would function as a data analyst and mentor/trainer for the professional nursing staff. The two clerks in both models will allow the professional nurse staff to concentrate on tasks that require their special skills. MACH's beneficiaries will feel many positive effects. Case management and disease management patients will be afforded appropriate clinical access to the CM and DM nurse consultant staff. This potentially impacts the patient's wellbeing, ability to adhere to care plans, and knowledge of disease processes. Models one and two also provide the resources to properly execute the network authorization processes. Over all, these two options will have a positive impact on MACH's beneficiary population.

The resource requirements for options one and two are high. The $948,000 and $1,019,000 salary costs would increase MACH's core budget requirement for future years. In light of the competing demands on resources in the current year, the probability of completely resourcing either option is extremely low. Fully implementing option one or option two could arguably save the health care plan money in the long term by leveraging current UM best practices, but they both require substantial investment and sustainment costs.

Option three is minimally resourced compared to options one and two, and some UM functions are not performed. The functions

not performed were chosen to have the least discernable effect upon the beneficiary as they move between the military and civilian healthcare system. This option provides four new civilian nurse consultant hires. This option still has the capability of procuring the required UM expertise in the network authorization functional area, although it is resourced at one FTE less than options one and two. Case management is also resourced at a constricted level compared to options one and two. The LPN would be utilized to track the active duty absent sick to allow the three nurse consultant FTEs to perform case management on more complex patients. The case management empanelment would be reduced from current operating levels. The reduced case management capacity would impact many currently managed patients: many would be on their own to abide by their care plans. Disengaged case management patients may be dissatisfied with the change, but this model provides FTEs to manage only the most acute CM candidates. This model does not perform any DM or internal UM. The beneficiary may not feel any impact from the lack of internal UM, but some patients, particularly the diabetics and asthma patients that benefit from prevention training, will feel the lack of DM. The UM coordinator would not have time to perform any data analysis functions as this position would perform network preauthorization functions and assist the medical director. The DCCS is the only position capable of performing minimal medical director functions. This model has only one clerk. Although the resources are stretched thin and some functions will be

eliminated, the MACH staff will feel more impact than the beneficiary population. This model minimizes the negative impact to a small beneficiary population. The $451,000 cost of option three is significant, but much less than the first two options. Because of the relatively lower cost in this model compared with the previous two, the probability of funding is much greater. If incurred, thee costs would become part of the core budget in the out years.

Option four is minimally resourced and requires no new funding from the core budget, but this option still has extensive opportunity costs associated with it. The loss of key nursing personnel in other areas of the hospital will only aggravate the already tight nursing shortage situation that exists within the organization. Some positions would require the movement of key nursing leaders in the facility. This change would create a domino effect and require the promotion of inexperienced nurses to leadership positions. The movement of skilled nursing assets from inpatient wards to perform largely administrative roles in UM will have the most deleterious effects. The loss of clinical nursing assets would reduce the capacities on the inpatient wards. The medical/surgical ward and the intensive care unit would be acutely impacted. The loss of in patient capacity would require MACH to divert some health care to the purchased care network in the areas where MACH's inpatient capacity is negatively affected. The increased utilization of the purchased care network would place an additional burden on the limited budget provided to MACH to pay

for purchased care under the new contract methodology of revised financing. The military nurses performing utilization review lack network authorization experience.

Lack of experience is the most troublesome aspect of this particular course of action because of the linkage between experience (or lack thereof) and beneficiary satisfaction with quality of services. Further, inefficiencies associated with lack of experience can increase costs of health care services for MACH. With no expertise, MACH would be forced to perform new UM functions and learn by trial and error for proper coding and best business practices. Under this model, MACH must prepare to handle many patient complaints from denied and delayed health care in the civilian sector, unpaid bills, and delayed appeals cases. The beneficiary will bear the brunt of the organization's ineffectiveness while it learns at their expense. This ineffectiveness may create a feeling of dissatisfaction in the beneficiary population equal or greater than that when the first TRICARE contract was implemented in 1994. In short, this option has the potentially most negative effect on both the beneficiary population and MACH's long term financial viability.

Conclusion and Recommendations

The purpose of this study was to determine the optimal utilization management model for Martin Army Community Hospital under the new business rules of the next generation of TRICARE contracts. This task is challenging as the new contracts require each MTF to create UM functionality that was formerly performed by the MCSC on an economy of scale basis. In Regions 3 and 4 the

MCSC, HMHS, performed UM services for over 870,000 beneficiaries at their combined review center. By having each MTF create independent UM programs for their beneficiary population, efficiencies from the old contract are lost. Four models were presented and analyzed for their impact on the beneficiary population and the financial viability of the MACH health care plan. The first two options, the population based model and the FTE replacement model, have a positive impact on the beneficiary population, but are expensive to resource. The $948,800 and $1,019,000 respective costs would not compete with current fiscal constraints and other UFRs that MACH is facing in the next year. The fourth option, the zero based resource model, has a significant negative impact on the beneficiary population and the purchased care budget. In light of the effects on the beneficiary population and the fiscal constraints, the optimal model for UM at MACH is option three, the minimum function model. Although this option still carries nearly a half million dollar price tag, implementation will have little impact on the overall beneficiary population. The $451,000 cost is substantial, but it can compete well with other UFRs that MACH is facing.

Applying this model to other MTFs may aid them in determining the appropriate UM functionality required for their facility under the new TRICARE contracts. This model could also assist the entire MHS in determining the real cost impact for the overall health plan under the new contracts. An analysis of the cost to regionalize UM functions into the three new TRICARE

regions compared to developing independent UM programs at each of the 75 MTFs within the military health system (MHS) may prove financially beneficial.

Determining the optimal UM model for all 75 military hospitals and medical centers and 461 clinics would be advantageous to the MHS. One generalization, take the option three cost of $451,000 to provide minimal UM capabilities for MACH's 55,032 enrolled population. The calculation yields an $8.20 per beneficiary cost to replace the MCSC UM functions. The enrolled population for the MHS is 5.1 million beneficiaries. The cost to provide minimal UM functions from the option three model for the entire enrolled MHS population is $41,820,000. The overall cost of option one is $948,800 for MACH at $17.24 per beneficiary. If this model is applied to the entire MHS, the cost is $87,924,000. The MHS has a choice of not resourcing UM at all and letting the new contract fail or resource the MHS at a price from $41.8 to $87.9 million. Faced with the stark realities of this situation, an emergency meeting was held in Aurora Colorado April 7-9, 2004 with all three of the MCSCs and TMA. This meeting resulted in modifications to TNEX that returned all of the UM functions to the MCSCs at an annual cost of $16 million.

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Appendix A

Health Care Product Lines at MACH

Medical Product Lines Available at MACH for Prime Beneficiaries

Department of Medicine

Product Line	Availability
Allergy	A - Normal Availability
Cardiology	L - Limited Availability
Dermatology	A - Normal Availability
Endocrinology	L - Limited Availability
Gastroenterology	L - Limited Availability
Hematology/Oncology	N - Not Available
Infectious Disease	N - Not Available
Internal Medicine	A - Normal Availability
Nephrology	L - Limited Availability
Neurology	A - Normal Availability
Pediatric, Allergy	A - Normal Availability
Pediatric, Cardiology	N - Not Available
Pediatric, Neonatology	L - Limited Availability
Pediatrics	A - Normal Availability
Pulmonary Medicine	L - Limited Availability
Rheumatology	L - Limited Availability
Sleep Studies	N - Not Available

Appendix A

Health Care Product Lines at MACH

Medical Product Lines Available at MACH for Prime Beneficiaries

Department of Surgery

Product Line	Availability
Anesthesiology	A - Normal Availability
Audiology	A - Normal Availability
Dentistry	L - Limited Availability
Gynecology	A - Normal Availability
OB/GYN (High Risk)	L - Limited Availability
Obstetrics & Gynecology	A - Normal Availability
Occupational Therapy	L - Limited Availability
Ophthalmology	A - Normal Availability
Optometry	L - Limited Availability
Total Joint hip and Knee	L - Limited Availability
Orthotics	L - Limited Availability
Otolaryngology (ENT)	L - Limited Availability
Otology	L - Limited Availability
Physical medicine and Rehabilitation	N - Not Available
Physical Therapy	L - Limited Availability

Appendix A

Health Care Product Lines at MACH

Medical Product Lines Available at MACH for Prime Beneficiaries

Department of Surgery (cont)

Product Line	Availability
Podiatry	L - Limited Availability
Proctology	L - Limited Availability
Surgery Colon/Rectal	L - Limited Availability
Surgery, General	A - Normal Availability
Surgery, Neurological	N - Not Available
Surgery, Oncology	L - Limited Availability
Surgery, Oral (Dentist Only)	L - Limited Availability
Surgery, oral Maxiolcial	L - Limited Availability
Surgery, Pediatric	L - Limited Availability
Surgery, Plastic	N - Not Available
Surgery, Thoracic & Cardiovascular	N - Not Available
Urology	A - Normal Availability

Appendix A

Health Care Product Lines at MACH

Medical Product Lines Available at MACH for Prime Beneficiaries

Department of Family Practice

Product Line	Availability
Ambulance/Medical Transport	A - Normal Availability
Durable Medical Equipment	L - Limited Availability
Early Intervention Service	A - Normal Availability
Education Specialist	L - Limited Availability
Emergency Medicine	A - Normal Availability
Exceptional Family Member Program	A - Normal Availability
Family Practice	A - Normal Availability
General Practice	A - Normal Availability
Geriatrics	A - Normal Availability
Speech Therapy	L - Limited Availability

Appendix A

Health Care Product Lines at MACH

Medical Product Lines Available at MACH for Prime Beneficiaries

Department of Psychiatry

Product Line	Availability
Clinical Psychology	L - Limited Availability
Community Mental Health	L - Limited Availability
MSW, ASW	A - Normal Availability
Neuropsychology	N - Not Available
Pastoral Counselors	A - Normal Availability
Psychiatry - Outpatient & Inpatient	L - Limited Availability
Psychiatry, Child	N - Not Available
Social Work	A - Normal Availability
Substance Abuse Rehabilitation Dept	L - Limited Availability

Appendix B

Medical Product Lines Provided by the Managed Care Support Contractor

Medical Product Lines	
Anesthesiology (Pain)	Perinatologist
Neonatology	Urology
Orthopedics	Gynecological Oncology
Radiation Therapy	Oncology
Cardiovascular Disease	Physical Medicine & Rehab
Nephrology	General Surgery
Pediatrics	Optometry
Speech	Physical Therapy
ENT	Internal Medicine
Neurology	Ophthalmology
Pediatric Cardiology	Podiatry
Thoracic Surgery	Mental Health
Endocrinology	Diagnostic Radiology
Neurosurgery	Durable Medical Equipment
Pediatric Neurology	Skilled Nursing Facilities
Urgent Care	Pulmonology
Gastroenterology	Home Health
Occupational Therapy (Ped)	Hospice

Appendix C

Utilization Management Function Prioritization

Network Authorization Process

- Medical Necessity Review
- Coding
- Continued Stay Review
- Discharge Planning

Program for Patients with Disabilities (PFPWD)

Management of Absent Sick

Case Management

- Multiple Diagnoses
- Pediatrics
- Behavioral Health
- Internal Medicine
- Family Practice

Internal Utilization Review

Disease Management

Data Mining and Data Analysis

Note. The above prioritization was determined by a Likert scale questionnaire given to all members of the MACH MM PAT committee March 2004.

Appendix D

Option One

Population Based Model

Position Description	Type	Grade	Qty	Cost
Medical Director	Physician	GS-14	1	$147,200
UM Coordinator	Nurse	GS-12	1	$85,100
UM Nurse	Nurse	GS-11	9	$639,000
Office Automation	Clerk	GS-5	2	$77,500
UM Nurse (Current)	Nurse	GS-11	5	-0-
			18	$948,000

Appendix E

Option Two

FTE Replacement Based Model

Position Description	Type	Grade	Qty	Cost
Medical Director	Physician	GS-14	1	$147,200
UM Coordinator	Nurse	GS-12	1	$85,100
UM Nurse	Nurse	GS-11	10	$710,000
Office Automation	Clerk	GS-5	2	$77,500
UM Nurse (Current)	Nurse	GS-11	5	-0-
			19	$1,019,000

Appendix F

Option Three

Minimum Function Model

Position Description	Type	Grade	Qty	Cost
Medical Director	Physician	LTC	1	-0-
UM Coordinator	Nurse	GS-12	1	$85,100
UM Nurse	Nurse	GS-11	4	$284,000
UM Nurse Assistant	LPN	GS-6	1	$43,200
Office Automation	Clerk	GS-5	1	$38,700
UM Nurse (Current)	Nurse	GS-11	5	-0-
			13	$451,000

Appendix G

Option Four

Zero Based Resource Model

Position Description	Type	Grade	Qty	Cost
Medical Director	Physician	LTC	1	-0-
UM Coordinator	Nurse	MAJ/LTC	1	-0-
UM Nurse	Nurse	CPT/LT	4	-0-
UM Nurse Assistant	LPN	GS-6	1	-0-
UM Nurse (Current)	Nurse	GS-11	5	-0-
-			12	-0-