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**Determination of MEPRS Direct Care Costs  
for Selected Ambulatory Professional Services  
and a Comparison to Similar CHAMPUS Care Costs  
for the United States Army, Health Services Command Hospitals**

**A Graduate Management Project  
Submitted to the Faculty of  
Baylor University  
In Partial Fulfillment of the  
Requirements for the Degree  
of  
Master of Healthcare Administration  
by  
Captain Mary Carstensen, SP, US Army**

**Running Head: DETERMINATION AND COMPARISON OF COSTS**

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**ABSTRACT**

The purpose of this study was to develop a methodology to determine the economic efficiency of ambulatory professional services in U.S. Army Health Services Command (HSC) hospitals. To limit the scope of the study, the author analyzed the average government pay to the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) for selected individual ambulatory professional services and compared this to the average cost of similar services provided in the direct care system.

The CHAMPUS data were collected from HSC's Health Care Studies and Clinical Investigation Activity's Triservice CHAMPUS Statistical Data Base. The Management Expense and Performance Reporting System was searched to determine total expense and manpower use for the direct care system. Results indicate it is not always less expensive to provide professional services within the direct care system. Even with a \$40 credit per visit for direct care visits, CHAMPUS professional services were still less expensive 31% of the time.

DETERMINATION AND COMPARISON OF COSTS

**Determination of MEPRS Direct Care Costs for Selected  
Ambulatory Professional Services  
and a Comparison to Similar CHAMPUS Care Costs  
for the United States Army, Health Services Command Hospitals**

The U.S. Army Health Services Command (HSC) 1990 Strategic Plan explicitly states, "We (HSC) must constantly examine our organizational structure to ensure the delivery of the highest quality patient care. We must be certain that our organizational structure produces health care of the highest quality at the least cost. We will expand our capabilities to manage the integration of military and civilian healthcare benefit options in a cost effective manner" (p.2). In addition, a September 1990 General Accounting Office (GAO) Report states, "...DOD should identify facilities and specialties in which expansion of treatment capability is most likely to be cost-effective..." (p.3). Thus, our challenge.

**STATEMENT OF THE PROBLEM**

HSC is unable to determine the financial efficiency of military and civilian health care

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provided to beneficiaries. HSC and HSC hospitals can not compare specific direct care costs against the government cost of similar Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) care in order to determine where revenue is lost or made in terms of CHAMPUS cost avoidance.

#### LITERATURE REVIEW

##### Background

The majority of the people in the Department of the Army, Department of Defense (DOD), and Congress believe the Army Medical Department (AMEDD) provides good health care (Majors, 1990). In addition, the AMEDD--in essence a staff model Health Maintenance Organization (HMO)--provides less costly care than any HMO in the United States. Overall, it is about 30% less expensive for the AMEDD to care for patients than it is under CHAMPUS (Majors, 1990).

CHAMPUS is a medical benefit program for eligible beneficiaries. It cost-shares charges for medical treatment secured from civilian sources when needed services are unavailable from the military direct-care system. (Badgett, 1990).

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Despite this record, there is strong demand from all levels for reorganization of the AMEDD. The reason given is the increasing cost of the Army health care system and of CHAMPUS (Majors, 1990). In Fiscal Year (FY) 1988, CHAMPUS reimbursed \$2.5 billion for 348,000 inpatient admissions to civilian hospitals and 9 million outpatient visits (Gisin, 1990).

The General Accounting Office recently completed an audit that confirm Majors' comments. "Between fiscal years 1985 and 1989, CHAMPUS costs increased about 79 percent, from \$1.4 billion to an estimated \$2.5 billion. The rest of DOD's medical costs increased about 31 percent, from \$7.8 billion to \$10.2 billion" (General Accounting Office [GAO], 1990,p.13).

### The Challenge

Seaver (1990), in an article on leveraged buyouts of hospitals, states that by concentrating on its strengths, a hospital builds competitive advantage by developing custom-tailored businesses designed for specific markets. A more focused portfolio of services allows a hospital to commit its full attention to a more manageable range of businesses. This focus frees

scarce resources which can then be devoted to building a few superior quality businesses, thereby improving a hospital's competitive position and financial performance. This is a good business strategy for individual hospitals as well as for health-care corporate headquarters as well. To implement it, however, we must know where resources are being consumed.

#### Ambulatory Care Focus

A significant trend in health-care delivery resulting from Prospective Payment Systems, and a phenomenon that will be even more significant in the 1990s, is the increase in demand for ambulatory patient care services with a corresponding decrease in demand for inpatient services. At the same time the fastest growing segment of health-care expenditures goes towards professional fees or ambulatory services. (Schoeneweis & Steinberg, 1989).

How ambulatory services are organized and structured is increasingly important to the long-term profitability and survival of many hospitals.

"Outpatient departments and activities were placed

wherever a hospital had available space, in many cases without significant accommodation for potential growth, physician or patient convenience, comfort, etc. This has led to the patchwork pattern of dispersed and disjointed ambulatory services found throughout many hospital facilities" (Schoeneweis & Steinberg, 1989, p.1).

Historically, AMEDD outpatient services have been a 'step-child' to inpatient care due to a cost accounting bias toward inpatient care. Resources are allocated based primarily on various weighted combinations of admissions, bed days, and clinic visits, resulting in a measure called the Medical Composite Work Unit.

The passage of the National Defense Authorization Act for Fiscal Year 1987 (PL 99-661, as amended by PL 100-108), regulated the use of Diagnostic Related Groups (DRGs) for classification of inpatient services and development and implementation of a similar classification for ambulatory services (Optenberg, Coventry & Baker, 1990). Giving more resource credit

to ambulatory care will force changes within the HSC system.

In an effort to make outpatient workload more equal, Optenberg, Coventry, Baker, and Austin (1988), derived weights for ambulatory care using 1985 Medical Expense and Performance Reporting System (MEPRS) workload and accounting data. Average costs per ambulatory visit were converted to actual ambulatory work unit (AWU) relative weights by dividing each MEPRS cost estimate by the average cost per military treatment facility (MTF) disposition. Although the AWU is a relatively simple measure, inexpensive, and based on current available data, there is still a question as to whether it provides the level of detail necessary for allocation of resources to hospitals and clinics. (Optenberg, Coventry, Baker, & Austin, 1988).

With the increased emphasis on outpatient services, health care executives will need to focus on ways to effectively organize this important segment of the hospital operation, regardless of civilian or military alliances. Economics will play a major role in the continuous evolution of ambulatory health-care

service (Lee & Nugent, 1989). This appears to be a natural starting point for the determination of financial efficiency.

**Available Data: MEPRS**

The implementation of the Medical Workload Unit (MWU) as the standard for Department of Defense medical workload measurement and its use as a factor in determining resource allocation has confirmed the Medical Expense and Performance Reporting System (MEPRS) as the primary source of workload information. The MEPRS is composed of three main elements: workload data, personnel-utilization data, and expense data.

(a) Workload Data. Correct reporting of data--admissions, occupied bed days, visits, and procedures performed--justifies manpower and budgetary requirements needed to staff each specialty/section.

(b) Personnel Utilization Data. Correct cost distribution of the salaries of military/civilian personnel assigned and reporting of available manhours is essential to the MEPRS. Personnel costs are computed by the Medical Expense and Performance Module (MEPM) used by the MEPRS Branch of each hospital within

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HSC. Individuals report hours worked, on a monthly basis by MEPRS code. The MEPM produces salary-cost and full-time-equivalent reports for each MEPRS code by several criteria: employment status (military, civilian, contract, or volunteer) and personnel category (clinician, direct care professional, registered nurse, direct care paraprofessional, or administrative/logistical/other).

(c) Expense Data. Expense data are collected by the MEPRS Branch from Finance and Accounting automated reports, and other manually computed worksheets. All costs to operate the facility, including salaries, supplies, equipment, contractual services, travel, depreciation and non-reimbursable support, are used in computing total expenses. (Medical Expense & Performance Reporting System [MEPRS]).

The final product of the MEPRS is a unit cost to treat an inpatient or outpatient by subspecialty, and formulation of the MWU. MWUs are used for budgeting, cost comparison, and resource allocation.

Responsibility for ensuring that the MEPRS produces valid data is shared by the MEPRS Staff, Resource

Advisors, Cost Center Managers, and each employee of the Medical Treatment Facility (MTF).

The Automated Source Data Collection System is the computer system designed to collect workload, personnel utilization time, and expense data. This system then uses several steps to distribute or stepdown expenses from supporting MEPRS accounts to produce a report that reflects the cost of an occupied bed day, clinic visit, or other procedure. The system first develops a matrix to apportion expenses from ancillary and support accounts, based on workload, to inpatient and ambulatory accounts.

The distribution of expenses is the second step in the stepdown process. Expenses for support accounts (such as depreciation, logistical and resource-management support) are apportioned to inpatient, ambulatory, dental and ancillary accounts first, based on the original matrix. Ancillary accounts are next distributed to inpatient, ambulatory, and dental accounts. Ancillary accounts include pharmacy, laboratories, radiology, surgical suite support, and therapeutic functions.

The third step is the purification process. This is a distribution of expenses from inpatient and clinic cost pools to MEPRS codes. A cost pool is defined as a work center which shares personnel, space, supplies and other expenses. The salaries of the assigned staff, supply costs, contractual nursing care, and training costs must be stepped down to the MEPRS codes of the patients seen in a clinic or occupying beds on a ward. Clinic visits are prorated on a percentage of clinic visits by MEPRS code to the total visits to that clinic. (MEPRS).

Available Data: CHAMPUS TCSDP

The Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) Operations Manual: Fiscal Intermediary Automated Data Processing (Office of Civilian Health and Medical Program of the Uniformed Services [OCHAMPUS], 1986) states each CHAMPUS Fiscal Intermediary shall own, lease, or subcontract for needed automatic data processing resources to implement and operate a CHAMPUS Fiscal Intermediary System. The primary purpose of a CHAMPUS automatic data processing System is to provide an automated means of processing

CHAMPUS claims on a timely basis, helping to ensure accuracy and completeness of the payment and facilitating maintenance of related records.

The military medical services have access to these files, but until recently have not been able to read or manipulate the data. In 1989, Dr. Scott Optenberg, Health Care Studies and Clinical Investigation Activity, U.S. Army Health Services Command, brought these CHAMPUS files on-line. These files are converted to working files to facilitate manipulation and analyses. They are referred to as the Triservice CHAMPUS Statistical Database Project (TCSDP) files. (S. Optenberg, personal communication, April 30, 1990 and May 2, 1991).

The TCSDP file contains CHAMPUS Data Records. These records consist of a fixed portion and a variable portion. The fixed portion contains the following administrative data for the CHAMPUS claim: patient/sponsor social security number; claim charge data (in terms of total amount billed, total amount allowed, patient cost-share, and amount applied to deductible); diagnosis in International Classification

of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM) code; source of care data; and utilization data (in terms of admission and discharge dates, operations, and Diagnostic Related Group).

The variable portion of the record contains treatment encounter data with detailed billing information, to include procedures in The Physicians' Current Procedural Terminology, Fourth Edition (CPT-4), location of the treatment, and type and identification of professionals providing the treatment. (S. Optenberg, personal communication, July 30, 1990; August 6, 1990).

The TCSDP CHAMPUS records are CHAMPUS claims. It is important to remember that a claim is not necessarily a visit. It may represent a series of encounters which may or may not be a visit in the MEPRS sense. The TCSDP may, however, be accessed to determine the number of encounters (visits) made by a patient to a care provider. (S. Optenberg, personal communication, September 17, 1990).

Under the MEPRS system, the performance factor for ambulatory care is a visit. Ambulatory care is the

provision of comprehensive primary medical care; emergency medical care; diagnostic services, and treatment; minor surgical procedures; medical examination; mental health consultation; and proper medical disposition of inpatients and outpatients who are authorized beneficiaries.

A "visit" is defined by MEPRS as, "...each time an eligible beneficiary presents himself to a separate, organized clinic or specialty service for examination, diagnosis, treatment, evaluation, consultation, counseling, medical advice; or is treated or observed in his quarters; and a signed and dated entry is made in the patient's health record or other record of medical treatment, then a visit is considered to have been completed and is countable" (MEPRS). For example, a patient seen at the Primary Care Clinic and two other specialty clinics on the same day is reported as three visits. Similarly, a patient visiting a clinic in the morning and again in the afternoon will count as two visits.

**PURPOSE**

The purpose of this study was to develop a methodology to 1) compare MEPRS direct care costs to CHAMPUS costs and 2) determine the economic efficiency of ambulatory professional services in HSC's hospitals. To limit the scope of the study, the author determined the average government payment to CHAMPUS for selected outpatient professional services and compared this to the average cost of similar services provided in the direct care system using MEPRS data.

**METHODS AND PROCEDURES**

**CHAMPUS Data Sets**

Six categories of professional services were analyzed: Psychiatry / Psychology / Counseling, Orthopedics, General Surgery, Otorhinolaryngology (ENT), Pulmonology, and Urology. These categories were selected based on their similarity to MEPRS categories. In addition they represent six of the top seven most costly CHAMPUS ambulatory services for FY 1990 (CHAMPUS Chartbook of Statistics). Cardiology, the fifth most costly CHAMPUS ambulatory diagnosis, was not used

because of difficulties in mapping the professional codes used in CHAMPUS to the MEPRS.

Of the categories selected, counseling does not represent a direct match. The CHAMPUS counseling data set includes the following: Clinical Nurse Specialists; Mental Health Counselors; and Marriage and Pastoral Counselors. The direct-care MEPRS data set includes professionals in the following areas: Child Guidance Clinics, Mental Health Clinics, Social Work Clinics, and Substance Abuse Clinics. Lieutenant Colonel D. Grill, Ph.D., Clinical Psychologist and HSC Psychology Consultant states [that] although the two data sets are not exact matches, generally they are comparable (personal conversation, April 23 1991).

The author used FY 1990 data collected from the Health Care Studies and Clinical Investigation Activity's TCSDP. This file provides baseline, raw CHAMPUS data. Specifically, the total amount paid by the government for a claim, the total amount allowed for a claim by CHAMPUS, the amount CHAMPUS allows for a procedure, the ICD-9-CM diagnosis code and the number of visits were queried by ambulatory professional

service for each of HSC's 36 Army Medical Treatment Facilities. Since Panama was not in the TCSDP, it was not studied.

The resulting data set contains the variables just mentioned. It has eight subsets: the professional services, with Psychiatry, Psychology, and Counseling broken into separate groups due to their large record size. It was developed by the Health Care Analysis Division of HCSCIA. All other data retrieval was done by the author. The software system used for data analysis was SAS. SAS software provides tools for information storage and retrieval, data modification and programming, report writing, descriptive statistics, and file-handling.

Data-set summaries of each subset were run to obtain an understanding of the data. Claims not assigned to a catchment area were deleted. A catchment area is the area within a 40-mile radius of the Medical Treatment Facility (MTF).

#### Visit Definition

Encounters not defined as a visit by CHAMPUS were deleted. CHAMPUS defines an outpatient visit in CPT-4

codes. CPT-4 codes 90000-97799 (excluding 95000-95199), CPT-4 codes 99155-99156, and CPT-4 codes 99175-99195 represent a CHAMPUS ambulatory visit. CPT-4 codes are descriptive terms and identifying codes for reporting medical services and procedures performed by health care providers.

The purpose of these codes is to provide a uniform language that will accurately describe medical, surgical and diagnostic services. This system is the most widely accepted nomenclature for the reporting of physician procedures and services under government and private health insurance programs. Each procedure or service is identified with a five digit code. (Coy, Ely, Kirschner, Koehler, McNamara, & Pirruccello, 1990).

#### CHAMPUS Costs

The CPT-4 codes used to define CHAMPUS outpatient visits are medicine codes. Anesthesiology, surgery, radiology, pathology and laboratory codes are not representative of visits in the CHAMPUS sense.

CHAMPUS does not delineate the amount the government pays for individual CPT-4 services or procedures. Since this is the definition of a visit

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for this study, it became necessary to determine the amount the government pays for comparative purposes with MEPRS data. An equation was developed using available data to determine the best approximation of what the government paid for a visit:

CHAMPUS amount allowed for a visit

CHAMPUS amount allowed for a claim \*

total amount the government paid for a claim =

amount government paid for a visit (unknown variable)

The development of this new variable then allowed determination of the average amount the government paid per visit in a specialty area. The amount the government paid for a visit was summed for each specialty, then divided by the total number of visits. In summary, this variable, Average Amount Government Pay (AGP), represents the average cost to the government for a specific ambulatory professional visit. Cost-sharing by the beneficiary is not included. Furthermore, it omits ancillary costs that may have been billed by the specific professional service and procedures not defined as a visit in the CHAMPUS sense.

To gain an appreciation for the average cost of a professional service which represented government costs and the potential cost-share to the beneficiary, another variable was computed. This variable may also be representative of potential supplemental care costs. The allowed CHAMPUS amount for a visit was summed and divided by the total number of CHAMPUS-defined visits. This new variable was titled Average Amount Allowed (AAA) for a visit. The CHAMPUS amount allowed for a service is determined by OCHAMPUS. It originally was 80% of a two year prevailing rate which weighted both the average rate with the most frequent claims. Those original allowed amounts are now updated annually using Medicare weights.

#### Direct Care Data Sets

Fiscal Year 1990 MEPRS was then searched to determine direct care costs for the same ambulatory professional services. To better compare this system to the TCSDP files, the author obtained the MEPRS Permanent Computation Results (PCOM) file. This file summarizes the raw data located on the Permanent Input Data (PIND) file. The PCOM steps down MEPRS data and

determines expense allocations for the MEPRS accounts. SAS data sets were again developed for each of the eight specialties selected from the TCSDP.

Three expense fields exist in the PCOM and were transferred into a working SAS data set--direct expenses, E-account expenses, and D-account expenses. Direct operating expenses are those expenses identified directly to a work center, such as salaries and supplies. Support-service expenses include depreciation, management and administration costs, and other fixed costs: these are referred to as the E-accounts. Ancillary expenses (D-accounts) are pharmacy; radiology; central sterile supply and material service; rehabilitative services such as respiratory therapy, occupational therapy, and physical therapy; nuclear medicine; surgical services such as anesthesiology, surgical-suite and recovery-room costs; and special procedures such as electrocardiography, electroencephalography, pulmonary-function tests, and cardiac catheterizations. (Medical Expense and Reporting System [MEPRS], 1989).

The author then removed the ancillary costs (D-accounts) from the data. This provided the author with direct-care costs without the step-down of ancillary service costs such as Pharmacy, Pathology, Radiology, and special procedures. Fixed costs (E accounts) were not excluded because CHAMPUS providers include these in their charges. Fixed costs are a part of the MTF's total health care costs. This is an important feature because it most closely approximates equality between CHAMPUS and MEPRS in the definition of a visit.

The MEPRS PIND file was scanned by MTF and by ambulatory care to determine which professional service codes designated CHAMPUS providers or CHAMPUS partnership physicians. These codes were then deleted from the PCOM working file so that costs would not be mixed.

#### Direct Care Costs

Again an average cost was calculated for each of the professional service specialties by MTF. The direct-care cost minus ancillary costs minus CHAMPUS partnership costs was divided by the number of outpatient visits. The resulting variable was titled

MEPRS Average Cost. This variable could not be calculated for Fort Meade's MTF. This MTF is a Beta site for a new expense assignment system, and technical problems prevented data transmission (K. Erwin, Team Leader, Special Projects, HCSSA, personal communication, April 23, 1991). Walter Reed's data is based on the first two quarters of FY 90. At the time of the analysis, quarters three and four were still not available.

#### Cost Comparison

The average costs for all three variables [Average Government Pay (AGP) to CHAMPUS, Average Amount Allowed (AAA) to CHAMPUS, and Direct Care MEPRS Average Cost (MAC)] were compared. Any cost average for a particular specialty for both CHAMPUS and MEPRS which represented fewer than 200 visits was deleted. The author felt these low volume averages would not represent economies of scale and economic efficiencies and were a lower priority for analysis. As a result of this exclusionary criteria, the entire category of Pulmonology was eliminated.

The MAC was subtracted from AGP and from the AAA. The results were grouped according to MTF and then rank ordered to indicate where the direct care system was the most financially efficient.

The author further analyzed those catchment areas that showed the most potential for savings within each ambulatory professional service group. The TCDSP SAS working file was accessed to determine the distribution of CPT-4 procedure codes and ICD-9-CM diagnosis codes for individual catchment areas. Average costs per procedure and total diagnosis costs were determined. Diagnosis costs include all the costs assigned to a particular diagnosis, with both visit and nonvisit costs combined.

Since the raw data are secondary data, its reliability (the consistency of the results) is based on the assumption that data errors are minimal and tend to occur in a random rather than a systematic manner. In addition, the author assumes that utilization in FY 1990 is representative of future utilization and that potential seasonal variations in the data are smoothed by examining an entire fiscal year.

Although validity was not explicitly tested in the study, the author discussed this project with MEPRS and CHAMPUS experts who felt the project did possess content validity.

Ethical considerations and confidentiality were not an issue since the data did not contain beneficiary names or social security numbers in either data base.

#### RESULTS

Complete lists of the ranked deltas between MEPRS Average Cost (MAC), and Average Government Pay (AGP) to CHAMPUS and Average Amount Allowed (AAA) by CHAMPUS respectively, are located in Appendices A-G. Tables 1 and 2 contain summaries of those Appendices. When AGP per CHAMPUS visit was compared to direct care MAC per visit, 32 MACs, ( $n=179$ ), were equal to or less than the AGP. When comparing AAA by CHAMPUS for a visit to MAC, 72 MACs were equal to or less than the AAA. There were 56 occasions where the direct care MAC was at least \$40 more expensive than the AGP to CHAMPUS. Table 3 summarizes the range of AGP to CHAMPUS and direct care MAC for the selected ambulatory professional services.

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Table 1. Summary Table - MTFs Where MTF Average Costs are < Average Government Pay or Average Amount Allowed for CHAMPUS.

Psych I'	Psych II'	Counseling	Orthopedics	Surg'	ENT	Urology
W Reed*	Stewart*	Tripler*	BHarris*	BHarris*	Huachuca*	Huachuca*
Knox*	Hood*	Riley*	Hood*	Tripler	W Point*	Rucker *
Riley*	Campbell*	Bragg	Irwin*	Bragg	BHarris*	Eustis
Ltrman*	Bragg*	Bliss*	Huachuca*	MCellan	Lvnworth*	Bragg
Belvoir	Lvnworth*	Hood*	Tripler	Bliss	Eustis	
Hood	Polk*	Carson*	Stewart		MCellan	
Eustis	Benning	Polk*	Lee			
Stewart	WReed	Ltrman*	W Point			
Lvnworth	Ltrman	Belvoir*	Jackson			
Lewis	Knox	Sill*	Monmouth			
	MClellan	Monmouth*	Belvoir			

table continues

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**Table 1. Summary Table - MTFs Where MTF Average Costs are < Average Government Pay or Average Amount Allowed for CHAMPUS.**

Psych I'	Psych II'	Counseling	Orthopedics	Surg'	ENT	Urology
	Lewis	Knox*	Benning			
	Belvoir	Devens	Devens			
		Huachuca	Bragg			
		Lewis	Dix			
		WReed				
		Restone				
		Eustis				
		Lee				

Note: 'Psych I is Psychiatry

'Psych II is Psychology.

'Surg is General Surgery.

'see Appendix H for MAC abbreviation explanation.

\*indicates MTF costs are ≤ average government pay at this site.

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**Table 2. Summary Table - MTF Average Costs > \$40 Above the Average Government Pay to CHAMPUS.**

Psych I <sup>o</sup> MTF	Psych II <sup>o</sup> Delta	Counseling MTF	Orthopedics Delta	Surg <sup>o</sup> MTF	Delta	ENT MTF	Delta	Urology MTF	Delta
Bliss <sup>o</sup> \$127	Fitz	\$211	Dix	\$ 55	Fitz \$ 55	W Point \$ 89	Fitz \$ 110	Tripler \$85	
Fitz 112	Tripler	82	LrndWood	53	WReed 41	Campbell 71	Jackson 61	LrndWood 85	
Rucker 106	Bliss	75	Rucker	53		Monmouth 67	LrndWood 58	Lewis 70	
Jackson 98	Riley	72	Lvnworth	49		Lvnworth 59	Gordon 56	Benning 53	
Polk 83	Rucker	69				Redstone 57	Campbell 55	Ord 51	
Gordon 72	Gordon	51				Jackson 56	Tripler 55	Jackson 50	
LrndWood 65	Ord	42				Stewart 55	Ord 51	Campbell 49	
Tripler 61	LrndWood	41				Dix 52	Benning 47	Sill 45	
Dix 57						Devens 51	Ltrman 45	Devens 44	
Benning 56						Rucker 50	Bliss 41	WReed 44	

table continues

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Table 2. Summary Table - MTF Average Costs > \$40' Above the Average Government Pay to CHAMPUS.

	Psych I <sup>b</sup> MTF Delta	Psych II <sup>c</sup> MTF Delta	Counseling Delta MTF	Orthopedics Delta MTF	Surg <sup>d</sup> MTF Delta	ENT MTF Delta	Urology MTF Delta
Huachuca	54						
MCellan	42						

**Note:** Deltas based on costs or pay per visit. Detailed data in Appendixes A-G.

<sup>a</sup>all Deltas rounded to nearest whole dollars.

<sup>b</sup>Psych I is Psychiatry.

<sup>c</sup>Psych II is Psychology.

<sup>d</sup>Surg is General Surgery.

<sup>e</sup>see Appendix H for MAC abbreviation explanation.

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Table 3. Ranges of AGP and MAC for Professional Specialties Studied.

	Psych I <sup>a</sup>	Psych II <sup>b</sup>	Counseling	Orthopedics	Surg <sup>c</sup>	ENT	Urology
Catchment	Eustis <sup>d</sup> Jackson	Campbell	Campbell	Campbell	Campbell	Eustis	Jackson
AGP low	29.79 <sup>e</sup>	40.43	27.23	14.56	14.11	13.70	10.78
#visits <sup>f</sup>	459	1,105	734	2,536	336	610	351
Catchment	Tripler	Tripler	Tripler	BHarris	Irwin	W Point	Belvoir
AGP high	92.75	84.69	97.86	46.20	45.39	58.30	50.99
#visit	11,788	11,579	6665	1089	456	919	829
MTF	Riley	Stewart	Bragg	BHarris	BHarris	BHarris	Rucker
MAC low	12.44	22.34	32.31	12.11	20.17	13.63	8.45
#visits	5,035	1,292	44,531	2,856	3,693	2,181	508
MTF	Fitz	Fitz	WWright	Fitz	Irwin	Fitz	LrndWood
MAC high	179.30	263.67	116.63	74.10	148.82	38.27	123.51
#visits	3,200	2,419	11,590	37,577	496	7,270	1,945

Note: Summarized information for Appendices A-G.

<sup>a</sup>Psych I is Psychiatry.

<sup>b</sup>Psych II is Psychology.

<sup>c</sup>Surg is General Surgery.

<sup>d</sup>see Appendix H for MAC abbreviation explanation.

<sup>e</sup>values other than visits are dollar amounts.

<sup>f</sup>Number of visits the average represents.

CHAMPUS catchment areas were studied to identify where the government paid the most to CHAMPUS and where the most visits to CHAMPUS were generated for each professional specialty area. These results as well as the determination of CPT-4 procedures and diagnoses which comprise these costs and visits are recorded in the following sections.

#### Psychiatry

Of the MTFs studied, the Tripler, Hawaii catchment area population generated the most government pay to CHAMPUS for psychiatric professional services at \$1,093,331. It also consumed the most CHAMPUS visits for psychiatric professional services at 11,788 with an AGP of \$92.75. Further analysis showed CPT-4 procedure 90844 individual psychotherapy, consumed 74% of the total visits and 75% of the total professional costs for psychiatry. The top five most costly diagnoses, in terms of total government pay to CHAMPUS, by ICD-9-CM codes are listed in Table 4.

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Table 4. Top 5 Costliest Psychiatric Diagnoses/ Tripler

ICD9CM	Description	CHAMPUS Costs
296.10	Recurrent Manic Disorder	\$182,695
309.28	Adjustment React-Mixed Emotions	155,865
300.00	Anxiety State, Unspecified	131,929
296.20	Depressive Psychosis, Unspecified	67,331
296.30	Recurrent Depressive Psychosis	56,562

The direct care average professional cost for Tripler was \$153.89 per visit. This indicates, based on average costs, that CHAMPUS was \$61 less expensive than MEPRS costs per ambulatory professional psychiatric visit at Tripler in FY 90.

Psychology

Of the MTFs studied, the Fort Belvoir, Virginia catchment area population generated the most psychology professional service government pay to CHAMPUS, \$1,219,182, and the most visits at 20,985. The AGP was \$58.10. CPT-4 procedure code 90844, individual psychotherapy, consumed 72% of the visits and 73% of the total professional costs for psychology. The five most costly diagnoses, in terms of total government pay to CHAMPUS, are listed by ICD-9-CM code in Table 5.

Table 5. Top 5 Costliest Psychology Diagnoses/ Belvoir

ICD9CM	Description	CHAMPUS Costs
300.4	Neurotic Depression	\$301,337
309.28	Adjustment Reaction-Mixed Emotions	171,755
296.30	Recurrent Major Depressive Psychosis	79,886
313.0	Overanxious Disorder-Child/Adolescent	74,706
309.0	Brief Depressive Reaction	73,900

The direct care average professional cost for Fort Belvoir's MTF was \$75.56 per visit. This indicates, based on average costs, that CHAMPUS cost \$17 less than MEPRS for an ambulatory professional psychology visit in FY 90 at Fort Belvoir.

#### Counseling

Tripler's catchment area population generated the most the government paid to CHAMPUS at \$652,240 for 6,665 visits of counseling professional services. CPT-4 procedure codes 90844 and 90812, individual psychotherapies, consumed 87% of the visits and 87% of the total professional counseling costs to the government. The five most costly diagnoses, in terms of total government pay, are listed by ICD-9-CM codes in Table 6.

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Table 6. Top 5 Costliest Counseling Diagnoses/ Tripler

ICD9CM	Description	CHAMPUS Costs
309.28	Adjustment Reaction-Mixed Emotions	\$241,952
300.00	Anxiety State Unspecified	110,765
312.21	Social Conduct Disorder-Mild	76,919
313.82	Identity Disorder-Child/Adolescent	60,702
300.4	Neurotic Depression	39,625

The direct-care average professional cost for Tripler's MTF was \$51.33 per visit and the AGP was \$97.86. This indicates, based on average costs, that CHAMPUS is \$46 more expensive than MEPRS costs per ambulatory professional counseling visit at Tripler.

The Fort Hood, Texas catchment area population generated the most visits: 8,193 at a cost of \$566,396 with an AGP of \$69.13 for the counseling professionals. Further analysis revealed CPT-4 code 90844, individual psychotherapy, CPT-4 codes 90817 and 90814, family psychotherapies, consumed 72% of the visits and 79% of the total the government paid for ambulatory counseling services. The top five most costly diagnosis, in terms of total government pay, by ICD-9-CM codes are listed in Table 7.

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Table 7. Top 5 Costliest Counseling Diagnoses/ Hood

ICD9CM	Description	CHAMPUS Costs
300.4	Neurotic Depression	\$186,004
309.28	Adjustment Reaction-Mixed Emotions	88,579
313.82	Identity Disorder-Child/Adolescent	60,625
309.0	Brief Depressive Reaction	42,280
312.21	Social Conduct Disorder-Mild	33,628

The direct care average professional cost for Hood's MTF was \$56.39 per visit. This indicates, based on average costs, that CHAMPUS is \$13 more expensive than MEPRS costs per ambulatory professional counseling visit at Fort Hood's MTF.

**Orthopedic Surgery**

Of the HSC MTFs studied, the Fort Rucker, Alabama catchment area population generated the most government pay to CHAMPUS at \$1,219,182 for 3,169 orthopedic professional visits. Further assessment revealed CPT-4 procedure codes 90050 and 90080, limited and comprehensive established office visits, respectively, generated 85% of the orthopedic professional costs and 76% of the visits. The five most costly diagnoses, are listed by ICD-9-CM codes in Table 8.

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Table 8. Top 5 Costliest Orthopedic Diagnoses/ Rucker

ICD9CM	Description	CHAMPUS Costs
719.45	Joint Pain-Pelvis	\$ 15,947
813.21	Fractured Radius Shaft-Closed	12,289
813.42	Fractured Distal Radius	10,943
724.2	Lumbago	10,051
715.10	Primary Osteoarthritis-Unspecified	10,051

The direct care average professional cost for Fort Rucker's MTF was \$48.62 per visit. The CHAMPUS AGP was \$32.33. This indicates, based on average costs, that CHAMPUS is \$16 less expensive than MEPRS costs per ambulatory professional orthopedic visit at the Fort Rucker MTF.

Fort Knox, Kentucky catchment area population generated the most visits to CHAMPUS: 3,228 for orthopedic professional services at an AGP of \$26.01 and total professional cost of \$83,966. CPT-4 codes for office visits (new, established, intermediate, limited, extended, brief and comprehensive) consumed 78% of the visits and 81% of the total orthopedic professional costs. The five most costly diagnoses, in terms of total government pay to CHAMPUS, are listed by ICD-9-CM codes in Table 9.

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Table 9. Top 5 Costliest Orthopedic Diagnoses/ Knox

ICD9CM	Description	CHAMPUS Costs
813.42	Fractured Distal Radius	\$ 19,906
836.0	Tear Medial Meniscus, Knee	16,209
354.0	Carpel Tunnel Syndrome	10,877
715.90	Osteoarthritis unspecified	8,446
836.1	Tear Lateral Meniscus, Knee	7,013

The direct care average professional cost for Fort Knox's MTF was \$41.88 per visit. This indicates, based on average costs, that CHAMPUS is \$16 less expensive than MEPRS costs per ambulatory professional orthopedic visit at the Fort Knox MTF.

**General Surgery**

The Fort Meade, Maryland catchment area population generated the most government pay to CHAMPUS- \$83,012 for 1,611 visits with an AGP of \$51.53 for general surgery professional services. Further assessment revealed CPT-4 procedures for various types of office visits made up the most visits and consumed the majority of the dollars. The five most costly diagnoses are listed by ICD-9-CM codes in Table 10.

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Table 10. Top 5 Costliest Gen Surgery Diagnoses/ Meade

ICD9CM	Description	CHAMPUS Costs
381.10	Chronic Serous Otitis Media	\$ 19,655
474.11	Hypertrophy of Tonsils	6,092
477.9	Allergic Rhinitis, Unspecified	5,739
381.01	Acute Serous Otitis Media	4,729
470.	Deviated Nasal Septum	4,550

As previously explained, the direct care average professional cost for Fort Meade could not be determined due to system changes.

Fort Meade's MTF general surgery diagnoses portray a phenomenon common in the data analyzed. The diagnoses are commonly associated with ENT but within this catchment area, were also very popular with the general surgeons. Similar results were seen across all professional specialties.

Tripler's catchment area population generated the most general surgery visits to CHAMPUS at 1,952 for a total professional government pay of \$61,992. CPT-4 office visit codes consumed a majority of the visits and costs. The five most costly diagnoses, in terms of total government pay to CHAMPUS, are listed by ICD-9-CM codes in Table 11.

Table 11. Top 5 Costliest Gen Surgery Diagnoses/Tripler

ICD9CM	Description	CHAMPUS Costs
550.00	Inguinal Hernia with Gangrene	\$ 74,323
540.0	Acute Appendicitis with Peritonitis	19,137
553.00	Unilateral Femoral Hernia	16,338
611.72	Lump or Mass in Breast	9,124
560.39	Impaction of Intestine, Unspecified	8,550

The direct care average professional cost for Tripler's MTF was \$42.73 per visit. The AGP was \$31.76. This indicates, based on average costs, that CHAMPUS cost \$11 less than MEPRS per ambulatory professional general surgery visit at Tripler.

## ENT

The Fort Hood catchment area population generated the most the government paid to CHAMPUS at \$116,655 with the most visits of 4,762 for ENT professional services. The AGP was \$24.50. CPT-4 procedure codes 90050, 90010 office visit, limited, new and established, CPT4 95125 immunotherapy, and CPT4 95155 antigen therapy services, accounted for 58% of the visits and 57% of the total professional government pay for ENT. The five most costly diagnoses, in terms of

total government pay to CHAMPUS, are listed by ICD-9-CM codes in Table 12.

Table 12. Top 5 Costliest ENT Diagnoses/ Hood

ICD9CM	Description	CHAMPUS Costs
381.10	Chronic Serous Otitis Media	\$ 50,886
474.0	Chronic Tonsillitis	35,158
474.11	Hypertrophy Tonsils	30,741
470.	Deviated Nasal Septum	28,905
382.9	Otitis Media, Unspecified	26,233

The direct care average professional cost for Fort Hood's MTF was \$53.76 for each of the 4,666 visits. This indicates, based on average costs, that CHAMPUS is \$29 less expensive than MEPRS costs per ambulatory professional ENT visit at Fort Hood's MTF.

#### Urology

The Fort Belvoir, Virginia catchment area population generated the most the government paid to CHAMPUS of \$41,816 for 820 visits of urology professional services. This yielded an AGP of \$50.99. Further assessment revealed CPT-4 procedure codes, 90060 and 90020, established intermediate and new comprehensive office visits, respectively, made up 55%

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of the total visits and 67% of the total professional government pay for urology. The five most costly diagnoses, in terms of total government pay to CHAMPUS, are listed by ICD-9-CM codes in Table 13.

Table 13. Top 5 Costliest Urology Diagnoses/ Belvoir

ICD9CM	Description	CHAMPUS Costs
600.	Hyperplasia of Prostate	\$ 18,215
599.0	Urinary Tract Infection	14,000
599.7	Hematuria	12,780
188.9	Malignant Neoplasm bladder	9,897
625.6	Female Stress Incontinence	5,691

The direct care average professional cost for Fort Belvoir's MTF was \$67.03 per visit. This indicates, based on average costs, that CHAMPUS is \$16 less expensive than MEPRS costs for ambulatory professional urology visits at Fort Belvoir.

Fort Rucker's catchment area population generated the most visits to CHAMPUS: 1,434 for urology professional services for a total government pay of \$31,254. CPT-4 procedure codes 90060 and 90015, established and new intermediate office visits, respectively, made up 69% of the total visits and 80%

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of the total professional government pay for urology. The five most costly diagnoses, in terms of total government pay to CHAMPUS, are listed by ICD-9-CM codes in Table 14.

Table 14. Top 5 Costliest Urology/ Rucker

ICD9CM	Description	CHAMPUS Costs
595.3	Trigonitis	\$ 12,005
600.	Hyperplasia of Prostate	9,198
625.6	Female Stress Incontinence	7,671
788.3	Incontinence of Urine	6,093
752.5	Undescended Testicle	5,950

The direct care average professional cost for Fort Rucker's MTF was \$8.45 per visit. CHAMPUS AGP was \$21.79. This indicates, based on average costs, that CHAMPUS was \$13 more expensive than MEPRS costs per ambulatory professional urology visit at Fort Rucker in FY 90.

**DISCUSSION**

The purposes of this study were to 1) develop a methodology to enable comparison of CHAMPUS cost data to direct care MEPRS costs and 2) determine the economic efficiency of ambulatory professional services within HSC's MTFs. The author adjusted CHAMPUS cost

data and direct care MEPRS data to approximate each other.

The two original data sources used in this study were not originally developed with the intent to compare them. The CHAMPUS data represent real costs to the government, specifically to HSC. The allowable CHAMPUS costs (AAA) often represent society's costs (government pay and beneficiary copay) and potential supplemental care costs. The MEPRS data represent estimated costs based on weighted averages. MEPRS data are estimated costs to the federal government, not just to HSC. Fixed costs, utilities, security, and fire department services are paid for by the base commander. HSC pays most other costs.

CHAMPUS claims delineate procedures and diagnoses. MEPRS data does not have the ability to adjust for acuity other than the particular weighted average for an entire specialty area. CHAMPUS claims may include care by other providers that were charged through the claiming professional. For example, orthopedic surgeon professional service visits include some physical therapy procedures. The orthopedic surgeon often bills

CHAMPUS and then reimburses the physical therapist. By comparison, in MEPRS, physical therapists have their own account to which their workload is assigned.

Discrepancies between the systems do exist. There will be some skewing of the MEPRS data due to the use of weighted averages. There could potentially be skewing of the CHAMPUS data due to outlier CPT-4 codes. This impact is likely to be minimal due to the use of averages which takes out artificial highs and lows. Removing averages that represented fewer than 200 visits should also reduce those outliers. The selection of 200 visits as a criteria for deletion reduced the original number of comparisons by 27%.

The results of this study indicate that there are times when direct care is more expensive than CHAMPUS. Specifically, direct care MEPRS average costs/ visit (MAC) were more than the average government pay to CHAMPUS (AGP) 82% of the time. Concerned about variances between the two data systems and a desire to provide the reader with a better understanding of these results, the author allowed a credit per each direct

care visit. With an arbitrary selection of \$40, MACs were still greater than the AGPs 31% of the time.

When looking at the study from a societal or taxpayers point of view, and using the average amount allowed (AAA) by CHAMPUS for a visit as the vehicle for that measurement, 60% of the time direct care MEPRS average costs (MACs) were more than the AAAs.

Further analysis revealed office visits consumed the majority of the costs for all specialties except the psych group of psychiatry, psychology, and counseling. Individual psychotherapies were the predominant CPT-4 procedures for these specialties. Although CPT-4 coding is more discriminating than MEPRS, it still is not detailed enough to determine what actually occurs.

Overall, the psych group cost the government more than the other specialties studied and consumed most of the visits. This is true for both CHAMPUS and direct care providers.

Costs varied greatly from one catchment area to another. Even catchment areas within the same geographical area had greatly differing AGPs. Within

the psych group, average costs varied greatly between specialties. There was no consistency between level of professional training and credentials and AGP or AAA. This indicates that MTF managed care directors need to carefully assess their local situation prior to establishing agreements.

#### CONCLUSIONS AND RECOMMENDATIONS

Keeping in mind that this study deals only with ambulatory professional services, it appears that the direct care system is sometimes more expensive. Further analysis of the CHAMPUS data and determination of diagnoses frequency and cost and CPT4 procedure frequency and cost is yet another resource for individual MTF commanders for managed care negotiations. Recoupment of CHAMPUS workload may not always be cost effective.

Perhaps all ambulatory professional services should be conducted by CHAMPUS providers or with supplemental care for active duty soldiers. If future studies reveal efficiencies in our ancillary care system, those procedures could be provided by the direct care staff perhaps near CHAMPUS providers'

offices. Or, if inpatient care is where our greatest cost savings occur, then we could remove ourselves from the ambulatory health care arena altogether. If this were the case, the development of nonavailability statements for ambulatory care would be a moot point.

Further study should include similar comparison of all ambulatory services, inpatient care and ancillary costs for all care. Determining where a MTF's efficient and inefficient areas are will better allow a commander to manage the health care of his/her beneficiaries. HSC could use such information to build a system that incorporates CHAMPUS and the direct care system in the most cost effective manner.

Although a ranked list of MTF's financial efficiency of selected ambulatory professional was developed, such a listing does not answer the hard questions. Which facilities, if any, should be closed? Which services should be discontinued or expanded? Nor does it take into account beneficiary demographics and demand for care, acuity, environmental factors such as provider availability and prevailing rates, or physical plant capacity and constraints. It does, on the other

hand, give the command an indication of where more detailed study is necessary. And more importantly, it sets the stage for comparison between two existing data systems, provides an established data base and produces a potentially useful management tool.

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Appendix A-Psychiatry

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Redstone	- <sup>d</sup>	39.51	63.36	* <sup>e</sup>	*
McClellan	84.75	42.63	62.56	-42.12(15) <sup>b</sup>	-22.19(15) <sup>b</sup>
Rucker	140.01	34.41	38.32	-105.60(24)	-101.69(25)
Wright	-	68.68	98.97	*	*
Huachuca	109.74	55.84	78.80	-53.90(16)	-30.94(16)
Letterman	52.14	69.24	92.07	+17.10(4)	+39.93(4)
Ord	89.87	68.19	87.83	-21.68(10)	-2.04(11)
Fitz	179.30	67.05	86.91	-112.2(25)	-92.39(24)
Carson	93.13	59.96	83.70	-33.17(14)	-9.43(13)
W Reed	33.26	56.99	80.77	+23.73(3)	+47.51(1)
Gordon	120.88	48.59	73.53	-72.29(21)	-47.35(20)
Benning	102.49	46.39	57.28	-56.10(17)	-45.21(19)
Stewart	64.68	50.95	71.24	-13.73(8)	+6.56(8)
Tripler	153.89	92.75	113.54	-61.14(19)	-40.35(18)
Riley	12.44	39.52	54.86	+28.08(1)	+42.42(3)
Lvnworth	63.65	46.30	67.18	-17.35(9)	+3.53(9)

table continues

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Appendix A-Psychiatry

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Campbell	73.50	43.04	61.13	-30.46(13)	-12.37(14)
Knox	21.67	47.58	64.74	-25.91(2)	+43.07(2)
Polk	119.96	36.66	45.57	-83.30(22)	-74.39(22)
Devens	-	54.24	76.48	*	*
Meade	-	58.56	77.37	*	*
LrndWood	99.44	34.77	43.16	-64.67(20)	-56.28(21)
Monmouth	-	57.29	79.89	*	*
Dix	109.30	51.90	73.83	-57.40(18)	-35.47(17)
W Point	-	57.78	82.02	*	*
Bragg	61.43	36.32	54.48	-25.11(12)	-6.95(12)
Sill	-	58.43	77.30	*	*
Jackson	137.79	39.65	59.87	-98.14(25)	-77.92(23)
Bliss	184.22	56.77	81.44	-127.45(26)	-102.78(26)
Hood	65.74	54.67	74.60	-11.07(6)	+8.86(6)
Eustis	36.57	29.79	44.49	-6.78(5)	+7.92(7)
Lee	-	44.02	67.96	*	*
Belvoir	70.73	57.33	80.82	-13.40	+10.09(5)

table continues

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Appendix A-Psychiatry

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Lewis	78.65	55.81	81.48	-22.84(11)	+2.83(10)
Irwin	98.69	67.80	86.15	*	*
BHarris	-	48.06	67.40	*	*

<sup>a</sup> See Appendix H for explanation of MTF abbreviations.

<sup>b</sup> Rankings ( ) in dollars saved (+) or lost (-) per visit to direct care system. <sup>c</sup> n=26 <sup>d</sup> - = no professional visits

<sup>e</sup> \* delta based on averages representing less than 200 visits, and omitted.

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Appendix B-Psychology

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Redstone	- <sup>d</sup>	47.73	70.08	* <sup>e</sup>	*
McClellan	69.80	54.09	76.61	-15.17 (11) <sup>b</sup>	+6.81 (11) <sup>b</sup>
Rucker	114.04	45.29	56.99	-68.75 (20)	-57.05 (22)
WWright	-	67.25	90.54	*	*
Huachuca	-	58.42	80.45	*	*
Ltrman	66.38	62.63	82.87	-3.75 (10)	+16.49 (9)
Ord	109.47	67.64	85.92	-41.83 (18)	-23.55 (16)
Fitz	263.67	52.42	71.92	-211.25 (24)	-191.75 (24)
Carson	99.73	60.79	77.87	-38.94 (16)	-21.86 (15)
WReed	57.97	56.26	78.51	-1.71 (8)	+20.54 (8)
Gordon	103.52	52.69	67.71	-50.83 (19)	-35.81 (19)
Benning	52.40	52.34	73.28	-0.06 (7)	+20.88 (7)
Stewart	22.34	56.31	72.08	+33.97 (1)	-49.74 (1)
Tripler	167.72	84.69	109.46	-83.03 (23)	-58.26 (23)
Riley	125.52	53.90	73.08	-71.62 (21)	-52.44 (20)
Lvnworth	42.67	55.24	70.25	+12.57 (5)	+27.58 (5)

table continues

DETERMINATION AND COMPARISON OF COSTS  
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Appendix B-Psychology

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Campbell	27.12	47.75	67.09	+20.63 (2)	+39.97 (3)
Knox	55.87	53.49	72.01	-2.38 (9)	+16.14 (10)
Polk	51.09	56.66	77.07	+5.57 (6)	+25.98 (6)
Devens	-	56.05	75.37	*	*
Meade	-	58.79	80.25	*	*
LrndWood	85.44	44.06	59.94	-41.38 (17)	-25.70 (18)
Monmouth	-	54.69	73.95	*	*
Dix	-	54.10	76.42	*	*
W Point	-	55.12	76.41	*	*
Bragg	35.18	51.15	69.81	+15.96 (4)	+34.63 (4)
Sill	83.01	51.47	58.69	-31.54 (15)	-24.32 (17)
Jackson	65.36	40.43	57.94	-24.93 (14)	-7.42 (14)
Bliss	134.02	58.66	78.85	-75.36 (22)	-55.17 (21)
Hood	49.12	69.16	90.61	+20.04 (3)	-41.49 (2)
Eustis	-	40.77	57.66	*	*
Lee	-	52.20	76.88	*	*
Belvoir	75.56	58.10	78.64	-17.46 (13)	+3.08 (13)

table continues

## Appendix B-Psychology

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Lewis	67.40	51.15	73.44	-16.25 (12)	+6.04 (12)
Irwin	-	64.52	79.85	*	*
BHarris	-	52.29	71.91	*	*

<sup>a</sup> See Appendix H for explanation of MTF abbreviations.

<sup>b</sup> Rankings ( ) in dollars saved (+) or lost (-) per visit to direct care system. <sup>c</sup> n=24 <sup>d</sup> - = no professional visits

<sup>e</sup> \* delta based on averages representing less than 200 visits, and omitted.

DETERMINATION AND COMPARISON OF COSTS

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Appendix C-Counseling

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Redstone	51.89	45.71	63.42	-6.18(16) <sup>b</sup>	+11.53(17) <sup>b</sup>
McClellan	82.72	52.27	69.88	-30.35(25)	-12.84(25)
Rucker	109.05	56.01	72.69	-53.04(28)	-36.36(29)
WWwright	116.63	43.46	58.00	*	*
Huachuca	47.08	45.91	62.81	-1.17(13)	+15.73(14)
Ltrman	40.86	49.21	66.16	+8.35(8)	+25.30(8)
Ord	70.28	52.91	69.67	-17.37(19)	-0.61(20)
Fitz	63.61	40.96	54.34	-22.65(23)	-9.27(23)
Carson	36.76	51.45	68.18	+14.69(5)	+31.42(6)
WReed	54.36	47.94	65.96	-6.42(17)	+11.60(16)
Gordon	68.54	48.18	63.73	*	*
Benning	69.77	50.66	67.77	-19.11(21)	-2.00(21)
Stewart	51.34	53.50	67.66	*	*
Tripler	51.33	97.86	118.16	+46.53(1)	+66.83(1)
Riley	48.87	68.72	88.39	+19.85(2)	+39.52(2)
Lvnworth	95.99	46.55	66.39	-49.44(27)	-29.60(27)

table continued

DETERMINATION AND COMPARISON OF COSTS  
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Appendix C-Counseling

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Campbell	46.45	27.23	37.71	-19.22 (22)	-8.74 (22)
Knox	45.63	45.79	63.65	+0.16 (12)	+18.02 (13)
Polk	41.96	50.53	68.07	+8.57 (7)	+26.11 (7)
Devens	49.27	44.90	67.66	-4.37 (15)	+18.39 (11)
Meade	- <sup>d</sup>	46.68	63.83	*	*
LrndWood	92.78	39.72	57.52	-53.-6 (29)	-35.26 (28)
Monmouth	40.05	42.95	58.26	-2.90 (10)	+18.21 (12)
Dix	94.67	39.80	53.23	-54.87 (30)	-41.44 (30)
W Point	76.21	50.85	66.39	-25.36 (24)	-9.82 (24)
Bragg	32.31	50.77	67.67	+18.16 (3)	+35.36 (3)
Sill	46.40	49.61	65.53	+3.21 (9)	+19.13 (10)
Jackson	70.84	33.47	46.11	-37.37 (26)	-24.73 (26)
Bliss	48.18	63.88	82.44	+15.70 (4)	+34.26 (4)
Hood	56.39	69.13	88.05	+12.74 (6)	+31.66 (5)
Eustis	50.41	39.84	53.67	-10.57 (18)	+3.26 (18)
Lee	67.72	49.93	69.35	-17.79 (20)	+1.63 (19)
Belvoir	47.53	49.52	67.39	+1.99 (11)	+19.86 (9)

table continues

Appendix C-Counseling

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Lewis	51.96	50.55	66.39	-1.41(14)	+14.43(15)
Irwin	68.47	50.20	69.55	*	*
BHarris	83.10	44.50	62.67	*	*

<sup>a</sup> See Appendix H for explanation of MTF abbreviations.

<sup>b</sup> Rankings ( ) in dollars saved (+) or lost (-) per visit to direct care system. <sup>c</sup> n=30 <sup>d</sup> - = no professional visits

<sup>e</sup> \* delta based on averages representing less than 200 visits, and omitted.

DETERMINATION AND COMPARISON OF COSTS

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Appendix D-Orthopedic Surgery

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Redstone	- <sup>d</sup>	17.35	29.56	* <sup>e</sup>	*
McClellan	35.37	16.03	30.55	-19.34 (19) <sup>b</sup>	-4.82 (19) <sup>b</sup>
Rucker	48.62	32.33	38.30	-16.29 (16)	-10.32 (22)
WWright	44.21	15.46	34.92	-28.95 (24)	-9.29 (21)
Huachuca	29.68	32.07	37.24	+2.39 (4)	+7.56 (8)
Ltrman	55.35	24.59	42.35	-30.76 (25)	-13.00 (24)
Ord	47.04	24.87	43.46	-22.17 (20)	-3.58 (18)
Fitz	74.10	19.40	35.66	-54.70 (30)	-38.44 (30)
Carson	66.39	30.61	36.72	-35.78 (27)	-29.67 (29)
WReed	62.61	21.26	37.84	-41.35 (29)	-24.77 (28)
Gordon	52.37	16.23	33.01	-36.14 (28)	-19.36 (26)
Benning	30.13	17.51	33.10	-12.62 (11)	+2.97 (12)
Stewart	48.12	41.43	61.49	-6.69 (7)	+13.37 (5)
Tripler	36.07	32.13	51.95	-3.94 (6)	+15.88 (4)
Riley	41.37	25.33	47.26	*	*
Lvnworth	46.01	19.48	31.54	-26.53	-14.47 (25)

table continues

DETERMINATION AND COMPARISON OF COSTS  
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Appendix D-Orthopedic Surgery

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Campbell	46.49	14.56	25.97	-31.93 (26)	-20.52 (27)
Knox	41.88	26.01	38.54	-15.87 (15)	-3.34 (17)
Polk	47.26	23.89	40.37	*	*
Devens	41.90	27.59	44.83	+14.31 (14)	+2.93 (13)
Meade	-	22.38	39.72	*	*
LrndWood	46.27	23.76	36.48	*	*
Monmouth	39.83	25.62	44.95	-14.21 (13)	+5.21 (10)
Dix	43.89	25.81	44.30	-18.08 (18)	+0.41 (15)
W Point	30.67	22.98	41.88	-7.69 (8)	+11.21 (7)
Bragg	27.48	14.98	29.49	-12.50 (10)	+2.01 (14)
Sill	37.81	18.48	32.29	*	*
Jackson	20.07	17.13	34.92	-11.94 (9)	+5.85 (9)
Bliss	43.96	18.66	31.31	-25.30 (22)	-12.65 (23)
Hood	27.40	29.89	49.83	+25.49 (3)	+22.43 (2)
Eustis	36.97	20.48	36.75	-16.49 (17)	-0.22 (16)
Lee	23.92	22.07	35.78	-1.85 (5)	+11.86 (6)
Belvoir	35.35	22.43	38.64	-12.89 (12)	+3.32 (11)

Appendix D-Orthopedic Surgery

DETERMINATION AND COMPARISON OF COSTS

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Lewis	49.20	24.33	44.15	-24.87(21)	-5.05(20)
Irwin	22.02	26.83	41.49	+4.81(2)	+19.47(3)
BHarris	12.22	46.20	56.15	+33.98(1)	+43.93(1)

<sup>a</sup> See Appendix H for explanation of MTF abbreviations.

<sup>b</sup> Rankings ( ) in dollars saved (+) or lost (-) per visit to direct care system. <sup>c</sup> n=30 <sup>d</sup> - = no professional visits

<sup>e</sup> \* delta based on averages representing less than 200 visits, and omitted.

DETERMINATION AND COMPARISON OF COSTS  
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Appendix E-General Surgery

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Redstone	73.51	16.80	33.25	-56.71(24) <sup>b</sup>	-40.26(26) <sup>b</sup>
McClellan	36.25	20.46	37.88	-15.79(4)	+1.63(4)
Rucker	63.85	14.31	30.00	-49.54(19)	-33.85(21)
WWright	56.90	38.81	70.03	*	*
Huachuca	28.67	23.39	39.51	*	*
Ltrman	45.76	29.35	51.67	*	*
Ord	45.75	27.56	50.06	*	*
Fitz	68.02	29.50	36.43	-38.52(18)	-31.59(19)
Carson	52.92	17.03	31.69	-35.89(15)	-21.23(15)
WReed	75.59	34.76	53.83	*	*
Gordon	55.41	28.96	46.87	-26.45(11)	-8.54(10)
Benning	58.33	20.14	36.32	-38.19(17)	-22.01(16)
Stewart	69.29	14.41	35.35	-54.88(22)	-33.94(22)
Tripler	42.73	31.76	51.64	-10.97(2)	+8.91(2)
Riley	39.64	15.62	22.71	-24.02(10)	-16.93(13)
Lvnworth	75.15	16.36	31.45	-58.79(25)	-43.70(26)

table continues

DETERMINATION AND COMPARISON OF COSTS  
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Appendix E-General Surgery

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Campbell	85.38	14.11	28.77	-71.27(27)	-56.61(27)
Knox	38.30	21.20	35.78	-17.10(5)	-2.52(6)
Polk	45.03	22.39	39.72	-22.64(9)	-5.31(7)
Devens	81.70	30.34	50.24	-51.36(20)	-31.46(18)
Meade	- <sup>d</sup>	51.53	60.31	*	*
LrndWood	69.31	13.97	24.96	*	*
Monmouth	96.74	29.96	53.59	-66.78(26)	-42.80(25)
Dix	80.20	27.81	47.46	-52.39(21)	-32.74(20)
W Point	114.26	24.87	45.00	-89.39(28)	-69.26(28)
Bragg	35.70	23.34	40.69	-12.3(3)	+4.99(3)
Sill	59.43	27.44	40.53	-31.99(13)	-18.90(14)
Jackson	70.58	15.01	32.37	-55.57(23)	-38.21(23)
Bliss	36.74	18.80	36.83	-17.94(6)	+0.09(5)
Hood	74.73	44.10	45.46	-30.63(12)	-29.27(17)
Eustis	41.23	20.21	35.62	-21.02(7)	-5.61(8)
Lee	40.93	18.83	34.53	-22.10(8)	6.40(9)
Belvoir	56.52	24.20	44.72	-33.32(14)	-11.80(11)

table continues

DETERMINATION AND COMPARISON OF COSTS

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Appendix E-General Surgery

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Lewis	63.66	26.35	49.06	-37.31(16)	-14.60(12)
Irwin	148.82	54.44	72.01	*	*
BHarris	20.17	45.39	55.90	*	*

<sup>a</sup> See Appendix H for explanation of MTF abbreviations.

<sup>b</sup> Rankings ( ) in dollars saved (+) or lost (-) per visit to direct care system. <sup>c</sup> n=28 <sup>d</sup> - = no professional visits

<sup>e</sup> \* delta based on averages representing less than 200 visits, and omitted.

DETERMINATION AND COMPARISON OF COSTS  
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Appendix F-ENT

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Redstone	- <sup>d</sup>	34.34	44.69	* <sup>e</sup>	*
McClellan	32.80	29.64	38.86	-3.16(5) <sup>b</sup>	+6.06(6) <sup>b</sup>
Rucker	-	18.21	33.10	*	*
WWwright	64.94	22.24	49.27	*	*
Huachuca	13.63	42.00	45.61	+28.37(1)	+31.98(1)
Ltrman	73.42	28.37	48.83	-45.05(19)	-24.59(18)
Ord	77.74	26.70	45.40	-51.04(21)	-32.34(21)
Fitz	138.27	28.55	37.98	-109.72(27)	-100.29(27)
Carson	70.56	49.92	56.12	-20.64(8)	-14.44(12)
WReed	43.65	21.03	40.76	-22.62(11)	-2.89(8)
Gordon	70.45	14.88	27.65	-55.57(24)	-42.80(24)
Benning	62.78	15.47	30.55	-47.31(20)	-32.23(20)
Stewart	16.30	20.93	32.54	*	*
Tripler	80.79	26.10	47.60	-54.59(22)	-33.19(22)
Riley	39.25	11.71	30.37	*	*
Lvnworth	11.89	20.59	29.73	+8.70(3)	+17.84(4)

table continues

DETERMINATION AND COMPARISON OF COSTS  
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Appendix F-ENT

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Campbell	74.17	18.69	36.44	+55.48(23)	-37.73(23)
Knox	48.36	16.90	28.60	-31.46(16)	-19.76(15)
Polk	44.42	19.03	42.70	-25.39(12)	-1.72(7)
Devens	69.18	39.92	50.68	-29.26(15)	-18.50(14)
Meade	-	23.57	40.64	*	*
LrndWood	85.20	26.16	29.65	-59.04(25)	-55.55(26)
Monmouth	49.91	32.85	41.05	-17.06(7)	-8.86(10)
Dix	-	25.97	40.53	*	*
W Point	43.79	58.30	62.74	+14.51(2)	+18.95(2)
Bragg	36.45	14.44	26.86	-22.01(9)	-9.95(11)
Sill	49.70	22.87	33.68	-26.83(13)	-16.02(13)
Jackson	75.13	14.56	28.11	-60.57(26)	-47.02(25)
Bliss	59.93	19.10	36.73	-40.83(18)	-23.20(17)
Hood	53.76	24.50	33.85	-29.26(14)	-19.91(16)
Eustis	17.53	13.76	25.11	-3.77(6)	+7.58(5)
Lee	54.25	18.79	27.26	-35.46(17)	-26.99(10)
Belvoir	-	24.00	41.84	*	*

table continues

DETERMINATION AND COMPARISON OF COSTS  
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Appendix F-ENT

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Lewis	48.37	26.48	44.81	-22.25(10)	-3.56(9)
Irwin	-	26.64	35.69	*	*
BHarris	15.61	18.39	34.42	+2.78(4)	+18.18(3)

<sup>a</sup> See Appendix H for explanation of MTF abbreviations.

<sup>b</sup> Rankings ( ) in dollars saved (+) or lost (-) per visit to direct care system. <sup>c</sup> n=27 <sup>d</sup> - = no professional visits

<sup>e</sup> \* delta based on averages representing less than 200 visits, and omitted.

DETERMINATION AND COMPARISON OF COSTS

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Appendix G-Urology

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Redstone	- <sup>d</sup>	14.38	31.62	* <sup>e</sup>	*
MClellan	-	22.48	38.50	*	*
Rucker	8.45	21.79	31.01	+13.34(2) <sup>b</sup>	+22.56(2) <sup>b</sup>
WWright	-	27.77	58.11	*	*
Huachuca	18.07	36.81	43.68	+18.74(1)	+25.61(1)
Ltrman	140.72	31.52	55.63	*	*
Ord	78.82	27.80	49.36	-51.02(15)	-29.46(11)
Fitz	110.54	18.14	40.55	*	*
Carson	83.84	34.75	47.93	*	*
WReed	74.22	30.05	39.22	-44.17(10)	-35.00(13)
Gordon	78.77	15.82	31.97	*	*
Benning	64.20	11.58	26.92	-52.62(16)	-37.28(14)
Stewart	237.76	16.51	33.85	*	*
Tripler	108.48	23.26	50.11	-85.22(19)	-58.37(18)
Riley	72.42	13.72	28.24	*	*
Lvnworth	24.22	19.51	33.69	*	*

table continues

DETERMINATION AND COMPARISON OF COSTS

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Appendix G-Urology

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Campbell	70.45	21.68	25.84	-48.77(13)	-44.61(16)
Knox	48.83	17.70	30.37	-31.13(7)	-18.46(6)
Polk	-	22.13	25.01	*	*
Devens	74.20	29.89	47.94	-44.31(11)	-26.26(10)
Meade	-	42.36	58.81	*	*
LrndWood	123.51	39.00	39.85	-84.51(18)	-83.66(19)
Monmouth	53.72	25.13	48.02	*	*
Dix	82.66	25.91	46.70	*	*
W Point	81.46	44.11	59.19	-37.35(0)	-22.27(8)
Bragg	29.75	15.37	30.23	-14.38(4)	+0.48(4)
Sill	63.09	18.25	33.27	-44.84(12)	-29.82(12)
Jackson	60.59	10.68	21.95	-49.91(4)	-38.64(15)
Bliss	61.48	18.46	34.82	*	*
Hood	69.83	43.69	47.60	-26.14(6)	-22.63(7)
Eustis	27.57	27.54	42.06	-0.03(3)	+14.49(3)
Lee	55.77	22.89	32.21	-32.88(8)	-23.56(9)
Belvoir	67.03	50.99	65.85	-16.04(5)	-1.18(5)

table continues

DETERMINATION AND COMPARISON OF COSTS  
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Appendix G-Urology

Summary of MAC and CHAMPUS Costs Per Visit and Ranked<sup>b</sup> Deltas

MTFs <sup>a</sup>	MAC	AGP	AAA	Delta I <sup>c</sup> MAC-AGP	Delta II <sup>c</sup> MAC-AAA
Lewis	89.66	19.48	39.10	-70.18(17)	-50.56(17)
Irwin	-	56.30	63.37	*	*
BHarris	-	25.05	44.95	*	*

<sup>a</sup> See Appendix H for explanation of MTF abbreviations.

<sup>b</sup> Rankings ( ) in dollars saved (+) or lost (-) per visit to direct care system. <sup>c</sup> n=19 <sup>d</sup> - = no professional visits

<sup>e</sup> \* delta based on averages representing less than 200 visits, and omitted.

## Appendix H

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MTF and Catchment Area Abbreviations

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Redstone Arsenal, AL	Redstone
Ft McClellan, AL	MClellan
Ft Rucker, AL	Rucker
Ft Wainwright, AK	WWright
Ft Huachuca, AZ	Huachuca
Letterman, CA	Ltrman
Ft Ord, CA	Ord
Fitzsimmons, CO	Fitz
Ft Carson, CO	Carson
Walter Reed, DC	WReed
Ft Gordon, GA	Gordon
Ft Benning, GA	Benning
Ft Stewart, GA	Stewart
Tripler, HI	Tripler
Ft Riley, KS	Riley
Ft Leavenworth, KS	Lvnworth
Ft Campbell, KY	Campbell
Ft Knox, KY	Knox
Ft Polk, LA	Polk

table continues

DETERMINATION AND COMPARISON OF COSTS  
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Appendix H

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MTF and Catchment Area Abbreviations

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Ft Devens, MA	Devens
Ft Leonard Wood, MO	LrndWood
Ft Monmouth, NJ	Monmouth
Ft Dix, NJ	Dix
West Point, NY	W Point
Ft Bragg, NC	Bragg
Ft Sill, OK	Sill
Ft Jackson, SC	Jackson
Ft Bliss, TX	Bliss
Ft Hood, TX	Hood
Ft Eustis, VA	Eustis
Ft Lee, VA	Lee
Ft Belvoir, VA	Belvoir
Ft Lewis, WA	Lewis
Ft Irwin, CA	Irwin
Ft Ben Harrison, IN	BHarris