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the cost and work load associated with the recovery of CHAMPUS patients in order to make management decisions about what care to recover and in what quantity.

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**A STUDY TO DETERMINE
A METHODOLOGY FOR ASSESSING THE
PRACTICABILITY AND IMPACT OF
RECOVERING CHAMPUS PATIENTS FOR CARE AT
EVANS U.S. ARMY COMMUNITY HOSPITAL
FORT CARSON, COLORADO**

**A Graduate Research Project
Submitted to the Faculty of
Baylor University
in Partial Fulfillment of
Requirements for the Degree**

of

Master of Health Administration

by

Major Richard D. Principe, MS, USA

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INTRODUCTION

Orientation

The Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) was established in 1966 as the primary government health insurance plan for family members and dependents of active duty uniformed service members, retirees of the uniformed services and their family members and dependents, and survivors of members of the uniformed services.^{1,2} CHAMPUS is one component of the military health care system, the other being direct care in a military (Army, Navy, or Air Force) medical treatment facility (MTF). Currently CHAMPUS provides health care benefits to approximately 6.2 million beneficiaries.³

The Department of Defense (DOD) direct care system provides care through more than 160 military hospitals and 300 clinics located worldwide. While active duty personnel receive almost all their medical care within the direct care system, other beneficiaries of DOD sponsored health care still account for 70 percent of all outpatient visits and 60 percent of inpatient days in military facilities.⁴ But despite the large number of non-active duty beneficiaries who receive care in MTFs, the direct care system falls far short of meeting the total demand for medical care from all eligible non-active duty beneficiaries.

CHAMPUS provides the care that is otherwise unavailable to eligible beneficiaries in the direct care system. For the beneficiary, the primary difference between CHAMPUS and direct care is that CHAMPUS cost-shares⁵ the total allowable professional and hospital service charge⁶ with the beneficiary whereas care in a military medical facility is essentially free except for the

payment of a small per diem fee. Without CHAMPUS many non-active duty beneficiaries would only be able to receive care in a military treatment facility on a space-available basis, or not at all given that the active duty force has priority for care.

Within the DOD the primary concern with CHAMPUS in recent years has been over the cost of the program. The government's total cost-share for CHAMPUS has shown dramatic increases, going from approximately \$1.2 billion in fiscal year (FY) 1984 to \$1.8 billion in FY 1986, a 50 percent increase.⁷ Though much of this increase can be attributed to the overall rise in health care costs in the country, it can also be attributed to CHAMPUS work load that is on the increase after a decline earlier in the decade. For FY 86 the CHAMPUS DOD inpatient work load for all categories of care was 296,778 admissions and 2,294,967 hospital days. While the number of hospital days represents a 12.2 percent decrease since FY 82, indicative of shorter lengths of stay, the number of admissions is again nearly as high as in FY 82.⁸ Over this same period CHAMPUS outpatient visits have increased from nearly 4 million visits in FY 82 to 5.95 million visits in FY 86.⁹ Total CHAMPUS program costs from FY 80 to FY 86 increased an average of 17.4 percent each year, which is nearly twice the annual increase of 9.4 percent during the previous decade, and considerably above annual average increases of 10.6 percent in federal health care spending and 11.2 percent in private health care costs during the same FY 80-86 period.¹⁰ The increase appears not to be slowing down. During the first seven months of FY 87 CHAMPUS showed an overall 50 percent increase in costs over the same period in FY 86, with outpatient

care costs increasing by 64 percent.¹¹ DOD requested \$2.1 billion for CHAMPUS in FY 88 and \$2.17 billion for FY 89.¹² These are modest budget increases in comparison with recent years and indicative of efforts to stem spiraling CHAMPUS program costs. Table 1 shows the magnitude of CHAMPUS payment increases over recent fiscal years for major types of care.

Table 1

Average Government Cost (Hospital and Physician) per Admission for Type of CHAMPUS Care Received

Type of Care	Cost in FY 82	Cost in FY 86	Percent Increase
Delivery	\$2,467	\$3,416	38.5
Mental Health	6,472	8,132	25.6
Medical	2,152	2,967	37.9
Surgical	3,197	5,119	60.1
Total	\$2,868	\$4,137	44.2

Source: CHAMPUS Chartbook of Statistics (Aurora, Colorado: OCHAMPUS, Dec. 1987) VI-5.

Before proceeding further, it is necessary to define the term "CHAMPUS catchment area" and explain its purpose in the collection, reporting and controlling of CHAMPUS costs. CHAMPUS program costs are collected and reported for defined areas known as catchment areas. A catchment area is itself composed of those zip code areas generally within a 40 to 60-mile radius of a military MTF. Army MTFs in the United States and certain overseas areas each have a responsibility for providing health care and medical logistical support for a defined geographic

region known as a Health Service Area (HSA). The Medical Department Activity (MEDDAC) at Fort Carson, which includes Evans Army Community Hospital, is responsible for a HSA covering the majority of the states of North and South Dakota, Colorado, Wyoming and Utah. The HSAs themselves are incorporated into larger areas called Health Service Regions (HSRs) over which Army Medical Centers (MEDCENS) coordinate the delivery of health care services. Though the Fort Carson HSA covers five states, the CHAMPUS cost and work load data presented in this paper are only for the defined Fort Carson CHAMPUS catchment area, a region roughly defined as those zip code areas lying within a 60-mile radius of the Fort Carson MTF (Evans Army Community Hospital).¹³

There is a reason for capturing CHAMPUS costs within catchment areas. Eligible beneficiaries residing within the boundaries of the catchment area must first seek non-emergency inpatient care from the MTF around which the catchment area is defined. If the care requested is not available from the MTF, the beneficiary will be given a statement of nonavailability which authorizes care from a civilian provider. CHAMPUS and the beneficiary then share the cost of the care received. Beneficiaries residing within catchment areas who obtain non-emergency inpatient care outside the MTF without first obtaining a statement of nonavailability are liable for all charges. (Within the catchment area, outpatient services may be obtained under CHAMPUS without a statement of nonavailability, though not all outpatient services are CHAMPUS eligible.) The reason for the nonavailability statement is to give the MTF the first opportunity to provide the care since care in an MTF is generally

less expensive than care under CHAMPUS (see Table 4). A catchment area becomes that area over which a MTF can directly influence the amount of CHAMPUS funds expended by the government, with the 60-mile radius being the maximum distance considered reasonable for a beneficiary to travel to seek care in a MTF.¹⁴ Commanders of MTFs are responsible for managing the CHAMPUS programs within their catchment areas to control the government cost-share. Therefore, the costs of all CHAMPUS-delivered care within a catchment area are assigned to the MTF responsible for managing the CHAMPUS program for the area.

Obviously, beneficiaries residing outside of defined catchment areas still need to seek health care. In their case, because the nearest MTF is more than 60 miles away, it is not necessary to first obtain a statement of nonavailability for non-emergency inpatient care; beneficiaries need only submit a claim to the nearest MTF to receive CHAMPUS coverage. To distinguish these CHAMPUS costs over which there is no control by a MTF, they are separately identified within the overall CHAMPUS program as costs for beneficiaries residing outside catchment areas. For FY 86 DOD and non-DOD government CHAMPUS costs for beneficiaries outside catchment areas amounted to 33 percent of total costs.¹⁵

The Fort Carson catchment area is particularly noteworthy in that it has the second highest government cost for CHAMPUS-delivered care as compared to all other Army catchment areas in the Continental United States (CONUS), Alaska, and Hawaii.¹⁶ This makes it an appropriate area for study to determine how this apparently excessive government CHAMPUS cost can be reduced. As

shown in Table 2, in FY 87 the total government CHAMPUS cost for the Fort Carson catchment area totaled \$14.6 million (less mental health), more than double the average for all Army catchment areas. In addition, as shown in Table 3, CHAMPUS costs for the Fort Carson catchment area have grown at a rate nearly equal to or exceeding the annual CHAMPUS program growth rate during recent years.

Table 2

Catchment Area Summary (Less Mental Health Costs) for FY 87

	Inpatient	Outpatient	Other ^a	Total
Fort Carson Catchment Area ^b	12,519,451	1,854,743	219,102	14,593,296
Army Catchment Area Average	5,032,158	1,293,628	130,326	6,456,112

Source: Summarized from the Fort Carson CHAMPUS Cost and Workload Catchment Area Summary Report, 01/10/86 thru 30/09/87 (Denver: OCHAMPUS, 16 Jan. 1988) 1; and, for individual Army catchment areas, the CHAMPUS Health Care Summary by Primary Diagnosis, 01/10/86 thru 30/09/87 (Denver: OCHAMPUS, 1 Nov. 1988) 4.

^a Other costs include the following: for dental care, prescription drugs, and program for the handicapped.

^b In the Fort Carson catchment area the average government cost per day is \$1,188 and the average government cost per admission is \$5,199. For all 37 Army catchment areas the respective average figures are \$836 and \$4,477.

The disproportionate CHAMPUS expense for the Fort Carson catchment area could be indicative of underutilization of services at Evans Army Hospital. Since care in the direct care system is, on average, less expensive than CHAMPUS care, as shown in Table 4, the use of underutilized direct care facilities would be effective in reducing government health care expenditures.

While this is a good reason for wanting to recover patients to the direct care system, it must be demonstrated for each individual catchment area the conditions under which this can be effectively accomplished. The intent of this study, then, is to demonstrate how a military treatment facility, such as Evans Army Hospital, can analyze its direct care costs and work load in order to assess the practicability and impact of recovering CHAMPUS inpatients to the facility.

Table 3

Fort Carson Catchment Area CHAMPUS Growth Compared to Overall CHAMPUS Program Growth (DOD only)

Fiscal Year	Percent Change in Benefits Paid from Previous FY	
	Total CHAMPUS	Fort Carson Catchment Area
FY 85	10.2	30.1 ^a
FY 86	28.4	24.3
FY 87	20.5	24.8

^a Based on duplicated data. See Endnote 13.

Source: Data taken from several editions of the CHAMPUS Chartbook of Statistics (Aurora, Colorado: OCHAMPUS, Jul. 1986, Jul. 1987, and Dec. 1987) III-9; and Information Available to Manage the CHAMPUS Workload (Aurora, Colorado: OCHAMPUS, May 1986) 21.

CHAMPUS cost savings are potentially great under a patient recovery program. For example, in FY 87 the Fort Carson catchment area had total government inpatient CHAMPUS costs, less psychiatric care, of \$9.86 million for hospital and professional services requiring a nonavailability statement.¹⁷ The CHAMPUS costs for the catchment area would have been nearly \$10 million

Table 4

Comparison of FY 1986 Inpatient Care for CHAMPUS and the Direct Care System (Less Mental Health Costs)

	CHAMPUS	Direct Care
Average length of stay (days)	5.3	5.1
Average government cost per day	\$ 692	\$ 428
Average government cost per admission	\$3,692	\$2,170

Source: CHAMPUS Chartbook of Statistics V-5.

less if all this care had been provided in Evans Army Hospital. However, bottom-line savings to the government would have been less. Data in Table 4 show that the direct care system has an average cost per admission of \$2,170 versus \$3,692 for CHAMPUS. Stated another way, the direct care system is 59 percent as costly as CHAMPUS. The government has to spend \$.59 to treat a CHAMPUS patient in an MTF in order to recover \$1.00 in CHAMPUS program costs. For comparison purposes only, assuming that these percentages could be applied to the Fort Carson catchment area--and there is no reason to believe that the actual figures could not be similar--to recover all CHAMPUS inpatients means spending \$5.82 million in providing direct care to save \$9.86 million in CHAMPUS costs. This results in a bottom-line savings of \$4.04 million to the government. Though somewhat less than paper savings to CHAMPUS, it still remains sufficient monetary justification for attempting to recover as much of the CHAMPUS work load as possible.

Statement of the Problem

To determine a methodology for evaluating the practicability and impact of recovering selected categories of CHAMPUS patients at Evans Army Community Hospital.

Objectives

1. Determine those services which Evans Army Hospital is capable of, or currently providing, but which are wholly or in part being provided to eligible beneficiaries under CHAMPUS.
2. Based on the services identified in objective 1, identify those services which would most significantly reduce CHAMPUS costs if recovered by Evans Army Hospital.
3. Determine any underutilization of above services.
4. Of the services identified in objective 2, determine those recoverable given the physical limitations of the hospital. This initial analysis is a "quick fix" for reducing CHAMPUS costs. Therefore, if the facility physically cannot support additional work load in a certain category of care at the present, analysis should proceed to the next likely category of care that could provide short-term relief to increasing CHAMPUS costs. Once all possible short term benefits are accrued by making use of underutilized capacity within the facility, a more detailed cost-benefit analysis study--beyond the scope of this study--could consider the costs of expanding or renovating the facility to recover other CHAMPUS patients.
5. Identify the human and/or materiel resources required to recover the services identified in objective 2.

6. Identify the methodology used in objective 5 in a generalized form that can be used by any facility seeking to recover CHAMPUS costs.

Criteria

1. Any recovery of CHAMPUS care must be cost effective, defined as demonstrating savings of at least 10 percent over existing CHAMPUS services, to be considered an effective means of recovering CHAMPUS costs.

2. For the purpose of this study, the proposed recoverable services for Evans Army Community Hospital must be provided in the existing facility without renovation or expansion.

Assumptions

1. Overall CHAMPUS costs will continue to rise and will represent an area targeted for cost reduction in the DOD.

2. Underutilization of Evans Army Community Hospital represents an inefficient use of government resources.

3. A CHAMPUS recovery program will not result in any overall decrease in quality of care.

4. The current high demand categories for CHAMPUS-delivered care in the Fort Carson catchment area will remain as high demand categories.

5. There will be no mission change for Evans Army Community Hospital during the investigation period.

6. The existing physician staff is working at full capacity and the current mix of in-house versus CHAMPUS-provided care is fairly distributed.

Limitations

To be useful the methodology must recognize and take into account existing constraints imposed on the facility. Some are imposed by the Army's Health Services Command (HSC) through the budget process and others arise from the facility's established mission and authorized functions. Recovery schemes based on unrealistic or wished-for levels of resources are not useful in achieving genuine CHAMPUS savings in the short-term. For the purposes of this study, the limitations listed below, especially numbers 1 and 3, are realistic considering the current budgetary and manpower restrictions throughout DOD:

1. There can be no increase in the number of authorized positions for the hospital.
2. There will be no change in the organizational structure of the hospital as currently defined in the hospital Organization and Functions Policy regulation (MEDDAC Reg 10-1).
3. There will be no requirements for major construction or modifications to the existing structure.

Literature Review

In current articles and government regulations the issue of CHAMPUS cost reduction involves two major concepts: (1) the "recovery" or "recapture" of CHAMPUS-delivered care to military medical facilities and (2) the contracting out of CHAMPUS care to private corporations. The former concept attempts to control costs by making maximum use of underutilized military treatment facilities as places where care is less expensive. The latter option, known as the CHAMPUS Reform Initiative (CRI), is attempting to demonstrate the cost effectiveness of fixed-price

contracts to competitively selected contractors who would assume the financial risk of delivering CHAMPUS health care services in defined regions.¹⁸

The CRI represents an entire overhaul of the CHAMPUS program. Its primary objectives are to: (1) contain costs, (2) increase beneficiary access to medical care, (3) improve coordination between CHAMPUS and military treatment facilities, (4) assure quality of care, and (5) simplify administrative procedures.¹⁹ The key feature of CRI was the planned award of three fixed-price regional contracts to competitively selected contractor(s) to provide all financing and delivery of CHAMPUS health care services within the United States. Contractors were to establish necessary preferred provider networks to assure access to the appropriate level and type of care for CHAMPUS beneficiaries.²⁰ However, because of the inability by DOD to find acceptable bidders, the CRI is currently limited to a single demonstration project in California and Hawaii.^{21,22}

The concept of CHAMPUS recovery is most closely aligned with this paper. CHAMPUS recovery is an initiative currently advocated by Dr. William Mayer, the Assistant Secretary of Defense for Health Affairs. Under the title of Project Restore, it was announced in a September 1987 memorandum to the secretaries of the military services. In the memorandum, Dr. Mayer made clear his intentions to hold the line on CHAMPUS costs in FY 1988 and FY 1989. According to Dr. Mayer, the reason for the dramatic increases in CHAMPUS costs has been the shift in services for beneficiaries from MTFs to CHAMPUS-delivered care in civilian hospitals. To reverse this trend will require MTFs to

limit the issuance of statements of nonavailability (see endnote 16). Dr. Mayer's stated goal for the military medical departments is to hold down the number of nonavailability statements issued in FY 88 to FY 86 levels. Other cost containment reforms include the CRI, further expansion of the Diagnosis Related Group (DRG)-based payment system, and the catchment area demonstration projects giving MTF commanders local control over the use of CHAMPUS funds.²³ The adoption of DRGs at the start of FY 88 as a payment method for CHAMPUS is expected to save the government more than \$200 million each year and will result in lower cost-shares for beneficiaries.²⁴ The success of efforts such as Project Restore are largely contingent upon the ability to use CHAMPUS money to obtain the services of civilian health care providers in military facilities.²⁵ Ultimately, this may also require the use of CHAMPUS funds to hire ancillary personnel.

One of the tools available to MTF commanders in controlling CHAMPUS expenditures is provided in the recently implemented Military-Civilian Health Services Partnership Program (short title: the Partnership Program). As explained in DOD implementing instructions, a key feature of the program gives MTF commanders permission to enter into agreements with civilian physicians for the purpose of allowing them to treat CHAMPUS eligible patients in the MTF. CHAMPUS costs are limited to a negotiated professional fee for the participating physician, which is expected to be less than the CHAMPUS allowable professional fee permitted for care outside the direct care system. Additional savings to the government are realized by

taking advantage of the lower cost of hospital services available within the direct care system as compared to civilian facilities. Other features of the Partnership Program include: (1) elimination of the beneficiary cost-share if the care is provided in an MTF, (2) authorization for military providers to treat eligible CHAMPUS patients in civilian medical facilities, thus saving the government and patient their respective cost-shares for professional services, (3) allowance for the payment of the CHAMPUS care related costs of certain support personnel, equipment, and supplies furnished by civilian provider which are not available in the MTF and which are included in the provider's allowable charges, and (4) permission to use certain supplemental care funds to provide for the treatment of non-eligible CHAMPUS beneficiaries at negotiated rates.²⁶

Research Methodology

The research methodology used is explained as a series of steps:

STEP 1: Through analysis of CHAMPUS catchment area reports, identification of those services for which the hospital wants to recover CHAMPUS costs. Services will be chosen based on their ability to significantly reduce CHAMPUS costs (they represent at least 10 percent of the catchment area's total CHAMPUS cost and can be reasonably expanded within the facility).

STEP 2: Determine why the services are being obtained under CHAMPUS as opposed to within Evans Army Hospital.

STEP 3: Any underutilization of MTF facilities will be determined. This can be as simple as determining the bed occupancy in a particular service. It can also be determined by

comparing the computed cost per admission for MTF care with known government cost for the same care under CHAMPUS. Since health care costs in a direct care system MTF are less, on average, than costs under CHAMPUS, an indication that a service is underutilized could be a higher cost in the MTF, probably due to hospital fixed costs being spread over too few admissions.

STEP 4: The level of work load to be recovered in a particular service will be governed by the limitations explained above.

STEP 5: All ancillary and support services costs associated with supporting an additional number of inpatients will be determined based on existing work load management data from the Medical Expense and Performance Reporting System (MEPRS).²⁷ A distinction will be made between fixed and variable MEPRS costs.

STEP 6: The number of Partnership Program physicians necessary to support this additional work load will be determined based on the current physician/patient ratio for the service under consideration. An acceptable CHAMPUS reimbursement fee for partnership physicians will be determined based on historical data from CHAMPUS, the hospital's own assessment of the value of the support services it will provide, and any information obtained from individual civilian physicians.

STEP 7: The cost effectiveness of recovering CHAMPUS patients will simply be determined by comparing the calculated cost of performing the service in the MTF to the cost of obtaining the care under CHAMPUS. To be considered cost effective the MTF cost must be less than the CHAMPUS cost be at least 10 percent.

Endnotes

¹ Vesta Kimble, "Health Plan Deemed Inadequate, Outdated." Army Times 4 May 1987: 8.

² The uniformed services include the Army, Navy, Marine Corps, Air Force, Coast Guard, Public Health Service and the National Oceanic and Atmospheric Administration. The term "military treatment facility," though, only refers to hospitals operated by the Army, Navy and Air Force. DOD CHAMPUS expenditures only include the military departments: the Army, Navy (includes Marine Corps) and Air Force. Non-DOD CHAMPUS expenditures take in the Coast Guard, Public Health Service and the National Oceanic and Atmospheric Administration.

³ United States, General Accounting Office, General Accounting Office Briefing Report to Congressional Requestors. CHAMPUS Reform Initiatives: Unresolved Issues (Washington: GAO, Mar. 1987) 6.

⁴ Joel Slackman, et. al., Options for Change in Military Medical Care (Washington: Congressional Budget Office, Mar. 1984) 2.

⁵ According to the CHAMPUS Handbook, published by CHAMPUS, Aurora, Colorado, as an aid to beneficiaries in understanding their benefits and costs under CHAMPUS, the inpatient beneficiary cost-share for active duty family members is the larger of \$25 or a per diem fee. For retirees and their families the cost-share is 25 percent of allowable charges. For CHAMPUS outpatient services active duty family members pay 20 percent of allowable charges after a deductible and retirees and their family members pay 25 percent of allowable charges after a deductible. Because

CHAMPUS places no dollar limits on the cost-share portion paid by beneficiaries, many families of active duty personnel and retirees now purchase supplementary insurance to protect against catastrophic health care costs.

⁶ The CHAMPUS Handbook explains allowable charges as those hospital and professional charges that CHAMPUS is willing to pay based upon what is routinely charged for a particular service within a state. Hospitals and physicians who accept "CHAMPUS assignment," i.e., they agree to treat CHAMPUS patients on a case-by-case basis, also agree to accept the CHAMPUS allowable charge for their services. Patients receiving care from hospitals or physicians who have not agreed to accept CHAMPUS assignment are responsible for paying all government costs above the CHAMPUS allowable rate. It is unusual for a hospital not to accept CHAMPUS assignment. Because a CHAMPUS patient is free to choose his or her own provider, MTFs providing statements of nonavailability for care under CHAMPUS will provide a lists of all providers in an area who accept CHAMPUS assignment.

⁷ United States, General Accounting Office 6.

⁸ United States, Department of Defense, CHAMPUS Chartbook of Statistics (Aurora, Colorado: OCHAMPUS, Dec. 1987) II-11.

⁹ United States, Department of Defense VI-23.

¹⁰ Vesta Kimble, "Soaring Costs Spur Overhaul of CHAMPUS," Army Times 13 Apr. 1987: 26.

¹¹ Vesta Kimble, "50% Rise in CHAMPUS Costs Spurred by Outpatient Claims," Air Force Times 22 June 1987: 42.

¹² Kimble Army Times 26.

13 The costs of all CHAMPUS-delivered care for persons residing within a catchment area are administratively assigned to that particular catchment area. Due to their proximity to one another, the Fort Carson catchment area, serviced by Evans Army Hospital, considerably overlaps the catchment area centered on the United States Air Force Academy hospital. When catchment areas do not overlap the cost of CHAMPUS care in that area is simply assigned to the single catchment area. However, prior to FY 88 beneficiaries living in overlapping catchment areas had their CHAMPUS costs reported to both catchment area hospitals, resulting in inflated figures for both facilities. In FY 88 OCHAMPUS (the Office of the Civilian Health and Medical Program for the Uniformed Services) revised its reports by adopting a new methodology for assigning CHAMPUS costs in overlapping areas. By this new methodology, called the "10-mile band rule," CHAMPUS costs in overlapping areas are now assigned to only one area. This "unduplicates" the cost data and more accurately reflects the CHAMPUS costs for each area. All FY 88 CHAMPUS reports are now "unduplicated." In addition, FY 86 and 87 reports were reprinted as unduplicated. The significance of this is seen in comparing duplicated and unduplicated figures. For example, the duplicated total government cost figure for inpatient care in the Fort Carson catchment area during FY 86 was \$17.1 million, whereas the unduplicated figure for the same period was \$13.4 million, nearly 22 percent less. All quoted CHAMPUS figures are unduplicated unless noted.

14 Though only Army catchment areas have been mentioned, both the Air Force and Navy are responsible for catchment areas around

their MTFs in the same manner. An MTF can refer to one belonging to any branch of the armed services. Accordingly, an eligible beneficiary retired from the Army who lives in North Dakota would likely live within the CHAMPUS catchment area of an Air Force MTF and would have the same relationship to that MTF that he would have to an Army MTF.

¹⁵ United States, Department of Defense II-13.

¹⁶ United States, Department of Defense, CHAMPUS Cost and Workload Catchment Area Summary, 01/10/86 thru 30/09/87

(Denver: OCHAMPUS, 16 Jan 1988) 1.

¹⁷ United States, Department of Defense, Inpatient Report for Care Received from Oct. 1986 thru Sep. 1987, Total All Categories of Beneficiaries, Fort Carson, Co (Aurora, Colorado: OCHAMPUS, 28 Jan. 1988) 4.

¹⁸ United States, General Accounting Office 9.

¹⁹ United States, General Accounting Office 2.

²⁰ United States, General Accounting Office 7.

²¹ "CHAMPUS Awards First Contract in California," AHA News
25 Jan. 1988: 2.

²² John Burlage, "Military Medical System Needs Curing, Health Chief Says," Army Times 28 Mar. 1988: 10.

²³ William Mayer, Memorandum for the Secretaries of the Army, Navy, and Air Force, 25 Sep. 1987.

²⁴ "CHAMPUS Begins Payments by Diagnosis-Related Groups," HSC Mercury Oct. 1987: 4.

²⁵ Burlage 10.

²⁶ United States, Department of Defense, Department of Defense Instruction (DODI) Number 6010.12: Military-Civilian

Health Services Partnership Program (Washington: ASD(HA), 22 Oct. 1987) 1+.

²⁷ According to DOD Directive 6010.13-M, Medical Expense and Performance Reporting System for Fixed Military Medical and Dental Treatment Facilities, January, 1986, the purpose of the Medical Expense and Reporting (MEPR) System is to provide a consistent means of accounting and reporting of expense, manpower, and performance by DOD fixed medical facilities. MEPRS establishes a uniform reporting methodology providing financial and operating performance data by functional work centers for use by managers responsible for health care delivery. MEPRS consists of a hierarchy of accounts wherein expenses and corresponding work load data are grouped into six functional categories: inpatient care, ambulatory care, dental care, ancillary services, support services, and special programs. The functional categories are further divided into summary accounts and subaccounts. Inpatient care, ambulatory care, dental care, and special programs are final operating expense accounts. Ancillary services and support services accounts are intermediate operating expense accounts whose expenses are reassigned to the final operating expense accounts. In this study data from the inpatient care subaccounts of obstetrics service, newborn nursery, and their associated cost pools will be examined.

DISCUSSION

Analysis of CHAMPUS Data

To determine what categories of CHAMPUS care represent the greatest potential cost savings in a patient recovery program, an analysis is made of data from the Fort Carson catchment area CHAMPUS Inpatient Report for FY 87. This report categorizes inpatient cost and utilization data for 27 clinical specialties. Recovering a CHAMPUS patient requires a properly authorized person to decide, at the time the care is requested, whether to use the direct care system care or send the patient out on CHAMPUS. The only time this decision can be made is when the beneficiary presents himself at the military MTF for treatment, at which time he is either issued or not issued a statement of nonavailability depending on the availability of services at the MTF. There are, however, certain situations under which beneficiaries do not require a statement of nonavailability from a military MTF prior to seeking care from a civilian medical facility. These two situations are (1) when admission is for emergency treatment and (2) when non-emergency care specifically does not require a statement of nonavailability.¹ Government CHAMPUS costs incurred under these situations cannot be considered as recoverable. A third situation, and the only one which allows intervention to redirect the beneficiary into the direct care system, is when a statement of nonavailability must be obtained from the MTF prior to receiving CHAMPUS care.

Selected data from the FY 87 CHAMPUS Inpatient Report is provided in the Appendix and displayed for each category of care by the three situations discussed above. The data show that the

total government CHAMPUS cost in the catchment area for all situations is \$16.8 million, with an average daily inpatient load of 61. However, once emergency care and all inpatient care that specifically does not require a statement of nonavailability is subtracted, the cost of potentially recoverable CHAMPUS care which requires a statement of nonavailability falls to \$13.1 million and the average number of daily inpatients falls to 39.

This group of potentially recoverable CHAMPUS costs is further reduced if certain categories of care are not available at Evans Army Hospital. To determine why required statements of nonavailability were issued it is necessary to examine data from the hospital Medical Summary Report, as shown in Table 5. The data, for FY 87, show that the majority (81 percent) of nonavailability statements were issued for lack of professional capability, far exceeding the reason that adequate facilities were not available. The only significant categories of CHAMPUS care that cannot, in total, be provided at Evans Army Hospital due to lack of facilities are Psychiatry Group 1 and Group 2. Referring again to the Appendix, subtracting the cost and inpatient load of these two groups from the balance above, which includes all CHAMPUS care requiring a statement of nonavailability, leaves a potential recoverable CHAMPUS cost of \$9.86 million and an average daily inpatient load of 21. This patient load consists of 5.5 in medical/surgical, 0.5 in orthopedics, 3 in pediatrics, and 12 in obstetrics.

To know exactly which CHAMPUS cases could have been recovered at Evans Army Hospital would require a case-by-case review of all CHAMPUS nonavailability statements issued for the fiscal year.

Table 5

Nonavailability Statements Issued by Evans Army Hospital in FY 87

Statements Issued per Reason^a

Category of Care	A	B	C	Total
Adverse Reactions				
Allergy	3		1	4
Cardiology	11	44	2	57
Dermatology				0
Endocrinology	1			1
Gastroenterology		1		1
Hematology				0
Infectious Disease	1			1
Nephrology	1	1		2
Neurology	5	7		12
Nutritional				0
Pulmonary/Respiratory	8	19	4	31
Rheumatology		1		1
Other Internal Med.	9	23	1	33
Dental				1
Obstetrics	10	1,513	3	1,526
Gynecology		15	3	18
Ophthalmology				0
Psychiatry (Gp I)	269			269
Psychiatry (Gp II)	26			26
Special Pediatrics	41	22	2	65
Ear, Nose, Throat		15	1	16
General Surgery		36	2	39
Neurosurgery		11		11
Orthopedics	1	22	1	24
Thoracic Surgery				0
Urology		2		2
Total	385	1,733	20	2,140

^a A: Facilities Not Available, B: Professional Capability Not Available, C: Other.

Source: DA Form 2789-R, Medical Summary Report (Evans U.S. Army Community Hospital, Oct. 1986 through Sep. 1987) Section IV.

Assuming that the 21 additional daily inpatients computed above as potentially recoverable are actually recoverable (i.e., the necessary facilities will be available in all cases), Evans Army

Hospital could, on the basis of available beds alone, recover all this work load. Evans Army Hospital is a 195-bed facility with, on average, 91 beds occupied per day, leaving 104 beds empty.² The 21 additional daily inpatients would increase the daily beds occupied to 112. The average length of stay of these patients is 3.9 days³ as compared to an average length of stay of 4.2 days for Evans Army Hospital inpatients in FY 87.⁴ This cursory analysis would seem to indicate that by increasing the occupancy rate from 46 percent to 57 percent, without a likely increase in overall length of stay, a significant actual savings to the government could be realized. Admittedly such a facile solution fails to consider bed distribution within the facility and other limitations to merely increasing the number of inpatients. These limitations will have an effect on which categories of patients can or should be recovered and at what cost to the facility. At the very least, it indicates that Evans Army Hospital has unused bed capacity that could support some number of inpatients that now receive care under CHAMPUS.

Since all remaining potentially recoverable services are not equally desirable for recovery, the identification of which services should be targeted for recovery proceeds from further analysis of data from the FY 87 Inpatient Report. In Table 6 data for recoverable costs are placed in rank order to facilitate identifying those categories with the highest costs. The categories with the highest potential recoverable costs should be targeted for recovery first.

Obstetrics was chosen for in-depth recovery analysis for reasons in addition to the fact that it represents 52 percent of

Table 6

Potentially Recoverable Inpatient CHAMPUS Costs (FY 87 Data)

Category of Care	Total Government Cost	Rank	Recoverable Government Cost	Rank
Obstetrics	5,206,689	1	5,096,706	1
Special Pediatrics	2,385,667	3	2,385,667	2
Cardiology	1,239,443	5	686,643	3
General Surgery	641,558	6	366,253	4
Other Internal Medicine	325,132	10	282,787	5
Orthopedics	447,597	7	267,449	6
Gastroenterology	248,709	11	204,650	7
Pulmonary/Respiratory	391,129	8	200,738	8
Neurosurgery	368,382	9	153,120	9
Neurology	246,751	12	150,335	10
Gynecology	138,427	14	117,076	11
Urology	102,155	15	87,288	12
Infectious Disease	67,573	18	65,217	13
Ear, Nose & Throat	84,408	16	64,363	14
Nephrology	65,758	19	43,411	15
Rheumatology	51,408	20	42,842	16
Allergy	81,615	17	39,482	17
Thoracic Surgery	33,415	21	27,854	18
Hematology	24,991	23	23,625	19
Dermatology	20,525	24	18,769	20
Dental	16,921	25	16,847	21
Endocrinology	27,039	22	13,435	22
Nutritional	9,554	26	9,554	23
Adverse Reactions	190,338	13	5,350	24
Ophthalmology	2,805	27	2,373	25
Psychiatry Group 2	2,694,977	2	0	
Psychiatry Group 1	1,716,129	4	0	
Total	\$16,829,125		\$9,856,651	

Source: Inpatient Report for Care Received from Oct, 1986 thru Sep, 1987. (Aurora, Colorado: OCHAMPUS, 28 Jan. 1988) 1-4.

all potentially recoverable costs for the catchment area. Evans Army Hospital has the facilities to perform more deliveries than at present, and there is a certain amount of manpower "slack" in the nursing support for this service that can be used to perform more deliveries without requiring additional personnel.

Currently Evans Army Hospital has 36 newborn bassinets, although

only 12 are considered as part of the 120-bed operating capacity of the hospital based on current staffing (as compared to the 195-bed design capacity). Evans Army Hospital performs an average of 60 deliveries per month,⁵ or two per day. With an average hospital stay for newborns of three days,⁶ there would be, on average, no more than six newborns in the nursery at a time. Therefore, the hospital could potentially double its number of deliveries--to 120 per month--and still have enough bassinets available. However, 90 deliveries per month, with the same length of stay, would fill no more than nine bassinets per day on average and would be a more prudent recovery figure given current staffing in the newborn nursery and postpartum ward. Fig. 1 illustrates. (The Chief, Department of Nursing, Evans Army Hospital, estimates that the hospital can perform at most 100 deliveries per month based on current staffing in the newborn nursery, labor and delivery, and postpartum ward.)⁷

Two Births per Day

1 2 3 4 5 6 7

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(-----)
(-----)
  (-----)
    (-----)
      (-----)
        (-----)
          (-----)
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Three Births per Day

1 2 3 4 5 6 7

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(-----)
(-----)
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  (-----)
    (-----)
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        (-----)
          (-----)
            (-----)
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Fig. 1. Newborn Bassinet Requirements

The Interrelationship of Hospital Activities

Before examining obstetrics further, it is essential to understand how various services or activities interrelate in contributing to the impact of recovering patient care. Adding inpatients to the current number of occupied beds is not an isolated event for the service concerned. Additional inpatients will cause a "ripple effect" within the facility, affecting not only ancillary and support services but other areas of direct patient care. Using the obstetrics example, increasing the number of births at Evans Army Hospital will impact directly on inpatient areas such as the nursery and obstetrics ward and also implies increases in work load for certain ambulatory areas such as the obstetrics clinic and well-baby clinic. The "ripple effect" of adding inpatient work load is caused by the fact that inpatient care is not an entry point into the military health care system. As shown in Fig. 2, the entry points for health care services are primarily outpatient which then serve as feeders for inpatient care. In a sense, the outpatient clinics,

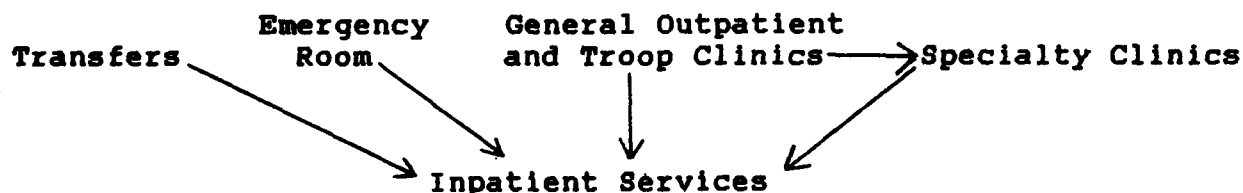


Fig. 2. Points of Entry into the Military Health Care System

by way of admitting physicians, serve as "gatekeepers" in controlling the number of inpatients. Only as many inpatients as can be cared for within facility and resource constraints will be admitted. As gatekeepers, the outpatient specialty clinics will

direct patients outside the military facility when capacity has been reached. Fig. 3 shows that when the MEDDAC inpatient level is reached the "overflow" can be directed to CHAMPUS or to another military facility, as appropriate. An increase in ambulatory care does not automatically imply an increase in inpatient care. However, when planning a recovery of inpatient services, attention has to be given to whether this implies an unavoidable increase in related outpatient care. In the case of obstetrical care it will: the additional mothers to give birth at Evans Army Hospital will require, at the very least, a number of scheduled prenatal and postpartum outpatient visits with their obstetricians. They will also require up to seven scheduled well baby clinic visits during their child's first two years.

Patient Appointment Requests

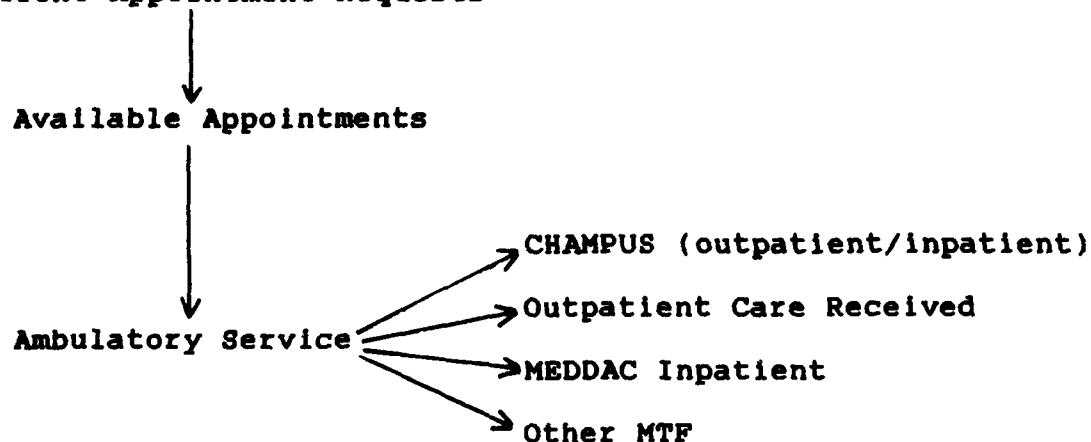


Fig. 3. Disposition of Ambulatory Patients

Fig. 4 shows that the cost of an inpatient service (e.g., obstetrics), or an ambulatory service (e.g., obstetrics clinic) according to MEPRS, is derived from direct expenses associated with the service, ancillary and support services for the service, and associated ancillary and support services via the cost pools

associated with the service. Any increase in inpatients will naturally have the effect of increasing direct expenses, the ancillary and support expenses of the service itself, and, by increasing the total number of occupied bed days in the cost pools (wards), the ancillary and support expenses of the cost pools. In the case of obstetric care, any comparison with CHAMPUS costs would also have to include costs in the nursery cost center (both the nursery itself and its associated cost pool) since nursery costs are not separately identified as a CHAMPUS cost category. The total inpatient obstetric cost necessary for comparison to CHAMPUS must combine all costs assigned to the obstetrics service and the newborn nursery. These cost figures are summarized in tables 8 through 10.

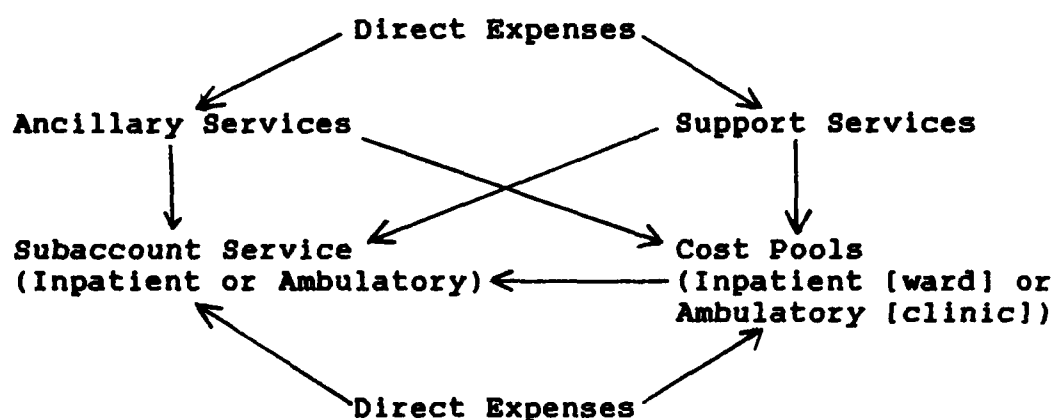


Fig. 4. Sources of Expenses in MEPRS

Analysis of MEPRS Data

To determine what resources will be necessary to recover selected categories of CHAMPUS patients will require using data from the Medical Expense and Performance Reporting System (MEPRS). Specific MEPRS data used are taken from the October through December 1987 quarterly report. This was the most recent

quarterly report available for analysis at the time of the study. Narrowing the focus to inpatient care only, MEPRS provides expense and performance reporting data for 33 inpatient work center subaccounts as shown in Table 7. (Compare to CHAMPUS categories in Table 5.)

There are difficulties with using MEPRS data to estimate the cost and impact of CHAMPUS recovery. The first is that MEPRS data are captured in categories of care that do not correspond exactly to the 27 separate CHAMPUS categories. In addition, MEPRS reporting at Evans Army Hospital uses only the categories in Table 7 marked with an asterisk. For comparison with CHAMPUS, which captures all delivery costs under the single category of obstetrics, total obstetrics costs at Evans Army Hospital will have to be assembled from two separate MEPRS subaccounts, obstetrics and newborn nursery. Second, MEPRS costs can be considered as both fixed and variable, and a differentiation between the two, as will be explained, is essential if MEPRS is to be used to estimate recovery costs. Third, MEPRS costs and work load assigned to the various subaccounts contain both labor and non-labor components that need to be separately considered.

The data in Tables 8 and 9 reflect the share of all ancillary and support services cost and work load applied directly to the obstetrics work center (ACBA) and its shared cost pools. In Table 8, under the column headed Work Center Obstetrics (ACBA), are the actual work load figures provided to the obstetrics service by the ancillary and support services work centers in the left hand column. For example, clinical pathology provided 24,870 weighted procedure (WP) work units to the obstetrics

Table 7

MEPRS Inpatient Work Centers

<u>Medical Care</u>	<u>Surgical Care</u>	<u>OB/GYN Care</u>
Internal Medicine*	General Surgery*	Gynecology*
Cardiology	Cardiovascular and Thoracic Surgery	Obstetrics*
Coronary Care*	Intensive Care*	<u>Pediatric Care</u>
Dermatology*	Neurosurgery	Pediatrics*
Endocrinology	Ophthalmology*	Nursery*
Gastroenterology*	Oral Surgery*	Neonatal Intensive Care* (limited at EACH)
Hematology	Otorhinolaryngology*	<u>Orthopedic Care</u>
Intensive Care*	Pediatric Surgery	Orthopedics*
Nephrology	Plastic Surgery	Podiatry*
Neurology	Proctology	<u>Psychiatric Care</u>
Oncology	Urology*	
Pulmonary/Upper Respiratory	Other Surgical	
Rheumatology		
Other Medical Care		

Source: DOD 6010.13-M: Medical Expense and Performance Reporting System for Fixed Military Medical and Dental Treatment Facilities (Washington: GPO, Jan. 1986) 2A-3, 2A-4.

service at a cost of \$11,877. Whereas the work load figures are actual, MEPRS assigns the cost as a percentage of total clinical pathology procedures performed: a total of 596,148 WPs were performed upon request during the quarter, of which 24,870 or 4.14 percent (24,879/596,148) were actually requested by the obstetrics service. Total expenses for clinical pathology during this quarter were \$284,702, of which \$11,877 (.0414 X \$284,702)

Table 8

Total Costs and Work Load for Obstetrics Services (MEPRS data October through December 1987)

Description	PF ^a	Work Center Obstetrics (ACBA)		Transfers from Cost Pools (Table 9)		Total	
		Cost	Work Load	Cost	Work Load	Cost	Work Load
Direct Expense		15,533		202,947		218,480	
Ancillary Services							
Main Pharmacy	DAAA					28,150	3,301
Clinical Pathology	DBAA	11,877	24,870	28,150	3,301	11,877	24,870
Anatomical Pathology	DBRA	5,524	6,059			5,524	6,059
Blood Bank	DBCA	7,559	4,824			7,559	4,824
Diagnostic Radiology	DCAA	798	185			798	185
Central Sterile Supply	DEAA					9,506	499
Anesthesiology	DFAA	7,648	3,513	9,506	499	7,648	3,513
Operating Room	DFBA	21,134	10,703			21,134	10,703
Recovery Room	DFCA	3,971	4,470			3,961	4,470
Physical Therapy	DHDA	34	2			34	2
Support Services							
Depreciation-Inpatient	EAAA	27,623				27,623	
Command-Cdr	EBAA	174	3	3,923	68	4,097	71
Special Staff	EBBA	108	3	2,434	68	2,542	71
Administration-IMO	EBCA	412	3	9,308	68	9,720	71
Plans, Tng, Mob, Sec Br	EBCF	12	3	260	68	272	71
C, Dept of Nursing	EBDI			27,203	68	27,203	68
Educ/Tng, Prog Mgt-MS	EBFA	44	3	986	68	1,030	71
Staff Medical Library	EBFG	29	3	648	68	677	71
Base Operations Support ^b		284		14,787		15,071	

Continued next page.

Table 8 (continued)

Description	PF	Work Center Obstetrics (ACBA)		Transfers from Cost Pools (Table 9)		Total
		Cost	Work Load	Cost	Work Load	
Logistics	SC			4,803		4,803
Housekeeping In-House	SF			427	12,467	12,467
Housekeeping-Contract	SF			1,913	12,467	12,467
Biomed Eq Repair/Hours	HS			4,747	95	95
Biomed Eq Repair/Parts	Pts			785	777	777
Laundry Service	Pnds			5,466	11,004	11,004
Nutrition Care Division	RS	18,438	991			18,438
Subsistence	RS	2,215	991			2,215
PAD/Inpatient Affairs	OBD	29,006	1,162			29,006
Total Costs		<u>152,413</u>		<u>318,300</u>		<u>470,713</u>

Source: Medical Expense and Performance Report (MEPR), MEDDAC Fort Carson (San Antonio: U.S. Army Health Services Command, 4 Apr. 1988).

PF = Performance Factor, WP = Weighted Procedure, HS = Hours of Service, MS = Minutes of Service, V = Visit, FTE = Full Time Equivalent, SC = Supply Costs, SF = Square Feet Cleaned, Pts = Parts, Pnds = Pounds, RS = Rations Served, OBD = Occupied Bed Days

Summary of non-reimbursable expenses provided by the installation.

Table 9

Work Center Cost Pool Data Transferred to Obstetrics (MEPRS data October through December 1987)

Description	PF	Ward 3-E (ACXA)		Ward 4-W (AAXA)		Total ^a
		Cost	Work Load	Cost	Work Load	
Direct Expense		201,338		1,609		202,947
Ancillary Services						
Main Pharmacy	DAAA	27,425	3,216	725	85	28,150
Central Sterile Supply	DEAA	9,505	498	1	1	9,506
Support Services						
Command-Cdr	EBAA	3,891	67	32	1	3,923
Special Staff	EBBA	2,414	67	20	1	2,434
Administration-IMO	EBCA	9,232	67	76	1	9,308
Plans, Tng, Mob, Sec Br	EBCF	258	67	10	1	260
C, Dept of Nursing	EBDI	26,982	67	221	1	27,203
Educ/Tng, Prog Mgt-MS	EBFA	978	67	8	1	986
Staff Medical Library	EBFG	643	67	5	1	648
Base Operations Support		14,683		92		14,787
Logistics	EEAA	4,763		40		4,803
Housekeeping In-House	EFAA	424	12,382	2	63	427
Housekeeping-Contract	EBFA	1,900	12,382	10	63	1,913
Biomed Eq Repair/Hour	EGAA	4,717	94	30	1	4,747
Biomed Eq Repair/Parts	EGAB	783	775	2	2	785
Laundry Service	EHAA	5,434	10,940	32	64	5,466
Total Costs		315,377		2,907		318,300

Source: Medical Expense and Performance Report (MEPR), MEDDAC Fort Carson (San Antonio: U.S. Army Health Services Command, 4 Apr. 1988.

^a The Social Work Service Cost Pool (BFXB), not shown, has minimal costs and work load added.

were assigned to the obstetrics work center. The same procedure is followed for assignment of all costs and work load in Tables 8 and 9. However, the total assigned cost and work load for the cost pools (wards and clinics) may be divided up between more than one subaccount work center. Dividing up the cost pool is based on total occupied bed days (OBDs) for wards and visits for clinics that are assigned to various subaccounts. For example, the obstetrics service had a total of 1,162 occupied bed days for the quarter, of which 1,144 were for patients in the obstetrics Ward 3-E (ACXA) cost pool (.9879 of total OBDs in the ward) and 18 were for patients in the medical Ward 4-W (AAXA) cost pool (.009 of total OBDs in that ward).⁸ Therefore, 98.79 percent of all cost and work load data from Ward 3-E and .9 percent of all like data from Ward 4-W is assigned to the obstetrics service subaccount. In the case of the Social Work Service cost pool (not shown in the table), 1.06 percent (56 out of 5,306 total clinic visits) of the cost pool's work load and associated cost is assigned to obstetrics service.

The direct expense figures in the tables are those identified specifically with a particular work center. They include both a labor (salaries) and non-labor (supplies, some equipment, travel expenses, etc.) component. The direct expenses for the work center subaccounts are strictly physician salaries. The figures given (for example, \$15,533 for subaccount ACBA) represent total physician salaries (military and civilian) for the subaccount for the quarter based upon the fraction of the time each physician who works in the subaccount service actually spends in the service. For example, a physician who spends half his time in

the service would have half his salary assigned as a direct expense to that service.

Direct expenses for cost pools can include both salaries for all non-physician personnel working in those cost pools and other non-labor expenses. No physician salaries are in cost pool direct expenses. For example, in Table 9 the \$201,338 direct expense assigned from the Ward 3-E (ACXA) cost pool to the Obstetrics Service (ACBA) consists of \$191,473 in salaries and \$9,865 in non-labor expenses.⁹ Again, the \$201,338 in direct expense represents 98.79 percent of the total direct expense for the cost pool, for reasons explained above. Although not specifically identified in Tables 8 and 9, there are direct expenses representing salaries and other non-labor costs included in the costs associated with the ancillary and support service work load assigned to the subaccounts and cost pools (refer back to Fig. 4). For example, in Table 8 the \$28,150 Main Pharmacy (DAAA) work center cost contains a portion of all the salaries of the personnel working in the Pharmacy Service. Later in the analysis these two costs will be resolved. At this point the total expense assigned to the obstetrics subaccount, a sum of direct expenses and reassigned ancillary and support service costs, is \$470,713, as shown in Table 8. The validity of separating out expenses as shown is confirmed in that this total agrees with the total purified expense for this subaccount in the MEPR Computational Summary report (PCN NAA-Q13).

As was previously explained, the costs and work load for the Newborn Nursery (ADBA) subaccount and its associated cost pool must be considered. This data, shown in Table 10, is calculated

in the same manner as for the obstetrics subaccount. All costs and work load generated by the 533 OBDs in the newborn nursery cost pool were assigned to the newborn nursery subaccount, although cost and work load for 514 OBDs were actually assigned in the MEPR Purification Stats Matrix report. The other 19 OBDs were assigned to the neonatal ICU subaccount.¹⁰ Because the final operating expense in the neonatal ICU subaccount was minimal, its costs and work load were added to the newborn nursery subaccount to simplify calculations yet insure that the cost and work load were captured. The adjusted newborn nursery expense for the October through December 1987 quarter now totaled \$175,550. This, too, agrees with the total expense figure in the MEPR Computational Summary for the Newborn Nursery (ABDA) subaccount plus the Neonatal ICU (ADCA) subaccount.

The average cost for a delivery at Evans Army Hospital is determined by dividing the total final operating expense of \$646,263 for the obstetrics and newborn nursery subaccounts (\$470,713 plus \$175,550) by the number of deliveries for the quarter. While MEPRS does not specifically state a number of deliveries for the quarter, this can be inferred from the number of dispositions--defined in MEPRS as discharges--for the newborn nursery. For the quarter being considered, the MEPR Expense Assignment report lists a total of 178 "dispositions"¹¹ (in MEPRS, a disposition is a discharge, and, for the purposes of this study, equates to an admission) from the nursery. This accurately compares with the 180 actual births recorded for the months of October through December 1987.¹² The direct care system cost for a newborn delivery is calculated as \$3,631

Table 10

Newborn Nursery Cost and Work Load Data (MEPRS data October through December 1987)

Description	PF ^b	Work Center ^a Nursery (ADBA)		Newborn Nursery Cost Pool (ADXB)		Total
		Cost	Work Load	Cost	Work Load	
Direct Expense		7,588		90,833		98,471
Ancillary Services						
Main Pharmacy	DAAA	2,166	254			2,166
Clinical Pathology	DEAA	2,936	6,147			2,936
Blood Bank	DECA	11,014	7,029			11,014
Diagnostic Radiology	DCAA	915	212			915
EKG	DDAA	64	5			64
Pulmonary Function	DDDA	413				413
Central Sterile Supply	DEAA			1,260	66	1,260
Support Services						
Depreciation-Inpatient	EAAA	12,670				12,670
Command-Cdr	EBAA	116	2	2,086	36	2,202
Special Staff	EBBA	72	2	1,294	36	1,366
Administration-IMO	EBCA	275	2	4,947	36	5,222
Plans, Tng, Mob, Sec Br	EBCF	7	2	138	36	145
C, Dept of Nursing	EBDI			14,462	36	14,462
Educ/Tng, Prog Mgt-NSC	EBFA	29	2	524	36	553
Staff Medical Library	EBFG	19	2	345	36	364
Base Operations Support				4,243		4,243
Logistics	EEAA			1,580	3,273	1,580
Housekeeping In-House	EFAA			152	4,438	152
Biomed Eq Repair/Hours	EGAA			1,759	35	1,759
Biomed Eq Repair/Parts	EGAB			288	285	288
PAD/Inpatient Affairs	EJAA	13,305	533			13,305
	OBD					533

Continued Next Page.

Table 10 (continued)

Description	PF ^b	Work Center Nursery (ADBA) ^a		Newborn Nursery Cost Pool (ADXB)		Total
		Cost	Work Load	Cost	Work Load	
Total Costs		<u>51,589</u>		<u>123,961</u>		<u>175,550</u>

Source: Medical Expense and Performance Report (MEPR), MEDDAC Fort Carson (San Antonio: U.S. Army Health Services Command, 4 Apr. 1988).

^a Includes all costs for the Neonatal ICU (ADCA) subaccount.

^b Pro = Procedures

(\$646,263/178 = \$3,630.69). This figure compares to an average government CHAMPUS cost per admission (i.e., per delivery) of \$3,428.¹³ In this case, the direct care system cost of a delivery is higher than the CHAMPUS cost. If so, why bother to increase the number of deliveries at Evans Army Hospital?

If it could be argued that Evans Army Hospital was operating as efficiently as possible, that is, it could not lower the cost of a newborn delivery below \$3,631, then it would not make sense to increase the number of deliveries in the facility. It would be cheaper for the government to obtain obstetric care under CHAMPUS and not be concerned about increasing its number of obstetric inpatients. However, a closer examination of the separate expenses that make up the cost of a delivery at Evans Army Hospital might indicate that the facility is not achieving an efficient cost per delivery. To do so will require separating the various distributed expenses according to whether they are fixed or variable with respect to increases in patient load. Fixed costs, or overhead, will not be increased within a reasonable range of increase in the number of inpatients, whereas variable costs will. The high cost per delivery may simply be a matter of not spreading fixed costs over enough deliveries. Given the excess capacity for deliveries within the facility, this would appear to be the case.

MEPRS does not differentiate between fixed and variable costs; it merely allocates all costs over the various final operating expense accounts, of which obstetrics and the newborn nursery are examples. Determining which distributed expenses are fixed and which are variable required analyzing the cost

assignment procedure for each intermediate operating expense, as described in DOD 6010.13-M.¹⁴ For ancillary services it was fairly obvious that these costs were variable. The assignment procedure indicated that costs were assigned based on a ratio of weighted procedures, hours of services, or some other performance factor to the total quantity of the specific performance factor provided by the work center. Because more patients automatically increase the work load, the cost is considered variable.

All support services could not be considered as representing variable costs. Their cost distribution could be based on such performance factors as square footage of a service area to total square footage of the facility, or a ratio of each receiving account's administrative or staff full-time equivalent (FTE)¹⁵ man-months used to the total FTE man-months in all receiving accounts. The support service costs considered as fixed were those not likely to be affected by any increase in patient load. Those that were considered as variable costs had performance factors that, like ancillary care services, varied with the number of inpatients. In general, any support service having a performance factor measured in "rations served," "supply costs," "hours of service," "parts," or "pounds" was, therefore, considered as a variable cost. Specific support service category costs are discussed in greater detail.

One of the highest costs under support services is that of "depreciation," work center codes EAAA for inpatient care, which represents \$44,216 worth of expense in Tables 8 through 10. DOD 6010.13-M explains the function of the depreciation account as provided to accumulate the expenses associated with the

investment costs incurred for depreciable properties in use, to include investment equipment. Investment equipment is defined as an asset costing \$1,000 and over and subject to individual item management throughout its active life.¹⁶ Therefore, unless the additional inpatient load will require the purchase of investment equipment or construction of new facilities, this expense figure does not need to be considered. Even if some investment equipment did have to be purchased, if its aggregate dollar value was relatively low it would have minimal impact as an expense and could possibly be ignored. In the case of obstetrics, no additional investment equipment is needed.

A large group of support service expenses which could also be considered as fixed are those that fall into the broad category of base operations support. They comprise engineering, personnel support, communications, and other support activities provided by organizations that are not part of the military treatment facility and which are received by the MTF without direct expense. These are assignable to the hospital by a variety of procedures such as square footage of space used by the assignable accounts in the hospital, hours of service, or full-time equivalents, which are independent of the number of patients in the facility. Unless the facility were to increase in size there seems to be no reason to be concerned about these expenses when recovering a limited number of inpatients.

In addition, other support services making up the Command, Management, and Administration subaccount (EB--), which includes expenses incurred from providing overall command, policy, management, and operation of the medical treatment facility, do

not have to be taken into account as long as the facility is not going to be increased significantly in size to the point that the facility administrative staff itself must be significantly enlarged. These expenses would not increase across the facility but might merely be reassigned differently based on the relative number of FTE man-months assigned to the subaccount as compared to the total FTE man-months of the facility. Subaccounts for administrative duties in direct support of inpatient or ambulatory activities, such as Inpatient Affairs (EJAA) and Ambulatory Care Administration (EKAA), would not have to be considered unless they, too, had to be enlarged in size or function. Any other support service that has a performance factor not likely to be affected by increasing the number of patients within the existing facility need not be considered. Housekeeping costs which are based on square footage cleaned fall into this category. For example, whether a ward has all its beds or half its beds filled does not change the number of square feet that need to be cleaned. If an additional ward was being opened that was not previously being cleaned, and this required additional resources, this expense would then have to be considered. Because opening new wards is not an option in this study, this cost will be considered as fixed. What remain as variable costs at this point are the ancillary services and a limited number of support services.

Cost pool direct expenses for salaries for other than physicians represent a group of costs that may or may not be significant as the number of inpatients to be recovered goes up. The key is whether or not additional recovered work load is

sufficient to produce significant additional personnel requirements. Because a limitation to this study was that additional manpower, except for partnership physicians, could not be added to the hospital's staffing, additional non-physician staff and direct expenses for their salaries will not be directly considered in estimating the cost of recovering additional obstetrics patients. Since 95 percent or better of all cost pool direct expense is labor expense,¹⁷ the remaining cost pool expense, once labor has been removed, can be disregarded.

The remaining cost to estimate is that of the physician professional fee. In the case of obstetrics, it is the shortage of physicians that prevents increasing the inpatient work load. Physician fees listed as direct expense in MEPRS can be ignored since additional military or government service (GS) physicians are not available. The physicians needed to see CHAMPUS recovery patients would have to be provided through the Physician Partnership program discussed earlier. The additional obstetricians so obtained would receive a negotiated professional fee, payable through CHAMPUS, for each delivery they performed. According to the Evans Army Hospital CHAMPUS Health Benefits Advisor, the current CHAMPUS allowable professional fee rate for a "normal" delivery is \$1,125, which includes certain prenatal and postpartum care.¹⁸ This is the fee upon which a partnership professional fee would be based. But because a partnership physician seeing CHAMPUS patients in Evans Army Hospital receives free office space and administrative and ancillary support, his negotiated professional fee could be expected to be somewhat less than the full CHAMPUS allowable fee he would receive if he saw

the patient in his civilian office. As an estimate of a likely partnership fee, then, 80 percent of the CHAMPUS allowable fee will be considered as acceptable. (This figure was obtained from OCHAMPUS as an example of an acceptable negotiated fee for a civilian health care provider under the now defunct Joint Health Benefits Delivery Program. It was similar to the Partnership Program but only insofar as it provided a mechanism for bringing civilian providers into a military treatment facility.) The professional fee negotiated between the military treatment facility and the civilian physician under the Partnership Program could certainly be less than 80 percent of the local CHAMPUS allowable rate, but is unlikely to be any greater. For this study, the partnership physician fee for obstetricians will be based on 80 percent of the allowable fee, or \$900.00.

At this point a recalculation of the cost to increase the number of live births at Evans Army Hospital would consider only the negotiated physician fees and the cost of certain ancillary and support services which represent variable costs. However, before a further cost comparison can be made, two more steps are required. First, the remaining ancillary and support services from Tables 8 through 10 selected as representing variable costs have to be resolved into salary and non-salary components. MEPRS includes direct expenses in the form of salaries for ancillary and support service personnel (e.g., pharmacists, lab technicians, radiology technicians, etc.) into the ancillary and support service expenses that are assigned to the various subaccounts. For example, the total assigned expense for the ancillary service of clinical pathology is \$284,702. However,

\$119,497 of this is direct expense for labor--the salaries of all the personnel who work in clinical pathology. Therefore, only 58 percent of the total clinical pathology expense is for other than labor (materiel) expense. Since materiel expense will certainly go up with an increase in work load but labor expense may not (the same number of people may be able to handle a limited increase in work load), ancillary and support service costs should not include a labor component. These labor costs should be considered separate along with any direct expense labor expenses. Table 11 is a list of all services representing variable costs and shows what portion of their total expense is for other than labor expenses.

Second, the selected variable cost data from Tables 8 through 10 need to be shown per some relevant statistic, such as occupied bed days. Accordingly, these data are presented again in Tables 12 through 15 as cost and work load for the quarter per occupied bed day. This merely involves dividing all the cost and work load figures in Tables 8 through 9 by the number of obstetric occupied beds days (1,162) for the quarter and the related figures in Table 10 by the number of newborn nursery occupied bed days (533). Table 12 presents cost and work load per occupied bed day for Obstetrics (ACBA), less cost pools, from original data taken from the Work Center Obstetrics (ACBA) column in Table 8; Table 13 presents data likewise calculated from the Total of Transfers from Cost Pools column in Table 8; Table 14 presents cost and work load per occupied bed day in the nursery as computed from original data taken from the Work Center Nursery (ADBA) column in Table 10; and Table 15 presents nursery cost

Table 11

Variable Expenses in MEPRS and Their Components

Description	Total Expense	Direct Expense for Labor	Non-Labor Direct Expense	Ratio ^a
Main Pharmacy	1,308,975	235,367	1,073,608	.82
Clinical Pathology	284,702	119,497	165,205	.58
Anatomical Pathology	74,383	45,578	28,805	.39
Blood Bank	114,586	47,837	66,749	.58
Diagnostic Radiology	385,182	231,624	153,558	.40
EKG	24,582	13,928	10,654	.43
Pulmonary Function	37,394	27,124	10,270	.27
Central Sterile Supply	138,708	72,313	66,395	.48
Anesthesiology	153,935	115,609	38,326	.25
Operating Room	430,001	160,847	269,154	.63
Recovery Room	65,824	43,077	22,747	.35
Physical Therapy	125,186	58,700	66,486	.53
Logistics	581,389	333,991	247,398	.43
Biomed Eq Repair/Hours	154,925	123,089	31,836	.21
Biomed Eq Repair/Parts	37,674	0	37,674	1.00
Laundry Service	50,477	24,367	26,110	.52
Nutrition Care	435,892	311,142	124,750	.29
Subsistence	52,353	0	52,353	1.00

Source: Summarized from Medical Expense and Performance Report (MEPR), MEDDAC Fort Carson, Computational Summary (PCN NAA-Q13) and Direct Expense Summary (PCN NAA-Q08) (U.S. Army Health Services Command, 4 Apr. 1988).

^a The ratio is the portion of total expense that is not for labor.

pool data computed from original data in the Newborn Nursery Cost Pool (ADXB) column in Table 10. By choosing any number of additional obstetric inpatients and estimating the number of occupied bed days this increase represents (based on average length of stay for OB patients), the cost and work load figures per occupied bed day from these tables can be used to estimate the additional work load and associated cost to the facility.

It should be remembered that the cost per OBD for the services in Tables 12 through 15 represent only the non-labor component of the original cost in Tables 8 through 10. For example, the cost per OBD of \$5.93 for clinical pathology in Table 12 does not include any labor expenses. It was calculated in the following manner: \$11,877 (from Obstetrics [ACBA] column in Table 8) multiplied by .58 (the ratio of non-labor expense in clinical pathology work load, from Table 11) equals \$6,887 in total clinical pathology non-labor expenses assigned to obstetrics. \$6,887 divided by 1,162 obstetric OBDs for the quarter equals \$5.93 in non-labor clinical pathology costs per each obstetric OBD. All cost figures in Tables 12 through 15 were calculated in the above manner from data drawn from Tables 8 through 10. The work load per OBD figures in Tables 12 through 15 were calculated by dividing the relevant work load figures from Tables 8 through 10 by either 1,162 or 533 OBDs, as appropriate.

Once the variable costs per OBD have been determined, it is possible to determine the additional variable cost and work load of adding occupied bed days based on an increase in the number of deliveries. Given that 178 births occurred during the October

Table 12

Obstetrics Service Variable Costs and Work Load (Based on 1,162 OBDs)

Description		PF ^a	Cost per OBD	Work Load per OBD
Direct Expense (physician)			<u>900.00</u>	(per admission)
Ancillary Services				
Main Pharmacy	DAAA	WP		
Clinical Pathology	DBAA	WP	5.93	21.40
Anatomical Pathology	DBBA	WP	1.85	5.21
Blood Bank	DBCA	WP	3.78	4.15
Diagnostic Radiology	DCAA	WP	.28	.16
Anesthesiology	DFAA	MS	1.65	3.02
Operating Room	DFBA	MS	11.46	9.21
Recovery Room	DFCA	MS	1.19	3.85
Physical Therapy	DHDA	V	.02	.001
Support Services				
Nutrition Care	EIAA	RS	4.58	.85
Subsistence	EIBA	RS	1.91	.85

^a PF = Performance Factor, WP = Weighted Procedure, MS = Minutes of Service, RS = Rations Served, V = Visit

Table 13

Obstetrics Cost Pool Variable Costs and Work Load (Based on 1,162 OBDs)

Description		PF ^a	Cost per OBD	Work Load per OBD
Ancillary Services				
Main Pharmacy	DAAA	WP	19.87	2.84
Central Sterile Supply	DEAA	HS	3.93	.43
Support Services				
Logistics	EEAA	SC	1.76	
Biomed Eq Repair/Hours	EGAA	HS	.86	.08
Biomed Eq Repair/Parts	EGAB	Parts	.68	.67
Laundry Service	EHAA	Pnds	2.44	9.47

^a HS = Hours of Service, SC = Supply Costs, Pnds = Pounds

Table 14

Newborn Nursery Variable Costs and Work Load (Based on 533 OBDs)

Description		PF ^a	Cost per OBD	Work Load per OBD
Ancillary Services				
Main Pharmacy	DAAA	WP	3.33	.48
Clinical Pathology	DBAA	WP	3.20	11.53
Blood Bank	DBCA	WP	11.98	13.19
Diagnostic Radiology	DCAA	WP	.69	.40
EKG	DDAA	Pro	.05	.01
Pulmonary Function	DDDA	WP	.21	.05
Support Services (None)				

^a Pro = Procedure

Table 15

Newborn Nursery Cost Pool Variable Costs and Work Load (Based on 533 OBDs)

Description		PF	Cost per OBD	Work Load per OBD
Ancillary Services				
Central Sterile Supply	DEAA	HS	1.13	.12
Support Services				
Logistics	EEAA	SC	1.27	
Biomed Eq Repair/Hours	EGAA	HS	.69	.07
Biomed Eq Repair/Parts	EGAB	Parts	.54	.54

through December 1987 quarter, the number of OBDs per delivery is 1,162 divided by 178 or 6.53 days per delivery. An average of 6.53 OBDs per delivery would appear to be an excessive length of stay, but this includes OBDs for women admitted for false labor, observations, tests, and other reasons that did not result in delivery. These women would be discharged and later readmitted

for delivery. This is indicated in the MEPR by the 458 dispositions¹⁹ (i.e., discharges) in the obstetrics service which relate to the 178 dispositions (newborn discharges) for the nursery. For every newborn discharge there are 2.57 obstetrics discharges, which accounts for what appears to be a high length of stay of 6.53 days. The length of stay for the actual delivery is much less; the 6.53 days figure includes inpatient days for associated admissions and subsequent discharges for some women prior to giving birth. Increasing the number of deliveries at the hospital can also be expected to increase the number of total obstetric dispositions at this same rate of 2.57 per delivery. Therefore, additional obstetric service cost should be based on a total of 6.53 OBDs per delivery. Because total cost per delivery must include the nursery expenses, the number of OBDs per delivery must also be calculated in this subaccount. As above, dividing the 533 nursery OBDs by the 178 deliveries for the quarter equals 3.0 OBDs in the nursery per delivery.

Now that the relevant statistic of "cost per occupied bed day" has been developed for the various services and direct expense components, the cost of adding so many more deliveries to the obstetric work load can be determined. As previously calculated, all obstetric costs will be based on 6.53 OBDs per delivery and all nursery costs will be based on 3.0 OBDs per delivery. The costs per delivery are tabulated in Table 16 and were calculated in the following manner. Using the ancillary services cost of \$171 for the obstetrics service as an example, the total cost per OBD for ancillary services is the total ancillary cost of \$26.16 from Table 12 multiplied by 6.53 OBDs

per delivery (or admission) which equals \$171. As another example, the ancillary service cost of \$58 for the newborn nursery is the total ancillary cost of \$19.46 from Table 14 multiplied by 3.0 OBDs per newborn which equals \$58.

Table 16

Summary of Variable Costs per Additional Delivery

	Obstetrics Table 12	Table 13	Newborn Nursery Table 14	Table 15	Total
Direct Expense (physician)	900				900
Direct Expense (other)		0		0	0
Ancillary Services	171	155	58	3	387
Support Services	42	37	0	8	79
Total					1,366

Analysis of Computed Data

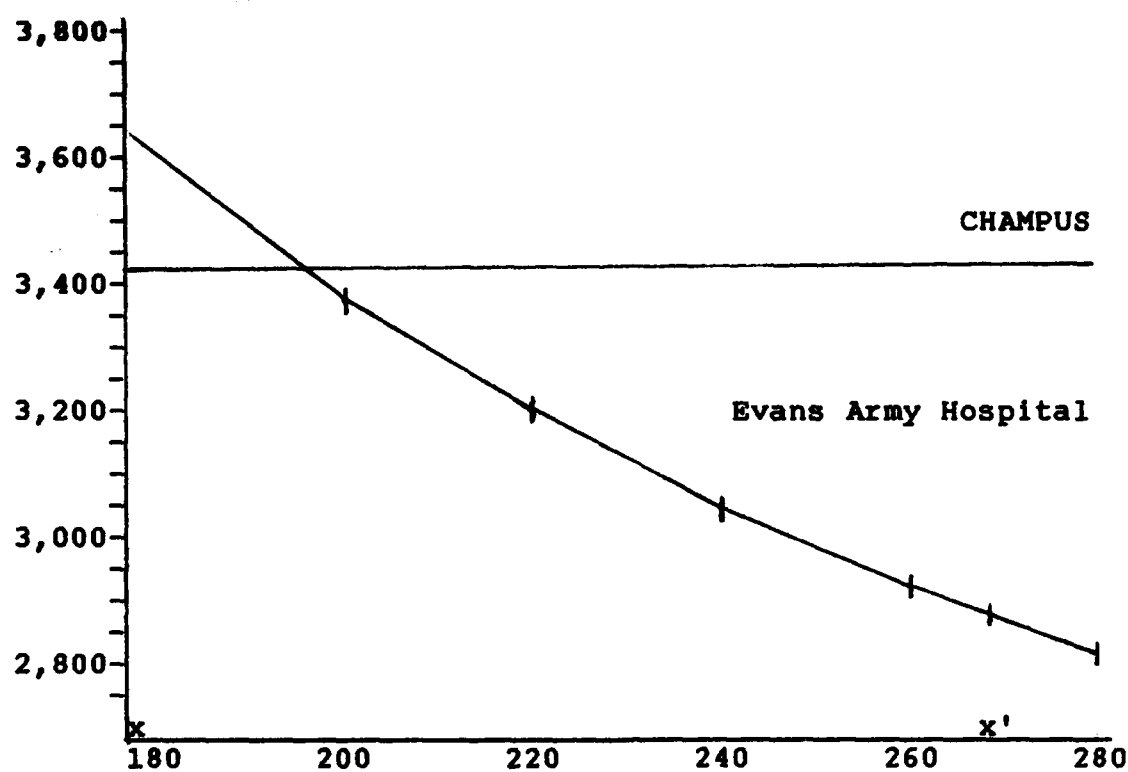
The variable cost of \$1,366 for each additional delivery performed is considerably less than the average of \$3,631 calculated initially for 178 births in the October-December 1987 quarter. But it would not be accurate to compare only additional variable costs to the CHAMPUS delivery cost; the total cost (fixed plus variable) must be calculated for comparison purposes. With fixed costs now being held constant over a limited range of additional obstetric inpatients, the cost per delivery will show a decline with more deliveries performed.

The effect of spreading fixed costs over more work load can be easily demonstrated. If deliveries are increased by 30 per month (90 per quarter), the cost per birth in Evans Army Hospital

will eventually drop below the average CHAMPUS cost per delivery. For example, at an average variable cost of \$1,366 per delivery, 90 additional births will increase variable costs by \$122,940. Adding these additional deliveries to the 178 performed in the quarter under study brings the total to 268. Adding the costs together bring total costs to \$769,203 (\$646,263 + 122,940). By dividing total costs of \$769,203 by 268, the average cost per delivery at Evans Army Hospital drops to \$2,870. 268 births for a quarter is approximately 90 per month, which can be performed with the current nurse staffing for inpatient obstetrics. By performing 50 percent more deliveries than at present Evans Army Hospital can significantly reduce its cost per delivery to well below the average CHAMPUS cost. At the present, doing 60 deliveries per month, the cost of a delivery in Evans Army Hospital is greater than under CHAMPUS (\$3,631 v. \$3,428). A strict business solution would be to either close down the obstetrics service as unprofitable and redistribute the resources to profitable centers in the hospital, or make efforts to recover CHAMPUS patients through the Partnership Program, thereby making more efficient use of underutilized resources to effectively compete with the lower CHAMPUS cost.

The average cost curve for the range of 178 to 268 deliveries per quarter (equivalent to approximately 60 to 90 per month) is shown in Fig. 5. The graph indicates that at approximately 195 deliveries per quarter (65 per month) the average government cost per delivery performed in Evans Army Hospital equals the cost (\$3,428) under CHAMPUS. Approximately 180 of these deliveries will have been performed by military physicians and approximately

Cost per Delivery



$x = 178$, $x' = 268$

Number of Births

Fig. 5.

15 by partnership physicians. The addition of a single partnership physician, who could easily perform five deliveries per month, would be a cost-effective action to take.

Increasing the number of deliveries at Evans Army Hospital is cost effective by the criteria established for this study. Performing 90 deliveries per month in the MTF reduces the average cost per delivery to \$2,870 as compared to an average CHAMPUS cost of \$3,428 (which should remain fairly constant regardless of the number of deliveries unless the CHAMPUS allowable physician fee goes up or until average OB inpatient charges increase). This is a savings of \$558 (\$3,428 - \$2,870) per delivery, or 16.2 percent, over traditional CHAMPUS coverage. Though figured for a

quarter, extrapolating for a full year will give the same average. (Based on a current work load of 60 actual deliveries per month for the October through December 1987 quarter, the annual number of deliveries would be 720; if performed, the 30 additional deliveries per month under the Partnership Program would equal 360 per year.) \$2,870 represents an average cost per delivery to the government. The actual average cost of \$2,576 per delivery to the direct care system is slightly less because the \$900 partnership physician fee is paid for by CHAMPUS. Only the remaining \$466 (\$1,366 - \$900) in variable costs can be charged to the direct care system.

720 deliveries per year X \$3,631	=	\$2,614,320
360 additional deliveries X \$466	=	\$ 167,760
1,080 total deliveries cost		\$2,782,080
Average cost per delivery		\$ 2,576

Adding more deliveries will improve on this cost effectiveness up to the point that a significant number of personnel have to be added to the staff or depreciable property or equipment is added. If Evans Army Hospital could have performed an additional 360 deliveries (30 per month) in FY 87, the CHAMPUS program would have saved \$1,234,080 (360 X \$3,428) out of total obstetric costs of \$5,206,689, or 23.7 percent. The savings would have been 7.3 percent of total government CHAMPUS costs. However, the bottom-line savings to the government will be the difference between the savings to CHAMPUS and the cost of increasing deliveries in the direct care system. At a cost of \$1,366 per delivery, 360 additional deliveries will cost \$491,760 to perform in the direct care system. The difference between the

traditional CHAMPUS cost and the total cost (partnership fee and variable costs to the direct care system) in the direct care system cost for these 360 deliveries is \$742,320 (\$1,234,080 - \$491,760) as bottom line savings to the government by performing these deliveries within the direct care system with partnership physicians. The government is now spending approximately \$.398 in the direct care system in order to save \$1.00 in CHAMPUS costs. The bottom-line savings to the government are the same if the additional 360 births are shown to represent a direct care system cost of \$466 and a CHAMPUS cost of \$900 per delivery.

360 X \$466 = \$167,760 direct care system costs

360 X \$900 = \$324,000 CHAMPUS costs

\$491,760 total additional costs

In accordance with the study's constraints, only certain ancillary and support service costs have been considered, with no allowance for labor costs other than the physician's fee. The only validity with this approach is that it examines the cost of those services that would likely be of most concern to the facility with an increase in inpatient load, i.e., ancillary and certain support services costs. Comparing the cost of an in-house delivery at \$2,870 (or \$1,366, or \$466) to the average cost to the government of \$3,428 for a delivery under CHAMPUS, it is easy to conclude that deliveries at Evans Army Hospital are less expensive to the government than deliveries under CHAMPUS. This is no surprise since it has been established in CHAMPUS comparison statistics that, in general, care within the direct care system is less expensive than similar care under CHAMPUS.

Although comparing actual CHAMPUS costs with direct care system costs is risky because there is no common basis for how the two figures were derived, it is safe to conclude that any recovery of CHAMPUS inpatients that makes use of underutilized facilities in a military hospital will be cost effective over CHAMPUS care, thereby making a cost comparison study of the type performed of limited use. If this is so, is there any valid reason for using MEPRS data to make decisions about recovering CHAMPUS work load?

Since a direct cost comparison between CHAMPUS and MEPRS has limited usefulness, one is left with considering the use of MEPRS work load data for making decisions about recovering CHAMPUS patients. Divorced from their associated costs, the work load data in Tables 12 through 15 can be manipulated to produce some insight into what effects CHAMPUS recovery would have within the facility. Instead of determining whether or not aggregate costs are competitive, work load procedures per occupied bed days or some other desired statistic can be used to examine the effects of CHAMPUS recovery at the work center level. To demonstrate how this can be developed, the ancillary and support service work load data in Tables 12 through 15 are used to calculate the amount of work load per delivery and for 30 deliveries. Together with average work load per FTE for each work center, it is possible to calculate the additional number of FTEs in various work centers that an additional 30 deliveries would demand. This information is shown in Tables 17 through 20. In these tables, data in the Work Load per FTE column is taken from the MEPR Expense Assignment report. Although it is not a staffing

standard--rather, only a relative amount of work load for the quarter based on how many FTEs were present, not how many are required--it can be used as a fairly accurate estimate of how much work load is performed by each FTE. MEPRS data is not compatible with standards in the current Staffing Guide for U.S. Army Medical Department Activities (DA Pam 570-557), June 1974.

By basing all data on a work per delivery basis, any desired number of deliveries (30 is used in the tables) can be inserted into the tables to determine the total amount of work load anticipated in various work centers by category of personnel. Dividing the total work load for a given number of recovered deliveries by the historical work load per FTE will serve as a means to estimate of the impact of the work load increase by showing how many more FTEs are required to perform the additional work. As can be seen in Tables 17 through 20, recovering 30 deliveries produces a mostly negligible effect insofar as additional FTEs are concerned. Table 21 summarizes total additional FTEs required by the additional deliveries.

Before any consideration is given to adding personnel based on the FTE requirements in Tables 17 through 21, the effect of spreading the additional work load over the existing number of assigned personnel in a work center should be examined. For example, in Table 17, under the subcategory of Direct Care Paraprofessional, the clinical pathology work load associated with 30 additional deliveries per month is 4,192 WPs (from Table 12, 21.40 WPs per OBD X 6.53 OBDs per delivery), or 12,576 per quarter. From the MEPR report for the October through December 1987 quarter, the number of clinical pathology WPs actually

Table 17

Obstetrics Service Work Load and FTE Increases

Description	PF ^a	WL per OBD	X 6.53 OBD per Del	X 30 Del	WL per FTE ^b	Add FTE
<u>Ancillary Services</u>						
<u>Clinician</u>						
Clinical Pathology	WP	21.40	139.74	4,192.20	336,239	.01
Anatomical Pathology	WP	5.21	34.02	1,020.64	35,836	.03
Diagnostic Radiology	WP	.16	1.05	31.34	9,935	.003
Anesthesiology	MS	3.02	19.72	591.62	12,213	.05
<u>Direct Care Professional</u>						
Clinical Pathology	WP	21.40	139.74	4,192.20	401,097	.01
Anesthesiology	MS	3.02	19.72	591.62	5,863	.10
Physical Therapy	V	.001	.007	.20	1,155	.00
<u>Registered Nurse</u>						
Operating Room	MS	9.21	60.14	1,804.24	12,262	.15
Recovery Room	MS	3.85	25.14	754.22	10,404	.07
<u>Direct Care Paraprofessional</u>						
Clinical Pathology	WP	21.40	139.74	4,192.20	13,479	.31
Anatomical Pathology	WP	5.21	34.02	1,020.64	11,352	.09
Blood Bank	WP	4.15	27.10	812.99	5,333	.15
Diagnostic Radiology	WP	.16	1.05	31.34	1,063	.03
Anesthesiology	MS	3.02	19.72	591.62	22,029	.03
Operating Room	MS	9.21	60.14	1,804.24	5,613	.32
Recovery Room	MS	3.85	25.14	754.22	10,218	.07
Physical Therapy	V	.001	.007	.20	512	.00
<u>Administrative, Clerical, and Logistics</u>						
Clinical Pathology	WP	21.40	139.74	4,192.20	171,774	.02
Anatomical Pathology	WP	5.21	34.02	1,020.64	19,371	.05
Blood Bank	WP	4.15	27.10	812.99	52,484	.02
Diagnostic Radiology	WP	.16	1.05	31.34	11,737	.00
Operating Room	MS	9.21	60.14	1,804.24	99,440	.02
Physical Therapy	V	.001	.007	.20	620	.00

Continued next page.

Description	PF ^a	WL per OBD	X 6.53 OBD per Del	X 30 Del	WL per FTE	Add FTE
Support Services						
<u>Direct Care Professional</u>						
Nutrition Care Div	RS	.85	5.55	166.52	2,192	.08
<u>Administrative, Clerical, and Logistics</u>						
Nutrition Care Div	RS	.85	5.55	166.52	171	.97

Source: Medical Expense and Performance Report, Expense Assignment System (PCN NAA-Q15), MEDDAC, Fort Carson (U.S. Army Health Services Command, 4 Apr. 1988) 26-40.

^a PF = Performance Factor, WP = Weighted Procedure, MS = Minutes of Service, V = Visit, RS = Rations Served

^b The Work Load per FTE figure (in this table and Tables 18 through 20) is calculated in MEPRS by dividing the total performance factor work load (e.g., weighted procedures) by the total FTE for the category of personnel (clinician; direct care professional; registered nurse; direct care paraprofessional; and administrative, clerical, and logistics). For example, the clinical pathology work load per FTE for direct care professionals was determined by dividing the total weighted procedures work load of clinical pathology for the quarter by the number of direct care professional FTEs present for the quarter: $790,161/1.97 = 401,097$.

performed was 790,161. The number of direct care

paraprofessionals present during this quarter was 58.62.

Dividing total work load by the number of FTEs present results in a work load of 13,479 WPs per FTE.²⁰ In turn, dividing the number of additional WPs resulting from 30 additional deliveries by the historical work load per FTE will give an estimate of additional FTEs required to staff the additional 30 deliveries. In this case, only .31 FTEs would be needed ($4,192.20/13,479$), which is significantly larger than any other FTE increase though quite small in itself. Without an FTE increase, the amount of additional work to be performed by the FTEs already present can

Table 18

Obstetrics Cost Pool Work Load and FTE Increases

Description	PF ^a	WL per OBD	X 6.53 OBD per Del	X 30 Del	WL per FTE	Add FTE
Ancillary Services						
<u>Direct Care Professional</u>						
Main Pharmacy	WP	2.84	18.55	556.36	3,935	.14
<u>Registered Nurse</u>						
Central Sterile Sup	HS	.43	2.81	84.24	3,470	.02
<u>Direct Care Paraprofessional</u>						
Main Pharmacy	WP	2.84	18.55	556.36	3,201	.17
Central Sterile Sup	HS	.43	2.81	84.24	245	.34
<u>Administrative, Clerical, and Logistics</u>						
Main Pharmacy	WP	2.84	18.55	556.36	19,803	.03
Support Services						
<u>Administrative, Clerical, and Logistics</u>						
Biomed Eq Repair	HS	.08	.52	15.67	80	.20
Biomed Eq Repair	Pa	.67	4.38	131.25 ^b		
Laundry Service	Pd	9.47	61.84	1,855.17	7,527	.23

Source: Medical Expense and Performance Report, Expense Assignment System (PCN NAA-Q15), MEDDAC, Fort Carson (U.S. Army Health Services Command, 4 Apr. 1988) 26-40.

^a HS = Hours of Service, Pa = Parts, Pd = Pounds

^b This work center is not listed in the MEPR Expense Assignment System.

Table 19

Newborn Nursery Work Load and FTE Increases

Description	PF ^a	WL per OBD	X 3.0 OBD per Del	X 30 Del	WL per FTE	Add FTE
Ancillary Services						
<u>Clinician</u>						
Clinical Pathology	WP	11.53	34.59	1,037.70	35,836	.03
Diagnostic Radiology	WP	.40	1.20	36.00	9,935	.004
<u>Direct Care Professional</u>						
Main Pharmacy	WP	.48	1.44	43.20	3,935	.01
Clinical Pathology	WP	11.53	34.59	1,037.70	401,097	.003
<u>Direct Care Paraprofessional</u>						
Main Pharmacy	WP	.48	1.44	43.20	3,201	.01
Clinical Pathology	WP	11.53	34.59	1,037.70	13,479	.08
Blood Bank	WP	13.19	39.57	1,187.10	5,333	.22
Diagnostic Radiology	WP	.40	1.20	36.00	1,063	.03
EKG	Pr	.01	.03	.90	253	.004
Pulmonary Function	WP	.05	.15	4.50	464	.01
<u>Administrative, Clerical, and Logistics</u>						
Main Pharmacy	WP	.48	1.44	43.20	19,803	.002
Clinical Pathology	WP	11.53	34.59	1,037.70	171,774	.01
Blood Bank	WP	13.19	39.57	1,187.10	52,484	.02
Diagnostic Radiology	WP	.40	1.20	36.00	11,737	.003
EKG	Pro	.01	.03	.90	253	.004
Pulmonary Function	WP	.05	.15	4.50	464	.01

Source: Medical Expense and Performance Report, Expense Assignment System (PCN NAA-Q15), MEDDAC, Fort Carson (U.S. Army Health Services Command, 4 Apr. 1988) 26-40.

^a Pro = Procedure

Table 20

Newborn Nursery Cost Pool Work Load and FTE Increases

Description	PF	WL per OBD	X 3.0 OBD per Del	X 30 Del	WL per FTE	Add FTE
Ancillary Services						
<u>Registered Nurse</u>						
Central Sterile Sup	HS	.12	.36	10.80	3,470	.003
<u>Direct Care Paraprofessional</u>						
Central Sterile Sup	HS	.12	.36	10.80	245	.04
Support Services						
<u>Administrative, Clerical, and Logistics</u>						
Biomed Eq Repair	HS	.07	.21	6.30	80	.08
Biomed Eq Repair	Pa	.54	1.62	48.60 ^a		

Source: Medical Expense and Performance Report, Expense Assignment System (PCN NAA-Q15), MEDDAC, Fort Carson (U.S. Army Health Services Command, 4 Apr. 1988) 25-40.

^a This work center is not listed in the MEPR Expense Assignment System.

also be calculated. The total work load for the quarter with the additional deliveries can be estimated as 802,737 WPs (790,161 + 13,479). Dividing this work load by the number of FTEs present equals 13,694 WPs per FTE (802,737/58.62). This represents a work load increase of 1.6 percent for each FTE (13,694 - 13,479/13,694), about 215 procedures per quarter or 72 per month. Depending on how close 13,479 weighted procedures per FTE are to a desired staffing standard within clinical pathology will determine whether the .31 FTE justifies another full-time position or whether the 1.6 percent increase in work load per FTE falls within the ability of laboratory personnel to perform

Table 21

Summary of Ancillary and Support Services FTEs

	C	DCP	RN	DCPa	ACL ^a
Ancillary Services (Sum of Obstetrics and Newborn Nursery)					
Main Pharmacy		.15		.18	.032
Clinical Pathology	.04	.013		.39	.03
Anatomical Pathology	.03			.09	.05
Blood Bank				.37	.04
Diagnostic Radiology	.007			.06	.003
EKG				.004	.004
Pulmonary Function				.01	.01
Central Sterile Supply			.023	.38	
Anesthesiology	.05	.10		.03	
Operating Room			.15	.32	.02
Recovery Room			.07	.07	
Physical Therapy					
Support Services (Sum of Obstetrics and Newborn Nursery)					
Biomed Eq Repair					.28
Laundry Service					.23
Nutrition Care Division		.08			.97

^a C = clinician; DCP = direct care professional; RN = registered nurse; DCPa = direct care paraprofessional; ACL = administrative, clerical, and logistics.

(i.e., it takes up manpower slack). In the present absence of any manpower staffing guidelines based on MEPRS data, this will be a subjective determination by the appropriate manager. Even if an additional FTE is determined to be necessary, the work center would probably be unable to obtain an additional authorization until new manpower staffing guidelines are published. In the interim, it may be possible to hire ancillary personnel through the Partnership Program if this is essential to making use of underutilized direct care facilities.

The usefulness of providing MEPRS data as shown in Tables 17 through 21 is that it allows ancillary and support service managers to anticipate their increased work loads based on any number of additional inpatients. This is easily accomplished once a work load amount per some relevant statistic, such as occupied bed days, is determined.

Though direct expenses for other than physicians were not considered in this study, MEPRS provides the data that can estimate additional FTEs needed for a certain increase in work load. As shown in Table 22, total FTEs for registered nurses, direct care paraprofessionals, and administrative personnel can be divided into total OBDs for the obstetrics service and newborn nursery to determine how many FTEs are needed for each OBD. Multiplying this number of FTEs by the number of additional OBDs a patient recovery is producing provides an indication of additional staffing needs. This is only useful as an estimate based on relative numbers of FTEs available for the quarter in the services.

Table 22

Direct Expense FTE Increases

Obstetrics Services

Total OBDs	Total FTEs	FTEs per OBD	Add FTEs (X 196 OBDs)
<u>Registered Nurse</u>			
1,162	31.90	.03	5.88
<u>Direct Care Paraprofessional</u>			
1,162	34.19	.03	5.88
<u>Administrative, Clerical, Logistics</u>			
1,162	1.51	.001	.20

Newborn Nursery^a

Total OBDs	Total FTEs	FTEs per OBD	Add FTEs (X 90 OBDs)
<u>Registered Nurse</u>			
533	16.03	.03	2.7
<u>Direct Care Paraprofessional</u>			
533	17.86	.03	2.7
<u>Administrative, Clerical, Logistics</u>			
533	1.47	.003	.3

Source: Medical Expense and Performance Report, Expense Assignment System (PCN NAA-Q15), Part II, MEDDAC, Fort Carson
(U.S. Army Health Services Command, 4 Apr. 1988) 3-10.

^a Includes all FTEs and OBDs for Neonatal ICU.

Summary

The basic methodology for assessing the practicability and impact of recovering CHAMPUS patients must consider both CHAMPUS and MEPRS data. The initial step is to determine, from data available in CHAMPUS catchment area reports, in what categories the catchment area's CHAMPUS costs are concentrated. Once those CHAMPUS costs that cannot be reasonably recovered are eliminated, either from imposition of selected constraints or availability of facilities within the hospital, potentially recoverable costs remain. Unless a construction, renovation, or remodeling project is being planned, the patients considered as recoverable must be receiving care under CHAMPUS because of lack of services in the military facility, not lack of facilities. In the case of Evans Army Hospital, these were the services that accounted for the average daily patient load of 21 for CHAMPUS care in the catchment area. From further examination of CHAMPUS catchment area reports the separate types of services and their daily patient loads can be determined. The services representing the greatest savings should be targeted first. Accordingly, obstetrical care was chosen for this study. A decision has to be made whether non-physician manpower will be a limiting factor. Additional physicians can be made available through the Partnership Program, but additional nursing or ancillary personnel may not be available. In the case of obstetric care at Evans Army Hospital, it was known that the nursing staff could support additional births. Any limitations would involve the ancillary or support services personnel.

MEPRS data can now be used to assess the impact throughout the facility of recovering a target number of CHAMPUS patients. Keeping in mind that adding inpatient work load can have wide-ranging effects, careful attention must be given to all the potential areas, both inpatient and ambulatory, that can be affected. Adding obstetric inpatients meant considering the impact on the obstetrics service, wards, and the newborn nursery. Though not specifically analyzed, the impact on outpatient clinics that might see recovered patients before and/or after their admission should also be assessed, generally in terms of additional clinic appointments needed. The MEPR subaccounts to which costs and work load are allocated will provide the cost and work load data for ancillary and support services.

It is essential to identify those costs in MEPRS that are considered fixed and those considered variable. This was done in Tables 12 through 15. The identification of these costs should be the same for all military treatment facilities. Because MEPRS does not identify costs as fixed or variable, the identification must be carried out based on what happens to the cost when the number of inpatient increases. If the cost increases, it is considered variable; if it does not increase (over a reasonable range of inpatient recovery), it is considered fixed. By adding in only those variable costs for a number of additional inpatients to the total cost (fixed and variable) for the service under analysis, a revised average cost per patient for care within the military facility can be determined. This average cost can be compared to the average CHAMPUS cost for the service

to determine if recovering the additional patients results in a direct care system cost competitive with CHAMPUS. If not, the attempt to recover the CHAMPUS patients should either be abandoned or the impact of recovering even more patients should be assessed. Spreading fixed costs over more recovered patients may bring the average cost down to or below the CHAMPUS cost.

Assessing the specific impact on the hospital's ancillary and support services requires analyzing the work load data in MEPRS for the hospital service that will be receiving the additional inpatients. This can be done by establishing a common unit of measurement against which all work load will be prorated. The measure, or statistic, of "per occupied bed day" (OBD) was chosen in this study because it was provided in MEPRS for various work center subaccounts which were comparable to categories of care in CHAMPUS. By computing the work load per OBD for ancillary and support services considered as representing variable costs, it became simple to estimate their total increase in work load for any number of additional inpatients. At this point the additional work load can be assessed by how many additional FTEs it represents, or how much of an increase in individual work it represents for available FTEs in the service.

Endnotes

¹ The following non-emergency care does not require a statement of nonavailability: care covered by other health insurance; care in a college infirmary, nursing facility, residential treatment center; care by a civilian doctor in an inpatient MHSS medical treatment facility; care in an alcoholic treatment facility.

² United States, Department of Defense, Command Performance Summary, United States Army Health Services Command, First Quarter FY 88 (San Antonio: United States Army Health Services Command) 4.

³ United States, Department of Defense, CHAMPUS Inpatient Report for Care Received from Oct, 1986 thru Sep, 1987, Total All Categories of Personnel, Fort Carson, Co (Aurora, Colorado: OCHAMPUS, 28 Jan. 1988) 1-4.

⁴ United States, Department of Defense, DA Form 2789-R, Medical Summary Report (Fort Carson, Colorado: Evans U.S. Army Community Hospital, Oct. 1986 through Sept. 1987) Section IV.

⁵ United States, Department of Defense, DA Form 2789-R Section IV.

⁶ United States, Department of Defense, Medical Expense and Performance Report, PCN NAA-Q15 (San Antonio: United States Army Health Services Command, 4 Apr. 1988) 1.

⁷ COL Nancy Myers, Chief Nurse, Evans U.S. Army Community Hospital, Personal interview, 20 Apr. 1988.

⁸ United States, Department of Defense, Medical Expense and Performance Report, PCN NAA-Q11 (San Antonio: United States Army Health Services Command, 4 Apr. 1988) 1-1.

9 United States, Department of Defense, Medical Expense and Performance Report, PCN NAA-Q08 (San Antonio: United States Army Health Services Command, 4 Apr. 1988) 1-1 - 1-5.

10 United States, Department of Defense, Medical Expense and Performance Report, PCN NAA-Q11 1-1.

11 United States, Department of Defense, Medical Expense and Performance Report, PCN NAA-Q15 1.

12 United States, Department of Defense, DA Form 2789-R
Section IV.

13 United States, Department of Defense, CHAMPUS Inpatient Report 3.

14 United States, Department of Defense, DoD 6010.13-M: Medical Expense and Performance Reporting System for Fixed Medical and Dental Treatment Facilities (Washington: GPO, Jan. 1986) 2d-3 - 2e-37.

15 Full-time equivalent (FTE) work-month is the amount of labor available to a work center if one individual had worked in the work center for one (1) month. When reported in the MEPR Expense Assignment System (PCN NAA-Q15) report for a work center, it is only a measure of how many employees worked for the quarter. When the total FTEs for a work center are divided into the total performance factor for the work center, the result is the amount of work load assigned to each FTE present during the report period. The performance factor per FTE can go up or down each report period based on how many FTEs happened to be available that period. It gives no indication of what is the staffing standard for a work center. It is only a relative measure of how much work load is assigned to each FTE available.

16 United States, Department of Defense, DoD 6010.13-M 2e-7.

17 United States, Department of Defense, Medical Expense and Performance Report, PCN NAA-Q08 1-1 - 1-5.

18 Pauline Sargeant, Health Benefits Advisor, Evans U.S. Army Community Hospital, Personal interview, 12 May 1988.

19 United States, Department of Defense, Medical Expense and Performance Report, PCN NAA-Q15 1.

20 United States, Department of Defense, Medical Expense and Performance Report, PCN NAA-Q15 29.

CONCLUSION

The recovery of obstetric CHAMPUS patients to Evans Army Hospital has been shown to be cost effective within certain constraints. Given that care within the direct care system is, on average, less expensive than care under CHAMPUS, this outcome--that obstetrical care can be provided at less cost to the government in a military facility than under CHAMPUS--was never seriously doubted. However, analysis of CHAMPUS and MEPRS data is valuable in assessing the impact of recovery on the facility.

Military treatment facilities with underutilized services can follow the procedures in this study in order to analyze their CHAMPUS expenditures, target certain CHAMPUS patients for recovery, and assess the impact of the recovery. Cost effectiveness analysis can be performed utilizing expense figures from MEPRS, identified as variable and fixed costs, to compare the cost of recovering inpatients with the average CHAMPUS expenditure for the category of care being recovered. MEPRS cost data alone, however, is of limited value in planning CHAMPUS recovery; it cannot indicate what the impact will be in terms of additional work load for different areas of the facility and may only confirm what is already accepted to be true, that the direct care system is less expensive than CHAMPUS. MEPRS work load data appear to be of more value in this type of analysis. By extracting work load data from various MEPR reports and relating it to a common statistic (for example, occupied bed days), the work load impact within various services can be assessed for any desired level of CHAMPUS recovery. In addition, a reasonable estimate of additional manpower requirements can be made.

Appendix

Government Inpatient CHAMPUS Costs (FY 87)
Fort Carson Catchment Area ^{a, b}

	Adverse Reaction	Allergy	Cardiology
Inpatient Total	190,338/.58	81,615/.29	1,239,443/2.27
Emergency Care, No NAS Required	<u>184,988/.58</u>	<u>40,052/.09</u>	<u>515,923/1.01</u>
Inpatient Care, No NAS Required	<u>0/.00</u>	<u>17,948/.06</u>	<u>278,734/.44</u>
Inpatient Care, NAS Required	5,350/.00	39,482/.13	686,643/.81
Dermatology	Endocrinology	Gastro- enterology	Hematology
20,525/.06	27,039/.09	248,709/.86	24,991/.00
<u>1,716/.00</u>	<u>12,350/.04</u>	<u>37,427/.13</u>	<u>90/.00</u>
<u>3,967/.01</u>	<u>8,449/.02</u>	<u>38,174/.13</u>	<u>1,276/.00</u>
18,769/.05	13,435/.02	204,650/.59	23,625/.00
Infectious Disease	Nephrology	Neurology	Nutritional
67,573/.15	65,758/.13	246,751/.66	9,554/.03
<u>1,384/.00</u>	<u>19,926/.00</u>	<u>90,415/.21</u>	<u>0/.00</u>
<u>972/.01</u>	<u>2,421/.01</u>	<u>6,001/.04</u>	<u>0/.00</u>
65,217/.12	43,411/.10	150,335/.40	9,554/.03

Pulmonary/ Respiratory	Rheumatology	Other Internal Med.	Dental
391,129/1.21	51,408/.26	325,132/.77	16,921/.03
<u>175,859/.53</u>	<u>1,518/.00</u>	<u>29,591/.13</u>	<u>0/.00</u>
<u>14,532/.20</u>	<u>7,048/.17</u>	<u>12,754/.04</u>	<u>74/.02</u>
200,738/.46	42,842/.08	282,787/.59	16,847/.00

Obstetrics	Gynecology	Ophthalmology	Psychiatry Group 1
5,206,689/12.25	138,427/.48	2,805/.00	1,716,129/12.49
<u>92,665/.00</u>	<u>11,164/.02</u>	<u>375/.00</u>	<u>83,075/.53</u>
<u>17,318/.17</u>	<u>10,187/.20</u>	<u>57/.00</u>	<u>256,593/4.16</u>
5,096,706/11.91	117,076/.25	2,373/.00	<u>1,376,461/7.79</u>

Psychiatry Group II	Special Pediatrics	Ear, Nose and Throat	General Surgery
2,694,977/19.59	2,385,667/3.82	84,408/.22	641,588/2.10
<u>9,893/.04</u>	<u>511,966/.81</u>	<u>14,525/.07</u>	<u>241,592/.59</u>
<u>768,366/8.96</u>	<u>3,712/.07</u>	<u>5,520/.02</u>	<u>33,743/.51</u>
<u>1,916,748/10.57</u>	1,870,484/2.93	64,363/.12	366,253/.99

Neurosurgery	Orthopedics	Thoracic Surgery	Urology
368,382/.71	447,597/1.24	33,415/.19	102,155/.25
<u>213,457/.35</u>	<u>158,921/.54</u>	<u>2,425/.00</u>	<u>7,318/.00</u>
<u>1,805/.00</u>	<u>21,227/.17</u>	<u>3,136/.00</u>	<u>7,549/.08</u>
153,120/.36	267,449/.53	27,854/.13	87,288/.15
<hr/>			
Total All Categories			
<hr/>			
16,829,125/60.95			
 <u>2,458,615/5.96</u>			
 <u>1,220,650/15.67</u>			
 13,149,860/39.32			
<hr/>			

Source: CHAMPUS Inpatient Report for Care Received from Oct, 1986 thru Sep, 1987, Total All Categories of Beneficiaries, Fort Carson, Co (Aurora, Colorado: OCHAMPUS, 28 Jan. 1988) 1-4.

^a Underlined portions indicate potentially unrecoverable costs.

^b The figures after the slash (/) are the average number of daily CHAMPUS inpatients for each category of care and statement of nonavailability situation.

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