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BY THE U.S. GENERAL ACCOUNTING OFFICE

Report To The Secretary Of Defense

DOD Should Adopt A New Approach To Analyze The Cost Effectiveness Of Small Hospitals

Several studies of nonfederal hospitals have found that smaller hospitals are less economical to operate than larger ones. The studies indicate that the most economical hospital size is between 200 and 300 beds.

In fiscal year 1983, the Department of Defense (DOD) operated 126 hospitals, 69 of which had average daily inpatient loads of 50 or less. The cost to operate the 69 small hospitals totaled about \$506 million in that year.

GAO developed a computer-based model which compares the costs of operating small military hospitals to the estimated costs of converting them to outpatient clinics and treating inpatients at nearby civilian facilities. Applying the model at three small hospitals, GAO found that DOD could have saved about \$3.9 million in fiscal year 1981 costs had these hospitals been converted.

A decision to convert a small military hospital to an outpatient clinic should not be based solely on economic factors. Other considerations--such as the mission requirements, availability of alternative sources of care, and impact on beneficiaries--need to be evaluated. GAO believes, however, that because of the potential benefits of selectively converting small hospitals, DOD should evaluate the cost effectiveness of continuing small hospital operations when alternative sources of care are available.



031486

GAO/HRD-85-21
MARCH 15, 1985



UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

HUMAN RESOURCES
DIVISION

B-217767

The Honorable Caspar W. Weinberger
The Secretary of Defense

Dear Mr. Secretary:

This report discusses the need for DOD to adopt a new approach to analyzing the cost effectiveness of providing inpatient services at small hospitals.

The report recommends that you direct the Assistant Secretary of Defense (Health Affairs) and the Surgeons General of the Army, Navy, and Air Force to

- develop criteria to determine when providing inpatient services at small military hospitals is economical and necessary,
- analyze each small military hospital to determine its potential for conversion to an outpatient clinic, and
- perform such analyses before requesting funds from the Congress (or before expending any already approved funds) for reconstructing or renovating any small military hospital.

This report contains recommendations to you on page 38. As you know, 31 U.S.C. 720 requires the head of a federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

Copies of this report are being provided to the above committees, the Senate and House Committees on Armed Services, and the Office of Management and Budget. Copies are also being sent to the Secretaries of the Army, Navy, and Air Force.

Sincerely yours,

A handwritten signature in cursive script that reads "Richard L. Fogel".

Richard L. Fogel
Director

GENERAL ACCOUNTING OFFICE
REPORT TO THE
SECRETARY OF DEFENSE

DOD SHOULD ADOPT A NEW
APPROACH TO ANALYZE THE
COST EFFECTIVENESS OF
SMALL HOSPITALS

D I G E S T

Several studies of nonfederal hospitals have found a correlation between hospital size and economy of operation--the smaller a hospital, the less economical it is to operate. The reason for this is that a large fixed investment for plant, equipment, and personnel is required to care for even a few inpatients at current medical standards. The studies indicate that the most economical hospital size is between 200 and 300 beds. (See p. 1.)

The Department of Defense (DOD) spent about \$6.1 billion in fiscal year 1984 to operate its world-wide hospital and clinic system. In fiscal year 1983, the latest year for which DOD had information concerning the details of the hospitals' operations, it operated 126 hospitals in the continental United States at a cost of about \$2.6 billion.

Additionally, DOD spent about \$1.2 billion in fiscal year 1983 to fund medical care for eligible beneficiaries under the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Under CHAMPUS, dependents of active duty personnel, retirees and their dependents, and dependents of deceased military personnel receive care in nonfederal medical facilities when the needed services are not available at a DOD facility. The costs for the services are shared by the government and the beneficiary. (See p. 4.)

Of the 126 hospitals in the continental United States that DOD operated in fiscal year 1983, 69 had an average daily patient load of 50 or less. About \$506 million was spent in that year to operate these hospitals. About \$629 million is proposed to be spent to replace or renovate these hospitals during fiscal years 1986-90. (See p. 4.)

In developing its methodology, GAO made several assumptions that tend to understate estimates of potential government savings achievable from converting small military hospitals to outpatient clinics. (See p. 19.)

--GAO assumed that all active duty personnel treated in the three hospitals would have incurred the same average charge as CHAMPUS patients. Physicians at the hospitals told GAO, however, that many active duty patients require only limited care for relatively minor illnesses and would not typically be hospitalized if they were civilians. These patients would incur less costs than the CHAMPUS average.

--GAO assumed that most active duty patients would have been treated in a civilian hospital. In practice, some of them would probably have been referred to other military hospitals.

--GAO assumed that the nonactive duty beneficiaries in its analysis did not have private health insurance which could have been used to reduce CHAMPUS payments for their care. However, some of these beneficiaries may have had such insurance. CHAMPUS regulations require beneficiaries to use such insurance to pay for health care before using CHAMPUS benefits.

--GAO assumed no curtailment of small hospital construction or renovation. DOD's 5-year construction plan includes about \$629 million for construction and renovation of small hospitals; one of the three hospitals GAO reviewed is proposed for a major construction project.

OTHER CONSIDERATIONS IN DECISIONS
CONCERNING CONVERSION OF SMALL
MILITARY HOSPITALS

GAO recognizes that decisions regarding conversion of small military hospitals to outpatient clinics should consider, in addition to the cost factors addressed by its methodology, other factors, such as

Availability of alternative
sources of care

Individual analyses are necessary to determine whether alternative facilities exist to absorb military hospital inpatient workloads. GAO found, however, that many small military hospitals could be converted to clinics without forcing patients to travel long distances to obtain inpatient care. For example, in fiscal year 1982, 46 of the 67 small military hospitals were located within 15 miles of at least one civilian hospital with 100 or more beds and an emergency room. Other military hospitals and Veterans Administration hospitals may also be able to provide inpatient services. (See p. 26.)

Potential effects on CHAMPUS
costs and physician productivity

Discontinuing inpatient services at small hospitals found not to be cost effective or otherwise essential could allow DOD to transfer personnel to larger understaffed military hospitals. This action, in turn, could enable the larger hospitals to improve their utilization and reduce costs by treating more DOD beneficiaries instead of referring them to private hospitals under CHAMPUS. A 1982 study by the U.S. Army Health Services Command found that 10 of those larger Army hospitals in the United States would be able to absorb a greater portion of the CHAMPUS workloads in their areas if they were allocated additional personnel and other resources. (See p. 28.)

Also, a shift of resources from small hospitals could improve physician productivity. At the three hospitals GAO reviewed, physicians said that the size or complexity of their workload could be increased if they were not subject to several constraints, such as the absence of specialists, nurses, or a sufficiently large workload, which appear to be unique to small hospitals.

conservative assumptions were used, demonstrate the need for DOD to analyze, on a case-by-case basis, the cost effectiveness of continuing to offer inpatient services at its small hospitals when alternative sources of inpatient care are available. (See p. 37.)

RECOMMENDATIONS TO THE
SECRETARY OF DEFENSE

GAO recommends that the Secretary of Defense direct the Assistant Secretary of Defense (Health Affairs) and the Surgeons General of the Army, Navy, and Air Force to:

- Develop criteria to determine when providing inpatient services at small military hospitals is economical and necessary to meet the readiness or peacetime benefit missions. The criteria should include the minimum workload needed to justify offering inpatient care, the distance to other civilian or federal hospitals, alternative treatment settings for active duty patients who require limited care, and other relevant considerations.
- Using a methodology similar to the one discussed in this report, analyze each small military hospital in the DOD direct care system to determine its potential for conversion to an outpatient clinic.
- Perform such analyses before requesting funds from the Congress (or before expending any already approved funds) for reconstructing or renovating any small hospital in the DOD system. (See p. 38.)

AGENCY COMMENTS

DOD agreed with GAO's recommendations, with certain qualifications, and emphasized, as GAO did, that decisions concerning conversions of small military hospitals to outpatient clinics should be made on a case-by-case basis. DOD expressed concerns about the implementation of the second and third recommendations. GAO believes that these concerns, while valid, can be appropriately addressed as DOD proceeds with its implementation plans. GAO's views regarding the concerns are discussed on page 38.

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CHAPTER 1

INTRODUCTION

Several major studies of nonfederal hospitals have found small hospitals to be less economical to operate than larger ones. A large fixed investment for plant, equipment, and personnel is required to care for even a few inpatients at current medical standards. Once this investment is made, it becomes less expensive to care for additional inpatients up to some optimal level. Studies indicate that the most economical hospital size is between 200 and 300 beds. The literature we reviewed makes a strong case on economic grounds for not operating hospitals with fewer than about 100 beds. In 1983, the American Hospital Association reported that the number of small (6- to 99-bed) nonfederal hospitals declined from 3,036 in 1972 to 2,655 in 1982, a decrease of about 12.5 percent.

Decisions regarding the continued operation of small military hospitals--which we defined as those with an average daily patient load (ADPL) of 50 or less--are affected by the fact that military beneficiaries are eligible for care in private hospitals. These beneficiaries are reimbursed for such care through the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) if needed services are not available at nearby Department of Defense (DOD) hospitals. Also, two government studies, published in 1975, concluded that DOD medical services were generally less expensive than care under CHAMPUS. Thus, the wisdom of reducing services at a military hospital and shifting a portion of its patient workload to the private sector has been questionable. The two government studies, however, did not focus on small hospitals, but instead dealt with DOD health care economics on a system-wide basis.

Small military hospitals require significant expenditures for operation and construction. Patient care expenses for small hospitals in fiscal year 1983 amounted to about \$506 million. In addition, the armed services are proposing to spend about \$629 million for replacing or renovating small hospitals during fiscal years 1986-90.

In view of the literature which strongly suggests that small hospitals may not be cost effective and the large expenditures related to constructing and operating such hospitals, we made a study to see whether the government might realize savings by discontinuing inpatient services at selected DOD hospitals with an ADPL of 50 or less and shifting their inpatient workloads to nearby civilian facilities.

- Hospitals with an ADPL of 200 or more. In fiscal year 1983, 16 DOD facilities fell into this category. These hospitals provide a wide range of inpatient and outpatient services, and some offer highly specialized services, such as neonatal intensive care and burn treatment.
- Hospitals with an ADPL of 51 to 199. In fiscal year 1983, 41 DOD hospitals fell into this category. These hospitals provide comprehensive inpatient and outpatient services, and most offer such specialties as orthopedic surgery and neurology.
- Hospitals with an ADPL of 50 or less. In fiscal year 1983, 69 DOD hospitals fell into this category.
- Outpatient clinics, which provide no inpatient services. In fiscal year 1983, DOD operated 343 clinics.

The table below shows the distribution of medical facilities in CONUS within each branch of the armed services.

DOD Medical Facilities in CONUS
Listed by Size
Fiscal Year 1983

<u>Service</u>	<u>Inpatient facilities by ADPL category</u>			<u>Clinics</u>	<u>Total</u>
	<u>200 or more</u>	<u>51-199</u>	<u>50 or less</u>		
Army	7	16	12	189	224
Navy	4	13	9	135	161
Air Force	5	12	48	19	84
Total	<u>16</u>	<u>41</u>	<u>69</u>	<u>343</u>	<u>469</u>

Source: The armed services' hospital workload reports and the DOD Health Facilities Planning Review.

The table below shows the operating expenses for inpatient and outpatient care provided by 125 CONUS hospitals in fiscal year 1983.

dependents of deceased military members were made eligible for CHAMPUS in 1966. Beneficiaries who live within 40 miles of a military hospital must obtain statements of nonavailability of services from direct care facilities before using CHAMPUS benefits to receive nonemergency inpatient services at a civilian hospital. Generally, no such restrictions apply to the use of CHAMPUS benefits for outpatient services or emergency hospital services.

CHAMPUS beneficiaries do not pay premiums, but rather pay for a portion of their treatment when services are obtained. The government and the beneficiary share the costs for services. No limit is set on either the government's payments or beneficiaries' total copayments under the basic CHAMPUS program. The following table shows the cost-sharing provisions for each type of beneficiary.

CHAMPUS Beneficiary Cost-Sharing Provisions

	<u>Inpatient</u>	<u>Outpatient</u>
Dependents of active duty members	Each admission--\$25 or the amount charged for inpatient care in uniformed service medical facility (\$6.55 per day in fiscal year 1983), whichever is greater.	(a) Annual deductible--\$50 per dependent or \$100 per family then, (b) Coinsurance of 20 percent of allowable charge.
Other beneficiaries	Coinsurance of 25 percent of allowable charge.	(a) Annual deductible--\$50 per dependent or \$100 per family then, (b) Coinsurance of 25 percent of allowable charge.

The direct care system's inability to provide medical care to all DOD beneficiaries has required many beneficiaries to rely on civilian facilities and physicians for their care. As a result of this factor, coupled with rising health care costs, DOD's expenditures under CHAMPUS more than doubled between fiscal year 1977 and fiscal year 1983--from about \$582 million to about \$1.2 billion. DOD issued more than 93,000 nonavailability statements in fiscal year 1982 to beneficiaries who were unable to obtain nonpsychiatric inpatient services in CONUS military hospitals. CHAMPUS is estimated to cost about \$1.4 billion in fiscal year 1985.

Command (formerly U.S. Navy Bureau of Medicine and Surgery) estimated in 1978 and 1979 that the government could save about \$2.2 million annually by eliminating inpatient services at three of these facilities and transferring active duty inpatients to other military medical facilities. No estimate of savings was made for the fourth facility. In contrast, officials in the offices of the Army and Air Force Surgeons General told us that the decisions to convert the small hospitals to clinics were made primarily because of physician shortages.

No small military hospitals have been converted to clinics since 1979. However, in 1982 and 1983 the Army and Air Force each converted one of its clinics to hospital status. According to the commanders of these facilities, the conversions were made primarily to avoid active duty personnel having to be transported long distances to other military hospitals. They stated, however, that no evaluations were performed to determine whether it would be cost effective to pay for treatment of active duty patients in civilian facilities in lieu of changing the clinics to hospitals.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this review was to compare the costs of providing inpatient services at selected small military hospitals to the estimated costs of converting those hospitals to outpatient clinics and treating their inpatients at nearby civilian facilities.² We reviewed small military hospitals because economic studies of nonfederal hospitals show that small hospitals are less able to achieve economies of scale in their operations than larger facilities.

We performed fieldwork on this review between 1982 and early 1984. The review involved developing a computer-assisted methodology that took into account DOD's costs of providing medical care to its beneficiaries in areas served by small military hospitals. In our study, we used fiscal year 1981 cost information because at the time we began the review, the latest complete CHAMPUS claim data needed to make cost comparisons were for that year. Our methodology, including what principal assumptions we used in its development and how we developed a computer-based model for making the cost comparisons, is described in appendix I.

²As discussed in appendix I (p. 54), we excluded from our estimates a small number of military hospitals' inpatients. We generally assumed that these patients--consisting of transfers, dental care patients, and psychiatric and alcohol abuse patients--would remain in the direct care system.

- Affiliation with branch of service. We selected one facility in each branch of the armed services.
- Inpatient service mix. We selected one facility (USAF Hospital Bergstrom) that offered only primary care and general surgery inpatient services, another (Patterson Army Hospital) that offered limited specialty services, and a third (NRMC Memphis) that offered several different specialties. Table 2 in appendix III provides a detailed description of the services offered at each hospital during fiscal year 1981.
- Inpatient workload. We selected one facility (USAF Hospital Bergstrom) with an ADPL of 17, another (Patterson Army Hospital) with an ADPL of 24, and a third (NRMC Memphis) with an ADPL of 43. Table 1 in appendix III presents fiscal year 1981 workload data for each hospital.
- Geographical location. We selected one facility (USAF Hospital Bergstrom) located in Texas, another (Patterson Army Hospital) in New Jersey, and a third (NRMC Memphis) in Tennessee. By selecting three facilities in different parts of the country, we attempted to compare small military hospital operating expenses with civilian hospital charges in communities where civilian medical practices may vary.

The three freestanding outpatient clinics included in our study were:

- The United States Air Force Clinic at Grissom Air Force Base, near Peru, Indiana. In fiscal year 1981, the clinic provided 63,753 outpatient visit services.
- Hawley U.S. Army Health Clinic, at Fort Benjamin Harrison in Indianapolis, Indiana. In fiscal year 1981, the clinic provided 103,181 outpatient visit services.³
- The Naval Regional Medical Clinic at the Naval Construction Battalion Center in Port Hueneme, California. In fiscal year 1981, the facility (including its two branch clinics) provided 120,002 outpatient visit services.

³In October 1982, the Army reconverted this clinic to an inpatient facility. We visited the hospital in July 1983 and met with officials who were assigned to the facility while it functioned as a freestanding clinic.

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POTENTIAL SAVINGS
FROM CONVERTING SELECTED
SMALL MILITARY HOSPITALS
TO OUTPATIENT CLINICS

Because of evidence that small hospitals are generally less economical to operate than larger ones, GAO developed a computer-assisted methodology to compare the costs of providing inpatient services at small military hospitals to the estimated costs of converting them to outpatient clinics and treating their inpatients at nearby civilian facilities. Small military hospitals were defined as having an average daily patient load of 50 or less. (See p. 12.)

GAO's methodology assumes that all inpatient services would be eliminated at small military hospitals and that all inpatients, including active duty personnel, would be referred to civilian hospitals or other DOD hospitals. GAO's analysis uses a case-mix measurement system to estimate the cost of treating military hospital patients in civilian hospitals. The system enabled GAO to estimate civilian hospital charges by focusing on patient characteristics that affect hospital costs, such as type of diagnosis and age. Case-mix measurement systems are useful in analyzing hospital workloads because there is no single characteristic that adequately describes the treatment needs and costs of services for any group of patients. (See p. 13.)

This methodology was used to analyze three small military hospitals using fiscal year 1981 cost data--the most current relatively complete data available at the time of GAO's review. This analysis showed that the government could have saved about \$3.9 million if the three hospitals had been converted to outpatient clinics and their inpatients referred to nearby civilian facilities. (See p. 14.)

The model GAO developed calculates the reduction in operating expenses if a small hospital were to be converted to an outpatient clinic. This amount is then offset by the additional costs that the government would incur in payments to civilian providers for inpatient care. The difference represents the projected savings, or increased costs, as a result of conversion. (See p. 12.)

- wartime medical contingency requirements;
- availability of alternative sources of care, both civilian and military;
- the potential effects on CHAMPUS costs and physician productivity of transferring physicians and other staff from converted hospitals to larger facilities; and
- the potential effects of conversions on beneficiaries.

Wartime medical contingency requirements

Wartime contingency requirements play an essential role in DOD's planning, and decisions regarding the conversion of small hospitals to clinics should consider the hospitals' contingency missions. A detailed analysis of contingency requirements of small military hospitals was beyond the scope of this review. The following factors, however, may minimize the adverse effects of conversion on the contingency mission: (See p. 26.)

- DOD has developed the Civilian-Military Contingency Hospital System, whereby over 50,000 civilian hospital beds are to provide backup to military hospitals in time of war.
- Public Law 97-174 provides that Veterans Administration hospitals, which in fiscal year 1982 had over 80,000 beds, assign active duty servicemen a high priority for care during wartime.
- The ability of small hospitals to treat large numbers of wartime casualties is questionable since these hospitals generally lack necessary clinical, nursing, and ancillary services.

GAO believes that when small hospitals have specific contingency missions, but cannot be economically justified during noncontingency periods, DOD could consider maintaining hospitals' inpatient facilities in a "mothballed" status, whereby they would be available for inpatient use in wartime.

Potential effects on beneficiaries

GAO believes that converting selected small military hospitals to outpatient clinics would not prevent the facilities from providing many services to dependents of active duty members. Physicians at the outpatient clinics GAO visited said that dependents of active duty members generally have relatively minor ailments that do not require hospitalization for diagnosis or treatment. These physicians added that military retirees and their dependents may also be minimally affected since small hospitals generally do not offer the specialized medical services these beneficiaries often need. (See p. 33.)

Converting small hospitals could financially affect beneficiaries served by those hospitals because of increases in out-of-pocket expenditures the beneficiaries would incur under CHAMPUS cost-sharing. GAO's analysis showed that, at the three hospitals it analyzed, about \$1.5 million of the \$3.9 million in government savings from the hospital conversions would have been attributable to an increase in beneficiaries' out-of-pocket CHAMPUS costs.

Some of these beneficiaries, however, may have had private health insurance which could have helped to pay for care provided by civilian medical care providers. According to a March 1984 Congressional Budget Office study, a 1978 DOD survey showed that about 16 percent of military retirees and dependents had private health insurance. In addition, as discussed previously, system-wide CHAMPUS costs may be able to be reduced, both for the government and beneficiaries, as a result of transferring staff from converted hospitals to larger understaffed facilities. This could enable the larger facilities to recapture a portion of the CHAMPUS workload in their areas. (See p. 32.)

CONCLUSIONS

GAO does not know whether the three small military hospitals it selected to test its methodology are the best candidates for conversion, and generalizations concerning the conversion of such hospitals should not be made. GAO believes, however, that the potential savings found at the hospitals reviewed, even when



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ABBREVIATIONS

ADPL	average daily patient load
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CONUS	continental United States
CPHA	Commission on Professional and Hospital Activities
DOD	Department of Defense
DRG	diagnosis related group
GAO	General Accounting Office
ICD-9	International Classification of Diseases, Ninth Revision
MEPR	Medical Expense and Performance Report
NRMC	Naval Regional Medical Center
OCHAMPUS	Office of the Civilian Health and Medical Program of the Uniformed Services
RNU	resource need unit
UCA	Uniform Chart of Accounts
USAF	U.S. Air Force

STRUCTURE OF THE MILITARY
HEALTH CARE SYSTEM

The military health care system is designed to satisfy two primary objectives. The first, the readiness mission, is to maintain the health of the active duty force and be prepared to attend the sick and wounded in wartime. The second objective, the peacetime benefit mission, is to provide medical care to eligible military dependents and retirees. The Army, Navy, and Air Force fulfill these missions partly by operating a direct care medical system, which consists of a network of hospitals and clinics, each located on or near a military installation.

When active duty personnel or eligible military beneficiaries cannot gain access to the direct care system, DOD pays civilian hospitals and physicians to provide services in two ways:

- The armed services' open allotment funds pay for treatment of active duty personnel who cannot be safely transported to military hospitals for medical services.
- CHAMPUS pays for treatment of military dependents and retirees who are unable to obtain needed medical services at a military hospital.

Provisions of 10 U.S.C. 1074 and 1076 state, in effect, that active duty members have first priority for care in military medical facilities, and their eligibility has no conditions attached. Other beneficiaries--including dependents of active duty members, retirees, and dependents of retired and deceased members--can receive care subject to the availability of space and facilities and staff capabilities. Dependent beneficiaries who use the direct care system pay a small fee (\$6.55 per day in fiscal year 1984) for services they receive as inpatients; all other medical services are provided free of charge.

The medical facilities within the direct care system range from small clinics with limited medical capabilities to large medical centers with extensive medical specialty capabilities and medical teaching programs. In fiscal year 1984, DOD spent about \$6.1 billion to operate its direct care system.

The latest information DOD has concerning the details of its hospitals' operations is for fiscal year 1983. Of the 687 hospitals and clinics that DOD operated worldwide in that fiscal year, 469 were in the continental United States (CONUS). For the purpose of our study, we divided the CONUS facilities into four categories:

Workload and Operating Expenses
at DOD Inpatient Facilities in CONUS
Fiscal Year 1983

<u>ADPL</u>	<u>Number</u>	<u>Discharges</u>	<u>Outpatient visits</u>	<u>Estimated patient care operating expenses</u> (millions)
200 or More	16	274,461	10,373,650	\$1,137
51 - 199	41	323,715	14,497,399	908
50 or less	<u>68^a</u>	<u>169,477</u>	<u>8,638,982</u>	<u>506</u>
Total	<u>125</u>	<u>767,653</u>	<u>33,510,031^b</u>	<u>\$2,551^b</u>

^aData for one small hospital were not available.

^bIncludes workload and operating expenses for branch clinics under hospital commands.

Source: DOD's FY 1983 Medical Expense and Performance Reports.

DOD's 5-year medical facility construction plan describes the armed services' proposals to spend about \$629 million for the replacement or major renovation of 22 small hospitals in CONUS during fiscal years 1986-90.

The mix of inpatient services found at the small military hospitals varies, but services are generally limited to primary care--general practice, internal medicine, pediatrics, obstetrics-gynecology--and general surgery. About two-thirds of these facilities offer maternity care services. Some small hospitals offer other specialized services, such as orthopedic surgery, ophthalmology, urology, and psychiatry.

The inpatient workloads at small military hospitals in fiscal year 1983 varied significantly. For example, the hospital at Fort Irwin, California, had an ADPL of 9, while the hospital at Davis-Monthan Air Force Base, Arizona, had an ADPL of 48. The average ADPL of the 69 small hospitals during fiscal year 1983 was 24.

CHAMPUS: An alternative to obtaining medical care in DOD facilities

In 1956 the Congress created CHAMPUS to assure that dependents of active duty members would have access to all necessary medical care if they were unable to obtain services in a military hospital or clinic. Military retirees, their dependents, and

DOD HAS CONVERTED SOME SMALL HOSPITALS TO CLINICS

Although two government studies generally found military inpatient facilities to be cost effective, the studies did not consider discontinuing all inpatient care as our analysis did. Between 1978 and 1979 the Navy converted three small hospitals to outpatient clinics because they believed such conversions could save money.

In 1975, two studies¹ reported that the cost of medical services for military dependents and retirees in the direct care system was generally less than the cost of care under CHAMPUS. According to a senior Air Force health management official, these studies are among the most comprehensive undertaken to compare the costs of medical services in military hospitals with the cost of services delivered by CHAMPUS providers.

Both of these studies attempted to determine the net change in operating costs to the government if some or all of the dependent and retiree inpatient and outpatient workload were shifted from military hospitals to CHAMPUS providers. However, the basic premise of each study was that no military hospitals would be closed and that active duty patients would continue to obtain inpatient and outpatient services at existing military medical facilities. Neither study attempted to measure, as we did, how the government's costs would change if all inpatient services were eliminated at some military hospitals and all patients (both active duty and military beneficiaries) were referred to other hospitals for inpatient care.

The two studies concluded that the government could not save money in most instances by shifting workload from the direct care system to CHAMPUS providers, partly because the armed services would continue incurring significant costs to provide inpatient and outpatient medical services for active duty personnel.

Although the two studies did not consider discontinuing inpatient care at military hospitals, the military services, between 1975 and 1979, converted 14 small hospitals--4 Navy, 8 Army, and 2 Air Force--to clinics. The four Navy facilities were converted primarily because of concerns about their cost effectiveness and/or declining inpatient workloads. The Naval Medical

¹The Saber Health (BRAVO) study by the Office of Special Studies of the U.S. Air Force and the Report of the Military Health Care Study by DOD; the Department of Health, Education, and Welfare (now the Department of Health and Human Services); and the Office of Management and Budget.

Our study focused on the savings or losses the government might realize by converting small military hospitals to free-standing clinics. It was beyond the study's scope to determine if the government could save money by enabling small hospitals to increase their inpatient workloads by expanding their operations and absorbing CHAMPUS inpatient workload. For selected facilities, this alternative may have merit. However, opportunities for small hospitals to substantially increase their size by absorbing CHAMPUS workload appear limited. For example, data we obtained from a 1983 DOD consultant study show that if small hospitals had absorbed all of the CHAMPUS nonemergency/non-psychiatric inpatient workload in their catchment areas in fiscal year 1980--the type of CHAMPUS care the study assumed could potentially be shifted to the direct care system--only about 15 of the 67 small hospitals in operation in fiscal year 1982 would have had an ADPL over 50, and none would have had an ADPL over 100.

We made our review at the offices of the Assistant Secretary of Defense (Health Affairs), the Army and Air Force Surgeons General, and the Naval Medical Command in Washington, D.C., and the Office of the Civilian Health and Medical Program of the Uniformed Services (OCHAMPUS) in Aurora, Colorado. In addition, we visited three small military hospitals and three freestanding outpatient clinics (clinics operating independently of hospitals) in CONUS. The three small hospitals were

--The U.S Air Force Hospital at Bergstrom Air Force Base (USAF Hospital Bergstrom) in Austin, Texas.

--Patterson U.S. Army Community Hospital (Patterson Army Hospital) at Fort Monmouth near Eatontown, New Jersey.

--Naval Regional Medical Center Memphis (NRMC Memphis) at the Naval Air Station in Millington, Tennessee.

These three hospitals were selected from the list of 68 DOD inpatient facilities in CONUS that had an ADPL of 50 or less during fiscal year 1981. We judgmentally excluded 21 hospitals located more than 15 miles from civilian hospitals with 100 or more beds and an emergency room, since some of these facilities are without nearby civilian alternatives.

From the remaining 47 hospitals, we chose 3 that we believed reflected differences found among small military hospitals not located in remote areas. The hospital characteristics we considered before selecting facilities for an in-depth analysis included:

The three outpatient clinics were selected from a list of 14 military medical facilities that DOD had converted from small hospitals to outpatient clinics from 1975 through 1979. Each of these three facilities was at least 90 miles from the nearest DOD inpatient facility. Consequently, we were able to analyze free-standing outpatient clinics that have functioned for several years without the benefit of a nearby DOD hospital to provide inpatient medical services.

Our review was performed in accordance with generally accepted government auditing standards.

SOURCES OF DATA USED IN GAO'S REVIEW

We obtained patient care cost data for military hospitals and clinics from fiscal year 1981 DOD Uniform Chart of Accounts (UCA) reports. Since the records supporting UCA reports are not retained, we could not assess the reliability of these data. However, DOD financial management officials agreed that the accuracy of the aggregate patient care expense and workload totals from these reports, which were the primary data from these reports used in our study, would probably not be significantly affected by any errors made in preparing UCA reports.

We obtained fiscal year 1981 inpatient data for each military hospital in our study from magnetic tape records maintained by the Naval Medical Data Services Center, Bethesda, Maryland; the Air Force Biometrics Division, Brooks Air Force Base, Texas; and the Army Patient Administration Systems and Biostatistical Activity, Fort Sam Houston, Texas. To assess the data's validity, we interviewed medical records technicians at each military hospital, compared the data with other workload statistics at each facility, and reviewed the internal reliability assessment procedures the armed services use to ensure that the data are accurate. At the two hospitals where complete fiscal year 1981 medical records were available (Patterson Army Hospital and NRMC Memphis), we also validated the data by selecting a random sample of patient data and comparing them to medical records on file at the facility.

We obtained fiscal year 1981 CHAMPUS hospital claim data from OCHAMPUS. To assess the data's validity, we attempted to determine how CHAMPUS claim processing errors identified in a 1980 GAO review would affect the accuracy of our analysis. In addition, we conducted various analyses of the 1981 CHAMPUS claim data used in our study to identify any inaccurate data that could affect our review's outcome.

Data on the relative costs of treating different types of medical conditions in community hospitals were supplied by the Commission on Professional and Hospital Activities (CPHA), Ann Arbor, Michigan. CPHA collected the data from about 3 million patient discharge records submitted by nonfederal community hospitals from 1976 through 1980. The analyses, interpretations, and conclusions based on these data are ours, and CPHA disclaims responsibility for them. In addition, information pertaining to diagnosis related group (DRG) charges was obtained from a civilian medical center near the Patterson Army Hospital in New Jersey.

CHAPTER 2

APPLICATION OF MODEL SHOWS SAVINGS

WOULD RESULT FROM CONVERTING THREE SMALL

MILITARY HOSPITALS TO OUTPATIENT CLINICS

The model we developed to compare the costs of providing inpatient services at three hospitals to the costs of converting each hospital to an outpatient clinic showed that the government would have saved money by converting the three facilities and paying its share of costs for inpatient care under CHAMPUS (non-active duty) or open allotment (active duty). We estimated, using fiscal year 1981 cost data, that total savings resulting from three hospital conversions would have amounted to \$3.9 million.

In two of the three hospitals, most of the government's savings would have come from an increase in out-of-pocket expenditures of nonactive duty patients, whom we assumed would have obtained inpatient services from CHAMPUS providers instead of the direct care system. The savings that might have been realized by converting the third facility are different, in that only about one-fourth of the government's savings represent an increase in out-of-pocket costs by nonactive duty patients.

Our savings estimates are probably understated because of several assumptions we made in developing them. For example, the estimates do not consider any savings that might be realized by curtailing planned construction or renovation at small hospitals. Also, chapter 3 presents additional considerations, some of which could support converting a small hospital to an outpatient clinic.

MODEL DEVELOPED TO DETERMINE WHETHER SAVINGS WOULD RESULT FROM HOSPITAL-TO-CLINIC CONVERSIONS

Our model calculates the reduction in operating expenses that would be realized if a small military hospital were converted to an outpatient clinic. This reduction is then offset by the additional costs to the government for payments to civilian providers for inpatient care. The difference between the reduction in operating costs and the increase in payments to civilian providers represents the savings possible to the government if the small hospital were converted.

In developing this model, we assumed that

--all inpatient services at the small military hospital would be eliminated and

--the small hospital would be converted to an outpatient clinic.

Fundamental differences exist between our analysis and the studies described in chapter 1, which were undertaken by DOD and other federal agencies to examine the costs and benefits of shifting workload from the military's direct care medical system to civilian providers. First, our analysis assumes that all inpatient services would be eliminated at small military hospitals and that all inpatients, including active duty personnel, would be referred to civilian hospitals or other DOD hospitals for inpatient services. The other studies assumed that inpatient services would continue to be offered at all DOD hospitals and that only the nonactive duty workload would be shifted to other hospitals.

A second major difference is that our analysis uses a case-mix measurement system to estimate the cost of treating military hospital patients in civilian community hospitals. The system enabled us to estimate civilian hospital charges by focusing on patient characteristics that affect hospital costs, such as type of diagnosis and age. The earlier studies attempted to analyze the relationship between patient characteristics and hospital costs, but they did not use a case-mix measurement system. Such a system is useful in analyzing hospital workloads because there is no single characteristic that adequately describes the treatment needs and costs of services for any group of patients. Most hospitals treat patients for a wide variety of illnesses and conditions, and the complexity and cost of treatment for any patient may depend on a host of factors, such as the patient's age, type of diagnosis, and presence or absence of surgery.

APPLICATION OF MODEL SHOWS CONVERTING
SELECTED SMALL HOSPITALS COULD SAVE
THE GOVERNMENT MONEY

The following table shows our estimate of the government savings that would have been realized following the conversion of each small military hospital to an outpatient clinic.

	<u>USAF Hospital Bergstrom</u>	<u>Patterson Army Hospital</u>	<u>NRMC Memphis</u>	<u>Total</u>
Net reduction in operating expenses resulting from hospital-to-clinic conversion	\$2,376,137	\$3,878,867	\$8,048,233	\$14,303,237
Less: Additional government payments to civilian providers (open allotment and CHAMPUS)	<u>1,869,414</u>	<u>3,112,792</u>	<u>5,422,157</u>	<u>10,404,363</u>
Estimated annual government savings (using fiscal year 1981 costs)	<u>\$ 506,723</u>	<u>\$ 766,075</u>	<u>\$2,626,076</u>	<u>\$3,898,874</u>

For two of the hospital conversions--USAF Hospital Bergstrom and Patterson Army Hospital--a large proportion (79 and 66 percent, respectively) of the government savings are attributable to nonactive duty patients, who are required to incur higher copayments for inpatient services when they use CHAMPUS providers. For the third hospital conversion--NRMC Memphis--the increase in out-of-pocket expenses incurred by nonactive duty patients represents 24 percent of the government savings. Of the \$3.9 million we estimate could have been saved as a result of conversions, about \$1.5 million is in increased out-of-pocket payments by CHAMPUS beneficiaries.

Because we used a statistical technique (linear regression) in estimating the reduction in operating expenses resulting from each hospital-to-clinic conversion, some uncertainty exists in this estimate and, thus, in the magnitude of the estimated savings. The table below shows the range of savings (or additional costs) estimated by our model. (The estimate of savings for each hospital shown in the table above is the mid-point estimate.)

<u>Small hospital</u>	Range of annual savings (additional costs) ^a		
	<u>Low</u>	<u>Mid</u>	<u>High</u>
USAF Hospital Bergstrom	\$ (329,727)	\$ 506,723	\$1,343,135
Patterson Army Hospital	(6,773)	766,075	1,538,923
NRMC Memphis	1,745,991	2,626,076	3,506,161

^aWe estimated the range of savings or additional costs at the 95-percent confidence level.

The steps used in our model for computing the savings of each hospital-to-clinic conversion are illustrated in the chart on the following page. Appendix I of this report details how each step was carried out and presents the cost breakdowns derived from the model. The discussion in the following sections summarizes key elements that support the model's development.

Estimation of reduction
in operating expenses

We estimated that converting USAF Hospital Bergstrom, Patterson Army Hospital, and NRMC Memphis to outpatient clinics using fiscal year 1981 costs would have resulted in a combined reduction of about \$14.3 million in operating expenses. The reduction in expenditures--which ranges from 39 to 66 percent of the total patient care expenses at each hospital--results from eliminating or reducing services that are associated directly or indirectly with inpatient care. Following are some of the changes that can be expected when a small military hospital is converted to an outpatient clinic:

- The elimination of some support services directly associated with inpatient care, such as inpatient administrative and food services.
- A reduction in the level of ancillary services directly or indirectly associated with inpatient care, such as blood bank operations and other clinical pathology services.
- The reduction or elimination of some physician services associated with inpatient care, such as general surgery, obstetrics, urology, and internal medicine.

Reduction in Operating Expenses

Total FY 1981 DOD Patient Care Expenses (Inpatient and Outpatient) for Operating Existing Small Hospital

Less

Estimated FY 1981 DOD Operating Costs If Small Military Hospital Had Functioned as a Free-Standing Outpatient Clinic

Equals

Reduction in Operating Expenses Upon Conversion of Military Hospital to Outpatient Clinic

Increase in Payments to Civilian Providers

Additional Payments to Civilian Hospitals Through Open Allotment Fund (Active Duty) and CHAMPUS (Non-Active Duty)

Plus

Additional Payment to Civilian Physicians Through Open Allotment Fund and CHAMPUS

Equals

Total Additional Payments to Civilian Providers for Treatment of Active Duty and Military Beneficiaries

Less

Equals

Net Savings (Loss) to the Government from Conversion of Small Military Hospital to Outpatient Clinic

We obtained patient care expense data for use in our analysis from DOD's UCA reports prepared by each hospital. We added DOD retirement obligations to our estimates so that the hospital's operating expenses would reflect DOD's future retirement pay for uniformed personnel currently assigned to military medical facilities. We based our computations on information obtained from the Office of the Actuary of the Defense Manpower Data Center, along with other DOD data.

We included military personnel expenses and retirement obligations in our analysis since we assumed that hospital-to-clinic conversions would result in a reduction of active duty medical personnel in each of the armed services. An alternative to reducing active duty personnel is to reassign selected medical personnel for small hospitals to larger hospitals, where they may be more productively utilized. This could enable larger hospitals to absorb additional CHAMPUS workload in their catchment areas. As discussed in chapter 3, we believe this alternative may, in some cases, enable the government to realize greater economic benefits from hospital-to-clinic conversions than our methodology estimated.

To determine what each of the three hospitals would have cost to operate as an outpatient clinic during fiscal year 1981, we derived a statistical relationship between the volume of outpatient workload and the operating expenses for 29 CONUS Army, Navy, and Air Force outpatient clinics that report separately in the UCA system. We found the relationship between outpatient visits and operating expenses to be strong--91 percent of the variation in clinic operating expenses is explained by the variation in outpatient visits. We used this relationship as the basis for estimating the cost of operating a military outpatient clinic in lieu of the small hospital.

Estimation of increase in government payments to civilian providers

Our approach to estimating the additional government payments to civilian providers near each military hospital consisted of two steps:

- Estimating civilian hospital charges and government payments for patients who would have been referred to civilian hospitals in fiscal year 1981.
- Estimating the civilian inpatient professional charges, (e.g., physician) and government payments associated with patients who would have been referred to the civilian sector for inpatient care.

Payments to civilian hospitals

We estimated that eliminating inpatient services at three small DOD hospitals during fiscal year 1981 would have resulted in additional payments to civilian hospitals of \$8.5 million. To estimate the cost of treating military hospital patients in civilian inpatient facilities, we developed a computer model that uses information from three principal data bases:

- DOD fiscal year 1981 patient treatment files.
- OCHAMPUS fiscal year 1981 claim data file.
- CPHA Resource Intensity Weights file.

We developed a series of computer programs that draw from the above data bases and use the information to estimate what civilian hospitals would have charged patients with the same mix of characteristics (i.e., diagnosis, age, and presence or absence of surgery) as patients discharged in fiscal year 1981 from the three hospitals we studied.

The model measures the overall inpatient workload in the military hospital and assigns a value to this workload. It does this by first identifying, for each patient who was discharged during fiscal year 1981, the patient's principal diagnosis, age, and presence or absence of surgery. Using this information, the model determines the number of resource need units (RNUs) for each patient. The RNUs assigned to an inpatient indicate the expected charges for treating that patient relative to the average charge for treating all inpatients. For example, an inpatient whose characteristics result in an RNU value of 2 would be expected to incur hospital charges twice as high as the average inpatient, while a patient with a 0.5 RNU value would be expected to incur half the average inpatient charges.

The sum of the RNUs for all patients discharged during fiscal year 1981 is the value of the overall inpatient workload of a small military hospital. This value is a measure of the resources needed to treat the patients who we assume would have been treated in a civilian hospital if the military hospital were converted to an outpatient clinic.

Next, the model determines the average charge (in dollars) per RNU to be applied to the overall value of the small military hospital inpatient workload. The average charge per RNU was derived by (1) determining the value (total RNUs) for the CHAMPUS inpatient workload in the catchment area during the year, (2) summing the CHAMPUS provider's billed charges (excluding charges for disallowed services) for the entire patient workload, and (3) computing an average billed charge per RNU.

Finally, the model applies the average billed charge per RNU to the small military hospital workload to derive an estimate of the total community hospital charges. In estimating the cost of treating patients in civilian hospitals, we assumed that the government would finance medical services in the private sector for active duty personnel out of DOD open allotment funds while military dependents and retirees would use CHAMPUS benefits to obtain care from civilian providers. We assumed that no out-of-pocket cost would be incurred by active duty personnel while CHAMPUS beneficiaries would incur the copayments consistent with CHAMPUS regulations. For example, dependents of active duty personnel would incur the minimum \$25 copayment for allowable inpatient services, and retirees would incur a 25-percent copayment for all allowable medical services, as required by CHAMPUS regulations.

Payments for civilian professional services

Based on military hospital workload statistics and CHAMPUS professional services cost data, we estimated that additional government payments for inpatient physician services following the conversion of the three hospitals to clinics would have totaled about \$1.9 million based on fiscal year 1981 costs. These expenses represent payments to civilian internists, surgeons, anesthesiologists, and other physicians for professional services associated with the inpatient workload shifted from the three small military hospitals to civilian hospitals.

Professional charges were estimated separately for maternity and nonmaternity patients. Professional charges for maternity care patients were based on the average total billed CHAMPUS professional fees per delivery, including prenatal hospital care, and postpartum services in the hospital's catchment area. Average total inpatient professional charges for nonmaternity patients were based on the patient's total length of stay times the average total billed CHAMPUS fees per bed day in each catchment area. In deriving the government's share of professional charges, we assumed that no out-of-pocket costs would be incurred by active duty personnel, while nonactive duty beneficiaries would incur deductibles and copayments, consistent with CHAMPUS regulations.

GAO'S SAVINGS ESTIMATE IS PROBABLY LOW

We believe that our estimate of savings for conversion of each hospital to a clinic is understated because of the assumptions we made. As described below, if these assumptions are changed, additional savings may be possible.

--We assumed that all active duty personnel admitted to the three small military hospitals would incur the same average charge per RNU as CHAMPUS patients. However, some active duty patients might incur lower charges, since they may require fewer hospital services. At NRMC Memphis and USAF Hospital Bergstrom, physicians told us that about 10 and 50 percent, respectively, of the active duty personnel who are hospitalized require limited care to recover from such illnesses as gastroenteritis and chicken pox. At Patterson Army Hospital, we found that 341 (52 percent) of the 654 fiscal year 1981 active duty discharges had been directly admitted to the hospital's minimal care ward, a unit for patients who do not require full nursing support and care. We estimated that care for these Patterson patients in civilian hospitals would have totaled about \$556,000, although physicians at Patterson told us that had these patients been civilians, they probably would not have been hospitalized.

--We assumed that most active duty patients who were discharged from the military hospital would have been treated in civilian hospitals had the facilities functioned as freestanding clinics. In practice, however, past conversions of small military hospitals to outpatient clinics have generally resulted in active duty personnel being referred to other military hospitals for inpatient services. Had we assumed, as the Army and Navy did in each of the five hospital-to-clinic conversion studies we reviewed, that all active duty members would be treated in other military hospitals, savings from discontinuing inpatient services at the three small hospitals would be increased by over \$3 million.

--We assumed that all nonactive duty beneficiaries treated at the three small hospitals would have used CHAMPUS benefits to obtain care from civilian providers. However, a 1978 DOD survey found that roughly 16 percent of all DOD beneficiaries who enter military hospitals are covered by private health insurance. CHAMPUS generally requires that private insurers pay beneficiary medical claims before CHAMPUS.

--In estimating the savings that would have resulted from hospital-to-clinic conversions, we did not consider any savings that might be realized by curtailing future construction for small hospitals. However, DOD's 5-year construction plan (fiscal years 1986-90) includes about \$629 million for proposed construction and renovation of small hospitals. One of the three facilities we studied (NRMC Memphis) is proposed for construction costing \$14.9 million.

--We did not attempt to estimate the savings that might be realized if staff and other resources at converted small hospitals were transferred to larger military hospitals, thereby enabling them to recapture a portion of CHAMPUS workload in areas surrounding the larger facilities (as discussed in ch. 3).

We believe that cost estimates for these factors should be developed and incorporated into any analysis of small military hospitals.

Diagnosis related group
approach to cost estimation

The results of another analysis we conducted to estimate the cost of treating Patterson Army Hospital patients in a nearby civilian hospital--based on an actual state-mandated hospital reimbursement system--also indicate that our approach for estimating the savings resulting from hospital-to-clinic conversions is probably conservative. We made this analysis to compare the results produced by our RNU method with those produced by a method that was used to set charges in civilian hospitals. The additional analysis does not rely on either the CPHA Resource Intensity Weights or CHAMPUS claim data. Instead, it is based on a system using DRGs that was used in 1981 by the New Jersey Hospital Rate Setting Commission to set fixed rates for treating different types of civilian hospital patients. Because state-mandated DRG-type payment systems were not used to reimburse civilian hospitals in Texas or Tennessee in 1981, we did not apply a DRG approach to either USAF Hospital Bergstrom or NRMCMemphis.

If we had used the estimate of civilian hospital charges for Patterson Army Hospital patients that was based on the DRG system instead of the model we developed, estimated savings resulting from the hospital-to-clinic conversion would be about \$1.2 million, or 57 percent greater than our estimated \$766,075 savings for Patterson Army Hospital.

A DRG approach may be better than the RNU model for comparing the costs of treating patients in military and civilian hospitals, since the former estimates civilian hospital charges without relying on CHAMPUS claim data.

As we explain in appendix II, CHAMPUS patients probably require more extensive care than military hospital patients and incur higher charges per RNU. DOD could analyze DRG cost data around the country and determine if such data can be used to develop civilian hospital cost data based on populations that are more representative of military hospital patients than CHAMPUS

cases. We do not know if the difference in charges estimated by the RNU model and the New Jersey DRG system result from different hospital cost data bases or other differences between the two methodologies.

DOD may be able to use a DRG-type approach to study more small military hospitals, since the use of DRG-type payment systems by third party payers is increasing, making DRG cost data available in more areas. In 1983, the Congress enacted Public Law 98-21, mandating the use of a DRG-type payment system for Medicare nationwide. In addition, some Blue Cross and Blue Shield plans have adopted a DRG-type hospital payment system.

CHAPTER 3

OTHER CONSIDERATIONS IN

DECISIONS CONCERNING CONVERSION

OF SMALL MILITARY HOSPITALS

Decisions to convert small military hospitals to outpatient clinics should not rely solely on the cost elements in our model. Hospital-to-clinic conversions are also influenced by other considerations, such as (1) mission requirements; (2) the availability of alternative sources of medical care, both civilian and federal; (3) the effect of transferring staff on CHAMPUS costs and physician productivity; and (4) the effect of conversions on beneficiaries.

A carefully planned shift of selected medical personnel and other resources from small military hospitals to larger facilities could provide benefits beyond the savings predicted by the model. Such a shift could improve the productivity of some military physicians without adversely affecting the readiness mission. Since substantial CHAMPUS workloads exist in many areas surrounding medium-sized military hospitals, a shift of medical personnel could also lead to a net system-wide decrease in CHAMPUS expenditures.

MISSION OF SMALL MILITARY HOSPITALS NEEDS TO BE CONSIDERED

Armed services health management officials expressed concern that converting small military hospitals to outpatient clinics could impair the facilities' ability to support the readiness mission. For example, active duty personnel might be away for long periods when they obtain inpatient care at other military or civilian facilities. Furthermore, some DOD officials believe that discontinuing inpatient services at small military hospitals may also affect the hospitals' abilities to contribute to DOD's wartime contingency medical mission.

We believe that the missions of small military hospitals need to be evaluated individually. In general, however, we believe the adverse effects on readiness resulting from conversions may be minimal because the inpatient workload is small and many of the small hospitals' active duty inpatients do not require care in a full-service, acute care hospital. Moreover, there are alternatives--such as using civilian beds to provide backup to military hospitals and maintaining converted hospitals in a status whereby they could be reconverted to inpatient use--for dealing with the potential readiness and contingency problems

associated with small hospital conversions. We believe DOD should thoroughly explore these alternatives before concluding that such factors preclude conversions.

Readiness not seriously affected
by absence of inpatient facilities

The absence of inpatient services at the three DOD outpatient clinics we visited had not seriously impaired the armed services' ability to maintain the health of active duty personnel. Physicians at each of the clinics told us that the facilities' medical personnel were able to perform the types of services that are frequently needed by the active duty population, such as military sick call, flight physicals, or oral surgery. According to the clinics' commanders, active duty personnel have encountered few difficulties in obtaining emergency medical services.

Each of the clinic commanders, however, said that there were difficulties related to providing nonemergency inpatient care for active duty personnel. For example, two commanders said that because the facilities generally referred uniformed personnel to distant DOD hospitals for inpatient care, the patients were more likely to be away from their regular duties for long periods.

We believe DOD should consider using local civilian hospitals to treat active duty patients when other military hospitals are too far away. Each of the clinic commanders told us that the armed services did not consider routinely using nearby civilian hospitals for this purpose partly because the services believed such a policy would be too costly. However, in our analysis of three small military hospitals (see ch. 2), we generally assumed that patients, including most active duty personnel, would be treated in local civilian facilities following hospital-to-clinic conversions and found that government savings could have been realized following such conversions.

Several of the armed services health management officials we interviewed believe that referring active duty personnel to nearby civilian hospitals and physicians could pose problems for military commands, since they could lose control over such matters as scheduling preadmission examinations, and follow-up care. However, we believe that the impact on readiness would generally be minimal and the problems manageable because of the small size of the active duty inpatient workload involved. During fiscal year 1981, for example, USAF Hospital Bergstrom discharged 456 active duty patients. If all of these inpatients had been admitted to civilian hospitals that year, it would have meant referring an average of about 1.25 patients per day to other hospitals. Furthermore, in view of the small number of

patients involved, control over the patients treated by civilian providers probably could be maintained by establishing relationships with private hospitals and physicians to expedite referrals and minimize administrative problems.

In determining the potential effect of hospital-to-clinic conversions on military readiness, consideration should also be given to the type of inpatient care small hospitals provide to active duty personnel. Some active duty personnel who are hospitalized may be able to be treated entirely as outpatients at freestanding clinics, thereby eliminating the need to refer them to distant military hospitals or nearby civilian hospitals for inpatient services. Of the 456 active duty discharges at USAF Hospital Bergstrom, for example, 87 (19 percent) were hospitalized following outpatient dental treatment (such as wisdom tooth extractions). However, at the freestanding Air Force clinic, Grissom Air Force Base, the chief of dental services told us that active duty dental patients are generally treated as outpatients. In addition, the comptroller of the Naval Medical Command told us that active duty dental patients are usually treated as outpatients in Navy hospitals and freestanding clinics.

Instead of referring all active duty personnel to other hospitals for inpatient care, DOD should also determine if alternative treatment facilities can be established on military bases to care for active duty patients who do not need to be admitted to full-service acute care hospitals. Physicians at the three military hospitals we studied told us that many active duty patients are hospitalized for illnesses, such as the flu and chicken pox, that require only limited care. In fact, at Patterson Army Hospital--the only military hospital we visited that had a formal "minimal care" ward--52 percent of the active duty discharges in fiscal year 1981 had been admitted directly to the ward. These patients may be treatable in the types of inpatient facilities that are located at several universities and colleges in the United States. For example, the head nurse of a 21-bed infirmary on a college campus told us that a light care unit is used primarily by students who cannot recuperate from contagious illnesses in campus dormitories. The official said that such an operation is economical because it does not have to offer relatively expensive services, such as general surgery or blood bank services. Also, since most meals are provided by campus dining services, there is no need for several food service workers to be employed at the facility.

Contingency requirements need consideration

Wartime contingency requirements play an essential role in DOD planning and should be considered in any decisions regarding

the conversion of small military hospitals to clinics. DOD will need to assess the magnitude of each hospital's contingency mission and decide whether it could be handled in any way other than by continuing inpatient services.

While a detailed analysis of small hospitals' contingency requirements was beyond the scope of our review, we noted the following factors that may minimize the adverse effects of conversions upon the contingency mission:

- DOD is developing a Civilian-Military Contingency Hospital System whereby over 50,000 civilian hospital beds are to provide backup to military hospitals in wartime.
- Public Law 97-174 provides that Veterans Administration hospitals, which in fiscal year 1982 had over 80,000 beds, assign active duty servicemen a relatively high priority for care during wartime.
- The overall ability of small hospitals to treat wartime casualties is questionable, since they generally lack certain types of clinical, nursing, or ancillary services. For example, in fiscal year 1981, half of these hospitals did not offer inpatient orthopedic care.
- If DOD decided to discontinue inpatient services at selected small military hospitals, it could consider maintaining the inpatient facilities in a status whereby they could be reconverted for inpatient use in wartime.

DETERMINATIONS CONCERNING ALTERNATIVE SOURCES OF CARE

While individual facilities must be analyzed to determine if alternative sources of inpatient care can absorb military hospital inpatient workloads, it appears that many small hospitals could be converted to clinics without forcing patients to travel long distances for inpatient care.

Using data from the American Hospital Association's 1982 Guide to the Health Care Field, we found that most small military hospitals are located within 15 miles of at least one civilian hospital with 100 or more beds and an emergency room. These data are summarized in the table below.

Distance from Small Military Hospitals to
Nearest Civilian Hospital with 100 or More
Beds and an Emergency Room
Fiscal Year 1982

<u>Proximity in miles</u>	<u>Number of small DOD hospitals</u>			
	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>All hospitals</u>
0 to 15 miles	9	3	34	46
16 to 30 miles	0	1	9	10
Over 30 miles	<u>2</u>	<u>4</u>	<u>5</u>	<u>11</u>
Total small DOD hospitals	<u>11</u>	<u>8</u>	<u>48</u>	<u>67</u>

Converting small military hospitals to outpatient clinics may not be feasible in some nonmetropolitan areas with shortages of private physicians. However, civilian physician shortages apparently would not pose a major obstacle to discontinuing inpatient services at many small DOD hospitals as only 16 of the 67 small military hospitals in operation during fiscal year 1982 were in areas identified in 1975 as being medically underserved. In addition, a 1982 Rand Corporation study¹ suggests that the number of medically underserved areas in the country has been reduced since 1975. That study of physician location patterns in 23 states showed that, as their numbers increased between 1970 and 1979, many nonfederal physicians moved into previously unserved areas.

In addition to nearby civilian hospitals, other military hospitals may be able to provide inpatient services. As shown below, 3 of the 67 small hospitals are located within 40 miles, and another 16 within 80 miles, of a larger military hospital.

¹Joseph P. Newhouse, et al., The Geographic Distribution of Physicians: Is the Conventional Wisdom Correct?, Rand Corporation, October 1982.

Distance from Small Military Hospitals to
Nearest DOD Inpatient Facility with an Average
Daily Patient Load of 51 or More
During Fiscal Year 1982

<u>Proximity in miles</u>	<u>Number of small DOD hospitals</u>			
	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>All hospitals</u>
40 or less	2	0	1	3
41 to 80	2	4	10	16
81 to 120	4	1	7	12
121 to 160	1	3	9	13
161 to 200	0	0	0	0
Over 200	<u>2</u>	<u>0</u>	<u>21</u>	<u>23</u>
Total small DOD hospitals	<u>11</u>	<u>8</u>	<u>48</u>	<u>67</u>

Another potential alternative source of inpatient care is Veterans Administration medical centers. Of the 67 small military hospitals, 24 (36 percent) are located within 40 miles of a Veterans Administration inpatient facility with 100 or more beds. Under Public Law 97-174, DOD and the Veterans Administration can enter into agreements to share medical resources where such sharing would benefit current or former members of the armed forces and would result in more efficient use of federal medical resources.

TRANSFERRING STAFF TO LARGER HOSPITALS
COULD REDUCE CHAMPUS COSTS AND
INCREASE PHYSICIAN PRODUCTIVITY

Discontinuing inpatient services at some small military hospitals could enable DOD to transfer personnel to larger hospitals that are understaffed, which in turn could result in a system-wide reduction in CHAMPUS costs. DOD health management officials stated that staffing and other shortages have prevented many medium-sized military hospitals in CONUS from serving all of the beneficiaries in their catchment areas. The officials generally agreed that these hospitals could benefit from additional resources, which could enable them to absorb more of the CHAMPUS inpatient workload in their areas.

Potential reduction in CHAMPUS costs

In fiscal year 1982, CHAMPUS expenditures for non-psychiatric inpatient care (hospital and professional) inside catchment areas surrounding military hospitals in the United States totaled over \$502 million. Although we were unable to

determine how much of this expenditure was in the 40 areas surrounding DOD hospitals with an ADPL of 51 to 199--because of overlapping catchment areas--we noted that such facilities in CONUS accounted for 42,635, or 45 percent, of the nonavailability statements issued by all DOD hospitals in the United States.

A 1982 study by the U.S. Army Health Services Command found that many U.S. hospitals would be able to absorb more of the CHAMPUS workloads in their areas if they were allocated additional personnel and other resources. For example, the study found that 10 of the 16 CONUS Army hospitals with an ADPL of 51 to 199 could absorb CHAMPUS workloads in their catchment areas. One of the medium-sized Army hospitals that the study analyzed was the U.S. Army Community Hospital at Fort Carson, near Colorado Springs, Colorado. The study found that with the addition of four obstetricians, one pediatrician, six nurses, and other resources, the hospital could have avoided issuing 1,263 nonavailability statements for obstetrics-gynecology services from March 1981 through February 1982.

Another example of an opportunity to absorb CHAMPUS workload into the direct care system is the Naval Regional Medical Center in Long Beach, California. This hospital was constructed with a capacity for 570 beds. In fiscal year 1982, the hospital was operating 122 beds, about 21 percent of its constructed capacity. According to a study by a DOD consulting firm contractor, beneficiaries in the catchment area of this hospital, in fiscal year 1980, accounted for the highest CHAMPUS expenditures for non-emergency/nonpsychiatric hospital services of all CONUS catchment areas. In fiscal year 1982, CHAMPUS expenditures for all types of nonpsychiatric hospital and professional inpatient services (including emergency care) amounted to over \$29 million for the NRMC Long Beach hospital catchment area. The comptroller of the Naval Regional Medical Command told us that with additional physicians and support personnel, NRMC Long Beach might be able to recapture a significant portion of this CHAMPUS workload.

Improved physician productivity

A shift of resources away from small military hospitals could also improve military physician productivity. When we visited the three hospitals, about 49 military physicians were assigned there. We judgmentally selected 32 physicians for interviews and attempted to obtain perspectives on physician productivity in each of the hospitals' clinical and ancillary service departments. In many cases, we interviewed two or more physicians in each hospital department, and in most cases, we interviewed the department chiefs. In addition, we interviewed physician-administrators (such as the commanders) at each hospital.

Sixteen (50 percent) of the 32 military physicians we interviewed at USAF Hospital Bergstrom, Patterson Army Hospital, and NRMHC Memphis told us that the size and/or complexity of their workloads could be increased if they were not subject to constraints that appear to be unique to small hospitals, such as

- the existence of one-physician departments, which prevent some doctors from performing certain types of surgical procedures and other tasks that require two physicians working together;
- the absence of specialists, such as cardiologists, which prevents internists and family practice physicians from treating patients with relatively complicated medical problems;
- the absence of adequate nursing, ancillary services, or equipment, such as interoperative monitoring devices, which prevents some physicians from treating patients with relatively complicated problems; and
- the absence of sufficiently large workloads, which prevents some physicians from fully using their skills.

One-physician departments

Five of the 32 military physicians we interviewed told us that they could not treat certain types of patients because they were the only full-time physicians assigned to their departments. For example, the only full-time general surgeon assigned to one hospital told us that such operations as gastric resections, radical mastectomies, and vascular surgery cannot be done at the facility when only one surgeon is available. This is because two surgeons are often needed to perform different tasks simultaneously during an operation. Similarly, an ear, nose, and throat specialist told us that he cannot perform surgery on patients with certain types of head or neck cancer because he does not have the assistance of another such specialist. Finally, an ophthalmologist told us that he is forced to refer an average of eight patients each month to CHAMPUS providers because there is no other ophthalmologist available at the hospital to provide consultations and offer second opinions to patients who suffer from retinal disease.

Absence of specialists

Several of the physicians we interviewed told us that the specialization of medicine made it difficult for small hospitals to function effectively without an array of full-time specialists on their medical staffs. Seven of the 32 military physicians

told us that the absence of certain types of specialists decreased the size and/or complexity of their caseloads.

Some of the internal medicine physicians said that the absence of some full-time specialists at the hospitals significantly diminished their ability to diagnose and treat patients with certain complicated problems. For example, one internist told us that the absence of a cardiologist, along with inadequate nursing and ancillary services, prevented him from providing complete treatment for certain heart attack patients. Another internist said that the absence of a neurologist prevented him from treating many of the patients who required consultations or treatments for neurological disorders.

In addition, one physician told us that continuing shortages of obstetricians-gynecologists at the facility prevented the hospital's family practice clinicians from performing some Cesarean baby deliveries. The physician said that family practice doctors are capable of providing prenatal care to mothers who are expected to have Cesarean deliveries, but that an obstetrician-gynecologist is needed to assist before and during the delivery.

Inadequate nursing, ancillary services, and equipment

Nine of the military physicians we interviewed cited inadequate nursing or ancillary services as a barrier to increased productivity or increasing the size and/or complexity of their workloads. The physicians told us that the inadequacies resulted from the absence of specialized medical staff personnel, the limited skills of the personnel assigned to the facilities, or the absence of certain types of equipment.

At one hospital we visited, a general surgeon told us that the absence of an intensive care unit, respiratory therapist, and various types of interoperative monitoring devices were among the factors preventing the hospital from performing surgery on patients who are "at risk." For example, the surgeon told us he could not perform routine operations on patients with a history of heart problems because there are not enough nurses trained in cardiac care to monitor the patients' vital signs following surgery. In addition, the surgeon told us that he could not perform surgery on children under 2 years old since the hospital did not have an anesthesiologist to monitor the patients' cardiovascular functions during an operation.

At another facility, an ophthalmologist told us that only one set of eye surgery equipment was available, which hampered his ability to increase productivity. The physician said that eye surgery equipment must be sterilized between operations

(a procedure that takes about an hour) and that having only one set of equipment available prevented him from performing two operations back-to-back.

Small workloads

Four of the military physicians we interviewed told us that small workloads at the hospitals had resulted in their skills being underutilized. The physicians attributed the small workloads to personnel shortages at the hospital, lack of equipment, and other factors described below.

Two of the physicians who said they were underutilized were general surgeons. The surgeons said that in addition to the lack of adequate nursing and ancillary services at their hospitals, changing medical practices had substantially limited the number of operations they performed. One of the surgeons told us that because of the hospital's limitations, his caseload consisted largely of routine procedures, such as hernia operations and minor outpatient surgery (e.g., wart removals), which he did not regard as the most effective use of his skills. The surgeon also said that he would not perform pancreas operations at the hospital because he does not perform them often enough to maintain his proficiency.

IMPACT ON BENEFICIARIES

Converting small military hospitals to outpatient clinics would apparently not prevent the facilities from providing most services to dependents of active duty members since, according to physicians we interviewed, clinics can fulfill most of these beneficiaries' medical treatment needs. Discontinuing inpatient services at small hospitals should also have minimal effect on retirees and their dependents. Physicians at the three small hospitals we visited told us that the hospitals generally do not offer the specialized medical services that these beneficiaries often need.

Converting small hospitals could, however, have a financial impact on beneficiaries because of the increase in out-of-pocket expenditures they would incur under CHAMPUS. Our analysis shows that nonactive duty beneficiaries could be the most affected. Some of these beneficiaries may, however, have private health insurance which could minimize the financial impact caused by conversion.

Although beneficiaries may incur additional costs at locations where small hospitals are converted to outpatient clinics, system-wide CHAMPUS costs may decrease as a result of a larger hospital's ability to recapture CHAMPUS workload if staff were

transferred there. A case-by-case analysis is needed before a decision is made regarding conversion.

Conversions' effect on availability of medical care

Our interviews with physicians and other medical personnel at freestanding outpatient clinics indicate that clinics can generally fulfill the medical treatment needs of dependents of active duty personnel. Physicians and other medical personnel told us that since the dependent population consists largely of spouses of active duty members and children without serious health problems, many of their medical needs can be effectively met in an outpatient clinic. We were told that most acute illnesses experienced by dependents are relatively minor ailments (such as respiratory infections) that do not require hospitalization for diagnosis or treatment. Furthermore, we were told that a freestanding outpatient clinic can effectively provide most services needed by dependents of active duty members, such as well-baby care, preventive gynecology services, or preschool physicals.

Physicians at the freestanding clinics told us that in contrast to active duty personnel and their dependents, many retirees and their dependents cannot be completely diagnosed and treated at their clinics because they are generally older and have more complicated medical problems that often require hospitalization. However, several physicians at the three small hospitals told us that these hospitals are limited in their ability to serve all retirees who need inpatient care because of the lack of clinical specialists, skilled nursing care, or ancillary services. As discussed on page 28, shifting some of the physicians at small hospitals to larger hospitals could enable the latter to recapture more of the CHAMPUS workload, thereby enabling the direct care system to serve more retirees and other beneficiaries.

Financial impact of conversion on beneficiaries

At the hospitals and freestanding clinics we visited, health benefit advisors told us that dependents of active duty members generally do not experience financial hardship when they rely on CHAMPUS providers for obstetrics care--the inpatient service most frequently used by these individuals. CHAMPUS shares the cost on an inpatient basis for all services related to a maternity care episode (including prenatal and postnatal care). Dependents of active duty personnel must pay a copayment for each day they are hospitalized (\$6.55 per day in fiscal year 1984 or \$25, whichever is greater). The advisors told us that dependents of active duty

members generally pay additional out-of-pocket expenses for charges not covered by CHAMPUS benefits. For example, the health benefit advisor at Hawley U.S. Army Health Clinic told us that in 1983 active duty dependents typically incurred additional out-of-pocket costs of about \$45 to \$105 for civilian maternity care services in the facility's area. Two advisors said that many dependents prefer to use civilian obstetrician-gynecologists because they can choose from a larger selection of doctors than would be possible at a small military hospital.

As shown by the following schedule, the savings that we estimated could be realized by the government if the three small hospitals we reviewed were converted to outpatient clinics were partly attributable to an increase in CHAMPUS out-of-pocket costs by beneficiaries--about \$1.5 million, or 39 percent, of the total savings. These costs represent the difference between beneficiaries' share of CHAMPUS-provided care and the costs they would have incurred if treated in military hospitals. (Dependents were required to pay a fee of \$5.50 per day for inpatient care in military hospitals in fiscal year 1981). Of this amount, we estimate that nonactive duty beneficiaries would have incurred about \$1.3 million in increased costs while the dependents of active duty members would have incurred about \$0.2 million.

Beneficiaries may also be required to incur out-of-pocket expenses for civilian outpatient services that are indirectly related to inpatient care they receive from civilian providers. As explained in appendix I, we did not attempt to estimate these expenses since our model assumes that shifts of outpatient workload to CHAMPUS providers following hospital-to-clinic conversion are offset by absorption of existing outpatient CHAMPUS workload.

Out-of-Pocket Costs to Beneficiaries Following
Conversion of Hospitals to Outpatient Clinics

	<u>USAF Hospital Bergstrom</u>	<u>Patterson Army Hospital</u>	<u>NRMC Memphis</u>	<u>Total</u>
Savings if hospital converted to outpatient clinic ^a	<u>\$506,723</u>	<u>\$766,075</u>	<u>\$2,626,076</u>	<u>\$3,898,874</u>
Out-of-pocket CHAMPUS costs by beneficiaries: ^b				
Active duty dependents	\$ 41,239	\$ 63,751	\$142,242	\$ 247,232
Retirees	169,187	271,669	218,644	659,500
Dependents/survivors of retirees	<u>205,789</u>	<u>186,267</u>	<u>317,389</u>	<u>709,445</u>
Subtotal	<u>416,215</u>	<u>521,687</u>	<u>678,275</u>	<u>1,616,177</u>
Less: Out-of-pocket costs incurred in military hospitals before conversion:				
Active duty dependents ^c	5,533	9,708	38,253	53,494
Retiree dependents ^c	<u>10,863</u>	<u>8,684</u>	<u>12,028</u>	<u>31,575</u>
Subtotal	<u>16,396</u>	<u>18,392</u>	<u>50,281</u>	<u>85,069</u>
Total out-of-pocket costs after conversions	<u>\$399,819</u>	<u>\$503,295</u>	<u>\$627,994</u>	<u>\$1,531,108</u>
Percent of savings represented by increase in out-of-pocket costs	79%	66%	24%	39%

^aIncludes CHAMPUS costs to be borne by beneficiaries after conversion.

^bIncludes both hospital and professional services.

^cOnly dependents are required to pay a daily rate for inpatient care in military hospitals.

Although the beneficiaries served by the small hospitals may incur additional costs if these hospitals were converted to outpatient clinics, the potential exists for reducing system-wide CHAMPUS costs, for both the government and beneficiaries, as a result of transferring staff and other resources from the converted hospitals to larger understaffed facilities. As discussed on page 28, adding staff to larger facilities could enable them to recapture some of the CHAMPUS inpatient workload in their areas.

The financial impact on some beneficiaries from converting small hospitals to outpatient clinics may be minimized because some of them may have private health insurance. According to a March 1984 Congressional Budget Office study, a 1978 DOD survey showed that about 16 percent of military retirees and dependents have private health insurance, usually obtained through civilian employers or unions. Since CHAMPUS is a second payer of claims, converting small hospitals to outpatient clinics could have a minimal financial impact on these beneficiaries.

CHAPTER 4

CONCLUSIONS, RECOMMENDATIONS, DOD COMMENTS, AND OUR EVALUATION

CONCLUSIONS

The methodology we developed for this study is, in our opinion, an effective way to analyze the potential cost effectiveness of converting small military hospitals to outpatient clinics. When applied to three such hospitals, the model shows the savings that DOD could have achieved by converting the hospitals to outpatient clinics. Other benefits that may also be realized include

- increasing physician and other staff productivity through transfers of staff to larger understaffed military facilities;
- providing care to more military beneficiaries through the direct care system, thereby reducing DOD's CHAMPUS workload; and
- avoiding the need to construct or renovate some of the small hospitals now included in DOD's 5-year construction plans.

We do not know whether the three small hospitals we selected to test this methodology are the best candidates for conversion. However, the potential for savings found at the three hospitals, even when conservative estimates are used, demonstrate the need for DOD to analyze the costs of continuing to offer inpatient services at each small military hospital in CONUS where alternative sources of inpatient care exist.

In our opinion, the methodology we developed and tested constitutes a sound tool for DOD's use in analyzing the small hospital system. We believe that DOD should adopt this methodology, or a similar one, and use it to analyze the small hospitals to determine whether some of them should be converted to outpatient clinics.

We recognize that DOD's decisions concerning whether to maintain its small hospitals or convert some of them to outpatient clinics may be influenced by considerations other than costs, such as (1) the hospital's mission and contingency factors, (2) the availability of civilian or federally provided inpatient care, and (3) the effects on beneficiaries. However, we believe that DOD should examine the alternatives for each of its

small hospitals, especially where the estimated savings from a conversion are significant.

RECOMMENDATIONS TO THE SECRETARY OF DEFENSE

We recommend that the Secretary of Defense direct the Assistant Secretary of Defense (Health Affairs) and the Surgeons General of the Army, Navy, and Air Force to:

- Develop criteria to determine when providing inpatient services at small military hospitals is economical and necessary to meet the wartime or peacetime benefit missions. The criteria should include the minimum workload needed to justify offering inpatient care, the distance to other civilian or federal hospitals, alternative treatment settings for active duty patients who require limited care, and other relevant considerations.
- Using a methodology similar to the one discussed in this report, analyze each small military hospital in the direct care system to determine its potential for conversion to an outpatient clinic.
- Perform such analyses before requesting funds from the Congress (or before expending any already approved funds) for reconstructing or renovating any small hospital in the DOD system.

DOD COMMENTS AND OUR EVALUATION

In a February 1, 1985, letter (see app. IV), DOD, with some reservations, agreed with our findings and recommendations and emphasized, as we did, that decisions concerning conversions of small military hospitals to outpatient clinics should be made on a case-by-case basis. DOD told us that it has begun to analyze and validate the model we developed and that this process should be completed within about 6 months.

In response to our recommendation to develop criteria to determine when the provision of inpatient services at small hospitals is economical and necessary, DOD stated that it would incorporate such criteria in the economic analyses that are used to satisfy the requirements of Public Law 97-337. This legislation requires the military services to prepare economic analyses that consider all reasonable medical care alternatives, projected workloads, and staff availability for all medical facility construction or alteration projects that received appropriations after fiscal year 1983. We believe that DOD should also apply

such criteria to the analyses it has agreed to perform in response to our second recommendation concerning existing facilities.

DOD agreed with our recommendation to analyze each of its small hospitals to determine their potential for conversion to an outpatient clinic, but stated that each facility's potential for expansion should also be considered. Our methodology was not designed to consider the potential for expanding inpatient services at small hospitals, but we have reservations about the overall benefits of this alternative at most of these facilities.

We believe that consideration of hospital conversions should not be postponed if there is no potential for expansion and that DOD should conduct a comprehensive economic analysis of expansion alternatives only when there is sufficient evidence to indicate that expansions are realistic possibilities.

It is questionable whether small hospitals can achieve economies of scale by expanding their operations and absorbing existing CHAMPUS workloads. As noted in chapter 1, if small hospitals had absorbed all of the nonemergency/nonpsychiatric CHAMPUS inpatient workload in their catchment areas, only a few of the facilities in operation in fiscal year 1982 would have had an ADPL over 50 and none would have had an ADPL over 100.

Furthermore, expanding the operations of small hospitals may not necessarily improve physician productivity, if the ADPL is 50 or less. Although the three small hospitals we studied varied significantly in terms of their mix of services, level of staffing, and size of workloads, physician productivity at each facility was constrained by one-physician departments, the absence of specialists, small caseloads, or other problems that appear to be unique to small hospitals. While we do not know exactly what mix of services is needed to achieve high physician productivity, we note DOD's statement in its response to our draft report that within each hospital there should be a certain "critical mass" of clinical specialists.

DOD agreed with our recommendation to analyze the potential for small hospital conversions before requesting funds from the Congress for reconstruction and/or renovation of the facilities, but suggested that small hospital projects currently under design be exempted from analysis since delays of these projects might increase construction costs. DOD told us that three small Air Force hospitals--Kirtland Air Force Base, New Mexico; Patrick Air Force Base, Florida; and Minot Air Force Base, North Dakota--are currently under design. We agree that consideration of hospital conversions for these three facilities should not be performed if such analyses would be impractical.

METHODOLOGY AND RESULTS OF COMPARING THE COSTS
OF CONVERTING THREE SMALL MILITARY HOSPITALS
TO FREESTANDING OUTPATIENT CLINICS

This appendix describes the methodology we used to determine the estimated costs to the government if U.S. Air Force Hospital Bergstrom, Patterson U.S. Army Community Hospital, and Naval Regional Medical Center Memphis had discontinued inpatient services based on fiscal year 1981 costs.

As shown in the following table, the estimates were derived by calculating the difference between two components. The first component, the net reduction in operating expenses resulting from converting a hospital to a freestanding clinic, is offset to some extent by the second component, the additional government payments to civilian hospitals and physicians who provide inpatient care to active duty personnel, dependents, retirees, and other patients.

	<u>USAF Hospital Bergstrom</u>	<u>Patterson Army Hospital</u>	<u>NRMC Memphis</u>	<u>Total</u>
Net reduction in operating expenses resulting from hospital-to-clinic conversion	\$2,376,137	\$3,878,867	\$8,048,233	\$14,303,237
Less: Additional government payments to civilian providers (open allotment and CHAMPUS)	<u>1,869,414</u>	<u>3,112,792</u>	<u>5,422,157</u>	<u>10,404,363</u>
Estimated government savings (based on fiscal year 1981 costs)	<u>\$ 506,723</u>	<u>\$ 766,075</u>	<u>\$2,626,076</u>	<u>\$ 3,898,874</u>

Figures 1, 2, and 3 present an overview of the results of our analysis of each small military hospital. These illustrations show the workload that would be shifted to civilian providers following the discontinuation of inpatient services and the amount of additional government payments to civilian providers, along with the estimated government savings resulting from the conversion.

Figure 1

Actual USAF Hospital Bergstrom Workload And Costs During FY 1981		Distribution Of Workload And Costs After Conversion Of USAF Bergstrom To An Outpatient Clinic				
		Transfers & discharges remaining in direct care system	<u>Inpatient workload shifted to civilian providers</u> (Est. govt. cost for hospital & professional services)			
	<u>Discharges^a</u>		<u>Discharges</u>	<u>CHAMPUS expenditures</u>	<u>Open allotment expenditures</u>	
INPATIENT WORKLOAD						
Active Duty and Others	457	103 ^b	354	-	\$542,315	
Dependents of Active Duty	253	6	247	\$ 356,318	-	
Retirees	270	18	252	439,527	-	
Dependents of Retirees	346	9	337	531,254	-	
Total	1,326	136	1,190	\$1,327,099	\$542,315	
GRAND TOTALS	<u>Operating expenses (Hospital & Clinic)</u>	<u>Foregone inpatient revenue and operating expenses (Clinic only)</u>	<u>CHAMPUS expenditures</u>	<u>Open allotment expenditures</u>	<u>Total^c</u>	<u>Net^d government savings</u>
	\$6,120,519	\$3,744,382	\$1,327,099	\$542,315	\$5,613,796	\$506,723
	(1)	(2)	(3)	(4)	(5)	

^aExcludes 32 patients who were discharged less than 24 hours after admission to hospital.

^bExcludes dental patients.

^cColumn 2 total + column 3 total + column 4 total.

^dColumn 1 total - column 5 total.

Figure 2

Actual Patterson Army Hospital Workload And Costs During FY 1981		Distribution Of Workload And Costs After Conversion Of Patterson Army Hospital To An Outpatient Clinic				
		Transfers & discharges remaining in direct care system	Inpatient workload shifted to civilian providers (Est. govt. cost for hospital & professional services)			Open allotment expenditures
			Discharges	CHAMPUS expenditures	Open allotment expenditures	
<div style="border: 1px solid black; padding: 2px; width: fit-content;">INPATIENT WORKLOAD</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">Active Duty and Others</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">Dependents of Active Duty</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">Retirees</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">Dependents of Retirees</div>	<u>Discharges^a</u>					
	665	27	638	\$ -	\$1,161,738	
	427	11	416	704,933	-	
	322	20	302	741,452	-	
	308	21	287	504,669	-	
Total	1,722	79	1,643	\$1,951,054	\$1,161,738	
GRAND TOTALS	<u>Operating expenses (Hospital & Clinic)</u>	Foregone inpatient revenue and operating expenses (Clinic only)	<u>CHAMPUS expenditures</u>	<u>Open allotment expenditures</u>	<u>Total^a</u>	Net^b government savings
	\$7,079,365	\$3,200,498	\$1,951,054	\$1,161,738	\$6,313,290	\$766,075
	(1)	(2)	(3)	(4)	(5)	

^aColumn 2 total + column 3 total + column 4 total.

^bColumn 1 total - column 5 total.

Figure 3

Actual NRC Memphis Hospital Workload And Costs During FY 1981		Distribution Of Workload And Costs After Conversion Of NRC Memphis To An Outpatient Clinic				
		<u>Inpatient workload shifted to civilian providers (Est. govt. cost for hospital & professional services)</u>				
		Transfers & discharges remaining in direct care system	Discharges	CHAMPUS expenditures	Open allotment expenditures	
<div style="border: 1px solid black; padding: 5px; width: fit-content;">INPATIENT WORKLOAD</div> <div style="margin-left: 20px;"> <div style="border: 1px solid black; padding: 5px; width: fit-content;">Active Duty and Others</div> <div style="border: 1px solid black; padding: 5px; width: fit-content;">Dependents of Active Duty</div> <div style="border: 1px solid black; padding: 5px; width: fit-content;">Retirees</div> <div style="border: 1px solid black; padding: 5px; width: fit-content;">Dependents of Retirees</div> </div>	<u>Discharges^a</u>					
		1,134	403 ^b	731	\$ -	\$1,571,248
		1,234	35	1,199	2,358,009	-
		254	16	238	605,353	-
		<u>475</u>	<u>8</u>	<u>467</u>	<u>887,547</u>	<u>-</u>
Total	<u>3,097</u>	<u>462</u>	<u>2,635</u>	<u>\$3,850,909</u>	<u>\$1,571,248</u>	
GRAND TOTALS	<u>Operating expenses (Hospital & Clinic)</u>	Foregone inpatient revenue and operating expenses (Clinic only)	<u>CHAMPUS expenditures</u>	<u>Open allotment expenditures</u>	<u>Total^c</u>	<u>Net^d government savings</u>
	\$12,245,930	\$4,197,697	\$3,850,909	\$1,571,248	\$9,619,854	\$2,626,076
	(1)	(2)	(3)	(4)	(5)	

^aExcluding newborns.

^bIncludes alcohol abuse and psychiatric patients.

^cColumn 2 total + column 3 total + column 4 total.

^dColumn 1 total - column 5 total.

ESTIMATION OF REDUCTION IN OPERATING EXPENSES AT THREE HOSPITALS

The reduction in operating expenses resulting from converting each small military hospital to an outpatient clinic was derived by calculating the difference between the hospital's actual fiscal year 1981 patient care expenses and our estimate of the expenses the facility would have incurred had it operated as a freestanding clinic. We estimated that converting USAF Hospital Bergstrom, Patterson Army Hospital, and NRMC Memphis to freestanding clinics, based on fiscal year 1981 costs, would have resulted in a combined reduction of expenditures of \$14.3 million, as shown below. This figure represents the reduction in fiscal year 1981 outlays resulting from discontinuing inpatient care, except for depreciation expenses for equipment.

	<u>USAF Hospital Bergstrom</u>	<u>Patterson Army Hospital</u>	<u>NRMC Memphis</u>	<u>Total</u>
Total FY 1981 patient care expenses (inpatient and outpatient)	\$6,120,519	\$7,079,365	\$12,245,930	\$25,445,814
Less:				
Estimated FY 1981 patient care expenses if facility had functioned as freestanding clinic	3,738,420	3,193,810	4,179,413	11,111,643
Foregone inpatient revenue ^a	<u>5,962</u>	<u>6,688</u>	<u>18,284</u>	<u>30,934</u>
Net reduction in operating expenses resulting from hospital-to-clinic conversion	<u>\$2,376,137</u>	<u>\$3,878,867</u>	<u>\$ 8,048,233</u>	<u>\$14,303,237</u>

^aThis is an estimate of the inpatient per diem fees collected by each hospital from dependent beneficiaries during fiscal year 1981. It includes that portion of the \$5.50 daily inpatient fee which was charged for medical care. The other portion of inpatient fees, which is related to subsistence (meals), was considered in another part of our analysis, as explained on page 45.

We recognize that recorded depreciation expenses related to equipment did not represent a direct outlay by the military hospitals in fiscal year 1981. We have included depreciation expenses in our analysis, however, to recognize that eventually the equipment will need to be replaced. Another, perhaps more significant, capital cost--major construction--was not included in our analysis since specific data concerning it were not available.

Patient care expenses before
discontinuation of inpatient care

The fiscal year 1981 patient care expenses for each small military hospital before the discontinuation of inpatient care consist of the patient care expenses reported by each facility, plus an amount we added to reflect DOD's obligations to provide future retirement pay to active duty personnel assigned to each hospital, as shown below.

	USAF Hospital <u>Bergstrom</u>	Patterson Army <u>Hospital</u>	NRMC <u>Memphis</u>	<u>Total</u>
Total FY 1981 patient care expenses (inpatient and outpatient) ^a	\$5,255,589 ^b	\$6,420,073 ^c	\$10,331,895 ^d	\$22,007,557
Estimated FY 1981 retirement obligations for active duty personnel	<u>864,930</u>	<u>659,292</u>	<u>1,914,035</u>	<u>3,438,257</u>
Adjusted total FY 1981 patient care expenses	<u>\$6,120,519</u>	<u>\$7,079,365</u>	<u>\$12,245,930</u>	<u>\$25,445,814</u>

^aSum total of direct patient care expenses from part I of fiscal year 1981 Medical Expense and Performance Reports. Excludes patient care expenses for branch outpatient clinics not adjacent to inpatient facility which were identified on UCA computation summary for each hospital. Also excludes inpatient subsistence (meal) expenses identified on UCA step-down schedules, since these expenses are generally offset by per-diem fees collected from inpatients.

^bIncludes \$322,024 in depreciation expenses.

^cIncludes \$93,568 in depreciation expenses.

^dIncludes \$147,360 in depreciation expenses.

We obtained patient care expenses for USAF Hospital Bergstrom, Patterson Army Hospital, and NRMC Memphis from the fiscal year 1981 Medical Expense and Performance Reports (MEPRs) for each of the hospitals. These reports are produced as part of the DOD Uniform Chart of Accounts system for fixed military medical and dental treatment facilities.

Since expenses accumulated in fiscal year 1981 UCA reports do not reflect the government's obligations to provide future retirement benefits for active duty personnel, we estimated these obligations and added them to the patient care expenses reported by each small military hospital in fiscal year 1981. First, we obtained from each of the three military hospitals the total fiscal year 1981 military personnel expenses for all of the activities under their command (e.g., hospital services, dental care, and branch clinics).¹ Second, we estimated retirement obligations by calculating the amount of military personnel expenses that would have to be contributed annually (and invested at a rate of return assumed by DOD) to fund all of the retirement benefits for active duty personnel assigned to each hospital command. Finally, we estimated the portion of retirement obligations attributable to inpatient and outpatient care activities by multiplying the estimated total retirement obligations by the proportion of all hospital command expenses allocated on the MEPR into direct patient care work centers at each hospital.

We believe that including retirement obligations in our analysis is appropriate since legislation passed by the Congress (Public Law 98-94) requires the DOD budget to reflect the accrual of retirement costs for those personnel currently in uniform starting in fiscal year 1985. The method we used to estimate retirement obligations for each of the hospitals we studied is based on information we obtained from the Office of the Actuary of the Defense Manpower Data Center, along with other data.

Patient care expenses after discontinuation of inpatient care

To estimate the operating costs that each small military hospital would have incurred had it not offered inpatient services in fiscal year 1981, we

¹Since actual fiscal year 1981 military personnel expenses were not available for USAF Hospital Bergstrom, we used the average of the hospital's fiscal year 1980 and fiscal year 1982 military personnel expenses.

--estimated the patient care expenses associated with the outpatient workload, using a linear regression analysis, and

--added to the patient care expenses an amount to reflect DOD's obligations to provide future retirement pay to active duty personnel assigned to each facility.

The estimates of operating expenses for each of the small military hospitals, had they functioned as freestanding clinics, are shown below.

	USAF Hospital <u>Bergstrom</u>	Patterson Army <u>Hospital</u>	NRMC <u>Memphis</u>	<u>Total</u>
Estimated FY 1981 total outpatient visits ^a	121,466	107,607	134,024	363,097
Estimated patient care expenses if facility had functioned as a free- standing clinic in FY 1981 ^b	\$3,222,776	\$2,903,464	\$3,512,112	\$ 9,638,352
Estimated FY 1981 retirement costs for active duty personnel ^c	<u>515,644</u>	<u>290,346</u>	<u>667,301</u>	<u>1,473,291</u>
Total	<u>\$3,738,420</u>	<u>\$3,193,810</u>	<u>\$4,179,413</u>	<u>\$11,111,643</u>

^aTotal outpatient visits reported by each small military hospital on part I of the facility's fiscal year 1981 MEPR, excluding visits to branch clinics which we identified on each facility's UCA step-down statistics matrix. We also excluded all obstetric clinic visits from the totals, since our estimate of civilian professional services costs (described on p. 64) includes payments to civilian outpatient providers for obstetrics-related services.

^bBased on least-squares equation described below. Includes depreciation expenses.

^cPatient care expenses predicted by least-squares equation were increased by the same proportion that hospital patient care expenses were increased (before the discontinuation of inpatient care) to reflect retirement obligations for active duty personnel.

We estimated the operating expenses of the freestanding clinics (after conversion), assuming each would handle the same volume of nonobstetric outpatient visits as it actually handled in fiscal year 1981. We recognize that outpatient visits may decrease to some extent after the facilities are converted to clinics and that such a decline may result in a portion of the outpatient workload being shifted to civilian providers (such as CHAMPUS). This is because patients who no longer rely on military hospitals for inpatient care would presumably obtain preadmission examinations and outpatient follow-up care from the civilian physicians who care for them as inpatients.

We assumed, however, that after conversion, the facilities would be able to absorb a portion of the outpatient workload that is presently handled by CHAMPUS providers in their areas, which would offset any additional government payments to civilian providers. This could be accomplished, for example, if conversions resulted in improved access to outpatient services at the converted facilities. Medical and administrative personnel at the three small military hospitals we visited told us that the facilities were unable to meet the full demand for primary outpatient care (e.g., general practice and pediatrics) either year-round or during the summer for the beneficiary population in their areas. As a result, these personnel believe that many beneficiaries see civilian providers for outpatient care under CHAMPUS when they cannot gain access to the military hospital outpatient clinics. The commanding officer at one freestanding clinic (NRMC Port Hueneme) told us that after inpatient services were eliminated at the facility, many beneficiaries told him that access to outpatient services improved significantly. The commander attributed this improvement to an increase in primary care physicians and the fact that some physicians were able to devote much more time to outpatient care instead of spending a portion of their time caring for inpatients. Furthermore, the commander said that part-time civilian specialists (such as a dermatologist and gynecologist) helped the facility meet beneficiary needs for outpatient services.

Our estimate of the operating costs of each small military hospital after conversion to an outpatient clinic was based on a linear regression analysis. The analysis was performed on 29 of the 31 DOD outpatient clinics in CONUS which reported separately under the UCA system during fiscal year 1981. Data for both the dependent variable (direct patient expenses) and independent variable (total outpatient visits) were obtained from the fiscal year 1981 MEPRs for each outpatient clinic.

The facilities included in the linear regression analysis did not offer inpatient services during fiscal year 1981. The facilities ranged from small dispensaries providing under 15,000 visits (such as the naval dispensary in Idaho Falls, Idaho) to larger clinics offering over 150,000 visits (such as the USAF clinic at Randolph Air Force Base, Texas).

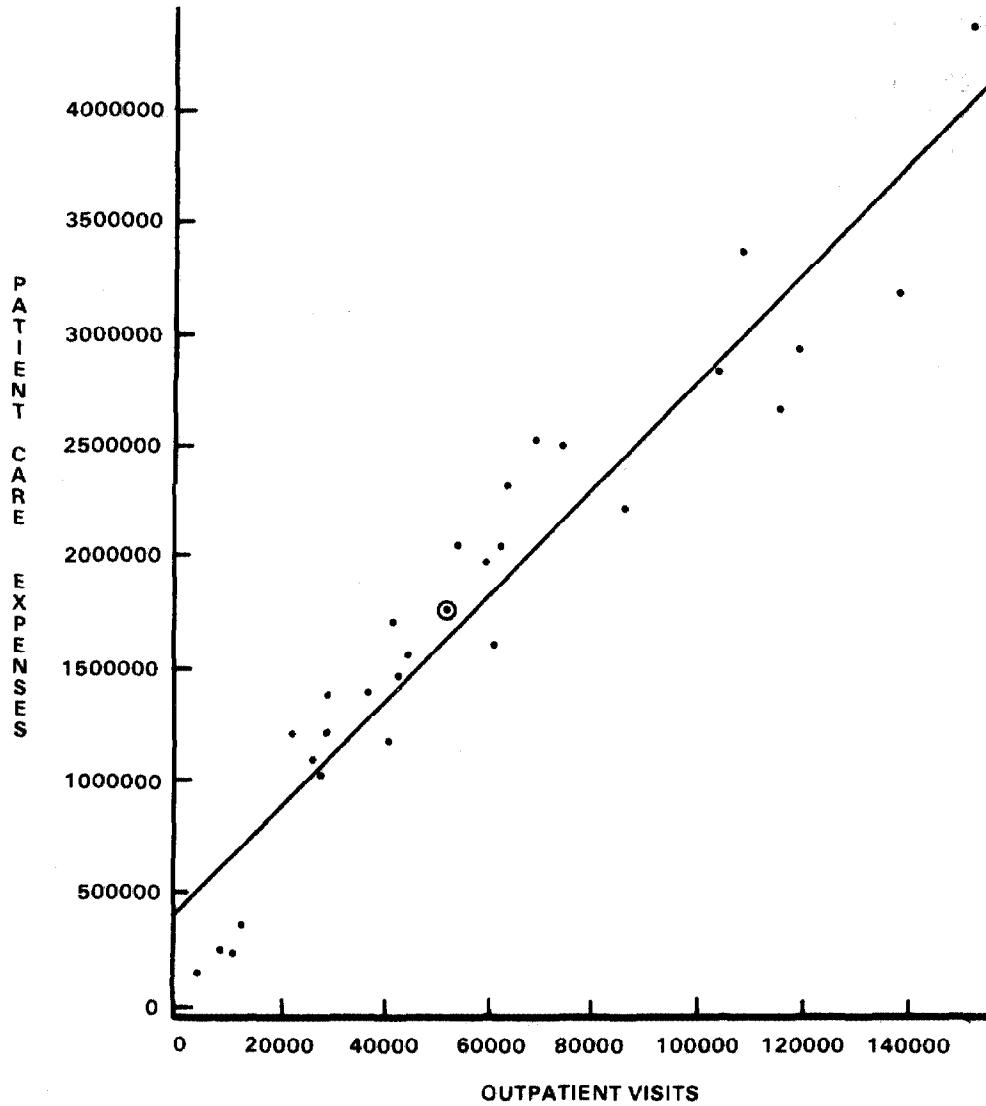
Of the 29 outpatient clinics we included in the linear regression analysis, 18 were Air Force, 10 were Navy, and 1 was Army. Only one Army outpatient clinic (at Fort Sheridan, Illinois) reported separately in the UCA system during fiscal year 1981.

We excluded from the universe of data used in our linear regression analysis the two facilities that had the highest and lowest average cost per visit, respectively, of all freestanding clinics in CONUS that reported separately under the UCA system. First, we excluded from the analysis NRMC Key West (Florida), whose average cost per outpatient visit in fiscal year 1981 was \$58--about 2.7 standard deviations away from the average cost per visit for all 31 freestanding clinics in CONUS. The comptroller of the Naval Medical Command told us that uncertainty about the size of the active duty population assigned to the Naval Air Station at Key West has forced the Navy to maintain a relatively large clinic staff for the small outpatient workload, and as a result, the clinic has incurred unusually high operating costs. Based on this evidence, we excluded the NRMC Key West MEPR from our analysis, since we assumed its operating costs would not be representative of other military medical facilities. Second, to be conservative, we also excluded the NRMC Annapolis (Maryland) clinic from our analysis, since it had the lowest cost per visit (about \$19) of all 31 freestanding clinics in CONUS during fiscal year 1981.

Figure 4 depicts the relationship between the outpatient clinic workload and patient care expenses for the 29 clinics. The line drawn through the data points--the regression line--shows the expected relationship between the total patient care expenses and workload in medical facilities that offer only outpatient care. It should be noted that the correlation coefficient (R) for the data is 0.95 and $R^2 = .91$, indicating that 91 percent of the variation in patient care expenses among the 29 clinics is explained by the variation in the number of outpatient visits.

Figure 4

**RELATIONSHIP BETWEEN OUTPATIENT VISITS AND
PATIENT CARE EXPENSES AT 29 DOD CLINICS**



Note: The circled data point represents two clinics. The line drawn through the data points is an approximate representation of the least-squares equation, and may differ slightly from the actual regression line.

We derived an equation from our linear regression analysis to aid in estimating the total operating costs that each small military hospital would have incurred as a freestanding clinic during fiscal year 1981. The least-squares equation we derived was:

$$Y = \$424,199 + \$23.04 (X)$$

where:

Y = the estimated operating costs for the military medical facility

\$424,199 = the constant cost

\$23.04 = the additional cost associated with each additional outpatient visit

X = the expected number of outpatient visits at the military medical facility

Using the above equation, we estimated the operating costs that each small hospital would have incurred as a freestanding clinic in fiscal year 1981. At the 95-percent confidence level, we also computed prediction intervals for our estimates as follows:

	Estimated FY 1981 operating <u>expenses</u>	Prediction <u>intervals</u>
USAF Hospital Bergstrom	\$3,738,420	+ \$836,450
Patterson Army Hospital	3,193,810	± 772,848
NRMC Memphis	4,179,413	± 880,085

The estimated expenses shown above include DOD's funding of future retirement pay for active duty personnel. We increased the estimates derived from the least-squares equation by the same proportion that patient care expenses for hospitals were increased, as discussed on pages 44 and 45. For example, since the addition of estimated retirement costs increased Patterson Army Hospital's fiscal year 1981 patient care expenses by 10 percent, we added a similar percentage increase to the estimated costs of operating the facility as a freestanding clinic.

ESTIMATION OF GOVERNMENT PAYMENTS
TO CIVILIAN PROVIDERS

The reduction in expenditures associated with the conversion to an outpatient clinic must offset the additional expenses the government will incur in paying civilian hospitals and physicians to provide inpatient services to active duty personnel and military beneficiaries. Our approach to estimating the additional government payments to civilian providers near each military hospital consisted of estimating

--civilian hospital charges and government payments for patients who would have been referred to civilian hospitals in fiscal year 1981 and

--civilian inpatient professional charges and government payments associated with patients who would have been referred to the civilian sector for inpatient care.

By adding the estimated civilian hospital payments to those for civilian inpatient professional services, we derived an estimate of the total payments to civilian providers, as shown below.

	<u>USAF Hospital Bergstrom</u>	<u>Patterson Army Hospital</u>	<u>NRMC Memphis</u>	<u>Total</u>
Payments to civilian hospitals	\$1,462,300	\$2,573,905	\$4,500,323	\$ 8,536,528
Payments to civilian physicians	<u>407,114</u>	<u>538,887</u>	<u>921,834</u>	<u>1,867,835</u>
Total government payments to civilian providers	<u>\$1,869,414</u>	<u>\$3,112,792</u>	<u>\$5,422,157</u>	<u>\$10,404,363</u>

Computer model for estimating
civilian hospital charges

Based on a computer model we developed to estimate the cost of treating military hospital patients in civilian inpatient facilities, we estimated that eliminating inpatient services at three small DOD hospitals during fiscal year 1981 would have resulted in additional government payments to civilian hospitals of \$8.5 million. Our computer model was designed to help determine how selected clinical characteristics of military hospital patients (e.g., their age, type of diagnosis, and presence or absence of surgery) would affect their cost of treatment in civilian inpatient facilities.

We obtained data for use in our computer model from three principal sources:

- The armed services patient treatment files.
- CHAMPUS hospital claims.
- The Commission on Professional and Hospital Activities Resource Intensity Weights.

Each of these data bases is described below.

The fiscal year 1981 patient treatment files (discharge abstracts) served as the primary data base for identifying how many DOD hospital patients would use civilian inpatient facilities if USAF Hospital Bergstrom, Patterson Army Hospital, and NRMC Memphis were converted to outpatient clinics.

We obtained magnetic tape data describing the characteristics of patients discharged from the Bergstrom, Patterson, and Memphis hospitals from the Air Force's Automated Inpatient Data System, the Army's Individual Patient Data System, and the Navy's Inpatient Data System, respectively.

Each of the patient treatment files used in our model consists of records describing each inpatient's episode of care in the military hospital. The data contained in each record are abstracted from the patient's medical chart by military hospital medical record technicians. The major data elements drawn from patient records and used in our computer model were

- principal (first) diagnosis code,
- principal (first) procedure code, and
- age of patient.

We analyzed separately and excluded from our estimate of total civilian hospital charges a small number of military hospital discharges. Based on interviews with physicians at hospitals and freestanding clinics, we assumed these discharges do not represent additional patients who would be admitted to civilian hospitals following the discontinuation of inpatient services at small military hospitals. We excluded:

- Patients who were transferred from the three small military hospitals to other hospitals upon discharge, since we assumed these patients would have been directly admitted to the other hospitals if the small inpatient facilities had functioned as freestanding clinics in fiscal year 1981. (We excluded transfers from Patterson Army Hospital and NRMC Memphis to both military and civilian hospitals; we excluded only transfers from USAF Hospital Bergstrom to other military hospitals, since data on transfers to civilian hospitals for the latter facility were not available.)
- Active duty discharges at USAF Hospital Bergstrom who were hospitalized for convalescent care following outpatient dental treatment, because we were told that dentists at freestanding clinics can usually adjust their practice patterns, eliminating the need to hospitalize active duty patients.
- Active duty discharges at NRMC Memphis who were hospitalized for alcohol abuse or psychiatric problems, because we assumed the patients would generally have been treated in other DOD hospitals if NRMC Memphis was converted to a freestanding clinic.

In total, we excluded 677 of the 6,145 discharges from the three small military hospitals, which is equivalent to an ADPL of about 3.3 patients per hospital. Table 1 shows a breakdown of the discharges excluded from our analysis.

We obtained magnetic tape data describing the characteristics of CHAMPUS beneficiaries who were treated in civilian hospitals during fiscal year 1981 from the OCHAMPUS Information Systems Division. The data were extracted from the OCHAMPUS Quick Response Detail File.

Table 1

Discharges Excluded from Estimate of Patients Who Would
Utilize Civilian Hospitals Following Conversion of Small
Military Hospitals to Outpatient Clinics

	(1) Total FY 1981 discharges ^a	(2) Active duty dental care patients ^b	(3) Active duty psychiatric and alcohol abuse patients ^c	(4) Transfers to other hospitals ^d	(5) Total discharges excluded ^e	Total discharges who would be admitted to civilian hospitals ^f
USAF Hospital Bergstrom	1,326	87	-	49	136	1,190
Patterson Army Hospital	1,722	-	-	79	79	1,643
NRMC Memphis	<u>3,097</u>	-	<u>370</u>	<u>92</u>	<u>462</u>	<u>2,635</u>
Total	<u>6,145</u>	<u>87</u>	<u>370</u>	<u>220</u>	<u>677</u>	<u>5,468</u>

^aExcludes newborns. Also, USAF Hospital Bergstrom total excludes 32 patients who were discharged on the same day of admission.

^bActive duty patients whose principal (ICD-9) diagnosis code ranged from 520.6 through 524.3.

^cActive duty patients whose principal diagnosis code fell into CPHA List A Groups 89 through 112.

^dData on transfers from Patterson Army Hospital to civilian hospitals obtained from Patterson medical records technician.

^eColumn 2 + column 3 + column 4.

^fColumn 1 - Column 5.

Source: Armed Services' Fiscal Year 1981 Patient Treatment Files.

The CHAMPUS data used in our model consist of records describing each inpatient's episode of care in a civilian hospital. The patient records contain data that are extracted from claims submitted by civilian hospitals to OCHAMPUS fiscal intermediaries.

The major data elements we extracted from each CHAMPUS inpatient's record and used in our model were

- principal diagnosis code,
- principal procedure code,
- age, and
- total allowable hospital charges (before deduction of beneficiary out-of-pocket costs).

Using the CHAMPUS claim data, we developed a separate civilian hospital cost data base for each of the 40-mile catchment areas surrounding USAF Hospital Bergstrom, Patterson Army Hospital, and NRMC Memphis. The civilian hospital cost data were drawn from claims for hospital services that were delivered by CHAMPUS providers during fiscal year 1981.² We assigned the claims to each military hospital's catchment area using the five-digit zip code of the civilian hospital provider.

The table on the following page shows the number of CHAMPUS discharges that constituted the civilian hospital cost data base for each military hospital catchment area.

²At the time we requested the Quick Response Detail File data, OCHAMPUS estimated that the data represented about 80 percent of all hospital services delivered by CHAMPUS providers in each catchment area during fiscal year 1981.

Fiscal Year 1981 CHAMPUS
Hospital Claim Data

<u>40-mile catchment area</u>	<u>Discharges</u>
USAF Hospital Bergstrom, Bergstrom Air Force Base (Austin, Texas, and vicinity)	1,635
Patterson Army Hospital, Fort Monmouth (Eatontown, New Jersey, and vicinity) ^a	2,252
NRMC Memphis, Millington Naval Air Station (Millington, Tennessee, and vicinity) ^b	1,246

^aThe Fort Monmouth catchment area includes portions of the Newark, New Jersey, and New York City metropolitan areas.

^bThe NRMC Memphis catchment area includes the Memphis, Tennessee, metropolitan area.

We identified the zip codes of the hospitals that submitted the claims, and based on this information, we estimated that there are at least 14 civilian hospitals in each cost data base.

To develop the civilian hospital cost data bases for use in our computer model, we excluded from the CHAMPUS claim data bases certain types of CHAMPUS hospital discharges. We excluded all discharges treated as inpatients for psychiatric conditions³ since we assumed they are not representative of nonpsychiatric patients treated in small military hospitals.

In addition, we excluded all CHAMPUS discharges with lengths of stay over 29 days, since we assumed that such patients have complicated medical problems that make them atypical civilian hospital cases. Due to the limited amount of information contained on CHAMPUS claims (e.g., no listing of secondary diagnosis or secondary procedure), we could not use the CPHA Professional Activity Study data base to determine which CHAMPUS discharges had atypical lengths of stay. However, we believe 29 days is a reasonable cut-off point, since the Professional Activity Study

³Patients admitted to psychiatric institutions and patients admitted to short-term hospitals whose principal diagnosis fell into CPHA List A groups 89 through 112.

length-of-stay tables show that nationwide during 1981, over 95 percent of all nonfederal community hospital patients age 65 or under (i.e., the population that uses CHAMPUS hospital providers) had a length of stay less than 30 days.

There are other types of CHAMPUS discharges that we did not exclude from our civilian hospital cost data base which may also not be representative of small military hospital inpatient workloads. As explained in appendix II, including these types of discharges in the civilian hospital cost data base may tend to overstate the civilian hospital charges predicted by our computer model.

We used the Resource Intensity Weights data base in our model to aid in estimating the case-mix adjusted cost of treating military hospital patients in civilian hospitals. This data base was developed by CPHA, a nonprofit research organization based in Ann Arbor, Michigan. CPHA constructed the weights by combining clinical and billing data from the discharge records of about 3 million nonfederal community hospital patients for the years 1976-80. Because the hospitals providing data to CPHA were self-selected, the Resource Intensity Weights data base does not constitute a probability sample. However, these hospitals vary in extent of teaching programs from none to a full range of residencies, vary in size from under 2,500 to over 25,000 discharges per year, and represent the four U.S. census regions.

One of the key concepts in the CPHA case-mix measurement system is the resources need unit. An RNU value reflects the relative cost of treating different types of patients in civilian hospitals. For example,⁴ a 25-year-old patient with a diagnosis of infectious mononucleosis who did not undergo surgery would be assigned an RNU value of 0.77, based on the CPHA data. Put simply, this type of patient typically requires 0.77 times as much expenditures of hospital resources to treat as does the average hospital patient, whose RNU value is 1.0. In contrast, a 56-year-old patient who has congestive heart failure and undergoes surgery has an RNU value of 2.66, which would mean that relative to the 3 million patients in the CPHA data base, this type of patient typically requires 2.66 times as much expenditure of hospital resources as does the average inpatient. The RNU for a particular discharge is determined by assigning the patient to 1 of 3,980 categories, based on a cross-classification of patient

⁴These are not actual RNU values, but simply hypothetical values presented for illustrative purposes, in order to protect proprietary CPHA data.

characteristics that are associated with hospital charges (i.e., principal diagnosis, age, and presence or absence of surgery).⁵

By using the CPHA Resource Intensity Weights, we were able to (1) measure the output of both small military hospitals and CHAMPUS hospital providers, (2) express this output in terms of a common denominator (RNUs), and (3) estimate the civilian hospital charge per unit of output. The model software we developed to perform this task is described below.

Description of computer programs

We developed a series of computer programs that draw information from the military hospital patient treatment files (discharge abstracts), CHAMPUS hospital claim data, and the CPHA Resource Intensity Weights and use the data to estimate how much civilian hospitals would charge to treat military hospital patients.

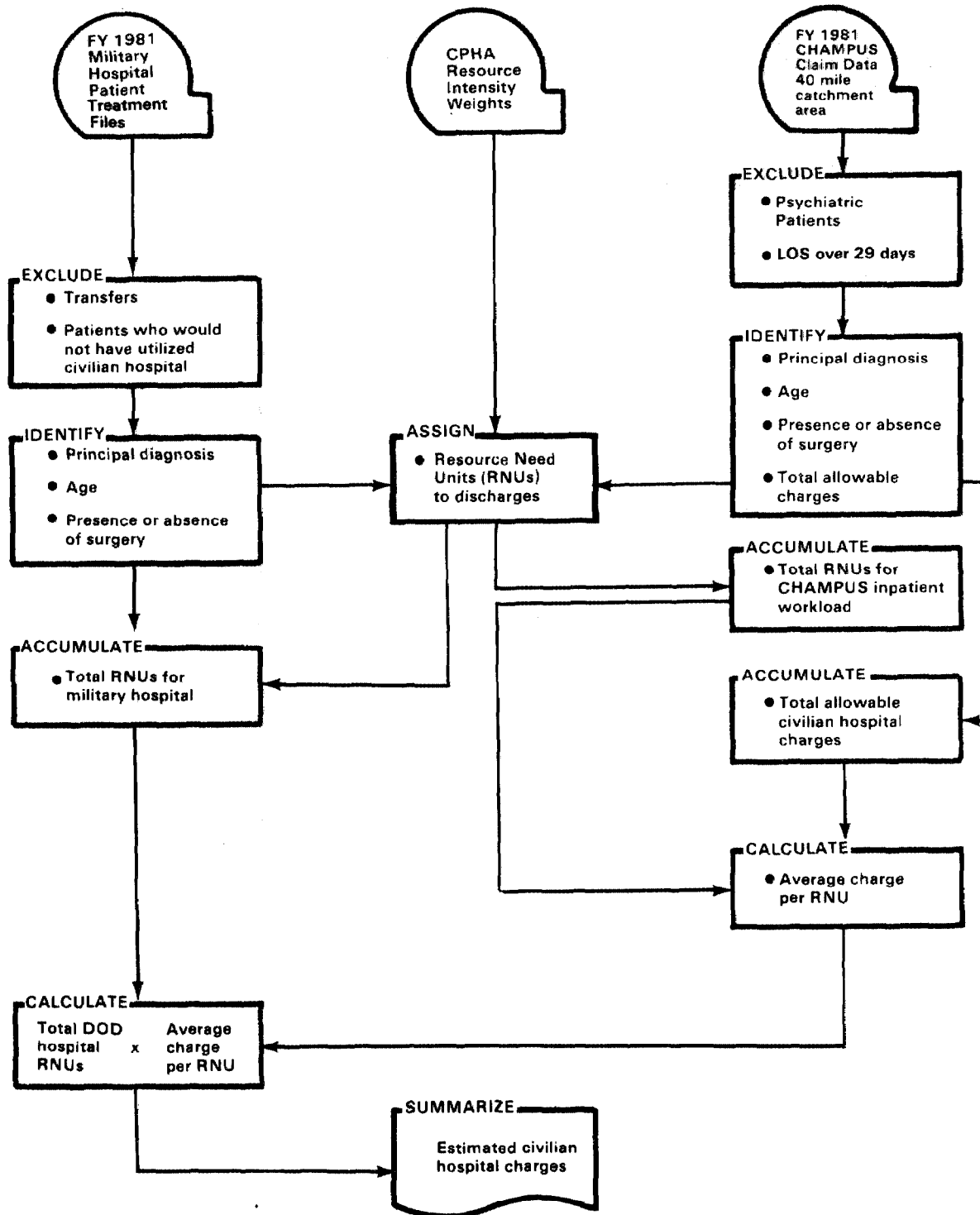
Figure 5 illustrates the major steps in the computer model for estimating what the civilian hospital charges would have been for patients discharged from each small military hospital.

The first major step in our computer model is determining the weighted value of the inpatient workload that could have been shifted to civilian providers after the conversion of each small military hospital to an outpatient clinic. The model software reads a record on each patient who was discharged from the military hospital during fiscal year 1981 and identifies the patient's principal diagnosis, age, and presence or absence of surgery. Using this information, the computer then searches through the CPHA Resource Intensity Weights data base to determine the number of RNUs for each of the patients and accumulates the RNUs. The total RNUs for each small military hospital represent the workload that civilian hospitals would have absorbed if inpatient services had been discontinued at USAF Hospital Bergstrom, Paterson Army Hospital, and NRMC Memphis during fiscal year 1981.

⁵Additional details on the development of the RNU concept and its use in hospital case-mix analyses are described by Richard P. Ament in "The Use of Case Mix Figures in Analyzing Average Charges for Inpatients," PAS Reporter, Vol. 14, No. 3, March 19, 1976, and "Resource Need Index and Average Charge Per Resource Need Unit: Distribution in SPC Hospitals," PAS Reporter, Vol. 14, No. 8, August 9, 1976.

Figure 5

Sequence of operations in Determining Civilian Hospital Charges for Military Hospital Patients



The model's second major step is determining the average charge (in dollars) per RNU to be applied to the overall weighted value of the small military hospital inpatient workload that would be shifted to civilian providers. The average charge per RNU was derived by analyzing claim data on inpatients who were treated by CHAMPUS hospital providers during fiscal year 1981 in the 40-mile catchment area surrounding the military hospital under study. The model software identifies the clinical characteristics of CHAMPUS hospital patients (similar to the manner in which military hospital discharges are analyzed) and determines the total weighted value (RNUs) for the CHAMPUS inpatient workload. Then, the model software sums the CHAMPUS hospital providers' billed charges⁶ for the inpatient workload and computes an average billed charge per RNU.

The model's third and final major step is applying the average billed charge per RNU to the weighted value of the small military hospital inpatient workload to derive an estimate of civilian hospital charges, assuming that military hospital patients had been treated in the civilian facilities.

After deriving the estimate of civilian hospital charges, we estimated the additional costs the government would incur in financing civilian hospital services for patients discharged from small DOD hospitals. We assumed that DOD would pay for medical services provided to active duty personnel using its open allotment funds,⁷ while military dependents and retirees would use

⁶Excluding charges disallowed by OCHAMPUS fiscal intermediaries for unauthorized services.

⁷For the purposes of this study, we also assumed that the government would finance medical services for nonactive beneficiaries ("others") in civilian hospitals out of open allotment funds. The latter types of patients account for about 1 percent of the total fiscal year 1981 discharges at each of the three hospitals we studied. An example of a patient in the "other" category would be a nonactive duty/nonbeneficiary civilian who is treated in a military hospital because of injuries sustained in an auto accident near the DOD facility. In practice, private third party payers, instead of the government, may be liable for the cost of caring for some of these patients in civilian or military hospitals.

CHAMPUS benefits to obtain care from civilian providers.⁸ We assumed that active duty personnel would incur no out-of-pocket costs, while dependents of active duty members would incur a \$25 copayment for all allowable inpatient services, the minimum required by OCHAMPUS regulations. We assumed that retirees, their dependents, and survivors would incur a copayment equal to 25 percent of the total charges for allowable hospital services, as required under OCHAMPUS regulations.

Table 2 below shows how we estimated the total fiscal year 1981 civilian hospital charges and government payments for each military hospital inpatient workload.

Assignments of RNUs to discharges

The model software performs two basic steps in assigning RNUs to each military hospital patient. First, the model software identifies the ICD-9⁹ principal diagnosis code for each patient and assigns the discharge to one of the 398 CPHA List A Groups.¹⁰ Then, the model identifies the patient's age and presence or absence of surgery and assigns the discharge to one of the 3,980 CPHA List A cells. The model software determines the number of RNUs for the patient's cell and adds it to an accumulator to calculate the total RNUs for the entire hospital's inpatient workload.

⁸In general, retirees age 65 or older who were treated at USAF Hospital Bergstrom, Patterson Army Hospital, and NRMCMC Memphis during fiscal year 1981 would not have been eligible to receive CHAMPUS benefits, but would have used Medicare benefits instead to obtain hospital services. However, for the purposes of this study, we assumed CHAMPUS would have incurred the government's portion of the costs of treating all retirees in civilian facilities.

⁹ICD-9 refers to the International Classification of Diseases, Ninth Revision. Military hospital medical records personnel use a modified version of this system to assign a unique code to diagnoses that are recorded on discharge documents by physicians. There are over 9,000 different codes covering the complete range of medical conditions.

¹⁰CPHA List A is a patient classification system based on the ICD-9-CM coding scheme. We used a conversion table developed by the Biometrics Division of the Office of the Air Force Surgeon General to assign ICD-9 diagnosis codes to the CPHA List A groups.

Table 2
Estimate of Additional Government Payments for Civilian
Hospital Services Following Conversion of Small DOD Hospitals
to Outpatient Clinics
(fiscal year 1981 dollars)

	(1) Total RNUs ^a	(2) Average civilian hospital charge per RNU ^b	(3) Total charges ^c	(4) Out-of-pocket costs incurred by CHAMPUS beneficiaries ^d	(5) Total government payments to civilian hospitals ^e
<u>USAF Hospital Bergstrom</u>					
Active duty and others	247	\$1,633	\$ 403,351	-	\$ 403,351
Dependents of active duty	185	1,633	302,105	\$ 6,175	295,930
Retirees	284	1,633	463,772	115,943	347,829
Dependents/survivors of retirees	339	1,633	553,587	138,397	415,190
Total	1,055		\$1,722,815	\$ 260,515	\$1,462,300
<u>Patterson Army Hospital</u>					
Active duty and others	429	\$2,127	\$ 912,483	-	\$ 912,483
Dependents of active duty	291	2,127	618,957	\$ 10,400	608,557
Retirees	395	2,127	840,165	210,041	630,124
Dependents/survivors of retirees	265	2,127	563,655	140,914	422,741
Total	1,380		\$2,935,260	\$ 361,355	\$2,573,905
<u>NRMC Memphis</u>					
Active duty and others	534	\$2,366	\$1,263,444	-	\$1,263,444
Dependents of active duty	837	2,366	1,980,342	\$ 29,975	1,950,367
Retirees	298	2,366	705,068	176,267	528,801
Dependents/survivors of retirees	427	2,366	1,010,282	252,571	757,711
Total	2,096		\$4,959,136	\$ 458,813	\$4,500,323
Totals for three hospitals	4,531		\$9,617,211	\$1,080,683	\$8,536,528

^aRNUs are for patients who would use civilian hospitals. Transfers and certain other types of discharges are excluded.

^bAverage total billed charge (excluding disallowed charges) per RNU for CHAMPUS (civilian) hospital providers in surrounding 40-mile catchment area.

^cColumn 1 x column 2.

^dWe assumed dependents of active duty beneficiaries would incur copayment of \$25 per discharge, while retirees and their dependents/survivors would incur 25-percent copayment of total allowable charges. Total discharges for dependents of active duty patients who would use civilian hospitals are shown in figures 1, 2, and 3.

^eColumn 3 - column 4.

To understand how RNUs are assigned to military hospital discharges, consider two hypothetical patients. Both patients have the same principal diagnosis, acute thyroiditis. However, patient A, age 21, underwent surgery, while patient B, age 42, did not. Figure 6 illustrates how the model software would assign RNUs to these patients. Since the two patients have the same diagnosis (ICD-9 code 245.0), they are both assigned to CPHA List A group 70. Since patient A is age 21 and underwent surgery, he is assigned to cell number 7 of CPHA List A group 70. In contrast, patient B (age 42) who did not undergo surgery is assigned to cell number 3 in CPHA List A group 70. As shown in figure 6, the software assigns patient A an RNU value of 1.17 and patient B a value of 0.96.¹¹

The model software assigns RNUs to CHAMPUS discharges using a similar process. However, we made some modifications in the computer programs so that the software could process CHAMPUS records, which use the Eighth Revision of the International Classification of Diseases diagnosis coding scheme.

Payments for civilian inpatient professional services

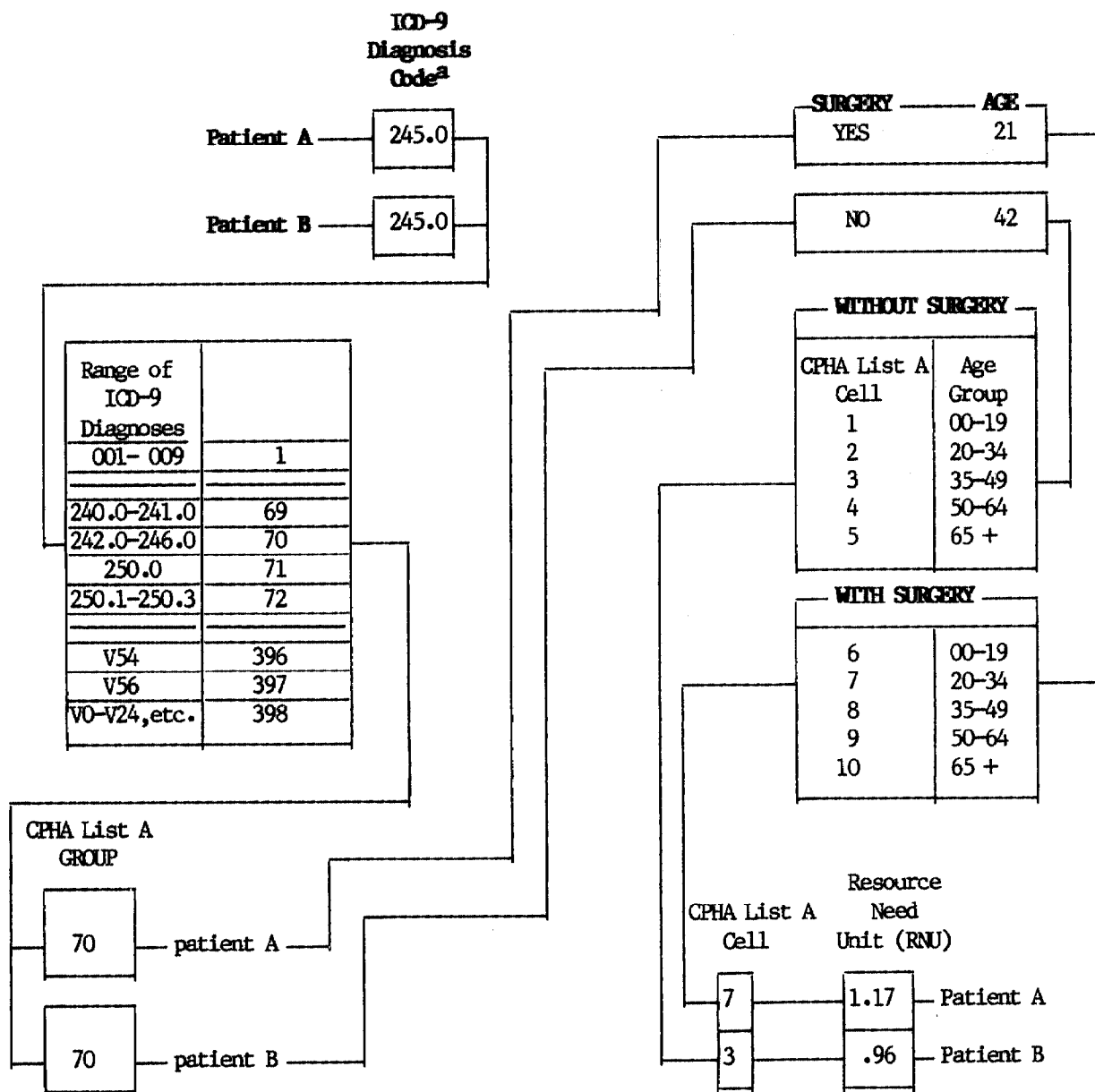
Based on military hospital workload statistics and CHAMPUS professional services cost data, we estimated that additional government payments for inpatient physician services following the conversion of the three hospitals to clinics during fiscal year 1981 would have totaled about \$1.9 million.

To estimate charges for inpatient professional services provided by physicians, we obtained data from two principal sources. The armed services' patient treatment files provided us with bed day statistics and obstetrical case totals for the three small military hospitals. The CHAMPUS Health Care Summary Reports for fiscal year 1981 provided us with data on the cost of inpatient professional services in each hospital's surrounding 40-mile catchment area. Using these two sources of data, we estimated

¹¹These are hypothetical RNU values, as explained in footnote 4, p. 58.

Figure 6

Flowchart of Assignment of Resource Need Units to Two Hypothetical Patients



^aICD code 245.0 is acute thyroiditis.

- professional charges for NRMC Memphis¹² maternity care patients who would use civilian hospitals by multiplying the hospital's total fiscal year 1981 obstetrical cases times the average global¹³ CHAMPUS professional fees for obstetric care in the NRMC Memphis catchment area and
- total inpatient professional charges for other military hospital patients by multiplying the hospital's fiscal year 1981 bed days (for nonobstetric patients who would use civilian hospitals) times the average total CHAMPUS professional fees¹⁴ per bed day in each hospital's catchment area.

After deriving the estimates of civilian inpatient professional fees, we estimated the additional costs the government would incur in financing these services for patients treated at the three small military hospitals. We assumed the government would finance inpatient professional services for active duty personnel¹⁵ out of DOD open allotment funds, while military dependents and retirees¹⁶ would use CHAMPUS benefits. Our estimate of government costs for professional services used by active duty personnel were equal to the total fees billed by CHAMPUS physician providers, since we assumed that active duty personnel would incur no out-of-pocket cost. In contrast, our estimate of government costs for professional services use by military dependents and retirees was equal to the total billed fees, less the average CHAMPUS beneficiary per diem or per obstetrical discharge out-of-pocket cost. We assumed that military beneficiaries would incur out-of-pocket costs for the deductibles and copayments described in chapter 1, as well as the portion of professional fees that are above the maximum allowable charges established in CHAMPUS physician fee schedules.

¹²USAF Hospital Bergstrom and Patterson Army Hospital did not offer maternity care services during fiscal year 1981.

¹³The global fees for obstetric care include professional fees for prenatal care, hospital care, and postpartum care.

¹⁴For nonobstetrical/nonpsychiatric inpatient professional services.

¹⁵See footnote 7.

¹⁶See footnote 8.

Table 3 shows the estimates of total physician fees and government payments for professional services associated with the inpatient workload shifted to the civilian medical sector, following the discontinuation of inpatient services at the three small military hospitals.

Because we could not find any data that identify the relative amounts of physician resources use by different types of hospital patients, we were unable to investigate the relationship between the clinical characteristics of patients treated in small military hospitals and the fees that civilian physicians would charge the patients. Instead, we estimated inpatient professional services in the manner described above since DOD has used a similar approach in comparing the direct care system and CHAMPUS providers.

Table 3

Estimate of Additional Government Payments for Inpatient
Professional Services Following Conversion of Small DOD
Hospitals to Outpatient Clinics
(fiscal year 1981 dollars)

	(1) Total bed days ^a	(2) Total care maternity discharges	(3) Average total per diem professional fees ^b	(4) Average total CHAMPUS global professional fees per obstetrics care discharge ^b	(5) Total professional charges ^c	(6) CHAMPUS beneficiary out-of-pocket expenses ^d	(7) Total government payments for inpatient professional services ^e
<u>USAF Hospital Bergstrom</u>							
Active duty and others	1,418	0	\$98	-	\$ 138,964	\$ -	\$ 138,964
Dependents of active duty	974	0	98	-	95,452	35,064	60,388
Retirees	1,479	0	98	-	144,942	53,244	91,698
Dependents/survivors of retirees	<u>1,872</u>	<u>0</u>	<u>98</u>	<u>-</u>	<u>183,456</u>	<u>67,392</u>	<u>116,064</u>
Total	<u>5,743</u>	<u>0</u>			<u>\$ 562,814</u>	<u>\$155,700</u>	<u>\$ 407,114</u>
<u>Patterson Army Hospital</u>							
Active duty and others	2,865	0	\$87	-	\$ 249,255	\$ -	\$ 249,255
Dependents of active duty	1,721	0	87	-	149,727	53,351	96,376
Retirees	1,988	0	87	-	172,956	61,628	111,328
Dependents/survivors of retirees	<u>1,463</u>	<u>0</u>	<u>87</u>	<u>-</u>	<u>127,281</u>	<u>45,353</u>	<u>81,928</u>
Total	<u>8,037</u>	<u>0</u>			<u>\$ 699,219</u>	<u>\$160,332</u>	<u>\$ 538,887</u>
<u>NRMC Memphis</u>							
Active duty and others	3,044	68	\$87	\$632	\$ 307,804	\$ -	\$ 307,804
Dependents of active duty	2,707	450	87	632	519,909	112,267	407,642
Retirees	1,367	0	87	-	118,929	42,377	76,552
Dependents/survivors of retirees	<u>2,034</u>	<u>28</u>			<u>194,654</u>	<u>64,818</u>	<u>129,836</u>
Total	<u>9,152</u>	<u>546</u>			<u>\$1,141,296</u>	<u>\$219,462</u>	<u>\$ 921,834</u>
Totals for three hospitals	<u>22,932</u>	<u>546</u>			<u>\$2,403,329</u>	<u>\$535,494</u>	<u>\$1,867,835</u>

^aExcludes bed days for obstetrical care patients and patients who would not utilize civilian hospitals. We obtained bed day totals from armed services patient treatment files.

^bBefore subtraction of CHAMPUS deductibles, copayments, and charges above maximum allowable fees established in CHAMPUS physician reimbursement schedules. Per diem figures shown exclude psychiatric and maternity care-related charges.

^cColumn 1 x Column 3 + Column 2 x Column 4.

^d[(Col. 1 x (Average Beneficiary Non-OB/Non-Psychiatric Per Diem Out-of-Pocket Costs.)) [Col. 2] x (Average Beneficiary Out-of-Pocket Costs for OB Professional Services)].

Average CHAMPUS beneficiary out-of-pocket costs for professional services are shown below:

Catchment area	Non-OB/Non-Psychiatric Services	Obstetrical Services
USAF Hospital Bergstrom	\$36 per diem	Not applicable
Patterson Army Hospital	\$31 per diem	Not applicable
NRMC Memphis	\$31 per diem	\$6 per discharge

^eColumn 5 - Column 6.

ESTIMATE OF COSTS OF TREATING
PATTERSON ARMY HOSPITAL PATIENTS
IN A CIVILIAN HOSPITAL BASED
ON 1981 NEW JERSEY PROSPECTIVE
HOSPITAL REIMBURSEMENT METHODOLOGY

To provide some check on the validity of the computer model we developed to estimate civilian hospital charges for patients treated at small military hospitals, we separately analyzed the Patterson U.S. Army Community Hospital inpatient workload using the 1981 New Jersey prospective hospital reimbursement methodology. Our analysis showed that estimated government costs for treating Patterson patients in a local civilian hospital would amount to \$2.14 million--about \$433,000 less than the \$2.57 million we estimated using our RNU-based computer model described in appendix I.

If we had used the estimate of civilian hospital costs based on the New Jersey hospital reimbursement methodology in our analysis, estimated fiscal year 1981 government savings resulting from the conversion of Patterson to an outpatient clinic would increase from \$766,065 to \$1,199,121, a difference of 57 percent.

BACKGROUND

In 1981, the New Jersey Hospital Rate Setting Commission issued a schedule of fixed charges for most types of medical cases, which 66 of the state's nonfederal hospitals were required to use when submitting bills to all patients and third-party payers. This rate setting program, which was extended to all of the state's 96 nonfederal acute care general hospitals in 1982, was intended to give hospitals financial incentives to hold costs below the fixed charges.

Under the 1981 reimbursement system, the commission issued to each participating hospital a schedule of fixed charges for different types of medical cases or diagnosis related groups. The original DRG system, developed by Yale University, was a patient classification system that grouped discharges into 383 categories on the basis of patient characteristics, such as type of principal diagnosis, age, and type of surgery. The fixed charges established for each DRG are based partly on the civilian hospitals' average historical costs for treating each type of case, with adjustments made for inflation and other cost factors.

The actual DRG charges that the commission approves for a particular hospital vary according to institution costs. To be conservative, we used the 1981 schedule of DRG charges for a 501-bed teaching hospital located about 5 miles from Patterson Army Hospital in our analysis, since New Jersey teaching hospitals generally have higher costs than nonteaching institutions. In fiscal year 1981, over 160 CHAMPUS beneficiaries were discharged from the civilian hospital where we obtained the schedule of DRG charges.

METHODOLOGY

To estimate what the civilian hospital would have charged Patterson patients, we selected a random sample for each patient category of discharge records from the fiscal year 1981 Patterson patient treatment file. We identified various clinical characteristics of the sample discharges (e.g., principal diagnosis, age, and type of surgery) and manually assigned each case to a DRG using the original system developed by Yale University. We assigned to each sample discharge the fixed DRG charge in effect at the civilian hospital during 1981.

The universe from which we randomly selected discharges was limited to patients who received acute-level nursing care. Data obtained from the Patterson hospital show that during fiscal year 1981, 412 (24 percent) of the 1,722 patients discharged had been directly admitted to the facility's minimal care ward. According to Patterson's chief of the Department of Nursing, nursing coverage on the minimal care ward is generally provided exclusively by licensed practical nurses, in contrast to the hospital's acute care ward, where registered nurses are also assigned. Physicians at Patterson told us that the minimal care ward is used primarily by active duty personnel who cannot recuperate from illnesses in their normal living environment (e.g., military barracks or dormitories), where it is difficult to isolate patients with contagious diseases or to provide meals to patients with restricted mobility. During fiscal year 1981, about 83 percent of all direct admissions to the minimal care ward consisted of active duty personnel. Although we did not eliminate minimal care ward patients from the number of Patterson discharges that we assumed would use civilian hospitals, we removed them from our sampling universe to be conservative. This is because Patterson physicians told us that minimal care ward patients tend to have less complicated (and less costly) types of medical problems than other discharges.

We also eliminated from our sampling universe Patterson patients who were transferred to another military or civilian hospital upon discharge. Transfers were also excluded from the number of cases we assumed would represent additional admissions to civilian hospitals following the discontinuation of inpatient services at Patterson.

Table 1 shows the results of the random sample of Patterson discharges. We selected 130 cases, 11 percent of the 1,221 cases in the sampling universe. We selected the sample cases for each category by choosing at least 30 cases or 10 percent of the total cases in the universe, whichever was greater. The estimated average charge per case ranged from \$1,216 for dependents of active duty personnel to \$1,854 for retirees. The standard error of the estimated average charge per case (computed at the 95-percent confidence level) ranged from \pm \$228 to \pm \$310.

Table 1
Results of Random Sample of Patterson
Army Hospital Fiscal Year 1981 Discharges

<u>Category</u>	<u>Discharges</u>			<u>Sampling estimates</u>	
	<u>Universe^a</u>	<u>Sample</u>	<u>Percent</u>	<u>Average charge</u>	<u>Standard error^b</u>
Active duty	287	30	10	\$1,354	\pm \$228
Dependents of active duty	395	40	10	1,216	\pm 269
Retirees	278	30	11	1,854	\pm 310
Dependents/ survivors of retirees	<u>261</u>	<u>30</u>	11	1,680	\pm 300
Total	<u>1,221</u>	<u>130</u>	11		

^aExcludes patients directly admitted to minimal care ward during fiscal year 1981. Also excludes 10 nonactive duty/nonmilitary beneficiary patients (e.g., foreign military personnel) and 79 transfers to other military or civilian hospitals.

^bComputed at the 95-percent confidence level.

Table 2 shows how we estimated the government's cost of financing care if Patterson patients had been treated in the civilian hospital during fiscal year 1981, using the average charges we derived from our random sample. The number of Patterson discharges that we assumed would represent additional admissions to civilian hospitals following the conversion of Patterson to an outpatient clinic is identical to the number used in our computer model analysis.

Table 2

Estimate of Additional Government Payments to Civilian Hospital
Following Conversion of Patterson Army Hospital to an Outpatient Clinic

	(1) Total FY 1981 <u>discharges^a</u>	(2) Average charge per <u>discharge^b</u>	(3) Total <u>charges^c</u>	(4) Out-of-pocket costs incurred by CHAMPUS <u>beneficiaries^d</u>	(5) Total government payments to civilian <u>hospital^e</u>
Active duty and others	638	\$1,354	\$ 863,852	\$ 0	\$ 863,852
Dependents of active duty	416	1,216	505,856	10,400	495,456
Retirees	302	1,854	559,908	139,977	419,931
Dependents/ survivors of retirees	<u>287</u>	1,680	<u>482,160</u>	<u>120,540</u>	<u>361,620</u>
Total	<u>1,643</u>		<u>\$2,411,776</u>	<u>\$270,917</u>	<u>\$2,140,859</u>

^aFrom U.S. Army Individual Patient Data System. Excludes patients transferred to other military or civilian hospitals.

^bBased on sampling analysis.

^c(Col. 1) x (Col. 2).

^dWe assumed dependents of active duty beneficiaries would incur minimum copayment of \$25 per discharge, while retirees and their dependents/survivors would incur required 25-percent copayment of total hospital charges.

^e(Col. 3) - (Col. 4).

The estimated government payments shown in table 2 can be directly compared with the estimated payments predicted using our RNU-based computer model, shown in table 2 of appendix I (see p. 63). This comparison shows that the estimated payments, based on the analysis using the civilian medical center data, were \$433,046 lower than the \$2,573,905 in payments estimated with the aid of the computer model. If we had used the plus or high end of the standard error per estimated average charge, the estimated payments using the civilian hospital DRG data would be about \$41,000 lower than the estimated payments generated by the computer model.

ADVANTAGE OF DRG APPROACH

We believe that use of CHAMPUS claim data in the RNU model may significantly overstate the cost of treating military hospital patients in civilian facilities. Thus, there may be an advantage in using a DRG approach instead of the RNU model to compare the costs of treating patients in military and civilian hospitals. The advantage would exist if the DRG system could be used to develop civilian hospital cost data based on populations that are more representative of military hospital patients than are CHAMPUS cases.

The literature on case-mix measurement systems suggests that there are patient characteristics other than those analyzed by the Resource Intensity Weights and DRG systems that explain differences in the complexity and cost of hospital care. Furthermore, the literature suggests that patients within individual diagnostic categories (e.g., RNUs or DRGs) consume vastly different amounts of hospital resources. Thus, the average costs per RNU or for each DRG may vary among different patient populations.

CHAMPUS patients may be more costly to treat than DOD hospital patients within a given category because they may tend to have more complicated conditions that require additional hospital services for diagnosis or treatment. Several of the physicians we interviewed at the three small military hospitals told us that because the facilities lacked certain types of clinical specialists, nursing skills, ancillary services, or equipment, patients needing special services often had to be treated by CHAMPUS providers instead of in the direct care system. For example, an internist at one of the small hospitals said that the heart attack cases he treated consisted of patients who did not require respiratory therapy, cardiac intensive care nursing, and other services not offered at the facility. The physician said that heart attack patients who had more complicated cases and needed those types of specialized services generally had to be treated by CHAMPUS providers, which offered a wider range of medical services than did the small military hospital.

Table 1

Summary Data on Operating Capacity, Workload, Staffing,
and Operating Expenses at Small Military Hospitals
Studied by GAO (FY 1981)

<u>Operating capacity</u>	<u>USAF Hospital Bergstrom</u>	<u>Patterson Army Hospital</u>	<u>NRMC Memphis</u>
Beds	30	25	60
Bassinets	0	0	18
<u>Workload</u>			
ADP	17	24	43
Total bed days ^a	6,111	8,523	13,768
Discharges ^b by patient category:			
Active duty	456	654	1,091
Dependents of active duty	253	427	1,234
Retirees	270	322	254
Dependents of retirees	346	308	475
Others	1	17	43
Total	<u>1,326^b</u>	<u>1,722</u>	<u>3,097</u>
Births	0	0	590
Average length of stay	4.6 days	5.1 days	4.4 days
Total outpatient visits	121,466	107,607	135,766
<u>Staffing^c</u>			
Physicians (military)	13	16 ^d	35
Other personnel	<u>195</u>	<u>287^d</u>	<u>554^e</u>
Total personnel	<u>208</u>	<u>303</u>	<u>589^e</u>
<u>Expenses^f</u>			
Total patient care expenses (inpatient and outpatient) in millions	\$6.12	\$7.08	\$12.25

^aExcludes newborns.

^bExcludes 32 patients discharged on same day of admission.

^cIncludes all nondental personnel assigned to hospital and adjacent outpatient clinic as of September 1981, except as noted below.

^dAs of January 1983. We were unable to obtain actual fiscal year 1981 staffing data.

^eEstimate.

^fIncludes estimated obligations for active duty retirement benefits.

Table 2

Major Inpatient Services Offered During Fiscal Year 1981
at Small Military Hospitals Studied by GAO

<u>Clinical Services</u>	<u>USAF Hospital Bergstrom</u>	<u>Patterson Army Hospital</u>	<u>NRMC Memphis</u>
Alcohol abuse treatment/rehabilitation			x ^a
Cardiology			
Emergency care	X	X	X
Ear, nose, and throat			X
General internal medicine	X	X	X
General surgery	X	X	X
Gynecology		X	X
Neurology			
Obstetrics			X
Ophthalmology			X
Orthopedics		X	X
Pediatrics	X	X	X
Psychiatry			x ^a
Urology			X
<u>Physician Support Services</u>			
Anesthesiology			X
Pathology		X	X
Radiology	X	X	X
<u>Special Care Units</u>			
Intensive care unit (cardiac care only)			
Intensive care unit (Mixed)		X	X
<u>Ancillary Services</u>			
Blood bank		X	X
Occupational therapy			X
Physical therapy		X	X
Respiratory therapy			X

X = Service offered at hospital.

^aRestricted to active duty personnel.

Source: Uniform Chart of Accounts Reports, American Hospital Association Guide to the Health Care Field, and additional data collected at hospitals.



HEALTH AFFAIRS

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301 -1200

1 FEB 1985

Mr. Frank C. Conahan
Director, National Security and
International Affairs Division
U.S. General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report entitled, "The Department of Defense Should Adopt a New Approach to Analyzing the Cost Effectiveness of Providing Inpatient Services at Small Hospitals," dated November 30, 1984 (GAO Code No. 101053/OSD Case No. 6649).

The Department of Defense concurs with all the findings and recommendations, except for those findings dealing with the GAO proposed methodology for reviewing the cost-effectiveness of small military hospitals. The methodology used by the GAO cannot be appropriately evaluated by DoD without actually analyzing the various components of the computer based cost model. The model needs to be validated, which will be completed within six months. Steps have already been taken to initiate this process.

Enclosed are the detailed DoD comments on the specific findings and recommendations contained in the draft report. The Department appreciates the opportunity to comment.

Sincerely,

William Mayer, M.D.

Enclosure

"The Department of Defense Should
Adopt a New Approach to Analyzing the
Cost Effectiveness of Providing Inpatient
Service at Small Hospitals"

GAO DRAFT REPORT - dated December 3, 1984
(GAO Code Number 101053)
OSD Case Number 6649

FINDING A: Studies of Non-Federal Hospitals Have Found Small Hospitals Less Economical. GAO found that several major studies of non-Federal hospitals have found small hospitals to be less economical to operate than larger ones. GAO reported that a large fixed investment for plant equipment and personnel is required to care for even a few inpatients at current medical standards. Once this investment is made, it becomes less expensive to care for additional inpatients up to some optimum level. GAO further found that studies indicate the most economical hospital sizes range between 200 and 300 beds. Based on the literature it reviewed, GAO concluded a strong case can be made on economic grounds for not operating hospitals with less than about 100 beds. (p. 1, GAO Draft Report)

DoD Comment: Concur. Our concurrence in this finding results primarily from the fact that the draft report freely acknowledges that there are other considerations besides economic grounds in determining whether a small military hospital should be closed. We regard the following statement in the draft report (pg 34, GAO Draft Report) as critical:

"Decisions to convert small military hospitals to outpatient clinics should not rely solely on the cost elements included in our model. There are other considerations, which influence hospital-to-clinic conversions such as (1) mission requirements; (2) the availability of alternative sources of medical care, both civilian and federal; (3) the effect of transferring staff on CHAMPUS costs and physician productivity; and (4) the effect which conversions will have on military beneficiaries."

FINDING B: Prior Government Studies Indicated Military Medical Direct Care Less Expensive. GAO found that two government studies, published in 1975, concluded that DoD-furnished direct care medical services were generally less expensive than care provided under the Civilian Health and Medical Program of the Uniformed Service (CHAMPUS). The objective of both studies was to determine the net change in operating costs to the Government if some, or all, of the dependent and retiree inpatient and

outpatient workload, were shifted from military hospitals to CHAMPUS providers. GAO noted that since the publication of these studies, the wisdom of reducing services at a military hospital and shifting a portion of its patient workload to the private sector has generally been questioned. GAO concluded, however, that because the two prior studies did not concentrate exclusively on small hospitals (instead they dealt with DoD health care economics on a system-wide basis), their direct applicability to small hospitals is not necessarily valid. (pp. 1-2, p. 9, GAO Draft Report)

DoD Comment: Concur. To comply with P.L. 97-337 economic analysis is accomplished when required on proposed new projects to determine cost-effectiveness.

FINDING C: Current Status: Small Military Hospitals. GAO found that small military hospitals--which it defined as those with an average daily patient load (ADPL) of 50 or less--require significant expenditures for operation and construction. For example, GAO reported that patient care expenses for 69 small hospitals in fiscal year 1983 amounted to about \$506 million. In addition, GAO found that about \$781 million is proposed by the Military Services to be spent for replacement or renovation of 35 small hospitals in CONUS, during fiscal years 1986 through 1990. (In fiscal year 1983, of the 69 small military hospitals, 12 were Army, 9 were Navy and 48 were Air Force.) (p. 2, p. 5, p. 6, GAO Draft Report)

DoD Comment: Concur. Note: Some of the statistics shown in the finding are inaccurate. They will be corrected by DoD in the marked up copy of the Draft Report.

FINDING D: Military Health Care System Objectives. GAO found that the Military Health Care System is designed to satisfy two primary objectives. The first, the readiness mission, is to maintain the health of the active duty force, and to be prepared to attend the sick and wounded in wartime. The second objective, the peacetime benefit mission, is to provide medical care to eligible military dependents and retirees. GAO concluded, however, that the Army, Navy and Air Force only partly fulfill these missions through the operation of the direct military medical system--i.e., a network of hospitals and clinics located on or near military installations. (pp. 2-3, GAO Draft Report)

DoD Comment: Concur. We are pleased that, in explanation of this finding, the draft report states (pg 35, GAO Draft Report) in addressing the issue of impact on readiness:

"We believe that the missions of small military hospitals need to be evaluated on a case-by-case basis."

FINDING E: Small Military Hospitals: Mix of Inpatient Services and ADPL. While the mix of inpatient services at the small military hospital varies, GAO found that the services are generally limited to primary care and general surgery, with two-thirds also offering maternity care services. (GAO noted that some offer other specialized services such as orthopedic surgery, ophthalmology, urology and psychiatry.) GAO further found that the inpatient workloads at small military hospitals varied significantly, reflecting the varied mix of services. GAO reported that during fiscal year 1983, there was a range in the ADPL from 9 to 48, with 24 as the average ADPL for all 69 small hospitals. (p. 6, GAO Draft Report)

DoD Comment: Concur. Within each hospital there should be certain "critical mass" specialties. They will typically be general surgery, obstetrics/gynecology, internal medicine, and pediatrics. Other specialties may be present dependent upon local need.

FINDING F: DoD Has Converted Some Small Hospitals to Clinics. GAO found that between 1975 and 1979 the Military Services converted 14 small hospitals to outpatient clinics--8 Army, 4 Navy and 2 Air Force. Despite the 1975 cost-effectiveness studies to the contrary, the Navy decisions to convert were primarily because of concerns about the cost-effectiveness and/or declining inpatient workloads of these small hospitals. In 1978 and 1979, the Navy estimated that the Government could save about \$2.2 million annually by eliminating inpatient services at three of these facilities and transferring active duty inpatients to other military medical facilities. (Cost data was not available on the other Navy facility.) GAO reported that, on the other hand, the Army and Air Force decisions to change the small hospitals to clinics were made primarily because of physician shortages. No additional small military hospitals have been converted to clinics since 1979, however. To the contrary, in 1982 and 1983, the Army and Air Force, respectively converted one of its clinics to hospital status, primarily because of difficulties experienced by active duty personnel, who had to be transported long distances to other military hospitals. Because no evaluations were performed to determine whether it would be cost-effective to pay for treatment of active duty patients in civilian facilities in lieu of changing the clinics to hospital status, GAO concluded that it is not known if this was the most cost-effective solution. (pp. 10-13, GAO Draft Report)

DoD Comment: Concur. However, the same methodology used in determining reduction or closure actions should be used in deciding expansion of a medical facility to provide DoD decision makers with maximum planning flexibility.

FINDING G: GAO Computer Based Model to Compare Cost-Effectiveness of Small Military Hospitals. Since there was some evidence that small hospitals are generally less economical to operate than larger ones, GAO developed a computer-assisted methodology, the objective of which is to compare the costs of providing inpatient services at small military hospitals, to the estimated outpatient costs of converting these hospitals to clinics, and treating inpatients at nearby civilian facilities. The GAO methodology assumes that all inpatient services would be referred to civilian hospitals or other DoD hospitals for inpatient services. In addition, GAO used a case-mix measurement system to estimate the cost of treating military patients in civilian community hospitals. GAO reported that using the case-mix approach enabled it to estimate civilian hospital charges by focusing on patient characteristics that affect hospital costs (such as type of diagnosis and age). The model GAO developed calculates the reduction in operating expenses if a small hospital were to be converted to an outpatient clinic, with this amount then offset by the additional costs to the Government which would be incurred in payments to civilian providers for inpatient care. GAO concluded that the remaining difference represents the projected savings (or increased cost) as a result of such a conversion. (pp. 19-20, GAO Draft Report)

DoD Comment: The methodology used by the GAO cannot be appropriately evaluated without actually analyzing the various components of the computer-based cost model. The model needs to be validated and this will be done within approximately six months. Steps have already been taken to begin this process.

FINDING H: Fundamental Differences Between GAO Cost Analysis and 1975 DoD Studies. GAO reported that there are fundamental differences between its analysis of the cost-effectiveness of small hospitals, as compared to the two 1975 DoD studies. First, under the GAO alternative concept all inpatient services would be eliminated at small military hospitals and that all inpatients, including active duty personnel, would be referred to civilian hospitals or other DoD hospitals for inpatient services. GAO found that DoD studies were based on the concept that inpatient services would continue to be offered at all DoD hospitals, and that only the non-active duty workload would be shifted to other hospitals. A second major difference in the GAO model is that the analysis uses a case-mix measurement system to estimate the cost of treating military hospital patients in civilian community hospitals. GAO found the earlier DoD studies did not use any such approach, and therefore, were not able to focus on patient characteristics that affect hospital costs. (pp. 20-21, GAO Draft Report)

DoD Comment: Concur. DoD recognizes the increased accuracy of a case-mix approach in conducting health care studies and plans to use such an approach. At the time of the previous studies, a case-mix approach had not been refined and could not be effectively utilized in any analysis.

FINDING I: Application of GAO Model to Three Selected Small Military Hospitals Shows Conversion to Clinics Could Save the Government Money. In applying its model to three selected small military hospitals (i.e., USAF Hospital, Bergstrom; Patterson Army Hospital; and the Naval Regional Medical Center, Memphis), GAO found that, based on fiscal year 1981 costs, conversion to outpatient clinics would save the Government \$3.9 million annually. In addition to the savings, GAO found other benefits could be realized, such as (1) increasing physician and other staff productivity through transfers of staff to larger understaffed military facilities; (2) providing care to increased numbers of military beneficiaries through the direct care system, thereby reducing the CHAMPUS workload; and (3) avoiding the need to construct or renovate some small military hospitals now included in DoD's five-year construction plans.

GAO reported it does not know whether the three small military hospitals it selected to test its methodology are the best candidates for conversion. Therefore, it cautioned that generalizations concerning the conversion of small military hospitals should not be made. GAO concluded, however, that the potential saving found at the three hospitals reviewed (even though conservative assumptions were used), along with other potential benefits, demonstrate the need for DoD to analyze the cost-effectiveness of continuing to offer inpatient services at its small hospitals, where alternative sources of inpatient care are nearby. GAO further concluded that the methodology it developed and tested constitutes a sound tool for the DoD to use in analyzing the small hospital system. Finally GAO concluded that DoD should adopt the methodology (or one similar to it), and use it to analyze its small hospitals with a view toward determining whether converting some of them to outpatient clinics is warranted; (GAO emphasized, however, that the analysis should be done on a case-by-case basis). (pp. 21-22, pp. 56-57, GAO Draft Report)

DoD Comment: Concur. DoD agrees that this could provide a tool in analyzing our hospital system on a facility-by-facility basis. The GAO's caution that generalizations concerning the conversion of small military hospitals should not be made is acknowledged. When utilizing such a tool, DoD agrees with GAO that we must also consider factors such as operational support, medical readiness, and acquisition and retention of personnel.

FINDING J: GAO Estimate of Savings is Probably Low. In reviewing its methodology for conversion of small military hospitals to outpatient clinics, GAO found its estimate of savings was probably low because of the assumptions that were used. These assumptions were: (1) that all active duty personnel who were admitted to the three small military hospitals in the test, would incur the same average charge per resource need unit as CHAMPUS patients when, in fact, active duty personnel who are hospitalized would probably incur lower costs; (2) That the majority of active duty patients who were discharged from the small military hospitals would have been treated in civilian hospitals or freestanding clinics when, in practice, referral would have probably been to other military hospitals, not civilian hospitals; (3) that all non-active duty beneficiaries treated would have utilized CHAMPUS benefits to obtain care from civilian providers when, in fact, many have private health insurance, to which CHAMPUS becomes a secondary payer; (4) that savings that might be realized by curtailing planned construction was not considered (for example, the DoD 5-year construction plans for fiscal years 1986-1990, include about \$781 million for proposed construction and renovation of small hospitals); and (5) that no attempt was made to estimate the savings that might be realized if staff and other resources at converted small hospitals were transferred to larger military hospitals, thereby enabling them to recapture a portion of CHAMPUS workload.

GAO concluded that cost estimates for these further potential benefits should be developed and incorporated into any analysis which is made on the cost-effectiveness of small military hospitals. (pp. 30-31, GAO Draft Report)

DoD Comment: The methodology used by the GAO cannot be appropriately evaluated without actually analyzing the various components of the computer-based cost model. The model needs to be validated and this will be done within approximately six months. Steps have already been taken to begin this process.

FINDING K: Mission of Small-Military Hospitals Needs to be Considered before Conversion to Outpatient Clinics. GAO reported that Armed Forces health management officials expressed concern that the conversion of small military hospitals to outpatient clinics could impair the Services' ability to support the readiness mission. In addition, some DoD services at small military hospitals may also affect the ability of such hospitals to contribute to the DoD wartime contingency medical mission. While noting that the mission of small hospitals needs to be evaluated on a case-by-case basis, GAO found that the adverse affects on readiness resulting from conversions may be minimum because of the small size of the inpatient workload involved, and because many of the hospitals' inpatients do not require care in a

full service, acute care hospital. Moreover, GAO found that other alternatives exist--such as use of civilian beds to provide backup to military hospitals, maintaining converted hospitals on a standby status and/or availability of Veterans Administration hospitals during wartime. GAO concluded that such alternatives or dealing with the potential readiness and contingency problems associated with small hospitals should be thoroughly explored by DoD before deciding such factors preclude their conversion to outpatient clinics. (pp. 35-40, GAO Draft Report)

DoD Comment: Concur.

FINDING L: Determinations Concerning Alternative Sources of Care Near Small Military Hospitals. While noting an analysis of individual facilities is necessary to determine if alternative sources of inpatient care can absorb the inpatient workload at small military hospitals, GAO reported it appears that many small military hospitals could be converted to clinics without forcing patients to travel long distances to obtain inpatient care. GAO found: (1) that the majority of small military hospitals are located within 15 miles of at least one civilian hospital with 100 or more beds (46 within 0-15 miles; 10 within 16-30 miles; and 11 over 30 miles); (2) that civilian physician shortages would not pose a major obstacle to discontinuing inpatient services at many small DoD hospitals, since in 1982 only 16 of the 67 small military hospitals were located in areas identified in 1975 as being medically underserved (and the number of underserved areas has probably reduced since 1975); (3) other military hospitals may be able to provide inpatient services inasmuch as 3 of the 67 small hospitals are located within 40 miles, and an additional 16 within 80 miles, of a larger military hospital; and (4) that as a result of P.L. 97-174, inpatient care may be available from Veterans Administration medical centers (24 of the 67 small military hospitals are located within 40 miles of a Veterans Administration facility with 100 or more beds). (pp. 40-43, GAO Draft Report)

DoD Comment: The methodology used by the GAO cannot be appropriately evaluated without actually analyzing the various components of the computer-based cost model. The model needs to be validated and this will be done within approximately six months. Steps have already been taken to begin this process.

FINDING M: Transferring Staff from Converted Small Hospitals to Larger Hospitals Could Reduce CHAMPUS Costs and Increase Physician Productivity. GAO found that discontinuing inpatient services at some small military hospitals would enable DoD to transfer personnel to larger hospitals which are understaffed. GAO concluded that this could result in a system-wide reduction in CHAMPUS costs because staffing and other shortages have prevented

many of the medium-sized military hospitals from serving all of the beneficiaries in their catchment areas. (Particularly cited by GAO as potential for savings to CHAMPUS were psychiatric and obstetrics/gynecological inpatient care.) GAO also found that a shift of resources away from the small military hospital could also improve military physician productivity. GAO reported that 30 percent of the physicians it interviewed at the three small hospitals indicated that the size and/or complexity of their workloads could be increased if they were not subject to constraints which appear to be unique to small hospitals. Some of the described small hospital constraints were (1) one-physician departments, (2) nursing, ancillary services and/or equipment, and (3) the absence of sufficiently large patient workloads. (pp. 43-49, GAO Draft Report)

DoD Comment: Concur. However, facility constraints must as the GAO points out, be considered on a case-by-case basis.

FINDING N: Impact on Beneficiaries from Conversion of Small Military Hospital: Availability of Care. Based on the physician interviews it conducted, GAO found that in terms of the availability of medical care, outpatient clinics can fulfill most of the medical treatment needs of active duty beneficiaries. GAO, therefore, concluded that it does not appear conversion of small military hospitals to outpatient clinics would prevent the facilities from providing most services to this group of beneficiaries. On the other hand, the same physicians advised that the small hospitals do not offer the specialized medical services often needed by other classes of beneficiaries. GAO concluded that discontinuing services at small hospitals would have minimal effect on the availability of care for retirees and their dependents.

DoD Comment: Concur.

FINDING O: Financial Impact on Beneficiaries from Conversion of Small Military Hospitals. GAO found that conversion of small hospitals could have a financial impact on beneficiaries because of the increase in out-of-pocket expenditures which they would incur under CHAMPUS, with the non-active duty dependents the most affected. (GAO noted, however, that some beneficiaries may have private health insurance, which would serve to minimize any financial impact.) Although beneficiaries may incur additional costs at the specific locations where small military hospitals are converted to outpatient clinics, GAO concluded that CHAMPUS costs, when viewed on a system-wide basis, may decrease as a result of the ability of the larger hospital to recapture CHAMPUS workload, if staff from small hospitals were transferred to the larger facilities. (pp. 49-55, GAO Draft Report)

DoD Comment: Concur. However, the financial impact would primarily affect the retired community. In addition, the report does not address the increased cost to beneficiaries under CHAMPUS or impact on morale related to the amounts they must pay when the billed charges exceed the CHAMPUS allowable cost.

RECOMMENDATIONS

RECOMMENDATION 1: GAO recommended that the Secretary of Defense direct the Assistant Secretary of Defense (Health Affairs) and the Surgeons General of the Army, Navy and Air Force to develop criteria to determine when the provision of inpatient services at small military hospitals is economical and necessary to meet the wartime and/or peacetime benefit mission. (GAO suggested that the criteria include the minimum size of workload needed to justify offering inpatient care, distance to other civilian or federal hospitals, alternative treatment settings for active duty patients who require limited care, and other relevant considerations.) (p. 58, GAO Draft Report)

DoD Comment: Concur. The current economic analyses which are used to satisfy the requirements of P. L. 97-337 will be modified within a year to encompass this recommendation.

RECOMMENDATION 2: GAO recommended that the Secretary of Defense direct the Assistant Secretary of Defense (Health Affairs) and the Surgeons General of the Army, Navy and Air Force to analyze each of the small military hospitals in the direct care system, with a view toward determining its potential for conversion to an outpatient clinics, using a methodology similar to the one discussed in this report. (p. 58, GAO Draft Report)

DoD Comment: Concur. Provided the recommendation is changed as follows:

"Analyze each of the small military hospitals to determine its potential for expansion, if economically justified, or conversion to an outpatient clinic, using an appropriate methodology."

When the model is available, it will be applied to new construction requests. At that time, a schedule will be established for evaluating all other hospitals.

RECOMMENDATION 3: GAO recommended that the Secretary of Defense direct the Assistant Secretary of Defense (Health Affairs) and the Surgeons General of the Army, Navy and Air Force to assure that such analyses are performed prior to requesting funds from Congress (or prior to expending any already approved funds) for reconstruction and/or renovation of any of the small hospitals in the DoD hospital system. (p. 58, GAO Draft Report)

DoD Comment: Concur. Provided the recommendation is changed as shown below. Currently funded projects which have been supported by Economic Analyses should not be delayed as a result of this recommendation. Any delay of projects that have already been approved and funded will only increase the total cost of each project unless the final conclusion was to discontinue inpatient services. Therefore, suggest that the recommendation be modified to read as follows:

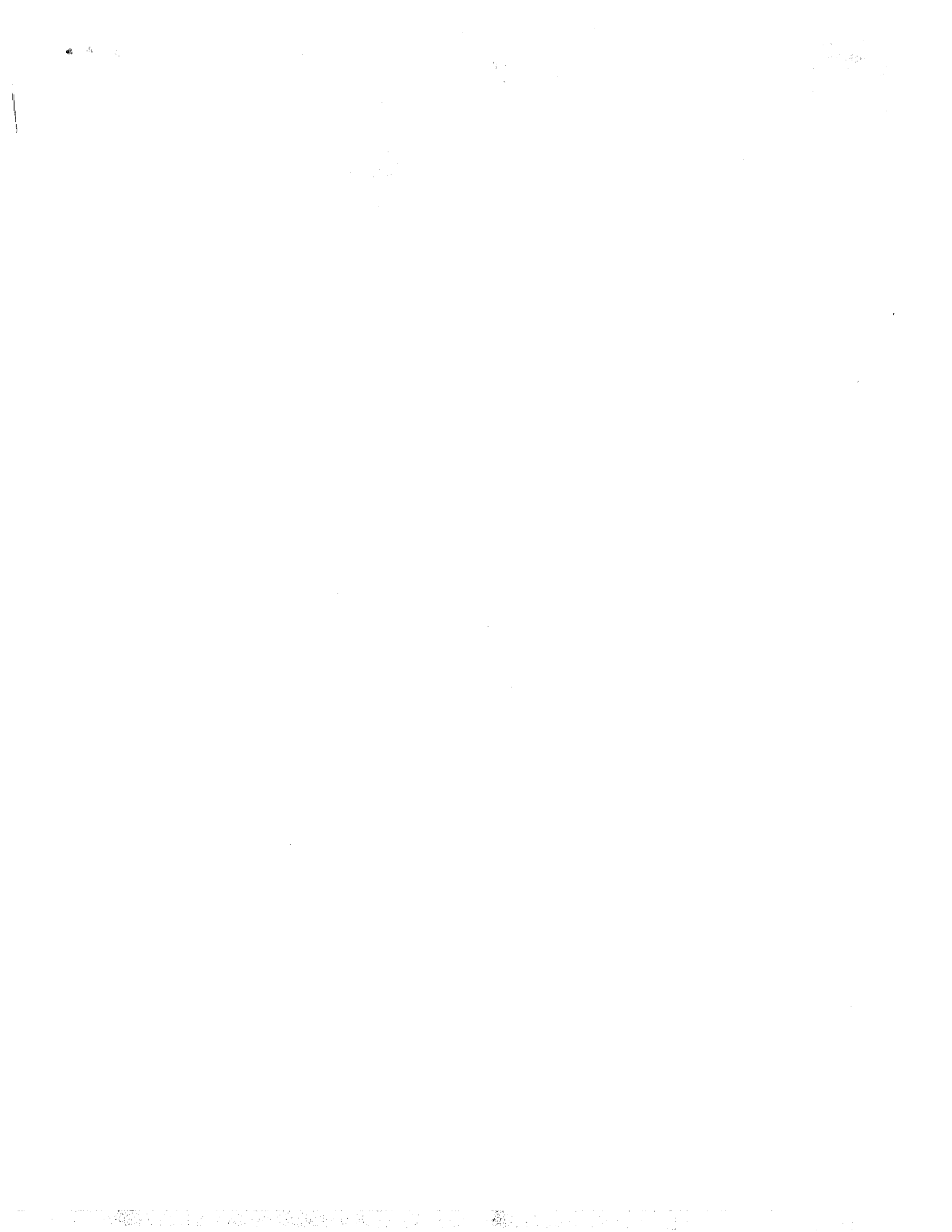
"Assure that such analyses are performed prior to requesting funds from Congress in the future for any small hospital construction and/or renovation projects which are not already under design."

GAO note: Page references in this appendix may not correspond to page numbers in the final report.

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