United States General Accounting Office

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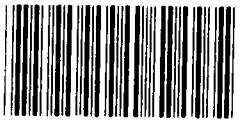
Briefing Report to the Ranking Minority Member, Subcommittee on Military Construction, Committee on Armed Services, United States Senate

April 1986

# DOD HEALTH CARE

# Analysis of Selected Military Medical Facility Construction Projects

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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

HUMAN RESOURCES
DIVISION

April 4, 1986

B-222707

The Honorable Jeff Bingaman
Ranking Minority Member
Subcommittee on Military Construction
Committee on Armed Services
United States Senate

Dear Senator Bingaman:

In an October 21, 1985, letter, you asked that we monitor Department of Defense (DOD) implementation of the recommendations in the June 1985 report by the Blue Ribbon Panel on Sizing Department of Defense Medical Treatment Facilities. As you know, the Secretary of Defense agreed with the Panel's recommendations and directed that they be implemented. As agreed with your office, we are monitoring DOD's efforts to implement the recommendations and will report significant developments to you.

In your letter, you asked several questions relating to the need for a replacement inpatient facility at Brooke Army Medical Center. Brooke is located near the Air Force's Wilford Hall Medical Center, which you indicated was only partially occupied. You also asked us to examine the analysis that was the basis for DOD's decision to not construct a replacement inpatient facility at the Malmstrom Air Force Base.

To respond to your questions concerning Wilford Hall and Brooke, we analyzed Army and Air Force computerized patient treatment file data for each facility to identify changes in patient census and to help identify reasons for these changes. We also interviewed and obtained documentation from officials in (1) the Office of the Assistant Secretary of Defense (Health Affairs), (2) the Army and Air Force Offices of the Surgeon General, and (3) Brooke and Wilford Hall. We did not analyze the outpatient workloads at either medical center.

To address your concerns about the Malmstrom facility, we reviewed the Air Force study which recommended that DOD construct a replacement hospital and obtained and analyzed documentation from Health Affairs indicating that a hospital should not be built. We interviewed Malmstrom hospital and Health Affairs officials to obtain their views on the need for a replacement facility.

This briefing report contains information we developed concerning questions you asked about these facilities. In summary, we found that:

--The issue that the Blue Ribbon Panel cited in June 1985 as preventing it from making a decision on whether the inpatient facility at Brooke should be replaced--Brooke's role in the Army's medical readiness posture--is being considered by DOD. The final results of this consideration are apparently not going to be available before DOD decides whether to recommend a replacement inpatient facility at Brooke.

--In addition to the advice the Assistant Secretary obtains from groups established to implement the Blue Ribbon Panel's readiness-related recommendations, the decision as to whether to replace Brooke will also take into account other issues, such as the availability and potential cost effectiveness of utilizing existing inpatient capacity in the San Antonio area.

--Inpatient care appears to be readily available at nearby Wilford Hall and from civilian hospitals in San Antonio. The data we developed support the Panel's view that, in the absence of overriding readiness and graduate medical education considerations, a large tertiary care facility at Brooke is not needed to support the patient care requirements of DOD beneficiaries in the San Antonio area.

--In June 1985, the Assistant Secretary decided not to replace the inpatient facility at Malmstrom and instead construct a comprehensive outpatient facility. In our opinion, the Assistant Secretary's decision was reasonable.

As requested by your office, we did not obtain official DOD comments on our briefing report. We did, however, discuss its contents with officials in the Office of the Assistant Secretary of Defense (Health Affairs) and considered their comments in preparing this document.

Also, as arranged with your office, we plan to distribute copies of this briefing report to the Senate and House Committees on Appropriations and Armed Services, the Office of Management and Budget, the Secretary of Defense, the Secretaries of the Army and Air Force, and other interested parties. We will also make copies available to others upon request.

Should you need additional information on the contents of this briefing report, please call me on 275-6207.

Sincerely yours,

Edward A Densmore

for David P. Baine
Associate Director

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FIGURES



## ABBREVIATIONS

| | |
|---|---|
| CHAMPUS | Civilian Health and Medical Program of the Uniformed Services |
| DOD | Department of Defense |

# ANALYSIS OF SELECTED MILITARY MEDICAL FACILITY CONSTRUCTION PROJECTS

## INTRODUCTION

The Department of Defense (DOD) operates a worldwide health care system composed of the medical care systems of the Army, Navy, and Air Force, supplemented by the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). According to 10 U.S.C. 1074 and 1076, active duty members have first priority for medical care in military treatment facilities. 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, facilities, and staff capabilities. DOD's 1984 Health Care Survey reported that beneficiaries eligible for health care in the system totaled 9 million--2.3 million active duty members, 2.7 million active duty dependents, and 4 million retirees, their dependents, and survivors of deceased members.

DOD's direct health care system consists of 168 hospitals and 546 ambulatory care facilities. CHAMPUS provides financial assistance for medical care in the civilian sector for other than active duty members. In fiscal year 1985, CHAMPUS costs were about $1.4 billion, while the direct care system costs were about $8.0 billion, including medical facility construction.

### Background

DOD has had a program of ongoing replacement and modernization of its medical treatment facilities for many years. The program is expected to cost about $4 billion between fiscal years 1985 and 1989. DOD is considering replacing or modernizing a number of medical treatment facilities, including Brooke Army Medical Center.

Currently, the DOD medical facility approval and construction process begins when a military service documents medical facility needs. To determine the most cost-effective method of meeting the identified needs, the service contracts with a firm for an economic analysis. The contractor follows guidance and uses data provided by the service. Using the economic analysis, the service selects a size for the project and submits its proposal along with the economic analysis to the Office of the Assistant Secretary of Defense (Health Affairs) for review and approval. Once Health Affairs agrees on the need for and size of the project, the project description is sent to a DOD contracting agency (the Naval Facilities Engineering Command or the Army Corps of Engineers), which contracts for and monitors the design effort. When the design is 35-percent complete and includes the basic floor layouts and cost estimates, the Office of

the Assistant Secretary of Defense (Manpower, Installation and Logistics) reviews it. After the project is approved within DOD, it is submitted for congressional authorization and appropriations.

In November 1984, the Secretary of Defense, at the direction of the Congress, established the Blue Ribbon Panel on Sizing Department of Defense Medical Treatment Facilities. The Panel's charter stated that it was to review the criteria for sizing military treatment facilities and to determine if expanded use of available civilian facilities could be cost effective. The charter listed 14 topics that the Panel was to consider, including an evaluation of what changes, if any, should be made to the Brooke project.

Brooke, a 694-bed facility at Fort Sam Houston, San Antonio, Texas, needs major reconstruction to continue operations. The Army initially requested a 761-bed replacement for Brooke, but later reduced its request to 695 beds. In fiscal year 1984, Health Affairs approved a 450-bed replacement facility with expansion capability to 695 beds. The Military Construction Authorization Act of 1985 (Public Law 98-407), approved August 28, 1984, directed the Army to award a contract to design not less than a 450-bed replacement facility for Brooke. According to the Brooke project officer, the Army Corps of Engineers, $11.4 million had been obligated as of March 1986 for the design project, which will be 35-percent complete by July 1986. At that time, DOD will have spent $15 million on the design. To carry the design to completion will cost an additional $12 million. Estimated construction costs for Brooke amount to about $363 million, excluding design costs.

Brooke is located within 20 miles of the Air Force's Wilford Hall Medical Center. Wilford Hall, a 1,000-bed medical center at Lackland Air Force Base, is the Air Force's largest medical facility. Many of Wilford Hall's beds are unused. Questions have been raised by Senator Jeff Bingaman and others about the feasibility of Wilford Hall absorbing some of Brooke's workload, thereby eliminating the need for, or curtailing the size of, a replacement inpatient facility for Brooke.

The Blue Ribbon Panel issued its report to the Chairmen of the Senate and House Committees on Armed Services on June 28, 1985. The Panel recommended, among other things, that DOD develop methods for determining medical readiness and graduate medical education requirements on a system-wide basis. The Panel also recommended that the sizing and staffing of individual DOD medical facilities be considered as a part of these system-wide requirements. Regarding Brooke, the Panel's report stated that a

". . . large tertiary care facility at Fort Sam Houston is clearly not required to support the local San Antonio patient care requirement. The size of the facility built to replace Brooke Army Medical Center should be based on a new evaluation by the Assistant Secretary of Defense (Health Affairs) of the role of that facility as an integral part of the DOD tertiary care/Graduate Medical Education system, consistent with an overall DOD strategy."

The Secretary of Defense agreed with the Panel's recommendations and directed the Assistant Secretary of Defense (Health Affairs) to implement them. The Assistant Secretary established a group in Health Affairs to conceptualize, develop, and implement the Panel's recommendations. The Assistant Secretary has stated that in May 1986 he will make a recommendation to the Secretary on the type and size of a facility needed at Fort Sam Houston. The Secretary is expected to make his recommendation to the Congress in June 1986.

Malmstrom Air Force Base hospital, Great Falls, Montana, is a 40-bed facility. The Assistant Secretary did not approve the Air Force's April 1985 request for a 30-bed replacement hospital because, among other reasons, sufficient unoccupied beds in nearby civilian hospitals were available. Instead, in August 1985 a comprehensive health care center (outpatient facility) was approved for Malmstrom.

## Objectives, scope, and methodology

On October 21, 1985, Senator Bingaman requested that we monitor DOD's implementation of the recommendations in the June 1985 report by the Blue Ribbon Panel. We are continuing to monitor DOD's actions to implement these recommendations and will report significant developments to the Senator as they occur.

Senator Bingaman also requested that we develop information on the following questions concerning Brooke and Wilford Hall.

--Has the patient census at Brooke and Wilford Hall been increasing and, if so, what are the reasons for the increase?

--Will the Air Force be able to adequately staff Wilford Hall for expanded operations?

--Is joint Army-Air Force staffing of Wilford Hall a viable alternative to replacing Brooke with a 450-bed medical center?

Senator Bingaman also requested us to examine the analysis that was the basis for DOD's decision to not construct a replacement inpatient facility at Malmstrom.

To determine if the patient census at Brooke and Wilford Hall has been increasing and, if so, the reasons for the increase, we obtained computerized patient treatment data files from the Army and Air Force Surgeons General Offices for January 1983 through June 1985. In each instance we were advised that the data being provided were the latest and most accurate available.

We analyzed the data files to (1) determine the changes in the average daily inpatient load (a measurement of inpatient census) and (2) examine the average length of stay and the age and mix of beneficiary types (active duty, active duty dependents, retirees, and retirees' dependents) using the two hospitals. We also obtained the views of Brooke and Wilford Hall officials as to the reasons for the changes in patient census during the period January 1983 through June 1985. Time did not permit us to make an in-depth analysis on a patient-by-patient basis. This more detailed analysis would be necessary in order to be sure that all of the reasons were identified for changes in patient census.

Also, because of time constraints and the fact that DOD's focus has been on the need for a replacement inpatient facility at Brooke, we did not analyze the outpatient workloads at either Brooke or Wilford Hall. Therefore, this briefing report does not address the potential need for a replacement ambulatory care facility at Brooke.

To determine the Air Force's ability to adequately staff Wilford Hall for expanded operations, we interviewed the Deputy Director for Medical Plans and Resources and other officials in the Air Force Surgeon General's Office in Washington, D.C. We also interviewed Wilford Hall hospital officials to ascertain their views on staffing requirements, manpower standards, and the use of contract personnel. We obtained and analyzed the Air Force fiscal year 1986 manpower allocations for Wilford Hall to determine whether there were any new authorizations. We also reviewed the hospital's staffing levels over the past 3 years and the plans for staffing new beds.

To determine if joint Army-Air Force staffing of Wilford Hall would be a viable alternative to replacing Brooke, we interviewed officials in the Offices of the Assistant Secretary of Defense (Health Affairs) and the Air Force Surgeon General as well as Wilford Hall and Brooke officials. We also obtained the Army Surgeon General's views on joint staffing. We identified other DOD facilities and activities that utilize joint staffing.

Although at the time of our work DOD had not completed its systemic medical readiness and graduate medical education requirements as recommended by the Blue Ribbon Panel, we examined the individual mission statements, mobilization plans, and graduate medical education programs for both Wilford Hall and Brooke. We also obtained the views of Brooke and Wilford Hall officials concerning their mission, mobilization plans, and graduate medical education programs. In addition, we contacted each of the civilian hospitals in the San Antonio area to determine the number of vacant beds in the civilian sector.

To analyze the costs to the government and DOD beneficiaries by using civilian beds instead of replacing the inpatient facility at Malmstrom, we reviewed the study that recommended a replacement hospital. We also analyzed documentation from Health Affairs which indicated that a replacement hospital should not be built at Malmstrom. To estimate what it would cost to treat Malmstrom's inpatient workload in civilian hospitals, we obtained but did not verify fiscal year 1984 CHAMPUS inpatient costs for the Malmstrom area. We also obtained data concerning the inpatient days spent in the Malmstrom facility in fiscal year 1984. We interviewed hospital officials at Malmstrom to obtain their views on the need for a replacement facility. We also contacted the Health Affairs' Deputy Director of the Defense Medical Facilities Office to obtain additional clarification on the decision not to replace the Malmstrom hospital.

The Senator's October 21, 1985, letter also asked for our views and analyses of the cost implications of building the Madigan Army Medical Center, Fort Lewis, Washington, about 100 beds larger than necessary according to the Blue Ribbon Panel's report. Based on congressional actions that directed the Army to reduce Madigan to approximately 400 beds and later discussions with Senator Bingaman's office, we excluded this issue from our review.

## RESPONSES TO QUESTIONS CONCERNING WILFORD HALL AND BROOKE

Senator Bingaman asked a number of questions relating to (1) changes in patient census at Wilford Hall and Brooke, (2) the adequacy of staffing of Wilford Hall, and (3) the potential for joint Army-Air Force staffing of Wilford Hall. Information relating to these questions, as well as a discussion of other key questions affecting the decision regarding the need for a replacement hospital at Brooke, is discussed on the following pages.

## Has the patient census been increasing at Wilford Hall and Brooke?

During the period January 1983 to June 1985, the inpatient census--referred to as average daily patient load--has been increasing at Wilford Hall and decreasing at Brooke. (See figures 1 and 2.) In general, the average daily patient load can change on the basis of the number of patients admitted, the length of time patients stay, or both. The number of patients admitted to the hospitals did not change appreciably over the 30-month period, but the average length of stay increased at Wilford Hall and decreased at Brooke. Wilford Hall officials could not identify specifically why overall lengths of stay were increasing at their facility. Brooke officials attributed their declining lengths of stay to changes in medical technologies and treatment methods and procedures.

### Changes in the average daily patient load

At Wilford Hall, the average daily patient load[1] increased from 553 patients during the first 6 months of 1983 to 602 during the first 6 months of 1985. Active duty patients accounted for nearly half of this increase, and retired patients accounted for about 35 percent. Within the 30-month period ended June 30, 1985, the average daily patient load ranged from 474 patients in January 1983 to 667 patients in June 1984.

At Brooke, the average daily patient load decreased from 471 patients during the first 6 months of 1983 to 396 during the first 6 months of 1985. Over 90 percent of this decline was due to the decrease in active duty patients. During the 30 months ended June 30, 1985, the patient load ranged from 523 patients in May 1983 to 352 patients in December 1984.

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[1]Consistent with the methods used by the military services, we computed the average daily patient load on the basis of bed days--a patient in a bed for a day--divided by the number of days in the period.

Figure 1:
Trended Average Daily Patient Load
Wilford Hall USAF Medical Center
(January 1983-June 1985)

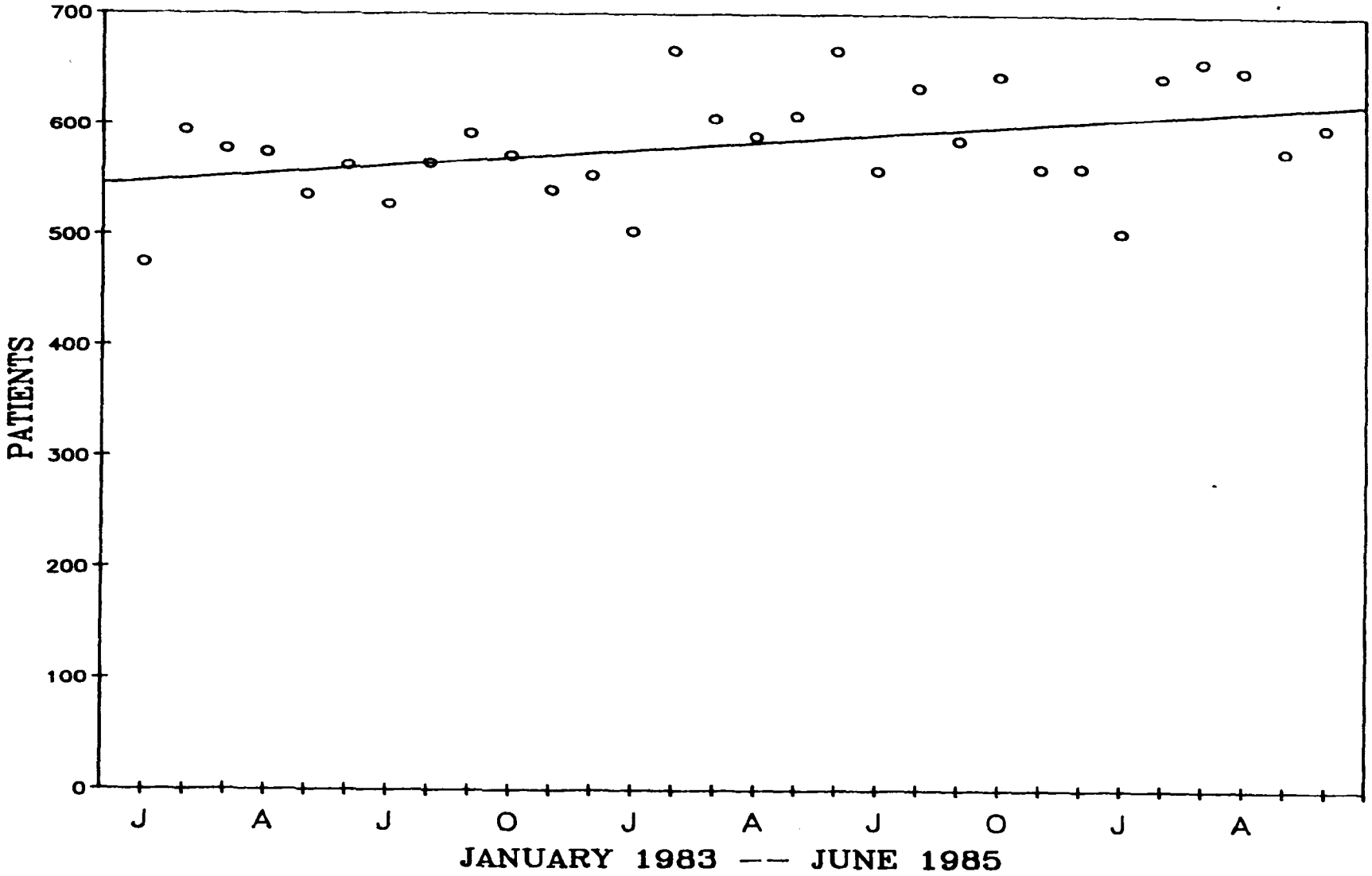

Figure 2:
Trended Average Daily Patient Load
Brooke Army Medical Center
(January 1983-June 1985)

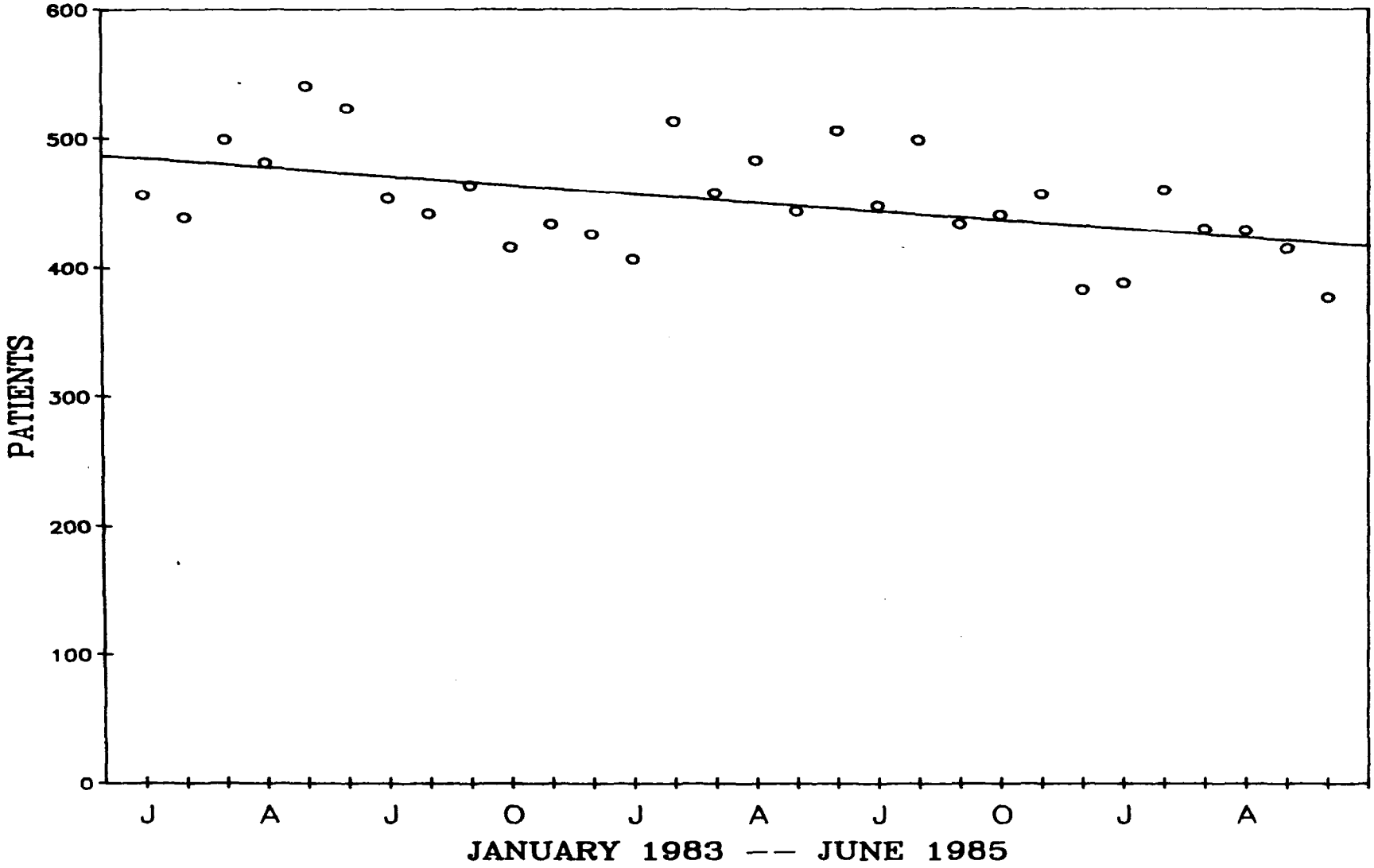

Table 1 shows the types of beneficiaries provided care at both hospitals and the changes in average daily patient load between the first and last 6-month periods of our analysis.

Table 1:
Average Daily Patient Load
by Type of Beneficiary
for the 6-Month Periods
Ended June 30, 1983, and June 30, 1985

| Type of beneficiary | Wilford Hall 1983 | Wilford Hall 1985 | Brooke 1983 | Brooke 1985 | Total 1983 | Total 1985 |
|---|---|---|---|---|---|---|
| Active duty | 147 | 168 | 167 | 99 | 314 | 267 |
| Dependents of active duty | 109 | 117 | 55 | 55 | 164 | 172 |
| Retirees | 158 | 175 | 148 | 139 | 306 | 314 |
| Dependents of retirees | 134 | 135 | 97 | 97 | 231 | 232 |
| Other | 5 | 7 | 4 | 6 | 9 | 13 |
| Total average daily patient load | 553 | 602 | 471 | 396 | 1,024 | 998 |

## Reasons for changes in patient census

To obtain an indication of possible reasons for changes in the average daily patient load, we analyzed data on the number of patients admitted to both hospitals and on the length of time these patients stayed. The number of patients admitted into each hospital did not change appreciably over the 30-month period, as shown in table 2.

Table 2:
Number of Patients Discharged
From Wilford Hall and Brooke
During the 30-Month Period
Ended June 30, 1985

| Hospital | 1983 | 1984 | 1985[a] |
|---|---|---|---|
| Wilford Hall | 22,081 | 22,036 | 10,784 |
| Brooke | 17,161 | 16,847 | 8,472 |

[a]Data are for the 6-month period ended June 30, 1985.

We next examined the length of time that patients stayed in each of the hospitals to find an explanation for the overall trends in the average daily patient load. Table 3 shows the average length of stay for the patients discharged from each hospital during the 30 months ended June 30, 1985. During the period, the overall average length of stay increased for Wilford Hall but decreased for Brooke.

Table 3:
Average Length Of Stay
for Patients at Wilford Hall and Brooke
During the 30-Month Period Ended June 30, 1985

| Hospital | 1983 | 1984 | 1985[a] |
|---|---|---|---|
| | --------(days)-------- | | |
| Wilford Hall | 9.2 | 9.9 | 10.1 |
| Brooke[b] | 9.4 | 9.4 | 8.4 |

[a]Data are for the 6-month period ended June 30, 1985.

[b]All Brooke length-of-stay data used in this report exclude data for the hospital's burn center because the longer stays for this unit would distort our comparative analysis.

Wilford Hall's average length of stay increased 1.1 days from the first 6 months of 1983 to the first 6 months of 1985. This represented an estimated increase in the average daily patient load of 67. Active duty members had the biggest increase (1.7 days) in average length of stay followed by the increase (1.3 days) for dependents of active duty beneficiaries.

Because Wilford Hall's average length of stay was increasing, we made an analysis to determine whether this might be explained by an increase in the age of the patients using the hospital. In general, as patients age, their lengths of stay increase. Patients 45 years of age and older accounted for nearly half of the average daily patient load at Wilford Hall.

Our analysis showed that patients age 65 and over accounted for 10 percent of the patients at Wilford Hall during the first 6 months of 1983 but accounted for 15 percent of the patients during the first 6 months of 1985. However, patients in the 45-64 year age group decreased by 2 percent of the total workload during the same period. There were over twice as many patients in this latter group. The net effect of these changes in the age of patients at Wilford Hall explains 0.24 days, or about 22 percent, of the 1.1-day increase in the average length of stay. The remaining increase is due to the change in the average length of stay of patients under age 45.

Our further analysis showed that the average length of stay for patients 45 years and older remained relatively stable when these patients' hospital stays for the first 6 months of 1983 were compared to the hospital stays for similarly aged patients during the first 6 months of 1985. Table 4 shows the results of this analysis as well as our analysis of other age groups.

Table 4:
Comparison by Age of the Average Length of Stay for Patients at Wilford Hall During the First 6 months of 1983 and 1985

| Age | January to June 1983 | January to June 1985 |
|---|---|---|
| 18-24 | 7.5 | 9.9 |
| 25-34 | 8.5 | 10.6 |
| 35-44 | 10.2 | 10.9 |
| 45-64 | 10.6 | 10.6 |
| 65 and older | 12.1 | 12.0 |

In contrast to the relatively stable average length of stay for older patients, the table shows that the largest increase in average length of stay involved younger patients. Patients in the 18-24 age group increased 2.4 days, and those in the 25-34 age group increased 2.1 days. Thus, although older patients represent a large percentage of the workload at Wilford Hall, the lengths of stay of these patients do not appear to be the primary cause of the increase in the facility's overall average length of stay. Rather, this increase appears to be primarily the result of the lengths of stay of younger patients.

Brooke's average length of stay went down 1.1 days when the first 6 months of 1983 are compared to the first 6 months of 1985. This represented an estimated decrease in the average daily patient load of 51. The average length of stay for active duty patients decreased 3.6 days, while the average for other beneficiaries remained relatively constant. The downward trend in average length of stay at Brooke is consistent with the general trend being experienced by both military and civilian hospitals in the United States.

Because both Wilford Hall and Brooke are regional hospitals, we analyzed the effect on the average daily patient load of patients transferred from another hospital outside each hospital's 40-mile catchment area. A comparison of the first 6 months of 1983 with the first 6 months of 1985 showed that the number of transfer patients was down at both hospitals. At Wilford Hall, the drop was from 1,057 to 662 patients, resulting in a decrease in the average daily patient load of 28 patients. At Brooke, the decline was from 862 to 765 patients, resulting in a decrease in the average daily patient load of 37 patients.

We also analyzed patient transfers to determine whether their average lengths of stay increased or decreased for the first 6 months of 1985 as compared to the first 6 months of 1983. The data for Wilford Hall showed that the average length of stay had increased by 3.2 days for transfer patients. All beneficiary categories of transfer patients had increases in average length of stay, but the most significant increases involved active duty members (4.8 days) and dependents of active duty members (4.7 days). The data for Brooke showed that the average length of stay declined 5.2 days for transfer patients. This decline was led by a 10.3-day decrease for active duty transfer patients. Lengths of stay for retired beneficiaries (1.8 days) and for dependents of retired beneficiaries (2.5 days) who were transferred to Brooke increased during this period.

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We discussed the results of our analyses with Wilford Hall and Brooke officials and requested their views, especially on the reasons for the changes in the average daily patient load. Their comments are summarized below.

Wilford Hall

Wilford Hall officials basically agreed with the results of our analysis, but could not explain the reason for the increase in average daily patient load and average lengths of stay. The officials told us that one possible reason for the increase may be the increasing complexity of cases treated since Wilford Hall is a tertiary care facility, which provides the more complex care generally requiring longer lengths of stay. The officials emphasized that an in-depth case-mix analysis would be necessary to validate whether this is a contributing factor to the increase in average lengths of stay.

Wilford Hall officials also suggested the following possible reasons as contributing to the increases in average daily patient load and average lengths of stay. The officials again emphasized, however, that an analysis would be needed to determine the extent to which these were contributing factors.

--Completion of Wilford Hall's modernization made more beds available. The officials said that during construction, some active duty patients who may have used Wilford Hall went to Brooke instead. In our opinion, this does not explain the upward trend in the average daily patient load because active duty admissions at Wilford Hall actually went down when comparing the periods January-June 1983 (soon after construction) with the number of active duty admissions during January-June 1985.

--An increase in the active duty population in the San Antonio area may be causing more admissions to occur. Wilford Hall officials told us that the active duty population increased from about 18,000 in 1983 to about 20,000 in 1985. As noted, however, our analysis shows a decline in active duty admissions.

--The longer lengths of stay associated with alcohol rehabilitation patients. Wilford Hall officials told us that since August 1983, about 16 to 20 patients were in the alcohol rehabilitation program.

--Increased use of light care (self or limited care) beds. During the period of our analysis, Wilford Hall had 36 light care beds, and another 29 were added in October 1985.

Brooke

Overall, hospital officials agreed with the results of our analyses. They said that, in general, the decline in the average daily patient load and average length of stay resulted from changes in medical technologies, treatments, and procedures. They further said that the patient load was kept down because of bottlenecks in the old facility, particularly involving the availability of operating rooms and intensive care units. However, Brooke officials said they had no records on the number of patients denied admission.

Brooke officials could not explain the drop in the average daily patient load for active duty members from 1983 to 1985. They said that the troop populations at Fort Hood, Fort Polk, and Fort Sill had remained relatively unchanged over that period. They suggested that the decline was probably the result of increases in active duty patients in 1983 due to such events as the bombing of the Marine barracks in Beirut (Oct. 1983) and the conflict in Grenada (Oct. 1983).

## Can the Air Force adequately staff Wilford Hall for expanded operations?

According to Air Force officials, Wilford Hall was operating 750 of its 1,000 beds in December 1985. Officials from the Air Force Office of the Surgeon General told us in February 1986 that the hospital was receiving additional nurses to bring its staffed operating beds to 964 by December 1986. However, nurse staffing standards adopted in fiscal year 1986 by Wilford Hall suggest that, even with the additional nurses who may be assigned, the facility may still be understaffed.

If Wilford Hall becomes fully staffed, it is not clear to us whether the workload will materialize to fully utilize the increased inpatient capacity.

### Nurse staffing at Wilford Hall

Wilford Hall officials told us that in December 1985, the facility was staffed to operate 750[2] of its 1,000 beds. These officials also told us that the hospital has sufficient physician staffing to support 1,000 beds but that the shortage of nursing staff is the main obstacle to opening the unstaffed beds. According to Wilford Hall's Division of Nursing, 86 additional beds were opened in March 1986 with a staff increase of 22 Air Force and 12 contract nurses. Another 18 beds are expected to be opened to support a bone marrow transplant demonstration project, which will be staffed with contract personnel and financed from CHAMPUS funds.

In its fiscal year 1986 manpower allocation, Wilford Hall received 512 nurse authorizations for inpatient services, 152 more than the 360 previously authorized. In February 1986, officials from the Air Force Office of the Surgeon General told us that, with the additional nurse authorizations and contract personnel, staffed beds will increase to 964 by December 1986. These officials believe that the remaining 36 beds will be staffed shortly thereafter.

### Manpower standards suggest operating beds may be understaffed

Wilford Hall began applying the Air Force Manpower Standards to nursing activities in its application for fiscal year 1986 manpower allocations. Since 1976, manpower standards developed specifically for Wilford Hall have been used to determine nursing requirements. In December 1985, Wilford Hall was operating 750 beds with 358 assigned nurses. However, the Air Force Manpower Standards indicate that 750 beds require a nursing staff of 434 nurses--76 more than assigned.

Moreover, Wilford Hall officials told us that as of March 1986, operating beds at the facility had increased to 836, excluding the 18 beds designated for the bone marrow transplant project. The hospital was staffed with 392 nurses. According to the manpower standards, 836 beds require a staff of 466 nurses--74 more than were assigned in March.

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[2]This does not include bassinet beds, which are not included in the capacity of a military hospital.

## Uncertainty whether workload will materialize to occupy Wilford Hall to optimal level

The Office of the Assistant Secretary of Defense (Health Affairs) has directed that an 85-percent occupancy rate be used when the services plan the size of new and replacement medical facilities. Applying the 85-percent rate to a fully staffed 1,000-bed Wilford Hall results in an average daily patient load of 850, 213 more than its reported average daily inpatient census for the 12 months ended February 28, 1986. Our analysis shows that although some additional workload may materialize to increase the future patient census, an appreciable increase does not appear to be probable unless workload from outside Wilford Hall's catchment area increases substantially.

Normally, an increase in staffed beds would allow a military treatment facility to recapture a portion of the patient workload receiving care under CHAMPUS. In Wilford Hall's case, however, significant recapture seems unlikely because the CHAMPUS workload in the San Antonio area is small and, for the most part, difficult to recapture. Only 293 statements of nonavailability were issued by Wilford Hall and Brooke in 1984. These statements are required, except for emergencies, before beneficiaries may seek inpatient care under CHAMPUS. Sixty-two percent of the statements issued in 1984 were for psychiatric care, which because of its long-term nature, is typically not provided at DOD facilities. We estimate that the nonpsychiatric CHAMPUS workload at Wilford Hall would account for an increase of 2.

Another way by which additional staff may result in an increase in patient census is by allowing the hospital to reduce the backlog of elective surgery cases. As of the end of January 1986, Wilford Hall had a backlog of 547 elective surgery cases. We did not analyze the cases to determine which ones might reflect a staffing shortage rather than delays for such reasons as convenience of the patient or operating room capability. However, using the Wilford Hall surgery average length of stay of 9 days, we estimate that the 547 elective surgery cases could account for a daily patient census increase of 13.

If the Air Force beneficiaries currently using Brooke were to use Wilford Hall, we estimate that an additional daily patient census of 87 would result. The daily census of Air Force active duty and active duty dependent beneficiaries receiving inpatient care from Brooke totaled about 20 in 1985. According to Brooke officials, these beneficiaries are part of the Randolph Air Force Base population and use Brooke because it is 15 miles closer than Wilford Hall. Brooke officials also said that the communities just northeast of San Antonio, close to Brooke, are popular with military retirees. Workload statistics

provided by Brooke officials show that Air Force retirees and their dependents from these communities accounted for a daily patient census of 67 in 1985.

Considering the effects of all the above on Wilford Hall, the daily patient census from within the catchment area could increase by 102. It is questionable, however, that all the census attributable to these factors would materialize. For example, there is no assurance that the Air Force beneficiaries now using Brooke--constituting a census of 87--would use Wilford Hall. These beneficiaries could use Wilford Hall now but have chosen instead to use Brooke. Wilford Hall officials acknowledge that the additional workload that can be generated from inside the catchment area is small, but they contend that the workload from outside the catchment area is sufficient to fill the hospital.

## Is joint Army-Air Force staffing of Wilford Hall a viable alternative to replacing Brooke?

Joint staffing of a DOD medical teaching facility in San Antonio was one recommendation made by the Assistant Secretary of Defense (Health Affairs) to the Secretary in a December 1985 briefing. In a February 1986 memorandum to the Secretaries of the military departments, the Assistant Secretary stated that the time had come for joint staffing of selected major medical teaching centers. He said that the Secretary had approved his recommendation to establish a Joint-Service DOD Medical Teaching Center in San Antonio. He also said the Secretary indicated that the prototype in San Antonio should become a pattern for the future.

The Navy has been directed to develop a plan for joint staffing of Brooke and Wilford Hall. The Assistant Secretary directed the Navy to take the lead role to give the plan greater credibility since the Navy has no specific interests in the San Antonio area. The Assistant Secretary stated that joint staffing will offer many opportunities for sharing teaching techniques and professional expertise, but more importantly, it will make available to all three services a pool of valuable teaching resources from which to draw staff for all military teaching facilities. Specifically, the plan is to include recommendations on how to do joint staffing under the following possible options for replacement of Brooke:

--a state-of-the-art comprehensive health care center (ambulatory care facility) and same-day surgicenter with 25 holding beds,

--a 150-bed station hospital, or

--a 300-bed teaching hospital.

Officials in the Office of the Air Force Surgeon General told us that joint staffing of medical treatment facilities, while creating personal inconveniences for staff, is a feasible alternative, not unprecedented in DOD. Regarding the Assistant Secretary's decision to jointly staff a San Antonio medical facility, the officials stated that as of February 1986, Health Affairs had not requested the Air Force's input on this decision.

According to an official from the Office of the Army Surgeon General, the Surgeon General believes that the advantages of joint staffing are not clear, and it has not been demonstrated that personnel savings will result. Permanent positions at the jointly staffed hospital would have to be documented to reflect the impact of the Army's manpower ceilings. In addition, the hospital's administration would either need to be nonrotating or answer directly to DOD because it would be impractical to have administrators answering to their particular service on a rotating basis. Lastly, the numbers and selection process for physician trainees from each service would have to be carefully detailed.

The administrators and chiefs of clinical services at Brooke and Wilford Hall expressed concern over possible procedural problems that, they felt, could lead to inefficient operations. They cited as examples differences in Army and Air Force approaches to staff authorizations, training requirements, and promotions. Wilford Hall officials also indicated that changes in the supply and medical records systems would be necessary. Regarding staff morale and retention, the officials felt that personnel assigned to a jointly staffed hospital would feel that they were out of the mainstream of their service's health care system.

Joint medical staffing of DOD activities is not without precedent. For example, such activities as the Uniformed Services University of Health Sciences and the Armed Forces Institute of Pathology are staffed by all the services.

The location of the jointly staffed medical facility in the San Antonio area has not been decided. It would appear, however, that Wilford Hall would be the logical choice in view of its recent modernization, its size, and the comprehensive array of medical services it provides. If Wilford Hall is selected as the jointly staffed facility and the Air Force's projection that Wilford Hall will be almost fully staffed--with Air Force personnel--by December 1986, a question arises about what Air Force personnel changes would have to be made to make room for medical staff from the other services.

## Key questions in determining the need for a replacement facility for Brooke

The decision concerning whether to replace Brooke and, if so, by what size facility depends on the answers to two principal questions:

--Is Brooke needed for military readiness?

--If not, can health care to beneficiaries be provided by alternative sources, including the civilian sector, on a cost-effective basis?

### Brooke's readiness mission

The report by the Blue Ribbon Panel on Sizing Department of Defense Medical Treatment Facilities raised the question of Brooke's medical readiness mission. The report stated that while it was

> ". . . clear that certain of the capabilities of BAMC [Brooke Army Medical Center], most notably the burn center, are highly valuable to the readiness mission, these functions are potentially transferable to other facilities and, therefore, do not of themselves seem to dictate the construction of a large, tertiary care referral center at Ft. Sam Houston. Moreover, the Panel found no evidence that there is any medical readiness requirement which must be uniquely served by BAMC, save perhaps the provision of health care to the active duty population residing in the BAMC catchment area.. . ."

According to its mobilization plan, Brooke is to provide 267 fully trained staff (physicians, nurses, and other officer personnel) to medical units deploying overseas, medical services to mobilizing and deploying forces, and the expanded training that would be taking place at the Army's Academy of Health Sciences. During a conflict, according to Brooke officials, the hospital could be expanded to provide inpatient care to over 2,000 casualties.

A readiness-related question concerns the graduate medical education program at Brooke. Graduate medical education is a teaching and training program for physicians wishing to specialize in various medical areas. The Accreditation Council for Graduate Medical Education and Residency Review Committees accredits hospitals' programs that meet specific requirements, including the number and quality of teaching staff, adequacy of facilities, and appropriateness of workload.

The graduate medical education program at Brooke is the second largest in the Army (only the program at Walter Reed Army Medical Center is larger). The question the Blue Ribbon Panel raised, and which is still unresolved, focuses on whether the graduate medical education program must be located at Brooke or whether the readiness-related portion of the program could be transferred to other Army medical facilities, or to other services' facilities, including Wilford Hall. In June 1985, 235 Army physicians were in 15 residency programs and 10 fellowship programs at Brooke. Each program also exists at one or more of the Army's other facilities, and 12 of the residency programs are offered at Wilford Hall. Three residency programs offered at Brooke are not offered at Wilford Hall--emergency medicine, thoracic surgery, and transitional year training. Except for thoracic surgery, however, each of Brooke's programs is offered by at least two other Army medical centers.

To evaluate the graduate medical education program from a DOD-wide perspective, the Assistant Secretary of Defense (Health Affairs) is appointing a Federal Advisory Council Committee on Graduate Medical Education. The Council's duties and responsibilities have not yet been fully developed, and its first meeting is tentatively scheduled for the summer of 1986. However, according to Health Affairs officials, the Council will consider the feasibility of transferring graduate medical education programs from one medical facility to another.

### Alternative sources of care in San Antonio

There appear to be enough civilian hospital beds in San Antonio to provide care to DOD beneficiaries if the inpatient facility at Brooke was not replaced. Seventeen civilian hospitals in the San Antonio area provide general and specialized inpatient care. According to officials from these hospitals, 4,483 staffed hospital beds existed as of December 31, 1985. The combined average daily patient load of these hospitals has been declining since 1983. In 1985, the average daily patient load was 3,173, and the hospitals had over 1,300 staffed vacant beds. Since the hospitals are licensed to operate 5,651 beds, they could add another 1,168 beds if the workload warranted and staff was available.

We did not attempt to develop the estimated costs of using these beds for DOD beneficiaries in the San Antonio area. The CHAMPUS workload in San Antonio has been small and does not reflect a broad range of specialties since it contains a high proportion of psychiatric care. The historical costs, therefore, reflect a limited mix of health care provided to CHAMPUS beneficiaries by civilian hospitals.

However, a contractor who has performed other health care studies for Health Affairs reported in an April 1985 study[3] that, of four alternatives studied on delivery of health care to DOD beneficiaries in the San Antonio area, the alternative of not replacing Brooke was the most cost effective. The contractor used fiscal year 1983 CHAMPUS costs (inflated to 1985 dollars) for major metropolitan areas in DOD Region 5--encompassing Arkansas, Louisiana, Oklahoma, and Texas--to estimate the costs associated with the additional CHAMPUS care that would have to be provided.

The study, which focused on peacetime delivery of health care to military beneficiaries, considered four alternatives for health care delivery in the San Antonio area:

--No renovation or construction at Brooke (i.e., close the facility).

--Construction of a new 250-bed Brooke replacement.

--Construction of a new 450-bed Brooke replacement.

--Construction of a 695-bed Brooke replacement.

According to the study, the first alternative--no Brooke replacement--was the most cost effective. This alternative considered that all of the projected (1990) care in the San Antonio catchment area and a portion of the care to beneficiaries outside the catchment area could be handled by Wilford Hall. The remaining care for beneficiaries outside the catchment area, according to the study, could be provided either through CHAMPUS or by other military hospitals.

GAO observations

The unanswered question that the Blue Ribbon Panel cited as preventing it from making a decision on whether Brooke should be replaced--the facility's role in the Army's overall medical readiness posture--is still unresolved. DOD is, however, attempting to develop methods for determining, on a system-wide basis, medical readiness requirements. For example, it has established a panel to study the services' graduate medical education program and make recommendations about what physician specialties are needed to meet readiness needs. This panel's final conclusions and recommendations, however, are apparently not going to be available before the Assistant Secretary is expected to recommend to the Secretary whether a replacement inpatient facility should be constructed at Brooke.

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[3]Military Health Care Delivery Alternatives, San Antonio, Texas, Vector Research, Inc., VRI-DMR-1 WP-85-4, Apr. 30, 1985.

In addition to the advice the Assistant Secretary may obtain from the groups established to implement the Blue Ribbon Panel's recommendations concerning readiness issues, the decision concerning whether to replace Brooke will also take into account other issues, such as the availability and potential cost-effectiveness of utilizing existing inpatient capacity in the San Antonio area.

Needed care may be available at an existing military hospital--Wilford Hall--or from the civilian hospitals with empty beds in San Antonio. For example:

--Wilford Hall has many unused beds. Further, it plans to have an almost fully staffed hospital in the near future--964 beds are expected to be staffed by December 1986--although Air Force nurse staffing standards suggest that Wilford Hall may be understaffed.

--The Air Force believes that the patient census will continue to increase so that it will fully occupy Wilford Hall as staffed beds are added. The increased workload will presumably come primarily from outside Wilford Hall's catchment area. The Air Force has been unable to substantiate its belief. Rather, it has cited past experience, which showed workload increasing as staffed beds were added. However, it has not quantified the impact that continuing admissions of patients to Wilford Hall from outside its catchment area will have on other military hospitals.

--There are about 4,500 staffed civilian beds in San Antonio as of December 31, 1985. Of this number, over 1,300 staffed beds were vacant. An additional 1,168 licensed beds are available if workload and staff increase. Although we did not estimate what care might cost in these civilian beds for DOD beneficiaries, the large number of vacant beds suggests that they be considered as an alternative to a Brooke replacement.

In our opinion, these and other data we developed during this review support the Blue Ribbon Panel's view as stated in its June 1985 report: In the absence of overriding readiness and graduate medical education considerations, a large tertiary care facility at Brooke is not needed to support the patient care requirements of DOD beneficiaries in the San Antonio area.

## ADEQUACY OF DOD'S DECISION CONCERNING MALMSTROM INPATIENT FACILITY

In April 1985 the Air Force submitted a proposal to Health Affairs for a 30-bed replacement hospital at Malmstrom Air Force Base, Great Falls, Montana. In June 1985, the Assistant Secretary disapproved the Air Force proposal and, instead in August 1985, approved an 86,500-square-foot ambulatory clinic for Malmstrom. The bases for the Assistant Secretary's decision to not approve an inpatient facility at Malmstrom were that

--the military mission at Malmstrom did not require direct military hospital level support and

--local civilian health care facilities were adequate or available.

Health Affairs, in its analysis of the Air Force's proposal to replace the Malmstrom facility, concluded that the estimated costs to construct the facility--about $17 million--were about equal to the estimated life cycle savings--CHAMPUS cost avoidances--if the facility were constructed. Health Affairs concluded that this factor, combined with the associated diseconomies inherent in small hospitals, justified no new construction.

The Assistant Secretary's decision to not replace the Malmstrom inpatient facility is consistent with our analyses in a previous report, which concluded that small hospitals--50 beds or less--are generally not cost effective to construct or operate.[4]

### Financial impact of not replacing the facility

The government and nonactive duty beneficiaries at Malmstrom would incur some costs for care as a result of not replacing the inpatient facility. These costs would be incurred since inpatient care for beneficiaries would have to be obtained from civilian facilities. The government would have to pay for care for active duty beneficiaries and a share of the costs for care for nonactive duty beneficiaries. We estimate that if no inpatient facility had been in operation at Malmstrom in fiscal year 1984, the government would have incurred costs of about $3.3 million, while beneficiaries would have incurred costs of about $0.5 million. In developing our estimates, we multiplied

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[4]DOD Should Adopt a New Approach to Analyze the Cost Effectiveness of Small Hospitals (GAO/HRD-85-21, Mar. 15, 1985).

the average fiscal year 1984 CHAMPUS cost per day in the area surrounding Malmstrom by the number of inpatient days in the Malmstrom hospital.

Since active duty members are entitled to free medical care, the government must pay the total cost of care procured from civilian providers. For nonactive duty beneficiaries, the costs under CHAMPUS are shared between the government and beneficiaries. Under CHAMPUS, dependents of active duty members must pay a charge of $25 per inpatient admission or the amount charged in a military facility ($7.30 per day in fiscal year 1985), whichever is greater. Other beneficiaries must pay 25 percent coinsurance of allowable charges. Our estimate of beneficiary costs includes these deductibles and coinsurance amounts. Table 5 shows our estimates of costs for civilian care if no inpatient treatment facility had been in operation in fiscal year 1984 at Malmstrom.

Table 5:
Estimated Costs to Treat Malmstrom Air Force Base's Fiscal Year 1984 Inpatients in Civilian Hospitals

| | | Other beneficiaries | | |
|---|---|---|---|---|
| | Active duty members | Government share | Beneficiary share | Total |
| Average cost per inpatient day under CHAMPUS in Malmstrom area[a] | $ 868 | $ 686 | $ 182[b] | |
| Number of inpatient days in fiscal year at Malmstrom hospital | 1,830 | 2,562 | 2,562 | |
| Estimated cost | $1,588,440 | $1,757,532 | $466,284 | $3,812,256 |

[a]CHAMPUS data included an estimate of all daily costs (including physician costs) associated with the inpatient care of Malmstrom patients in civilian hospitals.

[b]Includes deductibles and copayments.

These estimates do not take into account offsetting costs to DOD of operating the Malmstrom facility in fiscal year 1984. Therefore, they should not be considered by themselves as indicative of savings to the government of not operating the inpatient facility.

## CHAMPUS change being considered

According to the Principal Deputy Assistant Secretary of Defense (Health Affairs), a change in CHAMPUS is being considered that could significantly curtail, or eliminate, cost sharing by beneficiaries receiving care outside military treatment facilities. The change being considered involves a 3-year test program to contract with one or more large civilian institutions to manage and deliver care to CHAMPUS beneficiaries. The contractor(s) would be "at financial risk" to provide this care for a price set forth in the contract(s). Health Affairs' officials told us that they expect the contract(s) to be awarded sometime in fiscal year 1987.

As explained by Health Affairs officials, (1) the contractors would be required to establish primary care medical centers, (2) the level of benefits to be provided must at least equal that currently provided under CHAMPUS, and (3) the care in these centers will be free to the beneficiary, including care now subject to CHAMPUS cost-sharing and care not now covered under CHAMPUS, e.g., preventive care. According to Health Affairs records, care that is now free in military treatment facilities would, in general, be free under the revised CHAMPUS program.

## GAO observations

The decision by the Assistant Secretary to not replace the inpatient facility at Malmstrom was, in our opinion, reasonable. The decision is consistent with the conclusions we reached in previous work. In a March 1985 report to the Secretary of Defense, we reported that, in general, small hospitals--which we defined as those having 50 beds or less--are uneconomical to operate. The reason for this is that a large investment for plant, equipment, and personnel is required to care for even a few inpatients at current medical standards. The studies we examined during this review indicated that the most economical hospital size is between 200 and 300 beds.

We stated that DOD could have saved about $3.9 million in fiscal year 1981 costs if the three small hospitals we studied had been converted to outpatient clinics. We recommended that the Secretary of Defense analyze each small military hospital to determine its potential for conversion to an outpatient clinic, taking into account all factors, including mission requirements and availability of alternative sources of care. DOD, in general, agreed with our findings and recommendations and stated that it had begun to analyze and validate the model we developed to make the necessary cost-effectiveness appraisal.

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