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*REPORT TO THE SUBCOMMITTEE  
ON PRIORITIES AND  
ECONOMY IN GOVERNMENT  
JOINT ECONOMIC COMMITTEE  
CONGRESS OF THE UNITED STATES*



LM096131

Conditions And Operations Of  
The Brooke Army Medical Center  
Fort Sam Houston, San Antonio, Texas

B-161475

Department of Defense

*BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES*

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JULY 25, 1973



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

B-161475

The Honorable William Proxmire  
Chairman, Subcommittee on Priorities and  
Economy in Government  
Joint Economic Committee  
Congress of the United States

TNT 60708

Dear Mr. Chairman:

As requested in your letter of November 17, 1972, we  
have inquired into certain complaints made about Brooke  
Army Medical Center, Fort Sam Houston, San Antonio, Texas.

Generally the complaints were that:

- Physical facilities are substandard, making efficient, medically sound patient care impossible.
- Several patients have died while being moved by ambulance the 1.5 miles from the emergency room to the coronary care unit.
- The hospital has no paging system and no way to sound an alarm or efficiently reach admitting officers.
- There are shortages of supplies, inadequate supplies, and an inability to obtain necessary equipment.
- While the above conditions continue, a new medical service school has been built at a cost of several million dollars and new carpeting was recently installed in the administrative offices.

We interviewed the complainant and discussed his statements in detail. We also interviewed 26 members of the hospital staff, including 19 physicians, and reviewed records and studies. Except for the statements about inadequate supplies and equipment, the complaints had merit.

BACKGROUND

Brooke Army Medical Center before April 1, 1973, was named the Brooke General Hospital. As of December 31, 1972, 2,484 personnel were assigned to the hospital, including 293 physicians and 252 registered nurses.

Brooke Army Medical Center has an authorized operating capacity of 800 beds. The hospital patient care centers are in the Main Hospital, the Beach Pavilion, and the Chambers Pavilion. The Main Hospital is about 1 mile from the Beach Pavilion and about 2 miles from the Chambers Pavilion. The Chambers Pavilion is about 1.5 miles from the Beach Pavilion.

The 293-bed Main Hospital, completed in 1937, has a basement and 7 floors. The building accommodated the Institute of Surgical Research for severely burned patients and the departments providing inpatient and outpatient care for: urology, gastroenterology, gynecology, obstetrics, general medicine, and general surgery.

The Beach Pavilion, constructed in 1931 as three separate barracks, was first used as a hospital during World War II and was officially converted to a hospital annex in 1947. It has 430 beds and each building has a basement and 3 floors. The Beach Pavilion provides inpatient and outpatient service for: pediatrics, oral surgery, orthopedics, physical medicine, general surgery, general medicine, neurology, psychiatry, dermatology, ophthalmology, ENT (ear, nose, and throat), plastic surgery, allergy, cardiology, cardiovascular surgery, and cardiothoracic surgery.

The Chambers Pavilion, completed in 1942, has a small basement storage area and three floors. It has 77 beds for psychiatric patients.

A comparative statement of hospital operating expenses, workload statistics, and unit costs for fiscal years 1970 through 1972 follows.

	<u>1970</u>	<u>1971</u>	<u>1972</u>
Operating expenses (millions):			
Salaries	\$16.5	\$19.8	\$21.5
Supplies	2.9	3.7	4.0
Equipment	.3	.4	.5
Other	<u>1.6</u>	<u>2.0</u>	<u>1.8</u>
Total	<u>\$21.3</u>	<u>\$25.9</u>	<u>\$27.8</u>
Unit costs:			
Inpatient expense (per day)	\$51.45	\$57.65	\$71.54
Outpatient expense (per visit)	6.89	10.64	12.10
Dental treatment (per visit)	9.49	13.67	14.71
Workload statistics:			
Days of hospital bed occupany	308,856	299,582	258,148
Outpatient visits	613,857	680,963	667,040
Dental visits	112,559	100,038	87,065

A construction project for \$2.6 million was underway in the Main Hospital and the Beach Pavilion at the time of our review. The project included (1) air-conditioning and making alterations in the Beach Pavilion and (2) automating the elevators and altering the emergency suite and the medical supply area in the Main Hospital. In addition, about \$500,000 of hospital funds were spent during fiscal year 1972 for additional modifications, maintenance, and repair of hospital buildings and, during the first 8 months of fiscal year 1973, about \$398,000 of hospital funds were obligated for modification, maintenance, and repair work.

Because the complaints concerned the Main Hospital and the Beach Pavilion, we reviewed only these centers.

SUBSTANDARD PHYSICAL FACILITIES

The complainant stated the Main Hospital is substandard compared with other hospitals and the Beach Pavilion is totally inadequate; more specifically, the emergency facilities are overcrowded, the number of examining rooms in many of the clinics is insufficient, and these conditions affect patient attitude and comfort and delay medical care. Further, he stated the separation of the acute care centers causes duplication of equipment and personnel and exposes patients to unnecessary and serious risk.

Generally, the 19 physicians interviewed said these hospital facilities are substandard compared with other hospitals. They cited numerous building deficiencies which increase medical risk, delay and make more difficult the delivery of medical care, and adversely affect patient comfort and attitude. Several physicians stated, however, that the effect of the building deficiencies on patient care cannot be measured.

A hospital consulting firm recently studied the physical facilities of the Main Hospital and the Beach Pavilion and noted numerous deficiencies. Our review confirmed many of these deficiencies, most of which pertained to:

- Inadequate inpatient care accommodations.
- Inadequate ambulatory care facilities.
- Duplication of medical services, personnel, supplies, and equipment.
- Separation of closely related medical and surgical services, and the resulting transportation of patients between hospital buildings.
- Lack of separation of certain inpatient and outpatient care areas.
- Undesirable traffic patterns.

--Inadequate mechanical, electrical, and plumbing systems.

Appendix I lists many of the deficiencies the hospital consultant noted plus our observations and those the physicians and hospital officials pointed out.

Several physicians told us that existing building deficiencies cause inefficient use of medical personnel. For example, certain clinics do not have enough examining rooms per physician. The Center Commander and several other physicians stated that to use medical professionals effectively two or more examination-treatment rooms per physician are required.

Representatives for eight outpatient clinics advised us that the ratio of examination-treatment rooms to the average number of physicians present is as follows:

<u>Clinic</u>	<u>Examination-treatment rooms</u>	<u>Average number of physicians</u>	<u>Ratio of examination-treatment rooms to physicians</u>
Obstetrics and gynecology	9	8	1.1 to 1
Ophthalmology	10	10	1.0 to 1
Orthopedics	7	3	2.3 to 1
Dermatology	15	13	1.1 to 1
General practice	13	9	1.4 to 1
Internal medicine	6	8	.8 to 1
Cardiology	11	10	1.1 to 1
Pediatrics	12	8	1.5 to 1

However, more physicians are assigned to the clinics than shown above. Because of the shortages in examining rooms, department heads try to restrict the number of physicians in the clinic to a reasonable number. In Orthopedics, for example, 13 physicians have only 7 examining rooms. The Assistant Chief of Orthopedics said normally only 3 physicians

are scheduled to be on hand in the clinic and the other 10 are assigned other duties, such as surgery or making rounds. However, when physicians finish the other duties they return to the clinic and frequently more physicians are on hand than examination-treatment rooms.

Hospital officials said physical facility problems have been recognized and reported to higher authorities for many years. Office of the Army Surgeon General representatives advised us that, because of other Federal hospital facilities (U.S. Air Force and Veterans Administration) in the San Antonio area, the proposed replacement of the Center's facilities has not yet been approved by the Department of Defense (DOD). They said that the results of a current DOD study on regionalization of the military medical services will determine the size and type of hospital to be constructed. Further, they said that, until this determination is made, the proposal will be included in the fiscal year 1979 construction program.

Two commercial firms have studied the physical facilities at Brooke Army Medical Center. An architect and engineering firm in 1967 studied the feasibility of constructing an addition to the Main Hospital and renovating the existing facilities. It concluded that constructing an adjoining addition to the existing hospital was not feasible and that a new hospital was needed.

A hospital consulting firm was commissioned in June 1972 to develop alternatives for consolidating services to more effectively use personnel. It reported in January 1973 that both the Main Hospital and the Beach Pavilion lack adequate inpatient care accommodations and that the Beach Pavilion lacks many features essential for efficient operations. It identified extensive duplications of services, personnel, and equipment and increased operating costs resulting from the building deficiencies.

The firm concluded that a new hospital is needed immediately. Because a new hospital could not be made available for several years, it recommended a number of modifications to the existing facilities. The Main Hospital would be

the medical service center housing medical inpatient, outpatient, and related diagnostic and treatment services, and the Beach Pavilion would be the surgical service center housing surgical inpatient, outpatient, and related services of obstetrics, pediatrics, gynecology, and neurology. The consultants estimated that the proposed modifications would cost \$1.3 million which would be recovered in about 5 years, primarily through personnel savings of about \$276,000 a year, by eliminating duplicative surgery, intensive care, and recovery services in the Beach Pavilion and the Main Hospital. These modifications would be in addition to the \$2.6 million construction project currently underway at the Center.

Hospital officials informed us that the modification plan would provide interim solutions, but the only long-range solution to the physical facilities problems would be to build a new hospital. They stated that even with extensive modifications the Beach Pavilion could never be efficiently operated.

DISTANCE OF CORONARY CARE UNIT  
FROM EMERGENCY ROOM

The complainant said his primary concern was that the distance of about 1.5 miles from the emergency room in the Main Hospital to the coronary care unit in the Beach Pavilion involved serious risk to the lives of heart attack victims. Although the separation of facilities could not be cited as the direct cause of any patient's death, movement or excitement, he said, can trigger a cardiac seizure, and adequate resuscitation is extremely difficult when the patient is in transit.

The coronary care unit is 1.2 miles from the emergency room in the Main Hospital. Office of the Army Surgeon General representatives said that Brooke Army Medical Center is the only Army hospital in the United States which has the coronary care unit and emergency room in separate buildings.



Generally, emergency cases, such as heart attack victims, are brought to the emergency room for initial evaluation and treatment. The emergency suite has a small medical care room where patients can be observed and treated for a short time. However, to receive specialized care, heart attack patients must be transferred by ambulance from the emergency room to the coronary care unit and, from February 1970 through December 1972, at least five patients died enroute.

The Chiefs of the Cardiology Service (responsible for the coronary care unit) and the Department of the Clinics and Community Health Care Services (responsible for the emergency room) and several other physicians we interviewed said transferring cardiac patients between hospitals is medically undesirable because the patient is exposed to added risk and specialized medical care is delayed. One physician stated that, because of the separation of facilities, cardiology personnel did not have a chance to save those patients who died.

Before the coronary care unit was opened in February 1970, heart attack patients were treated in the medical intensive care unit which is also in the Beach Pavilion. From February 1970 through December 1972, 1,562 patients were admitted to the coronary care unit. Of these, 1,108 were transferred there from the emergency room, and records listed 51 of the 1,108 patients as deaths in the coronary care unit. These patients either died there or were dead upon arrival.

According to the medical records of these 51 patients and our discussions with the Chiefs of the Cardiology Service and the Department of Clinics and Community Health Care Services, at least 5 patients died enroute to the coronary care unit. The Chiefs of the Services agreed that a sixth patient was dead upon arrival in the coronary care unit, but they were not certain whether he died in the emergency room or enroute to the coronary care unit.

The risk to patients because of the delay of specialized care and the movement between buildings could not be measured. The Chiefs of the Services informed us that resuscitation must begin immediately to successfully revive patients who have undergone cardiorespiratory arrest. Resuscitation is attempted while the patient is in the ambulance, but the complete resuscitation capabilities of the emergency room or the coronary care unit are not available. Also, according to physicians we interviewed, the confines of the ambulance and its movement may restrict resuscitation.

Physicians familiar with the procedures estimated the time to transfer a patient between the two units at from 20 to 30 minutes. This includes preparing the patient for ambulance loading and loading the patient at the emergency room, traveling the 1.2 miles to the Beach Pavilion, unloading the patient, moving the patient by the one elevator from the basement to the third floor of the south wing, and traversing a part of the third floor to the coronary care unit. The records show that a physician attended four of the five patients who died enroute, but they do not indicate whether a physician accompanied the fifth patient. Hospital officials said a physician normally accompanies heart attack patients.

#### HOSPITAL PAGING SYSTEM

The complainant stated there is no paging system in the Main Hospital and thus no way to sound an alarm or to efficiently reach admitting officers. The complainant told us this is a potentially dangerous situation because doctors have to rely on the telephone to summon assistance. He said patients have waited up to 60 minutes to be admitted.

Although the Main Hospital does not have a public address system, it does have a radio paging system. A radio page is requested by telephoning the radio center and giving it the message. The center then relays the message to the individual carrying the radio pager. This is a one-way communication system; thus, the center does not know if the message has been received.

Physicians who work in the emergency room said there is no effective way to sound an alarm or reach admitting officers except by telephone. Although some of the physicians believe the lack of a public address system in the Main Hospital is potentially dangerous, none could recall a catastrophe resulting from this. The Center Commander and other physicians believed that a public address system is not essential in military hospitals, because physicians are assigned to duty posts which can be reached by telephone. They said physicians away from their posts can be reached by radio page or the duty staff can locate them quickly and public address systems disturb patients.

The Beach Pavilion has radio pagers and a public address system which several of the physicians believed was ineffective because it could not be heard in certain parts of the building.

A hospital representative advised us that as of February 1973, Brooke Army Medical Center had 67 radio pagers-- 52 were Government owned and 15 were leased. An additional 25 pagers were ordered in November 1972, and this representative said more are needed. One doctor told us that several doctors have rented pagers using their own funds.

The Office of the Army Surgeon General recently developed a set of draft specifications for communications systems in Army hospitals. These specifications include a paging system consisting of a public address system and pocket radio pagers. If these specifications are approved, any proposed communication system for Army hospitals would have to satisfy or exceed them. An Office of the Army Surgeon General representative advised us that the number and type of radio pagers are, for the most part, left to the discretion of the hospital commander. He also told us that the Office of the Surgeon General would probably recommend that public address systems in hospitals be limited to certain areas, such as outpatient clinics and waiting rooms, and should not be placed in medical and surgical wards. Brooke Army Medical Center personnel concurred with the draft specifications.

SHORTAGES OF SUPPLIES, INADEQUATE SUPPLIES, AND  
INABILITY TO OBTAIN NECESSARY EQUIPMENT

According to the complainant, there were continual shortages of supplies, inadequate supplies, and an inability to obtain necessary equipment. For example, lamps used for pelvic examinations were broken and a resuscitation litter purchased for several hundred dollars was not used because most physicians thought it was dangerous.

The complainant reconsidered these statements and said he now felt there were no real problems of shortages or inadequacies in supplies and equipment. He said that the lamps had not been replaced because of an apparent breakdown in communications with the maintenance department, which was later resolved. However, he still believed that the resuscitation litter was unsafe.

Generally, the professional staff said supplies and equipment were adequate. We discussed the resuscitation litter with the Chief of the Department of Clinics and other physicians. The Chief said certain attachments, such as the chest compressor straps, were not frequently used, but this was due to personal preference rather than the attachment being unsafe. He said other attachments, such as the electrocardiograph monitor, oxygen supply, and the defibrillator, were often used. The other physicians generally concurred with the Chief's evaluation.

OTHER MATTERS

The complainant stated (1) a new Medical Field Service School has been completed just a couple of blocks away and (2) new carpeting is being laid in all the administrative offices. He viewed the above as improper priorities in the use of funds.

A new Medical Field Service School was completed in January 1973 for about \$10 million. The funds were allocated by the Department of the Army to the Southwestern Division of the Corps of Engineers and the justification for the new school, dated February 1969, was:

"This project is required to provide a modern self-contained classroom and administration building for the Medical Field Service School. The proposed facility will replace five large barracks buildings which have been converted or diverted to classroom and administrative use. The increasing numbers of officer and enlisted students and rapid advances in both Field Medical Service doctrine and teaching techniques have made the present facilities increasingly inadequate. If this item is not approved, the existing facilities must continue in use. The quality of training will be lower than optimum and will continue to deteriorate as present facilities are further overloaded and outdated by technological and medical advances. If this item is approved the five buildings will revert to troop housing for which they were designed \* \* \*. Fifteen buildings totaling 84,284 SF [square feet] will be demolished."

New carpet was installed in the hospital commander's suite in January 1973. The written justification stated the old carpet was excessively worn. Although no priority was established, we found no evidence which suggested that the carpet was given higher priority than needed medical supplies and equipment.

#### CONCLUSIONS

We believe that, for the most part, the statements about Brooke Army Medical Center have merit. However, the hospital commander and the Office of the Surgeon General are aware of these matters and are taking action to correct some of the deficiencies. The acting hospital commander advised us that concerted effort is being made to obtain funds for partial implementation of consultants' recommendations and this will lead to the correction of some deficiencies. He emphasized, however, that the hospital will continue to operate in three separate buildings until a new facility is constructed.

Brooke Army Medical Center officials and the hospital consultant believe that, even with the extensive modifications in process and planned, the Beach Pavilion can never be efficiently operated. Facility deficiencies appear to hamper the efficient use of medical personnel. We believe medical personnel should be used as efficiently as possible, particularly since a shortage is expected because of an all-volunteer force. Pending determination of the type of replacement facility warranted and its subsequent construction, we believe the Office of the Army Surgeon General should determine whether other Federal health facilities in the San Antonio area can handle all or part of the Beach Pavilion's present patient workload. If such facilities can provide quality care more efficiently, we believe the Army Surgeon General should consider transferring patients from the Beach Pavilion to these other Federal facilities.

Although action is being taken or planned to correct several of the cited deficiencies, we believe the relocation of the coronary care unit should receive top priority. The recent study by the hospital consultants recommended moving the Department of Medicine, including the Cardiology Service and the coronary care unit, to the Main Hospital as part of a plan to consolidate medical services. This would facilitate the rapid movement of heart attack victims from the emergency room to cardiology or cardiology personnel could be called to the emergency room to provide specialized medical services.

#### RECOMMENDATIONS

In view of the extreme importance of promptly providing specialized medical services to heart attack patients, we recommend that the Secretary of Defense initiate immediate action to transfer the coronary care unit from the Beach Pavilion to the Main Hospital. Further, we recommend that, if other Federal facilities in the San Antonio area are capable of efficiently delivering quality care to all or part of the Beach Pavilion's present patient workload, the Secretary determine the feasibility of transferring patients from the Beach Pavilion to these other facilities.

AGENCY COMMENTS

On July 13, 1973, we received written comments from the Assistant Secretary of Defense (Health and Environment), on our draft report. (See app. II.) We had previously met on July 6, 1973, with officials of his office and received oral comments. At that time, the DOD officials stated that the report is a fair representation of the conditions at Brooke Army Medical Center.

The DOD letter of July 13, 1973, stated that DOD agrees that the physical facilities at the Medical Center leave much to be desired. The letter stated further that "\* \* \* the allegation that the quality of care being provided in the Beach Pavilion is such that it warrants transfer of patients to other Federal facilities has no basis in fact." The question of the quality of medical care being provided is a matter of professional judgment upon which we made no conclusion. Several physicians we interviewed said that the effect of the substandard facilities on medical care could not be measured. While we recognize that the hospital meets the minimum accreditation standards of various groups, both physicians we interviewed and the hospital consultant cited numerous building deficiencies which made the delivery of medical care more difficult, inefficient, and uneconomical.

The letter also stated that no other Federal facility in the San Antonio area has the immediate capability to accept the additional Beach Pavilion workload. The feasibility of transferring patients from the Beach Pavilion to other Federal facilities in the San Antonio area if they are capable of efficiently delivering quality care to all, or part, of the present workload seems to us appropriate wherever it is practicable and advantageous. First, it would avoid using the inefficient and uneconomical Beach Pavilion facilities. Second, it would reduce the overcrowded conditions at the Beach Pavilion and thus should facilitate the delivery of more efficient and economical care at that facility. For example, a lower patient workload would enable doctors to work more efficiently by functioning at a more optimum ratio of examining rooms to physicians.

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In our July 6, 1973, meeting, DOD officials stated that DOD is exploring alternatives to the Department of the Army's request to replace the present hospital facilities at Brooke with new facilities capable of handling the current volume of activity. One of these alternatives is reducing the size of a new hospital to 200 beds and transferring any additional patient load to other hospitals in the area. This was recommended by a DOD onsite survey team composed of representatives of the Office of Management and Budget, the Veterans Administration, DOD, and a civilian medical consultant.

With regard to transferring the coronary care unit from the Beach Pavilion to the Main Hospital, the DOD letter stated that "\* \* \* there must be physical proximity of the CCU to the cardiac operating rooms and their personnel," and that "Transfer of services from the Beach Pavilion to the Main Hospital would be disruptive in nature and should not be accomplished." The letter also stated that DOD is experimenting with using a specialized coronary care ambulance and admitting coronary patients directly to the coronary care unit.

Physicians told us transferring patients between hospitals is medically undesirable because the patient is exposed to added risk and specialized medical care is delayed. Even with the use of a specialized ambulance, a patient must be moved between hospitals and this takes from 20 to 30 minutes. We also noted that some patients were being admitted directly to the coronary care unit. An emergency room physician told us that, if a greater number of patients were admitted directly to the coronary care unit, this might disrupt the efficiency of the unit because some of these patients might not actually have heart problems.

The letter also states that a defensewide plan for hospital replacement and modernization is currently being evaluated by DOD and that replacement of the Brooke Army Medical Center within the current 5-year construction program is being considered. The letter states that (1) the plan contemplates continued use of the Beach Pavilion until an orderly transfer of patients and training programs can be



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accomplished and (2) hasty dismantling of the training program at Brooke Army Medical Center would have a severe impact on the existing patient care program and a professionally damaging influence on currently assigned residents and interns which, because of the efforts to achieve an all-volunteer force, is undesirable.

The orderly transfer of patients from the Beach Pavilion and the necessity of avoiding damaging effects on assigned residents and interns are important. We fully concur that they should be given due consideration in transferring patient workload to other Government facilities in the San Antonio area.

We trust this information is responsive to your needs.

We are forwarding copies of this report to the Secretary of Defense and to the Department of the Army.

Sincerely yours,

A handwritten signature in cursive script that reads "James B. Peets". The signature is written in dark ink and is positioned above the typed name.

Comptroller General  
of the United States

SELECTED DEFICIENCIES IN THE  
PHYSICAL FACILITIES OF BROOKE  
ARMY MEDICAL CENTER (note a)

MAIN HOSPITAL

INPATIENT CARE AREAS

Nursing units

--Most patients are cared for in open wards divided into four-bed areas by partitions. One large toilet area serves about 25 patients.

GAO COMMENT: Physicians we interviewed said these conditions afforded patients little or no privacy and can adversely affect patient comfort and attitude.

--Individual patient areas are less than the normal square footage required by Federal regulations.

--Nearly half the patient areas are without windows.

--The nursing stations are small and are poorly designed. Medications are stored in the head nurse's office and nursing personnel have to walk through this office to obtain them.

--Utility rooms adjacent to most nursing stations are used to store both clean supply items and soiled laundry.

<sup>a</sup>Unless otherwise indicated, the deficiencies listed were contained in a January 22, 1973, hospital consultant report to the U.S. Army Engineer District, Fort Worth, Corps of Engineers. The report confirmed many of the deficiencies which we noted earlier and also covered hospital areas in which we did not concentrate our inquiries. Comments pertinent to the deficiencies cited by the consultant and additional deficiencies which we observed are appropriately indicated.

## APPENDIX I

- An enclosed porch used for inpatient care is accessible only by walking through other patient areas.

GAO COMMENT: We observed that the surgical recovery area is accessible only via the surgical intensive care unit.

- None of the open wards have handwash lavatories.

GAO COMMENT: We were told that this hampers or delays medical care because nursing personnel must either make frequent trips to wash their hands after treating patients or fail to do so.

### Obstetrical labor and delivery suite

- The suite has sufficient square footage but is poorly designed.
- Visitors to the obstetrical nursing unit and the newborn nurseries must pass by either the recovery room or the labor rooms. This is undesirable for a suite which should be afforded privacy.

### GAO observation

- In three of the five labor rooms the doorways were not wide enough to accommodate the labor room beds. Women in labor had to be transferred to litters narrow enough to fit through the doors. This was corrected during our review. One of the other labor rooms is so inadequate and inaccessible that it is rarely used.

### SURGERY

- Many of the functions and support areas normally found within the surgical suite, such as recovery room, supply storage, and female dressing room, are located adjacent to the suite, off a main corridor. This separation makes it impossible to establish proper traffic patterns.
- Additional instrument and equipment storage and locker facilities for surgeons are needed in the surgical operating suite.

--The Institute of Surgical Research nursing units is not designed to facilitate proper care and accommodations for severely burned patients. The units are separated by one floor and are located at opposite ends of the building, necessitating both horizontal and vertical traffic patterns. The Institute needs additional space and the units should be on the same floor.

GAO COMMENT: Physicians told us and we observed that burn patients being transferred between nursing units must pass through the radiology waiting area in the center of the building on the fourth floor.

#### GAO observations

- Both the Main Hospital and the Beach Pavilion have surgery, surgical/intensive care, and surgical recovery units. We were told that patients in one building requiring specialized surgery performed only in the other building must be transported by ambulance.
- During fiscal year 1972, 32,670 patients were moved by ambulance. We estimate that about 30,000 of these movements were on post, nearly all of which were between these 2 buildings.

### DIAGNOSTIC AND TREATMENT SERVICES

#### Blood bank

##### GAO observation

- The blood bank in the Main Hospital is separated from surgery in the Beach Pavilion. We were told that this delays health care and requires transporting blood to the Beach Pavilion.

#### Cytology

- Location of the Cytology Service on the second and fifth floors results in inefficient use of space and personnel.

## APPENDIX I

### General chemistry

- The general chemistry area needs additional work space.

### Occupational therapy

- This department is divided between the Main Hospital and the Beach Pavilion; additional space is required for supplies.

### Radiology

- Diagnostic radiology is divided between the two facilities. In the Main Hospital, radiology is in the center portion of the fourth floor. The waiting facilities are poor, and gowned male and female patients do not have separate waiting areas. File storage and clerical space are insufficient and the number of dressing rooms is inadequate.

- Film storage is a major problem in the Radiology Department. Films are stored in 12 different places within the Main Hospital. Film is also kept in the Beach Pavilion for patients treated there.

GAO COMMENT: We were told that some patients are X-rayed twice because of the difficulty in finding their films.

### Inhalation therapy

- More space is needed for inhalation therapy which is provided at both the Main Hospital and the Beach Pavilion.

## AMBULATORY SERVICES

### Emergency room

- The emergency room and the Main Hospital clinic are separated by one floor and are at opposite ends of the building which results in inefficient use of physicians.
- Trauma and routine outpatients are not separated because the emergency room also serves as a walk-in clinic and they are located and operated together.

GAO observations

- Hospital officials told us that the emergency room in the Main Hospital is staffed by five physicians assigned to the Department of Clinics. They said that 10 physicians rotate between the emergency room and the Main Hospital clinic, which operates on an appointment basis.
- Since the emergency room is in the Main Hospital, an ambulance ride is necessary for emergency patients who require medical and surgical services in the Beach Pavilion. This, we were told, delays health care and exposes the patient to added risk.
- Hospital officials told us the workload requires five doctors, but there are only three examining rooms and this results in inefficient use of physicians.
- The patient waiting facilities appear inadequate. The emergency room has only one waiting room, and on several occasions it was so crowded that people were waiting in a hallway which is a major thoroughfare.
- The emergency facility has no isolation room for patients with contagious diseases.
- Traffic patterns in the emergency room were poor. Although the facility has three treatment rooms, one is small and we were told it is seldom used. One of the larger treatment rooms is accessible from the emergency entrance. The other is entered either through the larger treatment room or a supply storage room entered through the corridor used for waiting patients.
- The emergency facilities will be remodeled as part of the ongoing \$2.6 million military construction project, and we were told that some of the above problems will be corrected.

Obstetrics-Gynecology Clinic

- The Obstetrics-Gynecology Clinic is on the fifth floor. This clinic should be at ground level, contiguous to

## APPENDIX I

an outpatient entrance, and physically removed from the inpatient nursing unit.

- There are insufficient examining rooms in the Obstetrics-Gynecology Clinic. The clinic handles about 50,000 patient visits annually and could handle about 70,000 visits if there were enough examining rooms.

### GAO observation

- Hospital officials told us that the examining rooms are small, do not have floor-to-ceiling partitions, and afford little privacy. A physician said that many patients in this clinic will not discuss their problems because of the lack of privacy.

### MECHANICAL SYSTEMS

- The hospital has no sprinkler systems for fire protection. However, as a part of the ongoing construction project, sprinkler systems will be added where medical records and related files are kept.
- Storage rooms, the food service department, utility rooms, and toilets are not air-conditioned. Because of the climate in the San Antonio area, hospitals should be totally air-conditioned.
- There is no package conveyor, tray conveyor, or pneumatic tube system in the hospital to move materials.
- Separate oxygen and suction services are not available for mothers and infants in the delivery suite; and, although the emergency room, newborn nurseries, and inpatient care areas are equipped with piped oxygen, piped suction is generally not available. Acute care facilities should have these piped services throughout the patient care areas.

BEACH PAVILIONINPATIENT CARENursing units

- Because it was originally constructed as troop barracks, the Beach Pavilion Hospital does not permit the traffic patterns of a well-designed hospital. For example, if a patient in the northeast wing is transferred to a nursing unit in the southeast wing, he must traverse as many as eight nursing units.
- Most patients are in open wards divided into four-bed areas by partitions.
- The toilet accommodations are inadequate. Each nursing unit has 1 large toilet area which ordinarily has only 2 tubs, 2 showers, and 4 toilets which must serve up to 42 patients.
- Some patient beds are in main corridors.
- There are no handwash lavatories in most of the patient care areas.
- The support areas for the nursing units are inadequate.
- Nursing stations are extremely small and congested.
- Supply space is inadequate. To reach clean supplies it is necessary to walk through the soiled linen area.

Surgery

- The design of the surgical operating suite is very poor. Since the suite is the only connecting link between the north and south wings, an inordinate amount of traffic--staff, nursing personnel, and possibly other persons--passes through the surgical operating suite.
- The locker and toilet facilities are near the middle of the surgical suite. These facilities should be contiguous to the main entrance to provide a more sterile atmosphere.



## APPENDIX I

- The operating suite has no patient holding area. Therefore, patients arriving early for surgery must remain in the corridor until the operating room is available.
- Waste disposal containers are kept in the operating suite corridors.
- One operating room is unusable during the summer months because of inadequate air-conditioning. This situation will be improved by the ongoing \$2.6 million construction project.

### GAO observations

- Two operating rooms are connected by a common "scrub" area. When a certain type of operation is performed in one room, it is necessary to close the other to provide a more sterile atmosphere.
- Hospital records showed that the hospital contracted infection rate, expressed as a percent of discharges, was 5.9 percent for July 1972 through March 1973. Officials of the Office of the Army Surgeon General said this infection rate could not be effectively compared with that of other Army hospitals because the system of collecting and reporting data is not uniform.

## AMBULATORY SERVICES

### Orthopedic Clinic

#### GAO observation

- The Chief of Orthopedics said the Orthopedic Clinic, though recently remodeled, needs additional examination rooms. He said a minimum of 2 examination rooms per physician is needed for efficient use of doctors, and there are only 7 examining rooms for the 13 physicians assigned to the clinic. We did not determine whether the clinic workload justifies additional examination rooms or the number of doctors assigned. We noted, however, that the consultant's report stated the clinic has sufficient space to accommodate its volume of service.

Ophthalmology Clinic

--The volume of service justifies two additional waiting rooms.

Combined Medical Speciality Clinic

--This clinic needs a special treatment room, a clean supply area, and an additional examining room.

Pediatric Clinic

--Pediatric Clinic examination and treatment rooms are undersized, while other areas such as supply storage are oversized. The partitioning separating the examination rooms is inadequate.

Psychiatry, Neurology, and Social Work Clinics

--The individual offices and examination areas in the Psychiatry, Neurology, and Social Work Clinics are larger than necessary.

Allergy, Dermatology, and Ear, Nose, and Throat Clinics

--The Allergy Clinic needs two additional treatment rooms and the Dermatology Clinic needs three more treatment rooms. The Ear, Nose, and Throat Clinic examining rooms are undersized.

DIAGNOSTIC AND TREATMENT SERVICES

Cardiology service

--Additional space is needed for clean supply storage, equipment workroom and storage, EKG examination rooms, and the exercise room. The pulmonary function laboratory is about half the size normally provided for this service.

Electroencephalography service

--The patient testing rooms and the reading room need additional space.

## APPENDIX I

### Clinical laboratory

- The service could operate in a smaller area if the laboratory were located in one large area rather than being fragmented throughout the building.

### Radiology

- There are poor traffic patterns to the Radiology Department. All inpatients and outpatients approaching from the south wing must pass through the main lobby or be transported through the basement. An additional diagnostic room is needed.

### MECHANICAL SYSTEMS

- Air-conditioning provided by window units is inadequate and does not serve all areas. However, the building is being centrally air-conditioned as part of the ongoing \$2.6 million construction project.
- There is no automated materials-handling system.
- Electrical and plumbing systems are antiquated and inadequate for a hospital.

GAO COMMENT: Hospital officials advised us that grounded electrical outlets are lacking in some parts of the hospital which is dangerous because emergency equipment must be used without a ground. We were also informed that leakage in lines in the surgical operating suite is not uncommon.



ASSISTANT SECRETARY OF DEFENSE  
WASHINGTON, D. C. 20301

HEALTH AND  
ENVIRONMENT

13 JUL 1973

Honorable Elmer B. Staats  
Comptroller General of the United States  
Washington, D. C. 20548

Dear Mr. Staats:

On behalf of the Secretary of Defense, we have considered the findings, conclusion, and recommendations contained in the GAO Draft Report "Allegations on the Conditions and Operations of the Brooke Army Medical Center, Fort Sam Houston, San Antonio, Texas." (OSD Case #3645)

The Department of Defense fully agrees that physical facilities at Brooke Army Medical Center leave much to be desired. However, the allegation that the quality of care being provided in Beach Pavilion is such that it warrants transfer of patients to other Federal facilities has no basis in fact. The quality of patient care being provided at Brooke Army Medical Center, to include Beach Pavilion, is attested to by the fact that Brooke General Hospital is fully accredited by the Joint Commission on Accreditation of Hospitals. In addition, all medical residency and intern training programs are accredited by their respective civilian peer groups, to include the Council on Medical Education of the American Medical Association. These accreditations are conducted by nationally recognized civilian medical professional personnel and are based on detailed on-site surveys of all aspects of hospital operations as well as the physical facilities in which care is provided.

Beach Pavilion provides inpatient and outpatient services in some 15 different medical specialties. The extent of these services is such that no other Federal facility in the San Antonio area has the immediate capability to accept this additional workload.

Intra-aortic balloon diastolic augmentation pumping is performed in the Coronary Care Unit (CCU) on patients with acute myocardial infarction and severe heart failure. This is managed by the cardiac surgery team and may continue up to seven days. There must be physical proximity of the CCU to the cardiac operating rooms and their personnel. In spite of the obsolete physical facilities of BAMC, the professional staff has been providing superior medical care. Interim action has been initiated by the BAMC Commander to obtain a specialized coronary care ambulance for safe transportation of cardiac patients. Whenever possible, coronary patients are being diverted immediately to CCU, by-passing the emergency room and admitting office when these critical cases are brought to the hospital.

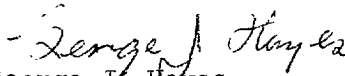
## APPENDIX II

As indicated in the detailed discussion of the hospital paging system beginning on page 11 of the draft report, there is a radio paging system throughout Brooke Army Medical Center. Any additional requirements for pagers will be funded as rapidly as they are identified. The entire paging system will be upgraded consistent with finalization of the system specifications under development by the Surgeon General as noted in the detailed discussion in the draft report. Priority for construction of the new medical service school was determined in light of its Army-wide training mission and the condition of the facilities it was occupying at that time. It is not possible to compare the benefits of construction of a school facility versus a hospital since the two serve uniquely different but equally important functions.

The Department of Defense is currently evaluating hospital replacement and modernization on a geographical and interdepartmental basis. The data pertaining to the San Antonio area indicates that there is need for a more comprehensive assessment of the medical facilities in that area and their interrelationships. Consideration is being given to a plan that calls for replacing Brooke General Hospital within the five year construction program. This plan does not eliminate the need to continue the use of the Beach Pavilion until an orderly transfer of patients and training programs can be accomplished. To hastily dismantle a training program that has existed for so long a period will have severe impact on the existing patient-care program and create an unwarranted and professionally damaging influence on the residents and interns assigned. This consideration is even more important now as the Defense Department moves to achieve an all-volunteer force. Transfer of services from the Beach Pavilion to the main hospital would be disruptive in nature and should not be accomplished. Proposals which would integrate the regional mission with the Wilford Hall Medical Center at Lackland Air Force Base are under discussion.

We appreciate the many helpful comments made to improve the military health delivery system that are contained in the draft report.

Sincerely,

  
George J. Hayes  
Major General, MC USA  
Principal Deputy

BEST DOCUMENT AVAILABLE