DOCUMENT RESUME

06270 - [B1646670] RELEASED

[Inappropriate Number of Hospital Beds Planned by Veterans Administration for Chicago Area]. HRD-78-127; B-133044. June 12, 1978. Released June 22, 1978. 2 pp. + 2 enclosures (19 pp.).

Report to Sen. William Proxmire, Chairman, Senate Committee on Appropriations: HUD-Independent Agencies Subcommittee; by Robert F. Keller, Acting Comptroller General.

Issue Area: Health Programs (1200); Health Programs: Quality Care and its Assurance (1213).
Contact: Human Resources Div.
Budget Function: Veterans Benefits and Services: Hospital and Medical Care for Veterans (703).
Organization Concerned: Veterans Administration; Veterans Administration: VA Hospital, North Chicago, IL; Chicago Medical School: Univ. of Health Sciences.
Congressional Relevance: Senate Committee on Appropriations: HUD-Independent Agencies Subcommittee. Sen. William Proxmire.
Authority: Veterans Hospitalization and Medical Services Modernization Amendments (38 U.S.C. 4101). P.L. 92-541.

The North Chicago Veterans Administration (VA) hospital was constructed in 1925 as a long-term neuropsychiatric facility with supporting medical and surgical capability. Since 1974, the hospital has attempted to expedite the return of psychiatric patients to the community and, concurrent with the reduction in the number of psychiatric beds, the hospital has taken steps to upgrade and expand its general medical and surgical role in VA Medical District 17. An affiliation was proposed with the University of Chicago Medical School. The transfer has not occurred, however, because the Department of Health, Education, and Welfare questioned the propriety of the university's proposed relocation and the VA's efforts to transfer land to the university. The hospital's plan to expand its acute-care capability was not based on demonstrated need; instead, it was based on the assumption that expanded capability would lead to increased demand for acute-care beds. The hospital's plan did not recognize the availability of existing acute-care medical and surgical beds at three other VA hospitals in the Chicago area. These beds are more than will be needed to meet projected 1985 acute-care requirements for the area. The VA is planning too many acute-care beds and too few long-term-care beds for the Chicago area. The Administrator of the VA should: suspend further expansion of the acute-care capabilities at the North Chicago VA hospital, reduce the number of acute-care beds at the hospital and redistribute them as necessary for long-term care, and reduce the number of acute-care beds at the other three VA hospitals and redistribute them as necessary for lower levels of care. (HRS)

6470

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

B-133044 June 12, 1978

RELEASED 6/22/78

The Honorable William Proxmire
Chairman, Subcommittee on
HUD-Independent Agencies
Committee on Appropriations
United States Senate

Dear Mr. Chairman:

In your April 29, 1976, letter, you asked us to review the Veterans Administration (VA) hospital-medical school affiliation program which was authorized by the Veterans Hospitalization and Medical Services Modernization Amendments of 1966 (38 U.S.C. 4101).

Enclosure I describes in detail the results of our review of VA's actions to convert the North Chicago VA hospital into a major general medical and surgical facility in affiliation with the University of Health Sciences/The Chicago Medical School. The enclosure specifically discusses

--VA's plans developed and actions taken to decrease the number of psychiatric beds and increase the number of acute medical-surgical beds at the North Chicago VA hospital;

--the availability of acute medical-surgical beds at the Hines, Lakeside, and West Side VA hospitals and community hospitals in the North Chicago area; and

--the appropriateness of developing and/or maintaining a large number of acute medical-surgical beds at the North Chicago hospital in view of the resources required and the existing supply of VA and community acute care beds in the area.

A separate report on the other aspects of the entire VA hospital-medical school affiliation program will be sent to you later.

Using the computer-based model which we developed to determine the acute care bed needs in hospitals, we found that the acute care beds of the Hines, Lakeside, and West Side VA hospitals, in total, are more than will be needed to

meet projected 1985 acute care requirements of veterans in the Chicago metropolitan area. In addition, our analysis showed that the mix of beds being planned by VA for its North Chicago hospital is inappropriate--VA is planning too many acute care beds and too few long-term beds. We believe that VA's actions to expand the acute medical-surgical capabilities at the North Chicago hospital will be costly and further contribute to the projected 1985 oversupply of VA acute care beds in the Chicago metropolitan area.

Accordingly, we are recommending that the Administrator of Veterans Affairs

--suspend further expansion of the acute medical-surgical capabilities at the North Chicago VA hospital,

--reduce the number of acute care beds at the North Chicago VA hospital and redistribute them as necessary to long-term care, and

--reduce the number of acute care beds at the Hines, Lakeside, and West Side VA hospitals while carefully considering our estimates of acute care bed needs for these hospitals.

As requested by your office, we did not obtain written comments from VA on the report. A draft of the report was furnished to program officials of VA's Department of Medicine and Surgery for informal review and their comments have been incorporated, where appropriate.

As agreed with your office, we have limited distribution of the report to VA. Also, as agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 10 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

ACTING Comptroller General
of the United States

Enclosures

- ACUTE CARE BEDS OF VETERANS ADMINISTRATION HOSPITALS IN THE CHICAGO METROPOLITAN AREA

INTRODUCTION

In a letter dated April 29, 1976, the Chairman, Subcommittee on HUD-Independent Agencies, Senate Committee on Appropriations, asked us to review the Veterans Administration (VA) hospital-medical school affiliation program which was authorized by the Veterans Hospitalization and Medical Services Modernization Amendments of 1966 (38 U.S.C. 4101).

The Chairman was particularly interested in the affiliation between the North Chicago VA hospital 1/ and the University of Health Sciences/The Chicago Medical School (University). He referred to reports 2/ emanating from the North Chicago hospital on mismanagement and a decline in the quality of care.

This report discusses the (1) appropriateness of converting the North Chicago hospital into a major general medical and surgical facility in order to achieve its affiliation with the University and (2) future adequacy of the number of acute care beds at the three other Chicago area VA hospitals--Hines, Lakeside, and West Side--and at community hospitals in the North Chicago area. A separate report on the other aspects of the entire VA hospital-medical school affiliation program will be issued later.

Background

VA is responsible for, among other things, providing medical care and treatment for the Nation's 29.4 million

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1/In April 1975 the North Chicago VA hospital, formerly known as the Downey VA hospital, was designated as a general medical and surgical hospital. The hospital, located in Lake County, Illinois, is a primary psychiatric care facility and also provides medical, surgical, and nursing care.

2/The reports regarding mismanagement and the quality of care at the North Chicago VA hospital were discussed in our earlier report to the Chairman, Subcommittee on HUD-Independent Agencies, Senate Committee on Appropriations (HRD-78-43, Jan. 31, 1978).

veterans. The Department of Medicine and Surgery (DM&S) administers VA's health care delivery system primarily through 172 hospitals, 213 outpatient clinics, 86 nursing home care facilities, and 18 domiciliaries. In fiscal year 1978, DM&S estimates that it will employ over 190,000 people and its budget is estimated to be about $4.9 billion.

DM&S has grouped its facilities into 28 medical districts. The North Chicago hospital and the three other VA hospitals in the Chicago metropolitan area discussed in this report constitute VA Medical District 17.

Scope of review

We held discussions with officials at VA's Central Office in Washington, D.C., and the North Chicago VA hospital, and a representative of the Health Systems Agency responsible for health planning in the North Chicago area.

We reviewed pertinent records, reports, and other documents available at VA Central Office and the North Chicago hospital.

Our source of statistical data on the use of VA hospitals was the magnetic tapes at VA's Data Processing Center, Austin, Texas. The tapes--the patient treatment file--contained information on all patients discharged from the four Chicago area VA hospitals in fiscal year 1976.

The basic data on community hospitals for use in this study were supplied by the Commission on Professional and Hospital Activities (CPHA), Ann Arbor, Michigan. In these data, the identities of individual hospitals were not revealed. Any analyses, interpretations, or conclusions based on these data are ours, and CPHA disclaims responsibility for any of them.

HISTORICAL PERSPECTIVE OF NORTH CHICAGO VA HOSPITAL

Since the North Chicago hospital was constructed in 1925, it has served primarily as a long-term neuropsychiatric facility with supporting medical and surgical capability to care for the acute care needs of its long-term patients. In fiscal year 1969, the hospital had an average operating-bed level of 2,487. By fiscal year 1971, this number had been reduced to 2,168 and included 1,313 psychiatric, 57 neuropsychiatric-tuberculosis, 260 physical medicine and rehabilitation, 388 general medical and surgical, and 150 nursing home care beds.

Since fiscal year 1972, the hospital has pursued a variety of treatment modalities to expedite the return of psychiatric patients to the community. Through this effort the number of psychiatric beds has been further reduced and redistributed. As of September 30, 1977, the hospital had 1,728 operating beds, an overall reduction of 759 beds since fiscal year 1969. The 1,728 operating beds were distributed in the following categories

--849 psychiatric,

--689 general medical and surgical, and

--190 nursing home care.

Of the 689 general medical and surgical beds, only the 75 beds allocated to the surgical service had less than a 30-day average length of stay.

Concurrent with the reduction in the number of psychiatric beds, the North Chicago hospital has taken steps to upgrade and expand its general medical and surgical role in VA Medical District 17. To facilitate this effort, VA proposed an affiliation with the University in September 1973. VA's proposal was made as a result of the University's intention to relocate from the west side of Chicago to the North Chicago area. On March 5, 1974, University officials met with VA's former Chief Medical Director to discuss the school's relocation plans and the development of a teaching affiliation with the North Chicago hospital. At that meeting, VA was asked to authorize (1) the timely development, through conversion of psychiatric beds or other means, of a substantial general medical and surgical service consisting of 450 to 500 acute care beds, (2) the acquisition by the school of 85 to 100 acres of VA land adjacent to the hospital, and (3) the temporary use of two VA buildings at the North Chicago hospital while the new educational facilities were being constructed.

On March 26, 1974, VA's Chief Medical Director advised the University that the North Chicago hospital already had 480 medical and surgical beds. He acknowledged that most patients in these beds had psychiatric illnesses, upon which medical illnesses had been superimposed, and that few nonpsychiatric, general medical and surgical patients were admitted directly to the hospital. The Chief Medical Director stated, however, that if the medical school relocated

to North Chicago VA hospital land, VA would actively solicit direct admissions from the surrounding community for nonpsychiatric general medical and surgical care. The Chief Medical Director further stated:

> "I have no way of forecasting the exact number of beds which would be needed to service the veteran population in the area, but I assure you that I would make available that number of beds which would be required. * * * We would expect that there would remain a significant psychiatric demand since this hospital services the Chicago Medical District."

In April 1974 the North Chicago VA hospital director advised the chairman of the University's board of trustees, that the hospital's psychiatric delivery area encompassed north central Illinois and parts of Indiana and Wisconsin and numbered over 1 million veterans, while the hospital's medical and surgical delivery area included Lake, Kane, and McHenry Counties in Illinois and served about 110,000 veterans. In defining these health service delivery areas, the hospital director noted that the areas were "quite flexible" and veterans may select any VA hospital. Therefore, the director stated, once the North Chicago hospital had established a reputation for delivering general medical and surgical care, it would attract veterans from the northern part of Cook County in Illinois and the southern portions of Wisconsin.

On July 26, 1974, the Administrator of Veterans Affairs formally confirmed the establishment of an affiliation between the University and the North Chicago hospital. Since then, VA has awarded a $9.1 million health manpower training grant, under Public Law 92-541, to the University. In awarding the grant, VA's Chief Medical Director stated that the grant was essential to the continued existence of the University, as well as to the integrity of VA's plan for converting the North Chicago hospital into a "first-class" teaching hospital. As part of this award, VA spent more than $600,000 in renovating two buildings at the North Chicago hospital to provide space for the University while its new educational facilities are being constructed.

The transfer of the VA land to the University has not been accomplished to date because the Department of Health,

Education, and Welfare (HEW), 1/ questioned the propriety of the University's proposed relocation and we 2/ questioned VA's efforts to transfer land to the University. This matter is presently being reviewed by VA Central Office.

UNWARRANTED DEVELOPMENT OF ACUTE CARE CAPABILITY AT NORTH CHICAGO VA HOSPITAL

The decision to develop or expand a hospital's medical care capability should be based on an accurate assessment of the demand for such care and the adequacy of existing medical resources to meet that demand. In the case of the North Chicago VA hospital, we found that the hospital's plan to expand its acute care capability was not based on demonstrated need. Rather, the hospital's plan was based on the assumption that expanded capability would lead to increased demand for acute care beds. Moreover, the hospital's plan did not fully recognize the availability of existing acute care medical and surgical beds at the Hines, Lakeside, and West Side VA hospitals. These beds, according to our estimate, are more than will be needed to meet projected 1985 acute care requirements of veterans in the Chicago metropolitan area.

VA Medical District 17 health service delivery area

The four Chicago-based VA hospitals--Hines, Lakeside, West Side, and North Chicago--are linked, through regionalization, to facilitate the delivery of care to an estimated 1.2 million veterans. Because of the population density in the area and the close proximity of the VA health care facilities, all four VA hospitals have been assigned the same primary service area. The term "primary service area" is used by VA for planning purposes and relates to a group of contiguous counties where most of the patients for whom a hospital provides medical care reside.

In July 1975, DM&S prepared a demographic analysis of hospital bed requirements for Medical District 17. The

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1/"An Impact Study of a Move By The University of Health Sciences/The Chicago Medical School to North Chicago, Illinois" (PHS 295-77-001, Mar. 27, 1977).

2/"Veterans Administration Land Transfers to Medical Schools: Propriety and Impact" (HRD-77-105, June 3, 1977).

purpose of the analysis was to estimate the bed requirements for fiscal year 1985 for each of the four Chicago area VA hospitals assuming (1) no change in their current missions and affiliations and (2) a change in the mission of the North Chicago hospital resulting from a strengthened affiliation with the University after its relocation.

According to the analysis, the veteran population in the district would decrease by about 76,000 from 1975 to 1985.

Estimated Veteran Population in VA Medical District 17

Age	As of June 30, 1975	Percent	As of June 30, 1985	Percent
17 to 24	48,000	4	24,000	2
25 to 44	471,000	40	369,000	33
45 to 54	392,000	33	227,000	21
55 to 64	190,000	16	319,000	29
65 and over	79,000	7	165,000	15
Total	1,180,000	100	1,104,000	100

As shown above, a significant shift in the age distribution of the Chicago veteran population is expected by 1985. Especially noteworthy are the VA estimates that about 23 percent of the veterans were age 55 years or older in fiscal year 1975 and its projection that this age group would increase to about 44 percent in fiscal year 1985. Veterans 55 years of age and older have significantly longer inpatient stays than younger veterans, according to VA's analysis.

The analysis noted that, as of June 16, 1975, the four Chicago area VA hospitals had available 2,407 acute care medical and surgical beds, excluding hemodialysis beds. The beds by type and hospital were distributed as follows:

Type of beds	Hines VA hospital	Lakeside VA hospital	West Side VA hospital	North Chicago VA hospital	Total beds
Medicine	497	222	238	335	1,292
Surgery	470	244	192	42	948
Neurology	79	29	21	38	167
Total	1,046	495	451	415	2,407

ENCLOSURE I

In commenting on the type of care provided by each of the hospitals during fiscal year 1975, the analysis indicated that the Hines, Lakeside, and West Side VA hospitals generally provided acute care, while most patients treated at North Chicago required long-term care. Therefore, in 1985 the North Chicago hospital, according to the analysis, should plan a bed supply to provide care for patients who are older, more chronically ill, and incapacitated to a greater extent than those treated at the three other VA hospitals. VA's plan for the 5-year period ending in fiscal year 1982 for Medical District 17 indicates that, because the North Chicago hospital lacks a sufficient number of long-term care beds, the demand for long-term care will exceed the resources available. The plan proposes that (1) use of outplacement programs be increased, (2) alternative programs to hospitalization be developed, (3) lengths of stay be reduced by intensifying inpatient treatment, and (4) a district-operated satellite facility be established for followup of chronic medical and psychiatri- patients.

Acute care bed needs
for VA Medical District 17

According to VA's analysis, Medical District 17 will need 2,384 acute care medical and surgical beds in 1985. This, in our opinion, is a greater number of acute care beds than needed because VA's method of determining hospital bed requirements results in the wrong mix of acute and long-term care beds. VA generally estimates hospital bed requirements by using historical length of stay data and projecting hospital admissions and patient average length of stay in the hospital. However, lengths of stay in VA acute care hospitals are often longer than necessary because many VA hospitals lack an appropriate mix of acute and long-term care beds. Therefore, historical utilization data may not be appropriate for determining the number of acute care beds needed.

We used our computer-based hospital sizing model (see enc. II) to determine the number of acute care beds required in VA Medical District 17 in 1985 and found that only 1,332 acute care beds would be required--1,052 fewer than VA projected.

VA's calculation of bed requirements for 1985 for the Chicago area VA hospitals was based on the projected VA hospital admissions and average lengths of stay as shown on the following page.

ENCLOSURE I

VA Estimate of Acute Care Bed Requirements for 1985 for VA Medical District 17

VA hospital	Patient admissions	Average lengths of stay (days)	Acute care bed requirements
Hines	15,845	21.13	1,079
Lakeside	7,937	17.90	458
West Side	6,851	19.11	422
North Chicago	2,726	48.37	425
Total	33,359	22.17	2,384

Our model provides an estimate of acute care bed needs by accumulating the actual patient workload by diagnosis and age group, then adjusting it to reflect data on average lengths of stay in non-Federal community hospitals. Using our model, we

--analyzed the computerized patient records of each patient discharged from the four Chicago-based VA hospitals during fiscal year 1976,

--adjusted the acute care lengths of stay for these patients to the average lengths of stay of patients in the same age groups and with the same diagnosis in community hospitals,

--accumulated the patient days and, using VA estimates of expected changes in the veteran population size and age mix between fiscal years 1976 and 1985, developed projected total patient days, and

--used the projected total patient days to calculate the acute care bed requirements.

As shown on the following page, the model's projections of patient discharges 1/ and average lengths of stay led to a requirement of 1,332 acute care medical and surgical beds in the Chicago area in fiscal year 1985.

1/Patient discharges are used instead of admissions since VA patient data are based on discharges. Over time, admissions will equal discharges (including deaths and transfers).

ENCLOSURE I

Our Estimate of Acute Care Bed Requirements for 1985 in VA Medical District 17

VA hospital	Patient discharges	Average lengths of stay (days)	Acute care bed requirements
Hines	14,191	12.59	576
Lakeside	10,480	11.01	372
West Side	7,609	11.38	279
North Chicago	1,615	20.17	105
Total	33,895	12.19	1,332

We estimate that VA overstated its acute care bed requirments by 1,052 beds. Our estimate differs from VA's estimate in one fundamental way. Instead of assuming that current and historical lengths of stay represent the true acute care bed requirements, the model analyzes each patient episode of care separately and compares the length of stay to that of similar patients in community hospitals. In most cases, the model substitutes community hospital lengths of stay for the patient's actual length of stay. In our opinion, community hospital lengths of stay for patients of a given age and diagnosis better reflect true acute care bed needs.

ESTIMATED ACUTE CARE BEDS NEEDED FOR THE NORTH CHICAGO VA HOSPITAL

For VA planning purposes, the North Chicago VA hospital is responsible for providing medical care to more than 138,000 veterans estimated to reside in Lake, McHenry, and Kane Counties in northern Illinois in 1985.

The VA analysis discussed earlier noted that the North Chicago VA hospital in 1975 had available 415 acute care medical-surgical beds. VA's analysis indicated that when compared to the other Chicago VA hospitals, the North Chicago hospital provided care of a long-term nature, noting that only two of the hospital's medicine bed section wards provided acute care.

Using our model, we estimated that the 1976 acute care bed requirements for the North Chicago hospital to be 75 beds, or 340 less than the hospital's 1975 operating bed capacity. Our estimate of 75 beds supports VA's analysis in that most acute care beds at the North Chicago hospital are used for long-term care.

We believe that, at present, 75 acute care beds at North Chicago would be adequate to accommodate veterans both in the hospital's primary service area and those long-term care patients already hospitalized who develop acute care needs. Recognizing that in 1985 the hospital will need 105 acute care beds, VA should consider transferring patients with acute care needs to other Chicago area VA hospitals with existing acute care facilities and resources.

OTHER STUDIES QUESTIONING ACUTE CARE BED NEEDS AT THE NORTH CHICAGO VA HOSPITAL

Two other reports have raised questions concerning the appropriateness of increasing the acute care capabilities at the North Chicago VA hospital. Both concluded that there were already sufficient acute care capabilities available in VA Medical District 17, excluding the North Chicago hospital, to meet the health care needs of veterans in the area. A discussion of these studies follows.

Illinois Comprehensive State Health Planning Agency Report

On January 31, 1975, shortly after VA awarded a Public Law 92-541 training grant to the University, the Illinois Comprehensive State Health Planning Agency provided VA with the results of its review of the University's grant application. As part of its report, the planning agency raised the following issues and concerns:

--"* * * the [North Chicago] Veterans Administration Hospital * * * is a psychiatric hospital which as a result of the changing nature of psychiatric care and treatment now taking place throughout the Nation, is faced with a decreasing demand for hospitalization and so is phasing-down its inpatient beds and augmenting its out-patient services for psychiatric patients;

--"the approval of the University of Health Services/The Chicago Medical School grant applications and the Veterans Administration Hospital, * * * [North Chicago], request for certain remodeling and renovation funds would have the effect of bringing about a conversion of Veterans Administration Hospital * * * [North Chicago] to another general medical-surgical hospital;

--"there are sufficient general medical-surgical beds and facilities in the three existing general medical-surgical hospitals of the Veterans Administration (* * * [Lakeside], West Side, and Hines) to meet the needs of all eligible veterans in [the] VA Medical district * * *; and

--"any program or project which would have this effect is neither in the public interest generally nor in the particular interests of the Veterans Administration."

Based on these issues and concerns, the planning agency concluded that there was not a demonstrated need to develop additional general medical-surgical beds in VA Medical District 17 and recommended that an effective utilization review be performed to determine if district-wide veteran health care needs could be met with even fewer beds.

The planning agency conservatively estimated that 2,228 general medical-surgical beds, operating at an average occupancy rate of 88 percent, were needed in VA Medical District 17 in 1974, and noted that the 3 VA hospitals, excluding North Chicago, were already operating 2,253 acute care medical-surgical beds, or 25 more beds than required. Assuming that the Hines, Lakeside, and West Side VA hospitals were unable to meet the general medical-surgical needs of veterans in the Illinois counties of Lake, Kane, and McHenry (the North Chicago VA hospital's primary service area), the planning agency estimated that in 1974, the North Chicago hospital would require 218 acute care, general medical-surgical beds, assuming an occupancy rate of 88 percent. The planning agency emphasized that its computation of 218 beds allowed for a 24-day average length of stay, and if the average length of stay were reduced, the number of beds needed would be reduced proportionately.

HEW contract study

In November 1976, HEW awarded a contract to Chicago Healthcare Associates to, among other things, make an impact study of the University's proposed relocation. As part of this study, the contractor examined the existing acute care bed supply in the Chicago area and, in particular, the medical-surgical patient demand at the North Chicago VA hospital.

The contractor was unable to obtain sufficient information to perform a complete analysis of the veterans' average lengths of stay in acute care beds but did analyze the average lengths of stay for direct admissions to the North Chicago hospital for a 7-month period ending January 1977. This analysis showed that the average length of stay was 19.4 days and the median age of the patients admitted was 51 years. The contractor pointed out that the average length of stay for patients 51 years old discharged from community hospitals was about 8 days.

The contractor concluded that the affiliation with the University had encouraged the North Chicago VA hospital to expand general medical and surgical services and upgrade certain existing services. Furthermore, the contractor pointed out that veterans in the area could be effectively served by existing VA hospitals and other community hospitals. The contractor questioned the need to convert the North Chicago hospital into a major general medical and surgical hospital because he believed it was more cost effective to use existing facilities.

ADEQUACY OF ACUTE AND LONG-TERM COMMUNITY HOSPITAL BEDS IN THE NORTH CHICAGO AREA

The Executive Director of the Health Systems Agency covering Lake, Kane, and McHenry Counties told us that the community hospitals in these counties currently have 3,493 acute care beds. Furthermore, he added that according to its 1980 estimates, assuming no new construction, the counties would have 392 more acute care beds than needed. These estimates, he said, consider the total population of the three counties, including veterans, but exclude the existing facilities of the North Chicago VA hospital.

CONCLUSIONS

The number of acute care beds at the Hines, Lakeside, and West Side VA hospitals is more than will be needed to meet the projected acute care demand in 1985 for Medical District 17. Based on our analysis, we believe that the number of acute care beds being planned by VA for its North Chicago hospital is inappropriate--VA is planning too many acute care beds and too few long-term care beds. In planning the hospital's bed requirements, VA did not adequately consider the availability of existing acute care resources at the three other VA hospitals in the Chicago metropolitan area. Instead, VA assumed that expanded

medical-surgical capability at the North Chicago hospital would lead to increased demand for acute care. Based on our analysis, we believe that conversion of the excess acute care beds at the North Chicago VA hospital to long-term care beds would improve the hospital's long-term care resources--resources considered by VA planners to be insufficient to meet patient demand for long-term care. We further believe that continued action to expand the acute care capabilities of the North Chicago hospital will be costly and further contribute to the oversupply of acute care beds in Medical District 17. In addition, we believe that VA should carefully consider our estimate of acute care bed requirements for the other three Chicago VA hospitals for the purpose of determining whether fewer beds would suffice.

RECOMMENDATIONS TO THE ADMINISTRATOR OF VETERANS AFFAIRS

We recommend that the Administrator:

--suspend further expansion of the acute care medical-surgical capabilities at the North Chicago VA hospital;

--reduce the number of acute care beds at the North Chicago VA hospital and redistribute them as necessary for long-term care; and

--reduce the number of acute care beds at the Hines, Lakeside, and West Side VA hospitals, carefully considering our estimates, and redistribute them as necessary to lower levels of care.

ENCLOSURE II

GAO MODEL FOR ESTIMATING BED NEEDS FOR VA HOSPITALS

This enclosure describes the methodology we used in estimating the number and mix of acute care bed needs for VA hospitals. During an earlier review of the Department of Defense's (DOD's) planning for the San Diego Naval Hospital, 1/ we developed a computer-based model for determining the acute care bed needs in military hospitals. In July 1976 the Congress adopted a conference report on the military construction appropriations bill for fiscal year 1977, stating that acute care bed requirements for active duty members and their dependents throughout DOD should be calculated using our model. DOD is currently using the model to plan the size of its hospital facilities.

The version of the model which we used to analyze DOD hospitals has been modified and expanded to accommodate the unique characteristics of the VA hospital system. The current version provides detailed estimates of acute care bed requirements for each hospital department (e.g., medicine, surgery, neurology), rather than only one estimate of total acute care bed needs as provided in our DOD model.

DETERMINATION OF ACUTE CARE LENGTH OF STAY

Our model provides an estimate of the number of days each patient should have spent in an acute care setting before being transferred to a lower-care level, or discharged from the hospital. This estimate is based on a data bank of hospital patient statistics compiled by the Commission on Professional and Hospital Activities.

The Commission's Professional Activity Study (PAS) publishes average length of stay statistics by diagnostic category and age of patients discharged from PAS-member hospitals. Our model assumes that the valid acute care length of stay of VA hospital patients is equal to the average length of stay for similar patients discharged from PAS-member hospitals. The additional time actually spent by patients in VA hospitals is assumed to have required a lower level of care.

1/"Policy Changes and More Realistic Planning Can Reduce Size of New San Diego Naval Hospital" (MWD-76-117, Apr. 7, 1976.)

ENCLOSURE II

The PAS statistics are published regionally and for the Nation as a whole. In analyzing the bed needs for VA hospitals, we used the nationwide PAS statistics which were based on data compiled from 13.2 million inpatients discharged during 1974 from 1,801 member hospitals--40.2 percent of all non-Federal hospitals--with a total of 374,612 beds. Member hospitals use the PAS data to measure their efficiency in treating patients.

The PAS system categorizes 349 primary diagnoses. The average length of stay can be determined by knowing (1) the patient's age, (2) the primary diagnosis, (3) if the patient has a single or multiple diagnosis, and (4) if the patient underwent surgery. The value of the data is enhanced by "variance" figures which indicate their degree of reliability. In general terms the lower the variance, the smaller the deviation of individual length of stay from the average. PAS also provides length of stay figures on a percentile basis. For example, the length of stay figure at the 95th percentile is exceeded by only 5 percent of the population.

The chart on the following page is an example of data available for one diagnostic group. It illustrates, for patients aged 20 to 34 years with a single diagnosis of acute appendicitis without peritonitis, who were operated on, that:

--The total number of patients reported on was 18,910.

--The average length of stay was 4.7 days.

--The variance value was 6.

--Five percent of the total patients had a length of stay of 8 days or more.

The model uses 1974 PAS statistics as the basis for adjusting patient stays. Because of the declining trend in average length of stay in recent years, use of the 1974 PAS data base probably assigns more acute care bed days to each patient than will be required in the future, resulting in a conservative bed estimate. Since PAS length of stay statistics do not include patients who died, we used the actual VA hospital length of stay for these patients without making any adjustment.

Special consideration was given to patients who had stayed in the hospital for 100 days or more. PAS average

ENCLOSURE II

178: Acute appendicitis without peritonitis (540.0)

TYPE OF PATIENT (1)	TOTAL PATIENTS (2)	AVG. STAY (3)	VARIANCE (4)	PERCENTILES 5th (5)	10th (6)	50th (7)	75th (8)	90th (9)	95th (10)	99th (11)
1. SINGLE DX										
A. *Not Operated*										
0-19 YRS	636	2.7	7	1	1	2	3	5	7	10
20-34	343	2.1	6	1	1	2	4	5	7	8
35-49	100	3.3	6	1	1	3	5	7	9	12
50-64	63	4.1	9	1	1	3	5	7	10	16
65+	31	5.3	10	<1	2	5	7	10	11	13
B. *Operated*										
0-19 YRS	32131	4.4	5	2	3	4	5	7	8	12
20-34	19910	4.7	6	2	3	4	6	7	9	12
35-49	5298	5.5	8	3	3	5	6	8	10	15
50-64	2498	6.4	12	3	3	6	8	10	13	19
65+	713	8.2	19	3	4	7	10	14	16	24
2. MULTIPLE DX										
A. *Not Operated*										
0-19 YRS	225	3.3	8	1	1	2	4	6	9	17
20-34	181	3.9	6	1	1	3	5	8	9	12
35-49	64	5.3	33	2	2	4	6	9	11	40
50-64	51	6.8	19	2	2	6	9	14	15	21
65+	45	8.3	31	2	3	7	10	16	22	24
B. *Operated*										
0-19 YRS	5746	6.4	18	3	3	5	7	11	14	22
20-34	4132	6.8	19	3	3	6	8	11	14	23
35-49	1619	8.4	28	3	4	7	10	15	19	28
50-64	1182	10.7	57	4	4	9	13	19	24	41
65+	712	13.2	74	4	5	11	16	23	29	46
SUBTOTALS:										
1. SINGLE DX										
A. *Not Operated*	1173	3.0	7	1	1	2	4	6	7	11
B. *Operated*	64550	4.7	6	2	3	4	5	7	8	13
2. MULTIPLE DX										
A. *Not Operated*	566	4.4	16	1	1	3	5	9	11	21
B. *Operated*	13391	7.5	29	3	3	6	9	13	17	28
1. SINGLE DX	65723	4.7	6	2	3	4	5	7	8	13
2. MULTIPLE DX	13957	7.4	29	3	3	6	9	13	17	28
A. NOT OPERATED	1739	3.4	10	1	1	3	4	7	9	16
B. OPERATED	77941	5.2	11	2	3	4	6	8	11	18
TOTAL 0-19 YRS	43738	4.6	7	2	3	4	5	7	9	14
20-34	23566	5.0	9	2	3	4	6	8	10	15
35-49	7081	6.1	14	3	3	5	7	10	13	20
50-64	3794	7.7	30	3	3	6	9	14	18	28
65+	1501	10.5	52	4	4	9	13	19	24	37
GRAND TOTAL	79680	5.1	11	2	3	4	6	8	10	18

Source: "Length of Stay in PAS Hospitals," Commission on Professional and Hospital Activities, 1974.

length of stay figures do not include these individuals, but PAS percentile distribution data does. We determined the community hospital length of stay for each patient who had stayed 100 days or longer by using PAS data corresponding to the 95th percentile.

DETERMINATION OF 1985 VA HOSPITAL DISCHARGES

Our model determines future VA hospital patient discharges by considering the age mix of patients who were discharged from the VA hospital during 1976 and relating the discharges to the age mix of veterans in the population in the same year. Then, based on expected changes in the size of each age group of the veteran population between 1976 and 1985 as provided by VA's Office of the Controller, the model projects proportional changes in hospital discharges for each age group. Since the veteran age mix is shifting toward older veterans, and older veterans tend to use VA hospitals at higher rates than younger veterans, the model generally predicts significant increases in patient demand between 1976 and 1985.

DETERMINATION OF ACUTE CARE BED REQUIREMENTS

Our model determines acute care bed requirements by analyzing the medical record of each VA patient recently discharged and adjusting the actual length of stay in the VA hospital to conform with the average length of stay for comparable diagnoses in non-Federal community hospitals. The model then projects future discharges based on the changing age distribution of the veteran population.

Adjustment of each VA hospital's acute care workload was accomplished by using a computer program designed to:

--Accumulate the actual patient-days for each patient discharged from VA hospitals during fiscal year 1976.

--Extract from the data each patient's primary diagnosis and age, whether the patient had a single or multiple diagnosis and whether the patient underwent surgery.

--Match each patient's characteristics with those of corresponding patients discharged from community hospitals during 1974, based on PAS information.

--Accumulate the corresponding PAS average length of stay for patients discharged from VA hospitals during fiscal year 1976.

Using the above steps, the model calculated the total number of acute care bed-days required for each patient discharged from VA hospitals in fiscal year 1976, adjusted to conform with non-Federal hospital stays for similar patients. The computer was also programed to keep track of bed requirements by age category. We determined the number of acute care beds needed in a given hospital by calculating the average number of beds occupied on any given day and adding a factor to allow for an 85-percent occupancy rate in medicine, surgery, and neurology. These occupany rates are consistent with VA's.

Using the procedures described above, our model determined the number of patient discharges and the valid acute care bed requirements in 1976 for each of five patient age groups. Each age group is expected to change significantly between 1976 and 1985 because of the shift toward older patients. By determining the patient discharges and acute care bed requirements for each 1,000 veterans in 1976, according to age category, and, considering the shifts expected in the veteran age profile, our model can then project acute care requirements to 1985.

Although our model assumes that the average length of stay for each individual age group in 1976 will remain constant, veterans in older age groups tend to require longer average stays in hospitals than younger veterans. Therefore, with the expected shift in patient mix toward older veterans, our model predicts an overall increase in hospital average lengths of stay.

COMPUTER ASPECTS OF OUR MODEL

The flowchart on the following page depicts the decision logic used by the computer in carrying out the steps of our model. The computer program is coded in COBOL and requires two primary data inputs in the form of magnetic tapes--the National Commission on Professional and Hospital Activities or PAS data tape, and the VA patient treatment files for the hospital being analyzed. Both tapes are readily available. Approximately $30 of computer time is required to completely analyze each hospital.

ENCLOSURE II

SEQUENCE OF OPERATIONS IN DETERMINATION OF HOSPITAL SIZE