

**DOCUMENT RESUME**

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**Constructing New VA Hospital in Camden, New Jersey, Unjustified.**  
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**Report to Sen. William Proxmire, Chairman, Senate Committee on Appropriations; HUD-Independent Agencies Subcommittee; by Elmer B. Staats, Comptroller General.**

**Issue Area: Health Programs (1200); Health Programs: Health Providers (1202).**

**Contact: Human Resources Div.**

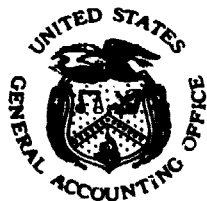
**Budget Function: Health: Health Planning and Construction (554); Veterans Benefits and Services: Hospital and Medical Care for Veterans (703).**

**Organization Concerned: Veterans Administration.**

**Congressional Relevance: House Committee on Veterans' Affairs; Senate Committee on Veterans' Affairs. Sen. William Proxmire.**

As part of its construction program, the Veterans Administration (VA) planned to build a new hospital in Camden, New Jersey, at estimated construction costs of \$75.3 million and estimated annual operating costs of about \$32 million. The proposed hospital is not a replacement of a VA hospital but an addition. **Findings/Conclusions:** The basis for justifying the new hospital was an analysis of veterans' medical needs in the Philadelphia area, but the VA used several invalid assumptions. VA's assumption that admissions to the Philadelphia VA hospital are constrained by a low bed supply is incorrect in view of more current information which indicates that this hospital, located 7 miles from the site of the proposed hospital, is adequate in size to support the entire 1985 medical and surgical requirements of veterans in the area. However, a new VA nursing home care unit may be needed. The assumption that the Philadelphia VA hospital length of stay data are an accurate measure of future acute care stays is incorrect since the data are a mixture of acute, intermediate, and nursing home care stays. VA could not explain, from a priority standpoint, the basis used to select the Philadelphia/Camden area for a new hospital as opposed to another location in the United States. **Recommendations:** The Subcommittee should reject funding for a new VA hospital in Camden, New Jersey, but consider construction or acquisition of an area VA nursing home after VA completes its nationwide study of nursing home requirements. It should also require that VA justify all new hospital construction proposals in terms of priority on the basis of objective criteria before funding is approved. VA should use the criteria to evaluate and compare the current level of adequacy of VA hospitals nationwide in meeting veterans' medical needs and assign the highest priority for new hospital construction in areas where present hospitals are least able to provide high quality care. (HTW)

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# **REPORT OF THE COMPTROLLER GENERAL OF THE UNITED STATES**

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## **Constructing New VA Hospital in Camden, New Jersey, Unjustified**

The Chairman of the Subcommittee on HUD-Independent Agencies, Senate Committee on Appropriations, asked GAO to review VA's plans to build a new hospital in Camden, New Jersey.

GAO believes that VA's assumptions used to justify the hospital were not valid. Estimated construction costs were \$75.3 million and annual operating costs were estimated to be about \$32 million. In its fiscal year 1979 budget submission to the Congress, VA proposed that plans for the new hospital be eliminated. It plans, instead, to build both an outpatient clinic in Camden and a nursing home in Philadelphia.



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

B-133044

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

Dear Mr. Chairman:

In response to your January 4, 1977, request, this is our report on the Veterans Administration's ('A's) planning process used to justify a new hospital in Camden, New Jersey.

We do not believe that the hospital should be built since VA's assumptions in planning the hospital were not valid. We believe that the present hospital in Philadelphia can handle the projected workload for area veterans. A nursing home, however, may be needed in Philadelphia.

At your request, we did not obtain formal written comments from VA. We did, however, discuss matters covered in the report with VA officials and their comments have been incorporated where appropriate. In its fiscal year 1979 budget submission to the Congress, VA proposed that plans for the new hospital be eliminated. It plans, instead, to build both an outpatient clinic in Camden and a 120-bed nursing home in Philadelphia.

As agreed with your office we are sending copies to the Chairmen of the Senate and House Committees on Veterans Affairs, and the Subcommittee on HUD-Independent Agencies, House Committee on Appropriations; the Director of the Office of Management and Budget; and the Administrator of Veterans Affairs.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Luther B. Stastek".

Comptroller General  
of the United States

COMPTROLLER GENERAL'S  
REPORT TO THE SUBCOMMITTEE  
ON HUD-INDEPENDENT AGENCIES  
SENATE COMMITTEE ON APPROPRIATIONS

CONSTRUCTING NEW VA  
HOSPITAL IN CAMDEN,  
NEW JERSEY, UNJUSTIFIED

D I G E S T

As part of its construction program the Veterans Administration (VA) planned to build a new VA hospital in Camden, New Jersey. GAO analyzed the methods used by VA to determine the size requirements of the hospital.

The proposed VA hospital in Camden is not a replacement of a VA hospital, but an addition to the VA system. Its construction is not justified. Avoiding construction of the new hospital would save approximately \$70 million in construction funds and about \$32 million per year in operating expenses.

The basis for justifying the new hospital was an analysis of veterans' medical needs in the Philadelphia area, but VA used invalid assumptions:

--Admissions to the Philadelphia VA hospital are constrained by a low bed supply.

--The Philadelphia VA hospital length of stay data is an accurate measure of future acute care stays, when actually the data is a mixture of acute, intermediate, and nursing home care stays.

When VA's assumptions are modified to be in line with more current information--not available at the time VA made its study--GAO's projections show that the Philadelphia VA hospital, located 7 miles from the site of the proposed new Camden hospital, is adequate in size to support the entire 1985 medical and surgical requirements of veterans in the area. Construction or acquisition of a new VA nursing home care unit, however, may be needed.

GAO recommends that the Subcommittee on HUD-Independent Agencies, Senate Committee on Appropriations reject funding for a new VA hospital in Camden, New Jersey, but consider construction or acquisition of an area VA nursing home after VA completes its nationwide study of nursing home requirements and if the study demonstrates a need for the nursing home.

VA could not explain, from a priority standpoint, the basis used to select the Philadelphia/Camden area for a new VA hospital as opposed to another location in the United States. VA was unable to provide any study showing why the Camden area is more in need of an additional VA hospital than all other areas of the Nation.

The Subcommittee should require that VA justify all new hospital construction proposals in terms of priority, on the basis of a clear and explicit set of objective criteria before funding is approved. VA should use the criteria to evaluate and compare the current level of adequacy of VA hospitals nationwide in meeting the medical needs of veterans. Highest priority for new VA hospital construction should be established in areas of the Nation where present VA hospitals are least able to provide high quality medical care to veterans.

The Subcommittee directed GAO not to obtain written comments from VA; however, GAO informally discussed the report with VA officials.

#### AGENCY ACTIONS

VA proposed in its fiscal year 1979 budget submission to the Congress that the Camden hospital project be eliminated. It plans, instead, to build both an outpatient clinic in Camden and a nursing home care unit in Philadelphia.

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ABBREVIATIONS

<b>DOD</b>	Department of Defense
<b>HEW</b>	Department of Health, Education, and Welfare
<b>HSAs</b>	Health Systems Agencies
<b>NAS</b>	National Academy of Sciences
<b>PAS</b>	Professional Activity Study

## CHAPTER I

### INTRODUCTION

In a letter dated January 4, 1977, the Chairman, Subcommittee on HUD-Independent Agencies, Senate Committee on Appropriations, requested that we make a comprehensive evaluation of the process the Veterans Administration (VA) uses to determine the bed size of new and replacement health care facilities.

According to the Chairman's letter, he was concerned about construction costs associated with VA hospitals. He referred to a May 1976 announcement by the President to build eight VA hospitals--seven replacement and one new--at a cost in excess of \$800 million and was concerned that VA build hospitals of the appropriate size and mix of beds (acute care and nursing home care).

The proposed hospitals are listed below in VA's order of construction priority.

- Richmond, Virginia
- Bay Pines, Florida
- Martinsburg, West Virginia
- Little Rock, Arkansas
- Portland, Oregon
- Seattle, Washington
- Baltimore, Maryland
- Camden, New Jersey (new)

This report discusses VA's proposed new hospital in Camden, New Jersey. The results of our analysis for the seven replacement hospitals are contained in two separate reports--one issued in May 1977 <sup>1</sup>/ for three hospitals and a report now in process on the remaining four.

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<sup>1</sup>/Letter report to the Chairman, Subcommittee on HUD-Independent Agencies, Senate Committee on Appropriations (HRD-77-104).

The VA facility in Camden was to consist of a 360-bed hospital and a 120-bed nursing home care unit. Estimated construction costs totaled \$75.3 million--\$70.2 million for the hospital and \$5.1 million for the nursing home.

In its fiscal year budget submission to the Congress in January 1978, VA stated that it no longer planned to build the hospital. VA plans, instead, to build both an outpatient clinic in Camden and a 120-bed nursing home in Philadelphia.

#### SCOPE OF REVIEW

Our review included discussions with officials of the VA central office in Washington, D.C., and Philadelphia, Pennsylvania; with officials of the New Jersey State Department of Health; physicians in the Camden, New Jersey area; and with representatives of Health Systems Agencies (HSAs) in Philadelphia, Pennsylvania, and Camden, New Jersey.

We reviewed pertinent records, reports, and other documents available at the VA central office and at the Philadelphia VA hospital.

Our source of statistical data on the utilization of the Philadelphia VA hospital was a magnetic tape maintained at VA's Data Processing Center, Austin, Texas. The tape contained information on all patients discharged from the Philadelphia VA hospital in fiscal year 1976. The tape was validated by selecting a random sample of patient data and checking it against medical records on file at the hospital. Fiscal year 1976 and 1985 veteran population statistics were supplied by VA's Office of the Controller but we did not verify this data.

The basic data on community hospitals used in this study was supplied by the Commission on Professional and Hospital Activities, Ann Arbor, Michigan. This data did not reveal the identities of individual hospitals. Any analyses, interpretations, or conclusions based on this data are ours, and the Commission disclaims responsibility for any such analyses, interpretations, or conclusions.



## CHAPTER 2

### PROPOSED CONSTRUCTION OF A NEW VA HOSPITAL IN CAMDEN, NEW JERSEY, IS NOT JUSTIFIED

We believe that VA used invalid assumptions to justify the Camden VA hospital. The assumptions VA made were that (1) admissions to the Philadelphia VA hospital were constrained by a low bed supply, and (2) the Philadelphia VA hospital length of stay data was an accurate measure of acute care stays, when actually the data is a mixture of acute, intermediate, and nursing home care stays.

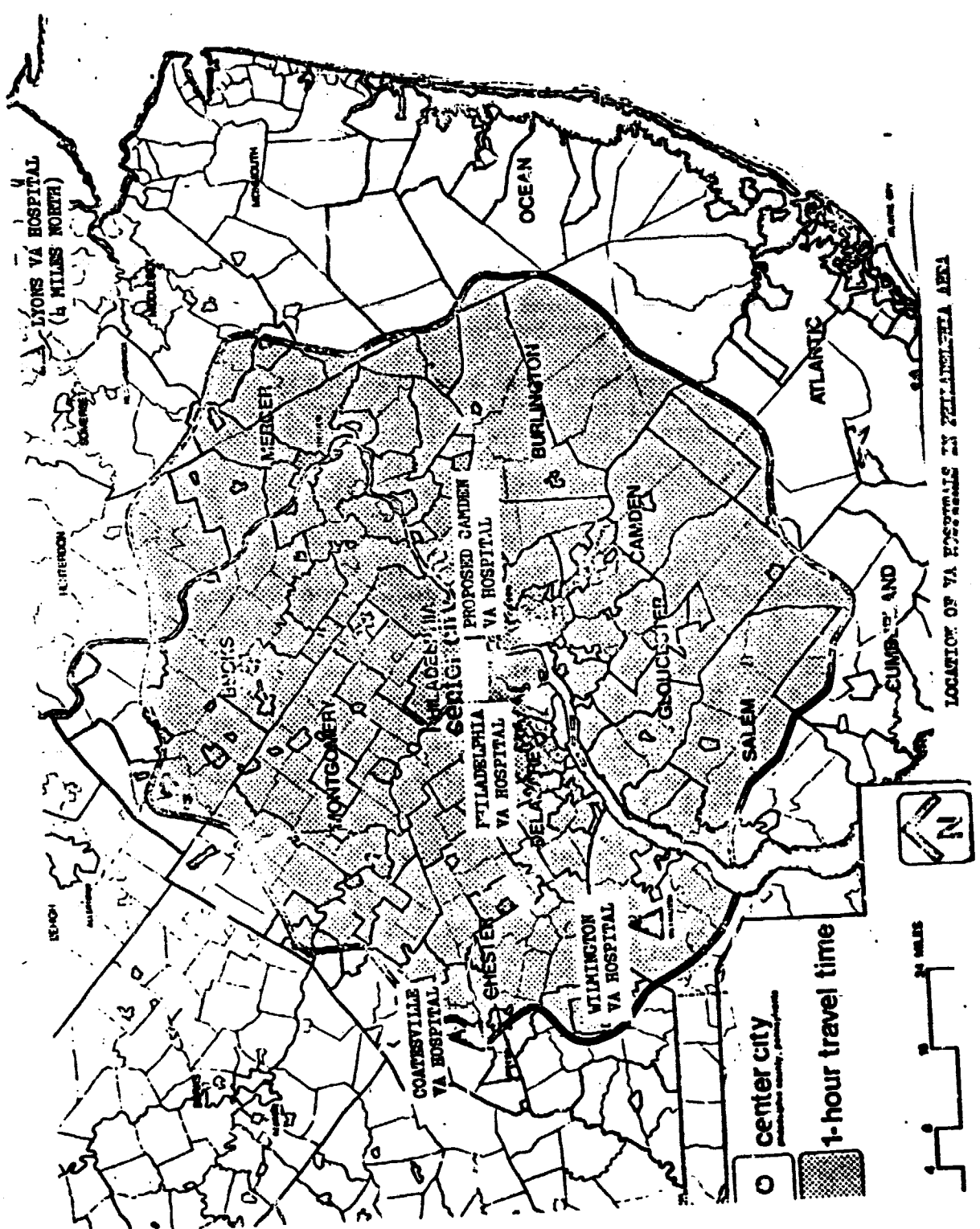
When VA's projections are modified to be in line with more current information--not available at the time VA made its study--our projections show that the present Philadelphia VA hospital can support the entire 1985 acute care hospital workload with the possible addition of a nursing home care unit.

Avoiding construction of a new VA hospital in Camden would save approximately \$70 million in construction costs and about \$32 million per year in operating expenses. Construction of a new VA medical and surgical hospital in Camden could also have decreased the occupancy rate of the Philadelphia VA hospital and other nearby Federal hospitals. It could also have adversely affected non-Federal community hospitals in the area by lowering occupancy rates in facilities which have a recognized surplus of acute care medical and surgical beds.

#### VA'S PROPOSAL FOR THE CAMDEN VA HOSPITAL

The proposed Camden VA hospital was to be located 7 miles from the existing Philadelphia VA hospital, affiliated with and adjacent to the proposed College of Medicine and Dentistry of New Jersey. The map on the following page shows the relationship of the Camden hospital to other nearby VA hospitals.

Bed reductions at other VA hospitals were proposed with construction of the Camden hospital. The Philadelphia hospital is currently operating 446 medical and surgical beds, and 44 psychiatric beds in space that VA considered marginal for an acute care teaching hospital. VA recommended transfer of 21 Philadelphia VA hospital medical and surgical



LOCATION OF VA HOSPITALS IN PHILADELPHIA AREA

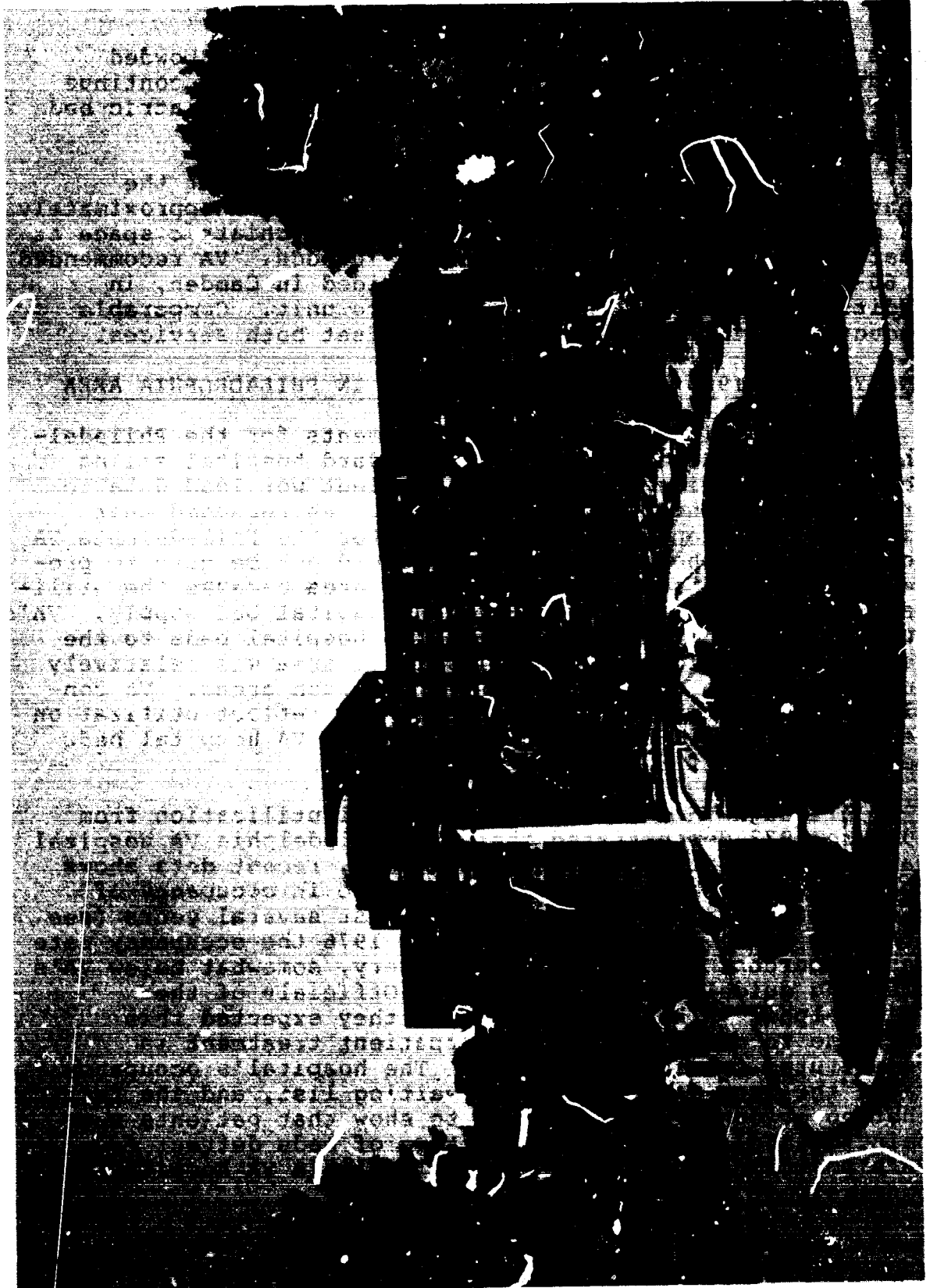
beds into the Camden hospital to alleviate overcrowded conditions. The Philadelphia VA hospital was to continue operating 425 medical and surgical, and 44 psychiatric beds after construction of the new Camden VA hospital.

Furthermore, bed reductions were proposed at the Coatesville, Pennsylvania, VA hospital located approximately 40 miles from Camden. According to VA psychiatric space at Coatesville is overcrowded by about 70 beds. VA recommended a 60-bed psychiatric service be provided in Camden, in addition to a 40-bed intermediate care unit. Comparable reductions at Coatesville were to offset both services.

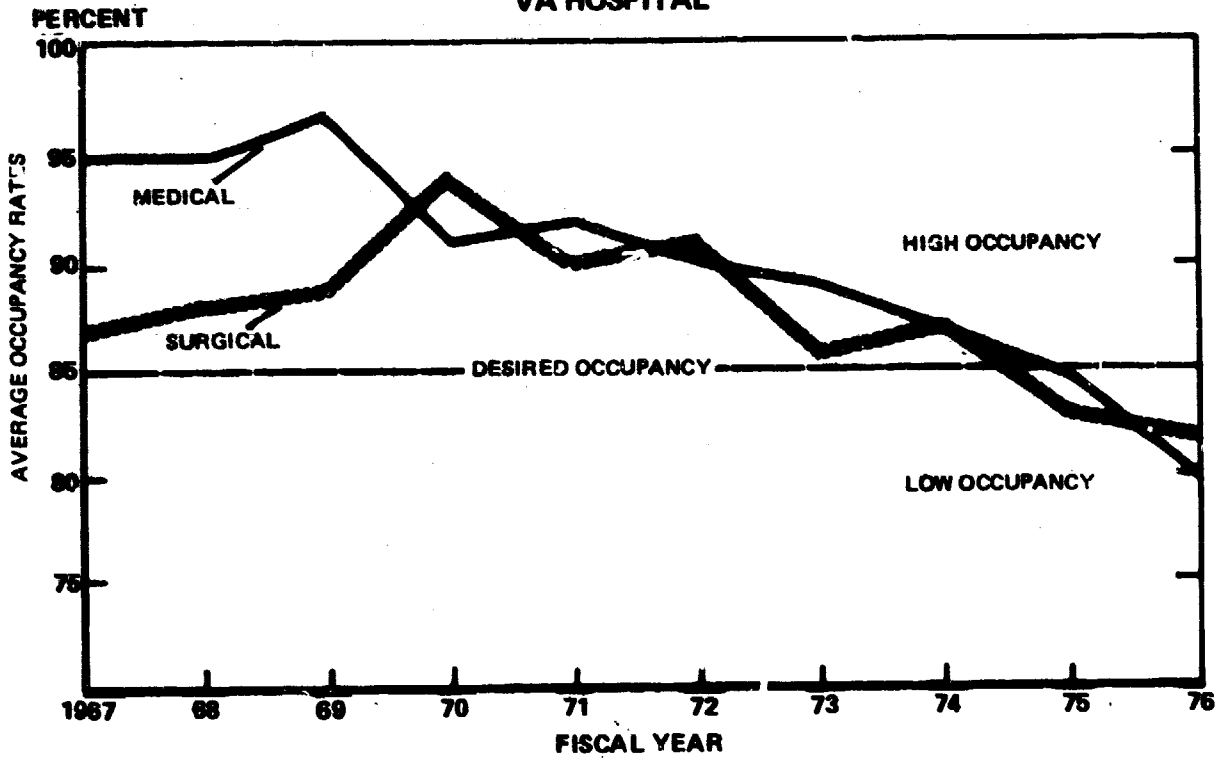
### ANALYSIS OF 1985 VA BED REQUIREMENTS IN PHILADELPHIA AREA

In determining 1985 bed requirements for the Philadelphia area, VA departed from its standard hospital sizing model which relies on historical patient workload data to predict future hospital requirements. VA reasoned that historical patient utilization data for the Philadelphia VA hospital (see photograph on p. 6) could not be used to project future bed requirements for the area because the utilization was constrained by a low VA hospital bed supply. VA's analysis showed that the ratio of VA hospital beds to the veteran population in the Philadelphia area was relatively low compared to similar-sized metropolitan areas. VA concluded that the historical data did not reflect utilization levels that would have occurred had more VA hospital beds been available.

Although VA's analysis of hospital utilization from 1970 to 1973 demonstrated that the Philadelphia VA hospital was operating at a high occupancy rate, recent data shows that there has been a distinct decrease in occupancy of medical and surgical beds over the past several years (see graph on p. 7). During fiscal year 1976 the occupancy rate was 82 percent in medicine and surgery, somewhat below VA's planning guideline of 85 percent. Officials of the Philadelphia VA hospital said that they expected this decrease to continue as more outpatient treatment is substituted for inpatient care. The hospital's occupancy rate, the lack of an admission waiting list, and the fact that no evidence was presented to show that patients were being denied care due to a shortage of beds detract from VA's position that use of the Philadelphia VA hospital was constrained.



### TREND IN OCCUPANCY RATES AT THE PHILADELPHIA VA HOSPITAL



VA's projection of future hospital admissions too high

Assuming that veterans in the Philadelphia area will have the same hospital discharge rates as all northeast U.S. males, VA estimated 1985 veteran admissions to VA hospitals by

--projecting 1985 discharge rates for northeast U.S. males based on 9 years of historical data,

--multiplying the 1985 discharge rate by the expected 1985 veteran population in the Philadelphia area to give estimated veteran discharges from all non-Federal hospitals, and

--projecting the percentage share of veteran discharges in 1985 which will be handled by VA hospitals based on 4 years of historical trend data.

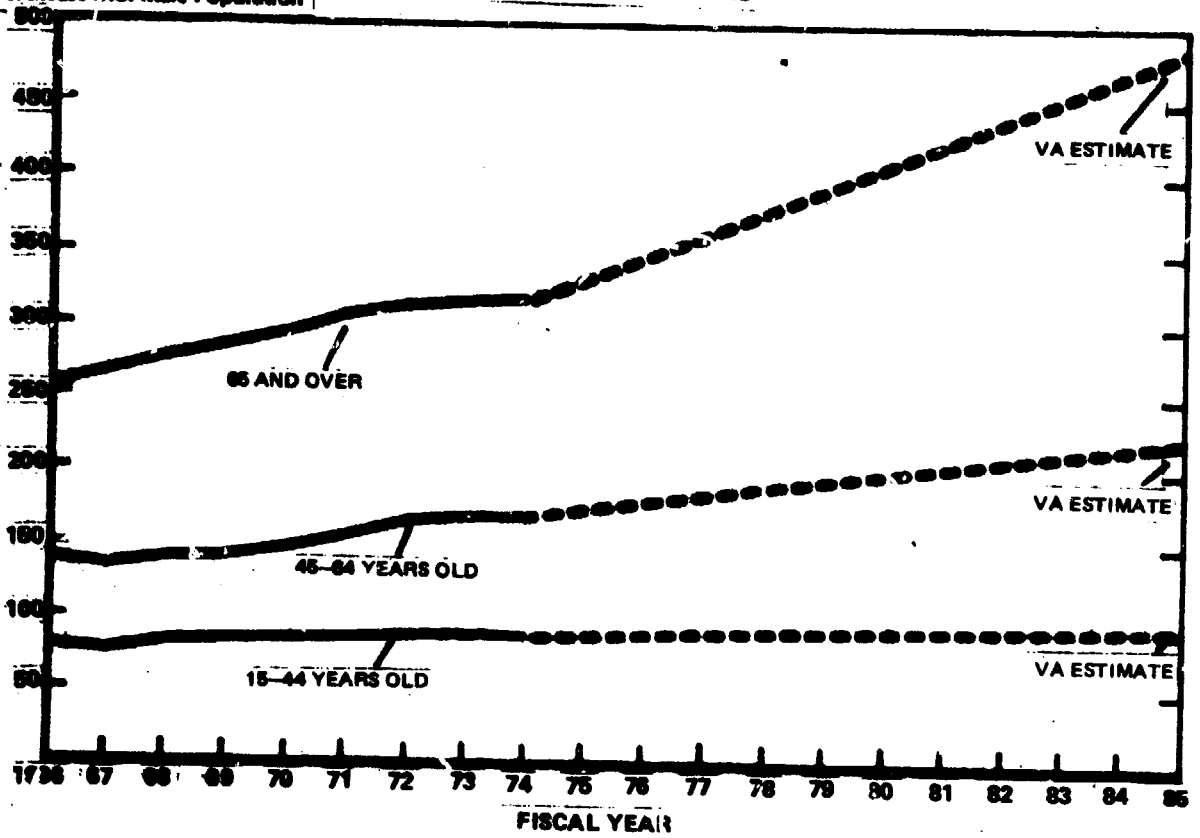
The graph on page 9 shows VA's projection of 1985 discharge rates for three age groups of northeast U.S. males. The 9 years of historical data shown in the graph and used by VA was provided to VA by the Department of Health, Education, and Welfare (HEW). The data shows a considerable rise in discharge rates for the older age groups during the 1966 to 1971 period and a general leveling off of the trend during the 1972 to 1974 period. As shown below, however, VA forecasted a large increase in discharge rates between 1974 and 1985 assuming that the trend over the past 9 years would continue in the future.

<u>Age group</u>	<u>1974 discharges per 1,000 population</u>	<u>VA projected 1985 discharges per 1,000 population</u>	<u>Projected increase 1974 to 1985</u>
15-44	85	92.0	88
45-64	172	225.0	31
65+over	343	483.2	41

Using these projected rates, VA estimated that there would be 138,150 veterans discharged from non-Federal Philadelphia area hospitals in 1985.

Discharges Per 1000  
Northeast U.S. Male Population

### VA ESTIMATE OF 1985 NORTHEAST U.S. MALE HOSPITAL DISCHARGE RATES



VA's projections conflict with current and expected trends in discharge rates. Although discharge rates increased during the late 1960s and early 1970s, an official in HEW's National Center for Health Care Statistics informed us that these increases were due primarily to the enactment and implementation of the Medicare and Medicaid programs and the increasing coverage of the general public with private health care insurance. Similar increases are not expected in the future. In fact, the current emphasis on ambulatory care may produce a decline in discharge rates in the future.

In its projection of 1985 acute care medical and surgical discharges, VA also failed to recognize that the HEW data for northeast U.S. males included psychiatric discharges. Application of the HEW data base, therefore, inflates projections of medical and surgical discharges, and bed requirements. An HEW analyst in the National Center for Health Statistics estimated that in 1974 psychiatric discharges accounted for between 2.3 and 8.9 percent of total discharges for the three age groups, as shown below.

<u>Age group</u>	<u>Psychiatric discharges as a percentage of total discharges</u>
15-44	8.9
45-64	5.6
65+over	2.3

We adjusted HEW's 1974 discharge rates to exclude psychiatric discharges and calculated 1985 medical and surgical discharges on the basis that discharge rates would be the same as 1974 rates. The resulting forecast of 1985 discharges of veterans from all non-Federal hospitals in the Philadelphia area was 27 percent lower than VA's estimate.

VA also projects the percentage of veteran discharges which will be from area VA hospitals. Applying two forecasting techniques to historical data, VA estimated that between 6 and 11 percent of total veteran discharges would be from VA hospitals in 1985. Based upon professional judgment, VA selected 10 percent as the most appropriate share to assume in planning the VA hospital bed requirements in the Philadelphia area. Using this estimate, VA projected



that Philadelphia area VA hospitals would need to accommodate 13,815 discharges of medical and surgical patients in 1985 (10 percent of total non-Federal hospital discharges of 138,150). A change of only 1 percent in VA's assumed share (1) would change its estimate of 1985 discharges by 1,382 and (2) using VA's 1985 length of stay, would change the overall hospital requirements by about 69 medical and surgical beds.

During fiscal year 1976 3,531 patients were discharged from medical bed sections and 2,332 were discharged from surgical bed sections of the Philadelphia VA hospital. During the same year the occupancy rates on medical and surgical wards of the hospital were both 82 percent, indicating that the treatment of medical and surgical patients was not constrained by available bed space.

These actual 1976 VA hospital discharge figures represent no more than a 6.8 percent share of total veteran discharges from non-Federal hospitals, as computed using the HEW data. VA's sizing model assumed that this share will be 10 percent in 1985. From 1976 to 1985 the share may increase due to the increasing average age of the veteran population and the tendency of veterans to use VA hospitals at higher rates as they get older. We found that these effects will increase the VA hospital share from the current 6.8 percent to a maximum of 6.9 percent.

We estimated future discharges using our hospital planning model that is described in detail in appendix I. The model used the Philadelphia VA hospital's actual 1976 discharge rates as a base and adjusted the data to reflect expected changes in the size and age mix of the veteran population. On this basis we estimated that there would be 6,978 medical and surgical veterans discharged from Philadelphia area hospitals in 1985--49 percent lower than VA's estimate of 13,815 discharges.

#### Estimation of 1985 average length of stay

VA projected two possible 1985 average length of stay estimates for VA hospital patients. One projection was based on HEW's historical data on non-Federal hospital stays for all northeastern U.S. males between 1967 and 1974. The other projection was based on stays actually experienced by patients in the Philadelphia VA hospital between 1971 and 1975. VA analyzed the data and then extended the trends out

to 1985 based on professional judgment. The resulting 1985 projections, using both the HEW and VA hospital data bases, are shown in the table below.

VA Estimates of 1985 Average Length of Stay

<u>Age group</u>	<u>Using HEW data (days)</u>	<u>Using Phila. VA hospital data (days)</u>
15-44	6.17	11.5
45-64	8.65	14.3
64+over	8.93	18.5

VA chose to use the estimate based on the Philadelphia VA hospital data rather than the HEW data in determining the area's hospital bed requirements.

The Director of the Philadelphia VA hospital stated that the hospital's medical wards do not house acute care only patients. At the time of our visit (August 1977), the Director estimated that there were approximately 88 patients out of 413 in medical wards who needed nonacute care. According to the Chief of Staff, 50 percent of these patients required only nursing home care. Since no VA nursing home was available and sufficient community nursing home services could not be obtained, these patients remained in medical wards until appropriate placement could be found. The length of stay for these patients is mixed with all other medical patients in computing average length of stay and, therefore, inflates the statistics for acute care requirements. Philadelphia VA hospital officials told us that VA could achieve average lengths of stay comparable to those experienced in community hospitals (for similar acute care medical and surgical patients) if the proper mix of acute care, intermediate care, and nursing home care beds were available.

Using our hospital sizing model described in appendix I, we

--analyzed the computerized patient record of each patient discharged from the Philadelphia VA hospital during fiscal year 1976,

--adjusted the acute care stay to that which prevailed in community hospitals for similar patients (same age, diagnosis, etc.), and

--allocated the remainder of the stay to out-patient care, intermediate care, or nursing home care as appropriate.

Using this approach and projecting to 1985 based on the changing age mix of the veteran population, we estimated the following average lengths of stay for acute care medical and surgical patients.

Our Estimate Of 1985 Average Length  
Of Stay For Medical And Surgical Patients

<u>Age group</u>	<u>Using GAO model</u>
15-44	7.77
45-64	11.51
65+over	14.76

Our estimate of acute care length of stay is higher than that derived using HEW data since it reflects the specific ages and diagnoses of patients using the Philadelphia VA hospital, but lower than that based on historical VA average length of stay since our approach separates the acute care from the nonacute care stay for each patient. Our estimates assume that intermediate care and nursing home care beds are available to VA for the transfer of patients after completion of their acute care stays.

VA calculation of 1985 bed requirements

VA hospital bed requirements are calculated using projected 1985 VA hospital discharges and projected 1985 average length of stay. VA's estimate of 685 medical and surgical beds is shown below:

VA Estimate Of 1985 Medical And  
Surgical Bed Requirements In Philadelphia Area

<u>Age group</u>	<u>Estimated 1985 VA hospital discharges</u>	<u>Estimated 1985 average length of stay (days)</u>	<u>Estimated 1985 bed requirement</u>
15-44	2,054	11.5	76
45-64	6,809	14.3	314
65+over	<u>4,952</u>	<u>18.5</u>	<u>295</u>
Total	<u>13,815</u>	<u>15.2</u>	<u>685</u>

Of the 685 medical and surgical bed requirement, 425 were to be in the Philadelphia VA hospital and the remaining 260 in the new Camden VA hospital.

VA's analysis is based on a projection of the trend in 1967 to 1974 admissions data and on a projection of the trend in 1971 to 1975 average length of stay. If VA's admissions and average lengths of stay trends were valid, bed requirements in 1973, 1977, and 1985 would be as follows (see app. II for computation).

Comparison Of Estimated VA Bed Requirements  
With Actual VA Bed Utilization

<u>Year</u>	<u>Estimate of VA med/surg bed needs based on VA's assumed trends</u>	<u>Actual VA med/surg beds available in Phila. VA hospital</u>	<u>Actual occupancy rate of available beds</u>
1973	629	417	88%
1977	664	446	81%
1985	685	-	-

For fiscal year 1973 VA stated that the low bed supply and high occupancy rate constrained bed utilization. We question this conclusion because of the lack of patient waiting lists or evidence that patients were denied care due to lack of beds. The high 1973 fiscal year occupancy rate makes determination of true hospital demand in that year somewhat unclear. However, VA's assumed trends indicate that 664 beds (218 more than were available) would be needed in fiscal year 1977 to fully meet VA's hospital demand. Actual operating statistics show that the occupancy rate of available VA beds in fiscal year 1977 was only 81 percent. Therefore, while VA's analysis indicates that a considerable shortage of VA medical and surgical beds should have existed in fiscal year 1977, there was actually a surplus.

We believe that this recent data on VA's hospital bed utilization in Philadelphia shows VA's method of projecting hospital demand to be invalid and that true VA hospital requirements in 1985 will be considerably less than 685 beds.

Our calculation of 1985 bed requirements

In determining 1985 bed requirements, we used our hospital planning model (see app. I). Our model estimates both acute care and nonacute care hospital requirements.

The model's projections of 1985 discharges and average lengths of stay were discussed earlier and lead to an estimated 1985 requirement for 279 acute care medical and surgical beds in the Philadelphia area. Our model also estimated a need for 10 rehabilitation-medicine beds, raising the total medical and surgical requirement to 289 beds.

Our Estimate Of 1985 Acute Care Medical And Surgical Bed Requirements In Philadelphia Area

<u>Age group</u>	<u>1985 Estimated VA hospital discharges</u>	<u>1985 Estimated average length of stay</u>	<u>1985 Estimated bed requirements</u>
15-44	883	7.77	22
45-64	3,159	11.51	117
65+over	<u>2,936</u>	<u>14.76</u>	<u>140</u>
Total	<u>6,978</u>	<u>12.40</u>	<u>279</u>

In addition to 279 medical and surgical beds and 10 rehabilitation beds, our model further projected a need for 60 intermediate care beds. Relocation of 40 nonacute intermediate care beds from Coatesville to Philadelphia would raise the nonacute intermediate care requirement to 100 beds.

While our model also estimates a portion of the nursing home care workload, total VA nursing home bed requirements are contingent on the availability of contract nursing home beds in the surrounding community.

The existing Philadelphia VA hospital, with 446 medical and surgical beds, even if reduced to 425 beds as proposed by VA, appears adequate in size to serve the 1985 requirements for medical, surgical, and intermediate care. However, construction or acquisition of a nursing home care unit may be necessary. VA is currently studying nationwide nursing home

care requirements, and any determination of VA nursing home needs in Philadelphia should await the findings of that study.

The table on page 17 summarizes the current operating beds in the Philadelphia VA hospital, VA's proposed future bed complement for the area, and our estimate of VA hospital bed requirements.

#### POTENTIAL EFFECT OF CAMDEN HOSPITAL ON NEARBY FEDERAL AND NON-FEDERAL FACILITIES

The construction of a new acute care VA hospital in Camden could have a major effect on the Philadelphia VA hospital, and secondary effects on other VA hospitals (Wilmington and Lyons), and nearby community hospitals.

#### Effect on Philadelphia VA hospital

In addition to its capability to accommodate 1985 veteran bed requirements, the Philadelphia VA hospital is centrally located to adequately serve area veterans. As the hub of the region's transportation system, the Philadelphia area is served by a well-developed public transportation system consisting of suburban rail facilities, hi-speed lines, and an extensive bus network. Under such circumstances construction of a new VA hospital seven miles from the existing Philadelphia facility, at best, offers only minimal locational advantage in providing health care to veterans.

The Camden VA hospital may adversely affect the operations and efficiency of the Philadelphia hospital by reducing the already low bed census. A 1976 VA patient census showed that approximately 24 percent of the Philadelphia inpatients were New Jersey residents. Construction of a new acute care VA hospital in southern New Jersey could draw New Jersey patients away from the existing Philadelphia VA hospital and decrease its overall bed occupancy rate of 82 percent--further below the planning guideline of 85 percent.

The Camden hospital could also increase the Government's cost of providing VA hospital care to New Jersey residents. We previously reported 1/ in 1975 that VA expended between

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1/Letter report to Honorable James J. Florio, House of Representatives, Mar. 18, 1976 (MWD-76-114).

VA Hospital Bed Requirements in  
the Philadelphia Area

	Philadelphia VA Hospital Current Operating Beds	VA's Proposals		Total	GAO's Estimate
		Philadelphia VA Hospital	Rev Camden VA Hospital		
1/ Acute Medical and Surgical	446	425	260	685	289
Psychiatric	44	44	-	44	46
Additional psychiatric beds transferred from Coatesville VA Hospital	-	-	60	60	2/
Subtotal	490	469	320	789	335
Nonacute Intermediate	-	-	-	-	60
Additional intermediate beds transferred from Coatesville VA Hospital	-	-	40	40	40
Nonacute Psychiatric	-	-	-	-	10
Nursing Home	-	-	120	120	120 3/
Total	490	469	480	949	565

1/- Excludes intermediate care, but includes internal medicine, neurology, rehabilitation-medicine.  
 2/- The VA proposal includes the transfer of 60 psychiatric beds from Coatesville VA hospital to  
 Camden.

3/- The VA proposal is used for nursing home care bed requirements.

\$133,000 and \$175,000 for travel costs of New Jersey veterans to the Philadelphia and Wilmington VA hospitals. Having a hospital in Camden would reduce travel cost to some extent. However, the proposed annual operating cost of the Camden hospital--approximately \$32 million a year--will increase significantly the cost of health care for area veterans.

#### Potential effect on other VA hospitals

In the 1976 VA patient census, approximately 12 percent and 92 percent of Wilmington, Delaware, and Lyons, New Jersey, VA hospital patients were New Jersey residents. These two hospitals operated at approximately 82 and 80 percent occupancy, respectively, in fiscal year 1976. The Camden hospital, which proposed to serve New Jersey veterans, may draw patients from each of these facilities, possibly causing inefficient operations by reducing each hospital's occupancy rate further below the 85-percent level.

#### Potential effect on community hospitals

The United States today has more than 931,000 non-Federal hospital beds, 20 percent of which are estimated to be surplus. Excess bed capacity has become a national concern in recent years. Since 1960 the total of non-Federal hospital beds for short-term and other care in general hospitals has increased from 640,000 to 931,000--more than 45 percent. When compared to the national population, the ratio of beds has increased from 3.6 beds per 1,000 population to 4.4 beds per 1,000. Excess bed capacity is one reason why hospital costs have risen four times as much as the consumer price index since 1950.

Statistics provided by Philadelphia Health Systems Agency and the New Jersey State Department of Health indicate that Philadelphia and Camden counties are overbedded. In July 1977 Camden county alone had a surplus of 176 medical and surgical beds, while neighboring counties, Gloucester and Burlington, had a total of 104 surplus medical and surgical beds.

Due to the overbedded conditions in the area, community hospitals have not been and probably will not be allowed to expand their acute care beds. The New Jersey State Department of Health recently refused two community hospitals' proposals to construct new acute care beds. Taking a similar position, officials of both the Phila-



Philadelphia and Southern New Jersey Health Systems Agency stated that it would be difficult to recommend approval for construction of new acute care hospital beds because of the present surplus of beds in their jurisdictions.

We discussed the matter with physicians in the Camden area and they were concerned that an influx of new acute care beds will cause a financial hardship on underutilized community hospitals in competing for limited medical personnel and patients. In addition the Camden hospital may duplicate highly specialized and expensive equipment available in the community, much of which is also underutilized.

While the Government bears the cost (construction, equipment, staffing, etc.) of new VA hospital beds, it is also sharing in the increased costs resulting from excess community hospital beds. Many beds were constructed with Federal support and operating costs are paid, in part, through Medicare, Medicaid, and Federal health benefits programs.

At a September 6, 1977, meeting, the Camden County Medical Society, after considerable debate, voted 114 to 66 to support construction of the new Camden VA hospital. The society assumed that VA had established the medical need for the facility. The following are arguments presented by members of the society in support of the project.

--Beneficial effects it will have on medical education when students from the planned South Jersey medical school practice at the center.

--Favorable impact it will have on redevelopment in the city of Camden.

--New services it will provide to area veterans.

#### PRIORITIES FOR NEW CONSTRUCTION

VA's justification for the proposed new hospital in Camden rested primarily on an asserted low VA bed supply in the Philadelphia area. However, in addition to our belief that VA's sizing methodology was improper, we also found that VA could not explain, from a priority standpoint, the basis used to select this area for a new hospital, as opposed to other areas of the United States.

VA was unable to provide us with any study showing that the Camden area is more in need of an additional VA hospital than other areas of the Nation.

We believe that the Congress should require VA to justify all new hospital construction proposals, in terms of priority, on the basis of a clear and explicit set of objective criteria before approving funds. VA should use the criteria to evaluate and compare the current level of adequacy of present VA hospitals in meeting the medical needs of veterans. Highest priority for new VA hospital construction should be established in areas of the Nation where existing VA hospitals are least able to provide high quality medical care to the veteran population.

VA has recently developed a process (Space and Functional Deficiency Identification System) to determine priorities for new hospital construction or replacement based on comparisons between present facilities and other criteria. However, this process was not applied to the eight hospitals in VA's current construction program. We believe that the system is a major improvement over the previous way in which decisions were made to replace hospitals. We believe, however, that several modifications are needed to improve the system. We are currently reviewing this system and plan to complete our audit work about March 1978.

## CONCLUSIONS

The construction of a new acute care medical and surgical hospital in Camden, New Jersey, is not justified. VA could not explain, from a priority standpoint, the basis used to select the Philadelphia/Camden area for a new VA hospital, rather than some other location in the United States. Furthermore, the need for the hospital in Camden is based on invalid assumptions, specifically that (1) admissions to the Philadelphia VA hospital are constrained by a low bed supply and (2) the Philadelphia VA hospital length of stay data is an accurate measure of future acute care stays, when the data actually includes a mixture of acute, nonacute, intermediate, and nursing home care stays. Correcting these deficiencies in VA's methodology, it appears that the Philadelphia VA hospital, located only seven miles from the site of the proposed new Camden VA hospital, is adequate to serve the projected 1985 medical and surgical bed requirements for the area. Construction or acquisition of a new VA nursing home care unit, however, may be needed.

If the Camden VA hospital is constructed at the current proposed site, it will, at best, offer only minimal locational advantage to provide health care to New Jersey veterans yet could have adverse effects on the Philadelphia, Wilmington, and Lyons hospitals; and the community hospitals in southern New Jersey.

The Camden County Medical Society's support for the construction of the new VA hospital was based partly on the assumption that VA had properly established the need for the facility. Other arguments cited by members of the society in support of the project included its beneficial effects on medical education and redevelopment efforts in the city of Camden. Since our report shows that additional VA hospital beds are not needed to serve area veterans, the other factors cited by members of the society represent, in our opinion, insufficient reasons for supporting the project.

#### RECOMMENDATIONS TO THE SUBCOMMITTEE

We recommend that the Subcommittee not approve funding for construction of a new VA hospital in Camden, New Jersey. Upon completion of VA's nationwide study of nursing home-care requirements, the Subcommittee should consider a proposal for construction or acquisition of a VA nursing home in the Philadelphia/Camden area, if such a facility is justified.

We also believe that the Subcommittee should require VA to justify all new hospital construction proposals, in terms of priority, on the basis of a clear and explicit set of objective criteria before funding is approved. VA should use the criteria to evaluate and compare the level of adequacy of present VA hospitals in meeting the medical needs of veterans. Highest priorities for new VA hospital construction should be established in areas of the Nation where VA hospitals are least able to provide high quality medical care to veterans.

#### AGENCY ACTIONS

In its fiscal year 1979 budget submission to the Congress, VA proposed that plans for the new hospital be eliminated. It plans, instead, to build an outpatient clinic in Camden and a 120-bed nursing home care unit in Philadelphia. VA's Chief Medical Director told us that the existing VA hospitals in Philadelphia and Wilmington could handle the anticipated workload for the area. The estimated construction costs for the outpatient clinic and nursing home are \$12.2 million and \$14.4 million, respectively.

OUR MODEL FOR ESTIMATINGBED NEEDS FOR VA HOSPITALS

This appendix describes the methodology we used in estimating the number and mix of acute care and other 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 Defense 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 (medicine, surgery, psychiatry, etc.) rather than only one estimate of total acute care bed needs as provided earlier in our DOD model. It also determines bed requirements for lower-levels of care, such as intermediate care, nursing home care, and outpatient treatment.

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

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

category and age of patients discharged from PAS member hospitals. If we know a patient's age and diagnosis, whether the patient had multiple diagnoses (for example, more than one medical ailment) and whether the patient underwent surgery, then we can determine from the PAS statistics the average length of stay which all patients with the same set of characteristics experienced in PAS member hospitals. Our model assumes that the valid acute care length of stay for most VA hospital patients is equal to the average length of stay taken from the PAS data bank for similar patients (same age, diagnosis, multiple diagnoses, surgery). The additional time actually spent by patients in the VA hospital is assumed to be a lower-level care requirement and distributed to intermediate care, nursing home care, and other levels of care as discussed later.

The PAS statistics are published for regions of the United States and for the Nation as a whole. In analyzing the bed needs for VA hospitals, we used PAS data for the Nation as a whole. PAS national statistics include data compiled from 13.2 million inpatients discharged during 1974 from 1,801 member hospitals having a total of 374,612 beds--40.2 percent of all U.S. short-term non-Federal hospitals. Member hospitals use the PAS data as a reference point in measuring their own efficiency in treating patients.

The PAS system has 349 primary diagnoses categorized. 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 allow the user to statistically determine 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 for various percentiles of the population. For example, the length of stay figure at the 95 percentile is exceeded by only 5 percent of the population.

The chart on the following page is an example of data for one diagnostic group. It illustrates, for example, that for patients with a single diagnosis of acute appendicitis without peritonitis (operated on) in the age brackets from 20-34:

178: Acute appendicitis without peritonitis (540.0)

TYPE OF PATIENT (1)	TOTAL PATIENTS (2)	AVG. STAY (3)	VARL- ANCE (4)	PERCENTILES						
				5th (5)	10th (6)	50th (7)	75th (8)	90th (9)	95th (10)	99th (11)
<b>1. SINGLE DX</b>										
<b>A. Not Operated</b>										
0-19 YRS	636	2.7	7	1	1	2	3	5	7	10
20-34	343	2.8	6	1	1	2	4	5	7	8
35-49	100	3.8	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>B. Operated</b>										
0-19 YRS	37131	4.4	5	2	3	4	5	7	8	12
20-34	18910	4.7	6	2	3	4	5	7	8	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
<b>2. MULTIPLE DX</b>										
<b>A. Not Operated</b>										
0-19 YRS	225	3.3	9	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>B. Operated</b>										
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
<b>SUBTOTALS:</b>										
<b>1. SINGLE DX</b>										
<b>A. Not Operated</b>	1173	3.0	7	1	1	2	4	6	7	11
<b>B. Operated</b>	64550	4.7	6	2	3	4	5	7	8	13
<b>2. MULTIPLE DX</b>										
<b>A. Not Operated</b>	566	4.4	16	1	1	3	5	9	11	21
<b>B. Operated</b>	13391	7.5	29	3	3	6	9	13	17	28
<b>1. SINGLE DX</b>	65723	4.7	6	2	3	4	5	7	8	13
<b>2. MULTIPLE DX</b>	13957	7.4	29	3	3	6	9	13	17	28
<b>A. NOT OPERATED</b>	1739	3.4	10	1	1	3	4	7	9	16
<b>B. OPERATED</b>	77941	5.2	11	2	3	4	6	8	11	18
<b>TOTAL 0-19 YRS</b>	43738	4.6	7	2	3	4	5	7	9	14
20-34	23066	5.0	9	2	3	4	6	8	10	15
35-49	7011	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
<b>GRAND TOTAL</b>	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.

- 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 longer.

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, making the bed estimate a conservative one. 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 any adjustment.

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

Our model determines future patient discharges by first 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 (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 towards 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

Basically our model determines acute care bed requirements by analyzing the medical record of each patient recently discharged from the hospital and adjusting each patient's actual length of stay in the VA hospital to make

it conform with comparable diagnoses in non-Federal community hospitals. The model then projects future discharges based on the changing age distribution of veterans in the population.

Adjustment of each VA hospital's acute care workload was accomplished through the use of a computer program designed to:

- Accumulate the actual patient days for each patient discharged from each VA hospital during fiscal year 1976.
- Extract from the data each patient's primary diagnosis and age, as well as whether the patient has 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 each VA hospital during fiscal year 1976.

Using the procedure described above, the model calculated the total number of acute care bed days required for each patient discharged from each VA hospital in fiscal year 1976 adjusted to be in conformance with non-Federal hospital stays for similar patients. The computer was also instructed to keep track of bed requirements by age category. We determined the number of acute care beds needed by calculating the average number of beds occupied on any given day and then adding a factor to allow for an 85-percent occupancy rate in medicine, surgery, and psychiatry. These occupancy rates are consistent with those used by VA, except for psychiatric, where VA used a 90-percent occupancy rate.

Using the procedure described above, our model determines the number of patient discharges and the valid acute care bed requirement in 1976 for each of five patient age groups. Each age group is expected to change significantly in size between 1976 and 1985, with a shift toward older patients. By determining the patient discharges and acute care bed requirements per 1,000 veterans in 1976, broken down by age category, our model can then project acute care



requirements to 1985 by considering the shifts expected to occur in the veteran age profile.

It is important to recognize that our model assumes that the average length of stay for each individual age group in 1976 will remain constant. Veterans in older age groups, however, tend to require longer average stays in hospitals than younger veterans. Therefore, due to the expected shift in patient mix toward older veterans, our model predicts a general rise in hospital average length of stay. A sample computer output is shown on the following page. It shows the acute care surgical bed determination for the Martinsburg VA hospital and the projection of bed requirements to 1985.

#### DETERMINATION OF HOSPITAL REQUIREMENTS FOR LOWER-LEVELS OF CARE

In addition to estimating acute care bed requirements as described previously, our model allocates the portion of care inappropriately provided by VA in acute care beds to the other lower-levels--intermediate care, rehabilitation, nonacute psychiatric care, nursing home care, and outpatient care. The model does this by first computing the difference between valid acute care bed days (based on PAS statistics) and actual bed days spent by all patients in the VA hospital during 1976. This difference represents the number of days spent by all patients in the VA hospital during 1976 in a nonacute care status. The 1976 nonacute care patient days are projected to 1985 based on expected changes in the veteran age profile, as discussed earlier. The 1985 nonacute patient days are further broken down in to hospital departments of medicine, surgery, psychiatry, rehabilitation service, and intermediate care based on the bed section from which each patient was discharged. The allocations of nonacute patient days from each of these departments to the lower-levels of care were based primarily on the findings of the National Academy of Sciences (NAS). 1/

1/"Health Care for American Veterans," Report to the Congress on Health Care Resources in Veterans' Administration, National Academy of Sciences, May 1977.

Martinsburg VA Hospital

Acute Beds Using CPHA Days  
Surgery Beds Summary Report

<u>Age category</u>	<u>Number of patients</u>	<u>Total adjusted bed days</u>	<u>1976 CPHA required beds</u>	<u>1976 Veteran population</u>	<u>1985 Veteran population</u>	<u>Ratio 1985/1976</u>	<u>1985 CPHA required beds</u>	<u>Average length of stay</u>
0-24	28	142.50	0.46	3,693	1,990	0.54	0.25	5.09
25-44	208	1,555.20	5.01	43,033	36,087	0.84	4.21	7.48
45-54	346	3,315.90	10.68	32,381	18,773	0.58	6.19	9.58
55-64	400	4,352.40	14.02	21,987	28,490	1.30	18.23	10.88
65 + over	318	5,227.30	16.84	7,609	16,282	2.14	36.04	16.44
Subtotal	1,300	14,593.30	47.01	108,703	101,622	0.93	64.92	11.23
Age errors	0	0.00	0.00	108,703	101,622	0.93	0.00	11.23
GRAND TOTAL	1,300	14,593.30	47.01	108,703	101,622	0.93	0.00	11.23

Medical and surgical patients

As part of NAS's study, nurses on medical wards in 14 VA general hospitals were asked to judge the most appropriate facility to transfer each nonacute patient to if it were necessary to do so immediately. The nurses were to assume that an appropriate facility was available. The table below shows the average values of the nurses' estimates of the most appropriate level of care for nonacute patients occupying VA medical wards.

Medical patients

<u>Appropriate level of care</u>	<u>Percentage of nonacute patients</u>
Intermediate care	14
Convalescent care	12
Nursing home care	24
Outpatient care	<u>50</u>
Total	<u>100</u>

The same study conducted on surgical wards of 13 VA general hospitals yielded the following.

Surgical patients

<u>Appropriate level of care</u>	<u>Percentage of nonacute patients</u>
Intermediate care	12
Convalescent care	19
Nursing home care	19
Outpatient care	<u>50</u>
Total	<u>100</u>

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1/"Health Care for American Veterans", Report to the Congress on Health Care Resources in Veterans' Administration, National Academy of Sciences, May 1977.

Our model allocates nonacute patient days for medical and surgical patients to intermediate care, convalescent care, nursing home care, and outpatient care using the percentage distributions (in the tables above) which were judged by the nurses to be appropriate.

### Psychiatric patients

The NAS study team also conducted a census of inpatients in 18 hospitals to determine appropriateness of placement of patients in psychiatric beds. Only 38 percent of patients in psychiatric beds in general hospitals were judged by the nurses in charge of the wards to be appropriately placed. In this study, "appropriateness" was defined as requiring services uniquely available in hospitals (for example, isolation or restraint, intensive observation, detoxification for drug or alcohol abuse, or drug-dosage regulation). Of the patients who were deemed not to need hospitalization (for example, nonacute care patients), about half were judged to be treatable as outpatients. The remainder were recommended for treatment in another type of setting. The NAS committee recommended that VA take steps to develop and implement alternatives to inpatient hospitalization, including partial hospitalization, halfway houses, sheltered workshops, group homes, and cooperative apartments.

Our model allocates nonacute psychiatric patient days in accordance with the NAS findings. Fifty percent of the patient days were allocated to nonacute psychiatric care alternatives, and 50 percent, to outpatient care.

### Rehabilitation medicine

Patients are generally transferred to rehabilitation-medicine bed sections for therapy only after completion of their acute care treatment in other hospital bed sections.

Although all 172 VA hospitals in the Nation have rehabilitation-medicine service, only 40 have rehabilitation-medicine bed sections. In all hospitals most patients receiving rehabilitation services are in other bed sections, and the rehabilitation services they receive are an adjunct to their full-time care in medicine, surgery, or psychiatry.

VA's computerized patient treatment files indicate the the bed sections from which hospital patients are discharged. However, no information is given regarding intrahospital transfers prior to discharge. For patients discharged from the rehabilitation-medicine bed section, our model allocates the acute care part of the patients' hospital stay (based on the PAS statistics, the patient's age, diagnosis, etc.) to the acute medical bed section, and the remainder of the stay to the rehabilitation-medicine bed section.

#### Intermediate care patients

Patients discharged from VA hospital intermediate care bed sections are handled by our model in a manner similar to rehabilitation-medicine patients. The model allocates the acute portion of the patient's stay (based on PAS statistics, the patient's age, diagnosis, etc.) to the acute medical bed section and the remainder to nonacute intermediate care.

#### Nursing home care and outpatient care

Our model estimates requirements for nursing home care and outpatient care based on analyses of appropriate and inappropriate patient days spent in acute care bed sections. In accordance with the NAS study findings, our model determines nursing home care and outpatient care requirements that can be substituted for acute care in VA hospitals. This workload would be an addition to projected workloads derived from patients directly placed in these lower-level modalities of care, without prior admission to the hospital.

The total nursing home care bed requirements in VA hospitals is contingent on not only workload allocations from acute bed sections and direct admissions to VA nursing home units, but also on the availability of VA contract nursing beds in the community. VA is currently conducting a nationwide study to evaluate additional factors which may affect bed requirements for nursing home care.

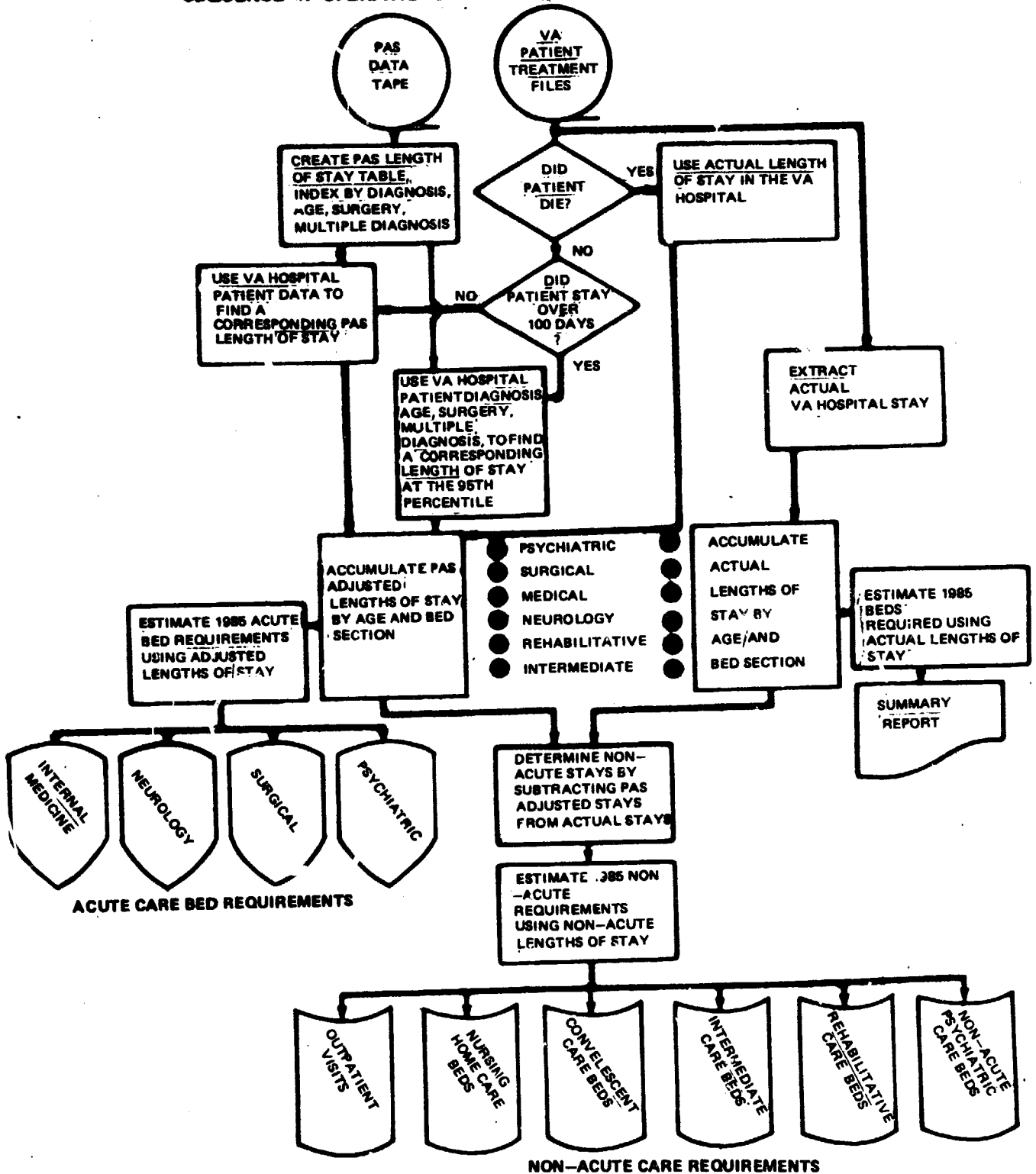
Because of the ongoing VA study and the ability of our model to estimate only a portion of the total required beds, we have adopted VA's bed projections as the total nursing home care bed requirements in each replacement hospital area.

Our model estimates outpatient care workloads by determining the number of bed days of inpatient care that would more appropriately be treated through outpatient care. This workload would be an addition to the normal ambulatory care workload.

#### 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 file that we extracted for the hospital being analyzed. Both tapes are readily available. The program requires approximately \$30 of computer time to produce a complete analysis of each hospital.

SEQUENCE OF OPERATIONS IN DETERMINATION OF HOSPITAL SIZE



REQUIRED 1973, 1977, and 1985 MEDICAL  
AND SURGICAL BEDS IN PHILADELPHIA AREA VA  
HOSPITALS BASED ON TRENDS ASSUMED BY VA

<u>1973</u>						
<u>Age group</u>	<u>Estimated 1973 discharges per 1,000</u>	<u>1973 veteran population</u>	<u>Estimated 1973 discharges</u>	<u>VA share based on 10%</u>	<u>1973 average length of stay</u>	<u>1973 required beds</u>
15-44	84	295,208	24,757	2,480	14.5 days	116
45-64	170	342,105	58,758	5,816	21.1	396
65-up	343	44,802	15,367	1,537	23.6	<u>117</u>
Total						<u>629</u>

<u>1977</u>						
<u>Age group</u>	<u>Estimated 1977 discharges per 1,000</u>	<u>1977 veteran population</u>	<u>Estimated 1977 discharges</u>	<u>VA share based on 10%</u>	<u>Estimated 1977 average length of stay</u>	<u>1977 required beds</u>
15-44	87.13	267,650	23,320	2,332	11.82 days	89
45-64	186.45	352,374	65,700	6,570	19.82	420
65-up	381.24	54,955	20,951	2,095	22.98	<u>155</u>
Total						<u>664</u>

<u>1985</u>						
<u>Age group</u>	<u>Estimated 1985 discharges per 1,000</u>	<u>1985 veteran population</u>	<u>Estimated 1985 discharges</u>	<u>VA share based on 10%</u>	<u>Estimated 1985 average length of stay</u>	<u>1985 required beds</u>
15-44	92.8	221,251	20,532	2,053	11.5 days	76
45-64	225.0	302,568	68,078	6,808	14.3	314
65-up	483.2	102,477	49,517	4,952	18.5	<u>295</u>
Total						<u>685</u>



**PRINCIPAL VA OFFICIALS RESPONSIBLE**  
**FOR ADMINISTERING ACTIVITIES**  
**DISCUSSED IN THIS REPORT**

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
<b>ADMINISTRATOR OF VETERANS AFFAIRS:</b>		
J. M. Cleland	Mar. 1977	Present
H. D. Grubb (acting)	Feb. 1977	Mar. 1977
R. L. Roudebush	Oct. 1974	Feb. 1977
R. L. Roudebush (acting)	Sept. 1974	Oct. 1974
D. E. Johnson	June 1969	Sept. 1974
<b>DEPUTY ADMINISTRATOR:</b>		
R. H. Wilson	Mar. 1977	Present
Vacant	Jan. 1977	Mar. 1977
O. W. Vaughn	Nov. 1974	Jan. 1977
Vacant	Oct. 1974	Nov. 1974
R. L. Roudebush	Jan. 1974	Oct. 1974
F. B. Rhodes	May 1969	Jan. 1974
<b>CHIEF MEDICAL DIRECTOR:</b>		
J. D. Chase, M.D.	Apr. 1974	Present
M. J. Musser, M.D.	Jan. 1970	Apr. 1974

(40144)