
BY THE U.S. GENERAL ACCOUNTING OFFICE

**Report To The Ranking Minority Member
Committee On Veterans' Affairs
United States Senate**

**Results Of VA's Medical Care Cost
Comparison Studies Are Not Valid**

Since 1977 the Veterans Administration (VA) has conducted several cost comparison studies which concluded that VA hospitals provide an episode of acute medical or surgical care less expensively than community hospitals. GAO believes the most recent studies are not adequate to support VA's conclusions.

Despite good faith efforts to identify the relative costs of treating veterans with acute care needs in VA and community hospitals, GAO believes that the combination of data limitations, methodological flaws, questionable assumptions, and errors in the VA study negate its usefulness. In short, the VA study does not compare the costs of treating similar patient populations in the VA and community hospital systems.

More importantly, the VA study does not measure the difference in total costs to the Government of the two alternatives--treating veterans in community hospitals or VA hospitals--which, in GAO's view, is the critical cost dimension in any evaluation of alternatives. Thus, the study should not be used as a basis for any decision concerning the merits of the alternatives.



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

HUMAN RESOURCES
DIVISION

B-208926

The Honorable Alan Cranston
Ranking Minority Member
Committee on Veterans' Affairs
United States Senate

Dear Senator Cranston:

This report is in response to your September 21, 1981, request that we assess the methodology of the Veterans Administration study entitled "FY 1980 Episode of Medical Care Cost Comparison," and comment on its usefulness as a valid, accurate indicator of VA versus community hospital costs.

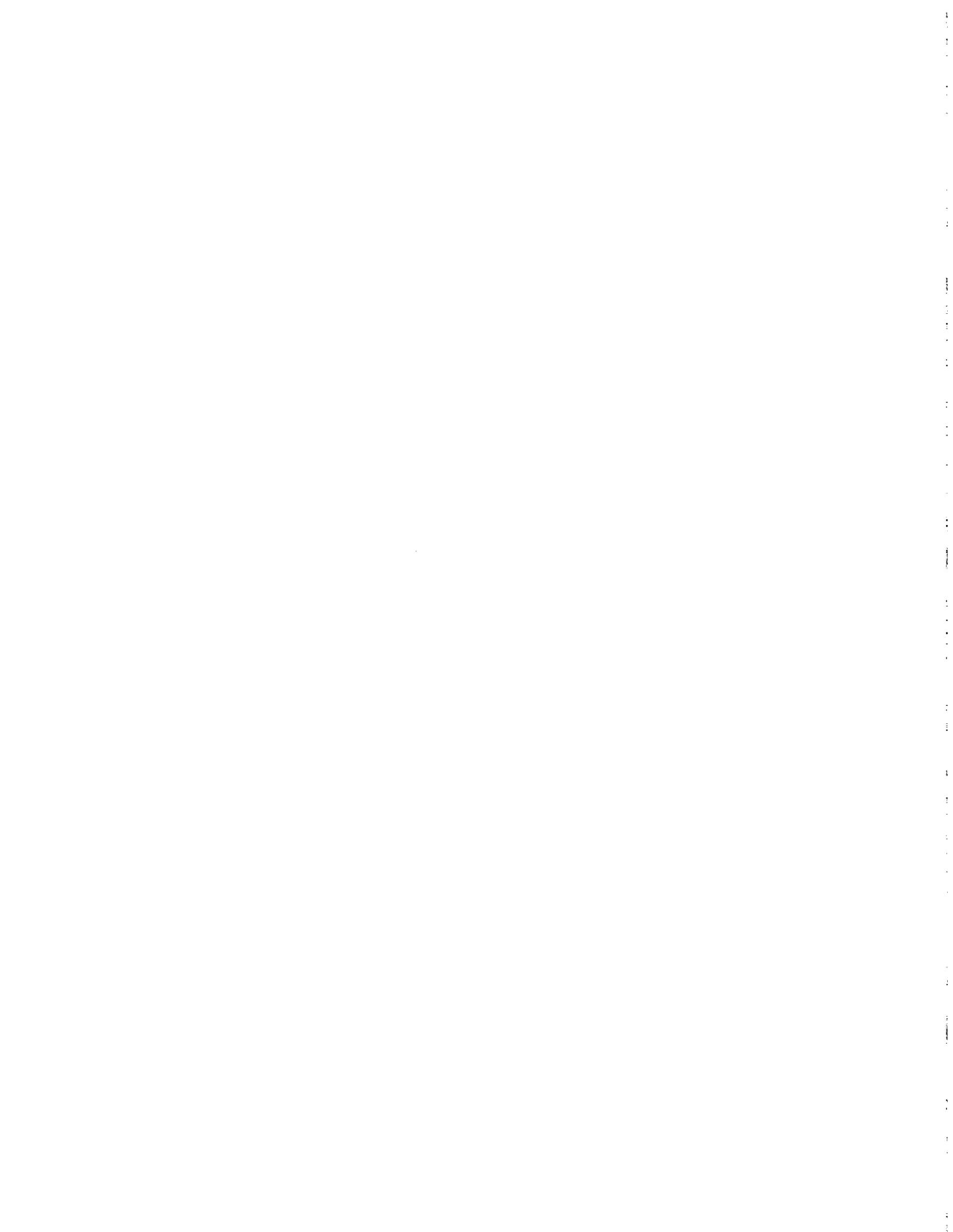
Our review of VA's methodology raised enough questions for us to conclude that the study should not be relied on as an accurate indicator of the comparative costs of the two health care delivery systems.

We provided VA with a draft of this report and its comments are included as appendix II.

As arranged with your office, unless you publicly announce the report's contents earlier, we plan no further distribution of the report until 30 days from its issue date. At that time, we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,


Philip A. Bernstein
Director



D I G E S T

In 1977 and on several occasions since, the Veterans Administration (VA) has conducted cost comparisons of VA and community hospitals to determine whether an acute inpatient stay would cost less if VA patients were treated in community rather than VA hospitals. These studies consistently showed that care was less expensive in VA hospitals than in community hospitals. In its 1982 nationwide study, VA concluded that its inpatient medical and surgical care were about 15 and 19 percent less expensive, respectively, than comparable care in community hospitals.

Additionally, VA's 1982 local community cost comparison showed that inpatient medical and surgical care at the Portland, Oregon, and Vancouver, Washington, VA hospitals were about 12 and 15 percent less expensive, respectively, than comparable care in community hospitals in the Portland area. VA has used these studies to defend its current system of providing inpatient care in its facilities and to support the replacement of the VA hospital in Portland. (See ch. 1.)

The Ranking Minority Member of the Senate Committee on Veterans' Affairs requested that GAO evaluate the methodology VA used in its medical care cost comparison study and verify its usefulness as a valid, accurate indicator of VA versus community hospital costs.

VA'S STUDY DID NOT ADDRESS
SOME CRITICAL ISSUES

The VA study attempts to compare the historical cost of treating veterans in need of acute care in VA hospitals with the historical costs of care in community hospitals. No attempt was made to estimate how community hospitals' costs would change if a decision were made to treat in community hospitals all veterans in need of acute care, nor were the impacts on residual VA health programs assessed. The study does

not provide answers to questions GAO considers critical such as:

- Would the addition of patients to the community system enable it to use excess capacity with a lowering of costs to all patients or would additional capacity have to be provided and at what costs?
- How would VA dispose of unneeded hospitals, equipment, and staff and what would be the costs and benefits of doing so?
- What would VA's administrative costs be for purchasing health care services from community hospitals?
- How would VA care for patients not transferred to community hospitals and would the cost of such care be higher or lower than it is now?
- Would the elimination of VA direct health care result in the transfer of certain VA costs to other governmental programs, such as Medicaid and Medicare? (See p. 6.)

COMPARABLE DATA ARE
NOT AVAILABLE

VA and community hospitals differ in both the patient population served and the health services provided. While VA recognized these differences, neither the VA cost data nor the community hospital cost data could be adjusted to fully account for fundamental differences.

VA treats fewer females and substantially fewer children, but cares for more chronic and long-term care patients than do community hospitals. Community hospitals, however, provide services (such as pediatrics, neonatal intensive care, obstetrics, and newborn and premature nursery) that VA does not offer, and they care for few chronic or long-term care patients.

The community hospital per diem rate VA used in its study was not adjusted to reflect the differences in services, and while VA eliminated the cost of certain services it provides that community hospitals do not, the VA per diem rate represents the cost of

care of both acute and nonacute care patients. Thus, VA's study compares the costs of dissimilar services provided to dissimilar patient populations.

Other questions exist about the comparability of community hospital and VA cost data. VA used straight-line depreciation for its facilities and equipment, whereas community hospitals used various depreciation methods, including straight-line and accelerated depreciation methods. Also, VA used a useful life of 67 years for its hospitals, while community hospitals generally used 40 years for similarly constructed facilities. Thus, the portion of the community hospital and VA per diem rates representing facility and equipment costs are probably different even though the equipment and facilities may be identical. (See p. 7.)

VA MADE QUESTIONABLE ASSUMPTIONS, ADJUSTMENTS, AND CALCULATIONS

Because VA and community hospital systems and cost data are not readily comparable, VA made a number of assumptions and adjustments. GAO questioned the appropriateness of some of these assumptions and adjustments and identified errors in VA's calculations:

- VA excluded costs of certain services from its per diem rates, but not from community hospitals' rates. (See p. 8.)
- VA may have overstated community hospital costs by using only the per diem rate for hospitals affiliated with medical schools when the VA system is a mixture of affiliated and nonaffiliated hospitals. (See p. 8.)
- VA may have overstated community hospital physician charges by using Medicare data. (See p. 9.)
- VA may have understated its surgical care costs because not all patients in VA's surgical bed sections actually undergo surgery and, therefore, their inclusion as surgical patients may have lowered the per diem costs of VA surgical patients. (See p. 10.)

--VA may have misapportioned the community hospital per diem rates by computing separate medical and surgical rates without accounting for any differences in the numbers of medical and surgical patients treated. (See p. 10.)

--VA may have overstated its administrative costs to purchase health care services from community hospitals. (See p. 11.)

--VA incorrectly calculated its indirect patient costs. (See p. 11.)

RELIABILITY OF VA MEDICAL AND
SURGICAL PER DIEM RATES COULD
NOT BE DETERMINED

GAO's limited analysis of VA's cost accounting and reporting systems and a test of supporting documents for selected transactions showed that the total medical and surgical care costs reported for the VA hospitals in Portland and Vancouver were reasonably accurate. However, GAO could not verify the accuracy of the medical and surgical per diem rates that VA developed for those hospitals. The factors VA used to distribute costs to various medical activities had not been updated to reflect current conditions, and limited information was available to assess their reasonableness. (See ch. 3.)

RECOMMENDATION TO THE ADMINISTRATOR
OF VETERANS AFFAIRS

GAO recommends that the Administrator not use the results of the 1982 VA and community hospital cost comparisons to assert that VA can provide medical care to veterans less expensively than community hospitals. (See p. 12.)

AGENCY COMMENTS

Although VA acknowledged that there was room for improvement in its cost comparison methodology, it did not specifically address GAO's recommendation. (See pp. 12 and 17, and app. II.)

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ABBREVIATIONS

AHA	American Hospital Association
ALOS	average length of stay
CALM	Centralized Accounting for Local Management
GAO	General Accounting Office
HHS	Department of Health and Human Services
NAS	National Academy of Sciences
PAID	Personnel and Accounting Integrated Data Pay
VA	Veterans Administration

CHAPTER 1

VA'S COST COMPARISON STUDIES

In 1977, the Veterans Administration (VA) conducted a nationwide cost comparison of VA and community hospitals to determine whether the costs associated with an acute inpatient stay would be less if VA patients were treated in community hospitals rather than VA hospitals. VA concluded that it could provide an average episode of care about 10 percent less expensively than community hospitals.

In issuing the 1977 study, VA indicated that the limitations of the analysis were numerous. VA reported that

- the study did not address the issue of quality of care,
- it did not have a cost accounting system which could portray the actual costs of caring for a particular patient or diagnostic group of patients, and
- the organization of health care services at its hospitals was not amenable to quantitative cost analysis.

We and several other organizations raised a number of specific questions about the study's methodology. Further, in 1978 hearings before the Senate Committee on Veterans' Affairs, VA stated that it was not content with the 1977 study and its methodology and would continue to try to refine it.

VA published an update of the study in 1979, with some small refinements, as its first attempt to respond to critiques of the 1977 study. The updating indicated that an episode of inpatient care in VA hospitals was still less expensive than in community hospitals.

In 1981 VA again updated the 1977 study using a new technique to estimate the average length of stay (ALOS) of a comparable patient population in the two hospital systems and a different data base for community hospital costs. The updated 1981 nationwide study showed that VA could provide an average episode of inpatient care about 18 to 23 percent less expensively than community hospitals.

VA excluded interest expense on the net capital investment and underestimated the community hospital inpatient per diem rate in the 1981 cost comparison studies. When we requested VA to provide us a detailed description of the specific methodology used to conduct the 1981 study, VA revised the nationwide study to correct the two deficiencies. This study, which we refer

to as VA's 1982 study, showed that VA's acute inpatient medical and surgical care was about 15 and 19 percent less expensive, respectively, than community hospitals. (See app. I.)

LOCAL COMMUNITY COST COMPARISON

Several groups in the Portland, Oregon, area recommended that VA phase its patient load into the general delivery of health service in community hospitals instead of replacing the VA hospital in Portland. Subsequently, VA adapted the methodology in its nationwide 1981 study to compare the cost of an episode of care in VA's Portland, Oregon, and Vancouver, Washington, hospitals 1/ to the cost of care in community hospitals in the Portland area.

The 1981 local community hospital cost comparison showed that in the Portland and Vancouver VA hospitals, the cost of acute medical and surgical inpatient care averaged about 12 and 15 percent less, respectively, than the cost of comparable care in community hospitals. VA concluded that the study found compelling evidence for VA to maintain its health care system in its present framework. The 1982 study showed that an average episode of acute medical and surgical inpatient care at the Portland and Vancouver VA hospitals were about 10 and 14 percent less expensive, respectively, than care in the Portland area community hospitals. The local community hospital cost comparison study is also included in appendix I.

STUDIES' RESULTS

The following tables show the results of the 1981 and 1982 cost comparisons for both the entire VA operation (comprehensive services) and for only those VA services which VA contends are offered in community hospitals (comparable services).

1/The VA hospital in Vancouver is located in the Portland metropolitan area. The VA hospital in Portland is an affiliated institution and the VA hospital in Vancouver is nonaffiliated; therefore, VA reasoned that the most equitable comparison was to compare both the Portland and Vancouver VA hospitals with all community affiliated and nonaffiliated hospitals in the Portland area.

Nationwide Episode of Care Cost Comparison

	1981			1982		
	<u>VA hos- pital</u>	<u>Commun- ity hospital</u>	<u>VA advantage (percent)</u>	<u>VA hos- pital</u>	<u>Commun- ity hospital</u>	<u>VA advantage (percent)</u>
Comprehensive services:						
Medical	\$2,481	\$2,982	16.8	\$2,626	\$3,065	14.3
Surgical	3,256	4,061	19.8	3,447	4,099	15.9
Weighted average	2,808	3,438	18.3	2,973	3,502	15.1
Comparable services:						
Medical	2,343	2,982	21.4	2,480	3,065	19.1
Surgical	3,107	4,061	23.5	3,289	4,099	19.8
Weighted average	2,666	3,438	22.5	2,822	3,502	19.4

Portland-Vancouver Episode of Care Cost Comparison

	1981			1982		
	<u>VA hos- pital</u>	<u>Commun- ity hospital</u>	<u>VA advantage (percent)</u>	<u>VA hos- pital</u>	<u>Commun- ity hospital</u>	<u>VA advantage (percent)</u>
Comprehensive services:						
Medical	\$2,649	\$2,708	2.2	\$2,738	\$2,776	1.4
Surgical	3,060	3,858	20.7	3,163	3,888	18.7
Weighted average	2,824	3,196	11.6	2,918	3,248	10.2
Comparable services:						
Medical	2,499	2,708	7.7	2,583	2,776	7.0
Surgical	2,999	3,858	22.3	3,059	3,888	21.3
Weighted average	2,711	3,196	15.2	2,785	3,248	14.3

HOW VA USED THE STUDIES' RESULTS

In 1977 the National Academy of Sciences (NAS) submitted its review and appraisal of the VA health care system to the Congress. One of NAS' recommendations was that VA should design its policies and programs to ultimately permit the VA system to be phased into the general delivery of health service in communities nationwide. As part of its response to the NAS recommendation, VA prepared its 1977 nationwide cost comparison study showing that VA was providing care to veterans in the most cost effective manner. Also, in 1981, VA used its Portland area cost comparison study to substantiate maintaining its Portland and Vancouver hospitals in their present framework.

VA has been questioned before the Senate Committee on Veterans' Affairs regarding costs in its hospitals versus community hospital costs. In 1980 hearings, VA told Committee members that its care cost about 7 percent less than purchasing that care in the community.

OBJECTIVES, SCOPE, AND METHODOLOGY OF OUR ANALYSIS

The Ranking Minority Member of the Senate Committee on Veterans' Affairs requested us to evaluate the methodology VA used in its 1981 medical care cost comparison study and verify its usefulness as a valid, accurate indicator of VA versus community hospital costs.

Our study was conducted at the VA central office, Department of Medicine and Surgery, Washington, D.C., and at the VA hospitals in Portland and Vancouver. In addition, we gathered information from the Blue Cross Association, Portland, Oregon, on the Portland area community hospital costs. Further, we contacted the American Hospital Association (AHA) to clarify and elaborate on the community hospital cost data disclosed in its 1981 report entitled "Hospital Statistics."

To analyze VA's methodology for the 1982 cost comparison studies, we discussed the methodology with the VA principal investigator and other VA officials. We also reviewed critiques on the 1977 study to determine their applicability to the 1982 studies, examined data sources to determine their appropriateness, identified adjustments to data and justifications for the adjustments, and identified assumptions and bases for the premises. In addition, we consulted with the Congressional Research Service. Further, we calculated the per item rate for 15 community hospitals in the Portland area using Medicare cost reports.

We did not try to verify the data used in the nationwide study; those data were amassed from VA's 172 hospitals and covered about \$3.2 billion in medical and surgical care costs.

To test the accuracy of the cost data used in the Portland study, we selected one cost center at the Portland and Vancouver hospitals and traced a statistical sample of all costs (other than personnel costs) to source documents. For personnel costs, we traced the fiscal year totals for three cost centers to each payroll period, and for one payroll period, we traced the total to individual payroll records.

We tried to verify the patient days reported by VA for its hospitals in Portland and Vancouver for fiscal year 1980. We traced the total patient days reported for the year to monthly and daily reports, but we were unable to verify that the number of patients that VA listed as "on board" on any given day were actually patients in the hospitals on that day because the VA hospitals in Portland and Vancouver did not maintain daily patient rosters for fiscal year 1980. Therefore, we could not verify the per diem rates.

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

CHAPTER 2

VA'S METHODOLOGY LIMITS THE USEFULNESS OF ITS COST COMPARISONS

The study did not attempt to measure how the community hospitals and VA's costs would change if VA's acute care patients were treated in community hospitals, and therefore, the study provides no basis for judging the merits of such a decision. Moreover, the data, assumptions, and methodology VA used to compare the cost of an episode of medical and surgical care in its hospital system to that of the community hospital system had several weaknesses which limited the validity of the results.

VA'S STUDY DID NOT ADDRESS SOME CRITICAL ISSUES

The VA study attempts to compare the historical cost of treating veterans in need of acute care in VA hospitals with the historical costs of care in community hospitals. No attempt was made to estimate how community hospitals' costs would change if a decision were made to treat in community hospitals all veterans in need of acute care, nor were the impacts on residual VA health programs assessed.

Phasing VA patients into the community hospital system would have an undetermined effect on occupancy rates and staffing levels in community hospitals. Community hospitals with low occupancy levels could possibly absorb VA patients with little or no need for additional investment in buildings and equipment, although staffing requirements might increase. Conversely, community hospitals with high occupancy levels might have to expand facilities and increase staffing levels to accommodate VA patients. The changes in occupancy rates and staffing levels that would occur in the community hospital system could have cost implications that may result in a lower or higher per diem rate than that used by VA for community hospitals.

The study did not consider the disposition of unneeded hospitals, equipment, and staff if a decision were made to phase VA patients into community hospitals. VA operates the largest health care system in the United States, employing about 194,000 people and spending about \$6.7 billion in fiscal year 1981. Furthermore, the study does not answer the following critical questions to determine all costs and benefits associated with phasing VA patients into community hospitals:

- Would the addition of patients to the community system enable it to use excess capacity with a lowering of costs to all patients or would additional capacity have to be provided and at what costs?

- How would VA dispose of unneeded hospitals, equipment, and staff and what would be the costs and benefits of doing so?
- What would VA's administrative costs be for purchasing health care services from community hospitals?
- How would VA care for patients not transferred to community hospitals and would the cost of such care be higher or lower than it is now?
- Would the elimination of VA direct health care result in the transfer of certain VA costs to other governmental programs, such as Medicaid and Medicare?

COMPARABLE DATA ARE NOT AVAILABLE

VA and community hospitals differ in both the patient population served and the health services provided. While VA recognized these differences, neither VA nor the community hospital cost or length-of-stay data could be adjusted to fully account for fundamental differences.

VA treats fewer women and substantially fewer children, but cares for more chronic and long-term care patients than do community hospitals. In contrast, community hospitals provide services (such as pediatrics, neonatal intensive care, obstetrics, and newborn and premature nursery) that VA does not offer, and they care for fewer chronic and long-term care cases.

The community hospital per diem rate VA used in its study was not adjusted to reflect the differences in services, and while VA eliminated the cost of certain services it provides but community hospitals do not, the VA per diem rate represents the cost of care of both acute and nonacute care patients. Thus, VA's study compares the cost of dissimilar services provided to dissimilar patient populations.

Other questions exist about the comparability of community hospital and VA cost data. VA used straight-line depreciation for its facilities and equipment whereas community hospitals used various depreciation methods, including straight-line and accelerated depreciation methods. Also, VA used a useful life of 67 years for its hospitals, while community hospitals generally used 40 years for similarly constructed facilities. Thus, the portion of the community hospital and VA per diem rates representing facility and equipment costs are probably different even though the equipment and facilities may be identical.

VA MADE QUESTIONABLE ASSUMPTIONS,
ADJUSTMENTS, AND CALCULATIONS TO
THE DATA USED IN ITS COST COMPARISONS

To determine whether it was providing episodes of acute medical and surgical care less expensively than community hospitals, VA tried to estimate what the costs of both systems would have been if they had provided the same services to the same mix of patients. Because VA and community hospital systems and cost data are not readily comparable, VA had to make many assumptions and adjustments. We question the appropriateness of some of these assumptions and adjustments VA made to its data and community hospital data. Also, VA incorrectly calculated its indirect patient costs.

VA excluded costs of certain services
from its per diem rates, but not
from community hospitals' rates

VA used two methods to calculate its cost for episodes of acute inpatient medical and surgical care and compared the results of each to the cost of care in community hospitals: the comprehensive services comparison included all costs for VA hospitals and community hospitals affiliated with medical schools regardless of any differences in services offered; the comparable services comparison excluded services from VA hospital costs which VA believed were not generally provided by community hospitals.

In the comparable services comparison, VA excluded costs from its per diem rates for psychology, audiology, podiatric, optometric, geriatric research, dental clinic, blind rehabilitation, recreation service, chaplains, and research support activities. On the other hand, VA did not exclude from the community hospitals' per diem rates the cost of services that VA hospitals do not provide, including such services as pediatrics, neonatal intensive care, obstetrics, newborn nursery, and premature nursery.

VA could not identify the cost associated with the services the community hospitals provide that VA does not offer. Nonetheless, VA excluded the cost for dissimilar services from its per diem rates, but not from the community's; thus, VA's comparison was flawed.

VA may have overstated community hospital
costs by using per diem rates only for
hospitals affiliated with medical schools

VA compared all of its hospitals to only those community hospitals affiliated with medical schools. VA stated that most of its patients would have to be treated in affiliated community

hospitals to receive the same level of care that VA provides because about half of VA hospitals are strongly affiliated with medical schools. This overstated the community hospitals' costs because (1) not all VA hospitals are strongly affiliated with medical schools and (2) costs at nonaffiliated hospitals--both in the VA and community systems--are less than costs at affiliated hospitals.

According to VA's Office of Academic Affairs, as of March 1981, 82 of the 172 VA hospitals (about 48 percent) had strong affiliations with medical schools--that is, the hospital had affiliation activity in most medical specialties and subspecialties. Another 45 VA hospitals had less intense affiliations and 45 were unaffiliated.

The per diem rate reported by AHA for nonaffiliated community hospitals for 1980 was about 15 percent less than the reported rate for affiliated community hospitals. The average medical and surgical per diem costs at VA hospitals with no affiliation were about 42 and 11 percent less, respectively, than the rates for affiliated VA hospitals in fiscal year 1980.

VA may have overstated the community hospitals' cost by comparing its system-wide costs, which include affiliated and nonaffiliated hospitals, to costs of affiliated community hospitals only.

VA may have overstated community hospital physician charges

Cost accounting procedures for attending physician fees differ between VA and community hospitals. Community hospital patients are billed for hospital and physician services separately, whereas the costs of physician services are incorporated into VA's inpatient care costs. AHA's community hospital cost data that VA used in its study represent only hospital expenses. VA used a special survey of fiscal year 1975 Medicare enrollees conducted by the Department of Health and Human Services (HHS) to compute attending physician charges. These costs were updated to fiscal year 1980 by applying the increase in the physician fee segment of the Consumer Price Index.

HHS, in comments on VA's 1977 study, stated that VA overestimated attending physician costs by using Medicare cost data because patients over age 65 have significantly longer hospital stays than those under 65. VA recognized that the aged generally have multiple diagnoses and are subject to several health problems related to aging that may affect the severity of an illness; however, VA indicated that the HHS data were the best available. The Medicare data are based on patients over age 65, whereas about 76 percent of all patients discharged from VA hospitals in fiscal year 1980 were under 65; the average age was 55.

In VA's 1982 nationwide study, it acknowledged that new data need to be developed to determine community hospital attending physician fees. Nonetheless, VA again used the Medicare data.

VA's surgical care costs
may be understated

VA's surgical care costs may be understated because not all patients in VA's surgical bed sections actually undergo surgery. Some surgical patients receive only medical care and, for the purposes of a cost comparison study by bed sections, should be classified as medical bed patients. Their inclusion as surgical patients probably lowered the per diem costs of VA surgical patients.

In its 1977 study, NAS noted that no surgery was performed on 47 percent of the patients discharged from VA surgical services in fiscal year 1975. NAS pointed out that in private hospitals, patients are admitted to a surgical service only on referral by a physician who has already determined that surgery is necessary; VA hospitals generally lack a comparable referral system. In response to the NAS finding, VA conducted a survey of patients discharged from its surgical services in fiscal year 1977. The survey showed that no surgery was performed on 45 percent of the patients discharged from its surgical bed sections in fiscal year 1977. Because VA's adjusted ALOSs for medical and surgical patients were almost identical (14.8 days vs. 14.7 days), the misclassification of medical patients as surgical patients would not significantly affect the ALOS used in the study. However, because VA's per diem costs for a medical patient were less than its per diem costs for surgical patients, the misclassification would understate VA's surgical per diem rate by about 10 percent.

Community hospital per diem
rates may be misapportioned

Hospitals report a single per diem rate to AHA covering the cost of care of both medical and surgical patients, whereas VA computes separate medical and surgical rates for its hospitals. From the amount VA paid for veterans' care in non-VA hospitals during fiscal year 1980, VA determined that medical care in community hospitals cost 26 percent less per day than surgical care. Using this difference, VA computed separate surgical and medical rates from the single community hospital per diem rate. In doing so, VA may have misapportioned both rates because it failed to account for any difference in the numbers of medical and surgical patients treated.

VA treats significantly more medical patients than surgical patients; however, it assumed that community hospitals treated

equal numbers of medical and surgical patients. In its study, VA based its per diem rates on 6.2 million acute care medical patient days and 4.5 million surgical patient days (although these figures may be incorrect as discussed previously). Community hospitals probably do not treat equal numbers of medical and surgical patients either. In computing physician charges associated with community hospital care, VA estimated that about 60 percent of Medicare patients' episodes of care were medical, and about 40 percent were surgical. To the extent that the number of medical patients in community hospitals differs from the number of surgical patients, VA's computations misapportioned community hospitals' surgical and medical per diem rates.

VA's estimated administrative costs
to purchase health care services
from community hospitals
may be overstated

Veterans may be treated at non-VA hospitals, at VA's expense, in certain circumstances. When this happens, the hospitals bill VA. VA's estimated administrative costs to process these claims in fiscal year 1980 were about 3.2 percent of the total costs billed.

VA applied this percentage to the estimated community hospital and physician costs to arrive at the total cost to VA to have veterans treated in community hospitals. This added \$95 for each medical care episode and \$127 for each surgical care episode.

If all veterans were treated for acute illnesses in community hospitals at VA expense instead of in VA hospitals, the volume of claims would increase significantly and VA's cost to process them should be less per episode. For example, costs to HHS' Health Care Financing Administration to process Medicare claims are less than 1 percent of the total benefits paid for hospital care and about \$3 for each claim submitted by attending physicians. Therefore, we believe that VA may have overstated the community hospital and physician costs by increasing them 3.2 percent to arrive at the total cost of purchasing these services from the community.

VA incorrectly calculated
its indirect patient costs

In the 1982 nationwide cost comparison, VA should have calculated its indirect medical services costs by dividing the prorated indirect costs associated with its acute medical beds (\$577.3 million) by the patient days associated with those acute beds (7.8 million). Instead, VA divided the indirect costs associated with the acute medical beds by the patient days associated with the acute and nonacute medical beds (12.3 million). Therefore, the \$178.67 (comprehensive) per diem rate was understated by \$29.71.

This miscalculation had a significant effect on the results of VA's nationwide study. By correcting this error alone, VA's cost of an average episode of medical care would be nearly equal to the community hospital costs, instead of 14.3 percent less expensive as VA concluded in its 1982 study.

CONCLUSIONS

Until better data are available, the type of study VA has done will continue to be plagued with the problem of comparing the costs of dissimilar services provided to dissimilar patient populations. Even if the comparability problem is resolved, a comparison of historical costs will not be adequate to judge the merits of treating veterans in community hospitals. It might, however, serve as a catalyst to determine if a study should be undertaken that would provide the kind of analysis needed to assess the difference in total costs and benefits to the Government of the alternatives. Until then, the study should not be used as a basis for any decision concerning the merits of alternatives.

RECOMMENDATION TO THE ADMINISTRATOR OF VETERANS AFFAIRS

We recommend that the Administrator not use the results of the 1982 VA and community hospital cost comparisons to assert that VA can provide medical care to the veteran population less expensively than community hospitals.

AGENCY COMMENTS

Although VA acknowledged that its cost comparison methodology could be improved, it did not directly address our recommendation. VA stated that it will review its methodology and, as permitted by the availability of resources to conduct further research or the development of new data bases for private sector costs, will make adjustments in the methods used to compare the costs of providing health care.

We believe that until VA develops an acceptable cost comparison methodology, it should not present the results of its study as a reliable measure of the relative costs of treating veterans in community and VA hospitals.

CHAPTER 3

RELIABILITY OF VA'S PER DIEM

RATES COULD NOT BE DETERMINED

FROM AVAILABLE INFORMATION

A limited analysis of VA's cost accounting and reporting systems and a test of supporting documents for selected transactions show that the total medical and surgical care costs reported for the VA hospitals in Portland and Vancouver are reasonably accurate. However, the accuracy of the per diem rates that VA developed from those costs could not be assessed because limited information was available to judge the reasonableness of the factors VA used to distribute costs to various medical activities. Weaknesses in VA's system for distributing medical care costs cast doubt on the reliability of the per diem rates VA used in its local community cost comparison study.

VA'S MEDICAL COST SYSTEM

VA's medical cost system comprises three basic computer-oriented systems--the Personnel and Accounting Integrated Data Pay (PAID) system, the Centralized Accounting for Local Management (CALM) system, and the medical care costs distribution system. VA uses the PAID system to process personal service (payroll) transactions and the CALM system to process transactions for all other costs, such as rent, communications, utilities, supplies, and materials. VA accumulates the personal service costs and all other costs under medical care cost centers (e.g., surgical, nursing, pharmacy, and laboratory cost centers).

VA combines the payroll data from the PAID system with cost data from the CALM system to prepare monthly computer-generated reports which show personal service costs and all other costs by cost center and related minor cost subaccounts. In fiscal year 1980, the VA hospitals in Portland and Vancouver reported personal service costs of about \$39.2 million and all other costs of about \$18.8 million.

VA distributes the costs accumulated under medical care cost centers to the various medical activities; that is, inpatient care at VA hospitals (medical, surgical, and psychiatric bed sections), domiciliaries, outpatient care at VA and non-VA facilities, etc. VA uses the distributed costs to develop the per diem rates of the various medical activities by dividing the distributed costs by a work unit factor, such as patient days.

COST DATA APPEAR
REASONABLY ACCURATE

Based on a limited review of the payroll system and a test of transactions in one cost center in each hospital, we concluded that the costs reported for the VA hospitals in Portland and Vancouver are reasonably accurate.

The fiscal year 1980 personal service costs reported for three cost centers (surgical, nursing, and dietetics) under the CALM system were supported by costs generated under the PAID system. In addition, for two of the three cost centers (surgical and dietetics) we verified that the personal service costs reported under the PAID system for one pay period agreed with the totals reported on individual employee earnings and leave statements.

We did not verify that payroll payments for individual employees were accurate; however, under VA's fiscal quality control system, local VA staff audit the payroll system. For example, an audit of the VA Vancouver hospital's employee accounts for the quarter ended June 30, 1981, included a review of employee time and attendance cards, employee payfolders, separated or transferred employees, Federal employees' unemployment compensation forms, and health benefit withholdings and contributions. In this audit, VA identified only one error that resulted in an employee not receiving the proper pay.

Based on a randomly selected sample of transactions in one cost center in each hospital, we concluded that controls at the VA hospitals in Portland and Vancouver adequately assured that the medical centers properly classified and accurately reported all other costs in records and financial reports. Of 125 transactions sampled in the surgical cost center for fiscal year 1980, supporting documents showed that 123 were accurately reported as costs of the proper cost center. Based on this sample, we are 95 percent confident that the error rate in this cost center was no more than 3.8 percent.

To statistically validate all costs, we had planned to sample transactions in other cost centers. However, because of the problems described below in distributing costs to develop medical and surgical per diem rates, we concluded that further sampling would not be worthwhile.

MEDICAL CARE COSTS MAY NOT HAVE
BEEN DISTRIBUTED ACCURATELY

VA distributed the Portland and Vancouver hospitals' fiscal year 1980 medical care costs to the various medical care activities based on distribution factors which had not been updated to

reflect 1980 conditions. For most cost centers, we could not determine what distribution factors VA should have used because information needed to develop distribution factors for each quarter was unavailable. As a result, we could not determine whether the per diem rates VA used in its cost comparison study were accurate indicators of the cost of providing medical and surgical services at the Portland and Vancouver hospitals.

VA's cost accounting system does not portray the actual cost of caring for a particular patient; therefore, VA distributes costs to various medical activities using such factors as time spent, supplies consumed, services used, patients treated, and square feet served. VA regulations require operating officials at each VA hospital to provide its fiscal service with quarterly information so that it can develop percentage factors for each cost center. These data are then transmitted to VA's data processing center which uses the percentage factors to generate the quarterly report of medical care distribution accounts. The quarterly report includes the per diem rates for medical, surgical, and psychiatric services as well as other hospital activities.

Although VA regulations require VA hospitals to accumulate the information needed to update the distribution percentage quarterly, officials at the Portland and Vancouver facilities did not do so. The Portland and Vancouver hospitals last updated their distribution percentages in June 1979 and June 1980, respectively. A Portland VA hospital official said the staff did not update distribution percentages quarterly because they were busy doing other, higher priority work.

We could not develop the percentage factors that VA should have used in distributing costs for most of the 19 direct care cost centers because information was not available on the time spent, supplies consumed, or services used for each cost category. Therefore, we could not determine what the fiscal year 1980 medical and surgical per diem rates would have been if VA had updated percentages to distribute costs in each cost center.

In addition, the method VA used to accumulate information on time spent, supplies consumed, and services used raises questions as to the validity of the per diem rates reported for the various hospital activities. VA regulations do not provide hospitals guidance on how to accumulate the information to be used to develop distribution percentages. The Portland VA hospital developed its distribution percentages based solely on estimates rather than any study or record of actual use. According to the accounting chief for the Portland VA hospital, when the center last developed distribution factors, he asked operating officials to account for time spent and supplies consumed in the various categories for a 2-week period. However, most operating officials gave him a judgmental estimate rather than the actual use. In

addition, VA distributed all other costs of many cost centers using the same distribution percentages as it used to distribute personal service costs.

On the other hand, the Portland and Vancouver VA hospitals had information available to update distribution percentages for many indirect cost accounts, such as administration, engineering, and building management. The hospitals distributed expenses to cost centers based on the outdated number of patients treated although they had accumulated current data on the number of patients treated. In fiscal year 1980, they distributed about \$4.1 million based on outdated patient data. As a result, the hospitals overstated the administration per diem rate for surgical services by \$3.40 and understated the per diem rate for medical services by \$2.72.

In addition, VA did not include about \$36,300 in the volunteer service cost center when computing the administration per diem rates for medical and surgical services. VA should have distributed these indirect costs to the medical and surgical services based on the full-time equivalent employees assigned to each category during the previous quarter.

VA USED COMMUNITY HOSPITAL
PER DIEM RATE SIMILAR TO THE RATE
DEVELOPED UNDER MEDICARE

The community hospital per diem rate VA used in its Portland/Vancouver cost comparison was similar to the per diem rate we developed from Medicare cost reports.

VA compared the per diem rate of the Portland and Vancouver VA hospitals with the Portland area community hospitals' per diem rate reported by AHA. AHA reported that the 1980 per diem rate for 19 acute care community hospitals in the Portland metropolitan area was \$326. The per diem rate that we developed from Medicare cost reports for 15 acute care community hospitals in the Portland area was \$321, or about 2 percent less than the rate reported by AHA.

CONCLUSIONS

While the Portland and Vancouver VA hospitals' total medical and surgical care costs were reasonably accurate, we could not determine the accuracy of the per diem rates VA developed after distributing these costs to medical and surgical activities because the distribution factors were not sufficiently documented to permit independent verification.

Although we could not validate the medical and surgical per diem rates, we question their accuracy because VA used factors to distribute the fiscal year 1980 medical costs that were either

based on (1) estimates rather than on actual time spent, supplies consumed, or services used in each quarter of fiscal year 1980 or (2) information that had not been updated to reflect current conditions.

AGENCY COMMENTS

VA stated that it was initiating additional internal controls and preparing additional guidance to improve the distribution of VA medical center cost data, which should result in more accurate medical and surgical per diem rates.

Department of Medicine
and Surgery

Washington D.C. 20420



In Reply Refer To: 10C3B

Joe E. Totten
Group Director
Human Resources Division
General Accounting Office
Washington, D. C. 20548

Dear Mr. Totten:

Enclosed is a copy of our recently revised study FY 1980 Episode of Medical Care Cost Comparison. Per your request this revision contains a detailed description of the study methodology. Appendix A of the study presents the application of the national methodology to a local community - Portland, Oregon. The methodological modifications required to apply the national methodology to Portland are explained in the Appendix.

If you have any questions concerning the study please contact Mark Adelman on 389-2961. I appreciate the opportunity to be of service to you.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Custis'.

DONALD L. CUSTIS, M.D.
Chief Medical Director

Enclosure

FY 1980 EPISODE OF MEDICAL CARE COSTS COMPARISON:
VA MEDICAL CENTERS COMPARED WITH COMMUNITY HOSPITALS
AFFILIATED WITH MEDICAL SCHOOLS - MEDICAL AND SURGICAL
ACUTE CARE EPISODES

Prepared by

HEALTH SYSTEM INFORMATION SERVICE
OFFICE OF PROGRAM ANALYSIS AND DEVELOPMENT
DEPARTMENT OF MEDICINE AND SURGERY
VETERANS ADMINISTRATION
JUNE 1, 1981; REVISED FEBRUARY 1982

PRINCIPAL INVESTIGATOR:
MARK ADELMAN

EXECUTIVE SUMMARY

FY 1980 EPISODE OF MEDICAL CARE COST COMPARISONS: VA MEDICAL CENTERS COMPARED WITH COMMUNITY HOSPITALS AFFILIATED WITH MEDICAL SCHOOLS - MEDICAL AND SURGICAL ACUTE CARE EPISODES.

The 1980 study update, while constructed on the base of the 1977 VA Medical Care Cost Comparison Study, is a significant departure from and major improvement on the study. The two critical improvements are the use of a new technique to estimate comparable lengths of stay (LOS) and the use of a more equitable data set for community hospital costs.

The average LOS figures for the community system are those that the community would attain if they treated the VA's mix of patients. The specific LOS figures used are based on the Professional Activity Study (PAS) of short-term non-federal hospitals, as compiled by the Commission on Professional and Hospital Activities. These LOS's are then assigned weights corresponding to the VA's patient mix distribution stratified by age, sex, race, diagnosis and the presence or absence of multiple diagnosis and surgery. This methodology provides us with the patient population that the community would have to treat if we were to "mainstream" our short-term patient care. (This procedure was developed by the Health System Information Service for use in projecting hospital bed requirements.)

The second improvement in comparability follows from the need to provide quality care for our patients in whatever setting they receive care. Thus if we were to "mainstream" our patients, most of them would have to be treated in community hospitals affiliated with medical schools in order to maintain the levels of care they are currently receiving.

In FY 1980, 126 of the 172 VAMCs were affiliated with medical schools and all VA facilities were engaged in the education and training of students in the Health Care Professions and Occupations. Thus in light of the strongly affiliated nature of the VA system, costs were compared with the AHA's expenses per adjusted inpatient day figure for community hospitals affiliated with medical schools. This comparison provides a crude measure of quality of care and the costs associated with providing VA patients with the same quality of care that they are currently receiving.

Thus, two types of comparisons were made. First, costs of providing comparable services in both systems were compared, that is certain costs of services either not provided by community hospitals; e.g., Audiology, Optometry, etc., or not charged for, e.g., Chaplains, were excluded. As a result, it was found that it is 19.4 percent less expensive to provide an average episode of care in our facilities than it would have been to purchase comparable care in the community during FY 1980.

The second comparison looked at the costs of providing the VA's comprehensive service package as against purchasing the lesser package of services provided by community hospitals. In this case it would have been 15.1 percent cheaper for the VA to provide this comprehensive service package ourselves rather than purchasing the lesser package from the community.

Another way of looking at the cost savings resulting from not "mainstreaming" VA patients is to look at systemwide savings rather than savings per episode of acute care. Thus, in FY 1980 the VA provided 727,993 episodes of short-term care at a savings of between \$385,000,000 for the comprehensive services package and \$495,000,000 for the comparable services package.

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THE "MAINSTREAMING" ISSUE

It has been proposed that the VA provide for the delivery of all veteran health care services through private facilities which are retroactively reimbursed by the VA for providing the services. This proposal from various interests groups in the community of Portland, Oregon, was suggested in lieu of constructing a replacement medical center in Portland. This approach, identified by its Portland proponents as "mainstreaming", has been considered by others in the past, including the VA's own planning process; and in each instance, these reviews have found compelling justification for maintaining the VA health care delivery system in its present framework as a direct health care provider.

The term "mainstreaming" is a misnomer. The VA health care delivery program is already "in the mainstream" of American medicine in terms of delivery systems, quality assurance, manpower training, research, and in the use of public and private non-VA facilities. This paper defines the proposed "mainstreaming" as the replacement of the VA system as it exists today by an administrative voucher or reimbursement mechanism. It would pay for the provision of all health care benefits to eligible veterans by private health care personnel in private health care facilities.

Issues related to how the Nation's health services should be organized, delivered and financed have long been the subject of much controversy. Although there is considerable discussion about change, there is no widespread agreement on the direction of change that will yield the most desirable results.

Both the scope and financial resources of the VA medical care program are determined by legislative action. It is by this method that the eligibility of veterans for medical care under VA auspices is established, and the types of services, in broad terms, are authorized.

It is recognized that there could be many alternatives to the present system by which medical care is provided the veteran population. There is the distinct possibility that in the future a national health insurance system will be established. If this occurs, an important question will be the role of the VA medical care system, within such a national health insurance program. At one extreme, the VA system could be expanded to provide health care through its own facilities, with the cost being partially or completely financed from the national health insurance program. This could place the VA hospital system at the core of the national system. At the other extreme, it may be argued that, under such a new national program, there would be no need for a separate VA medical care system, since all veterans would be covered, and could obtain care in the private sector. Between these two extremes, numerous alternatives exist.

There are certain considerations that must be kept in mind as any option for veteran health care is evaluated. They include:

- o the majority of veterans cared for by the VA cannot afford private care - cannot, in fact, even afford the deductible and co-insurance costs of Medicare or of typical health insurance policies.

- o the majority of veterans cared for by the VA have no health insurance coverage.
- o any reduction in VA direct health care will result in the transfer of certain VA costs to other governmental programs.
- o certain services, such as specialized spinal cord injury treatment, for which veterans are eligible and which the VA provides, are not routinely or widely available in the private sector.
- o the VA role in health manpower training is, for many schools, an essential and irreplaceable resource.
- o the VA's acute and comprehensive, integrated chronic care capability and programs are sorely needed by the aging veteran population and the Nation.
- o the VA, as a federal direct health care system, provides an important contingency capability in time of war, and national or local disaster.
- o acute medical and surgical care costs more per hospital episode in the private sector than in the VA system.

The following paper presents an indepth analysis of one of these subjects - the comparative costs of providing episodes of medical and surgical acute care in VA medical centers and community hospitals affiliated with medical schools. The analysis is initially applied to the VA system as a whole and then, in Appendix A, applied in a modified form to the Portland, Oregon, area.

BACKGROUND OF THE COST COMPARISON STUDY

Because of continuing rapid inflation in the cost of medical care, possible further regulation of hospital pricing, proposed changes in hospital reimbursement schemes, and "mainstreaming", the question of how VA health care delivery costs compare to community health care delivery costs has become a substantial issue.

The cost of health care has been increasing faster than any other consumer commodity. This fact has resulted in deepening concern on the part of the medical community, consumers, the Congress, and, of course, the Department of Medicine and Surgery that quality care be delivered in the most cost effective manner. The National Academy of Sciences' Report, "Health Care for American Veterans," and the VA's Congressional Response, along with the ensuing dialogue, has highlighted the comparative costs of the VA and community health care delivery systems as a major issue.

As part of the initial dialogue, the Department of Medicine and Surgery prepared a 1977 study "Cost Comparison of the Veterans Administration and Community Medical Systems for Episodes of Acute Inpatient Medical and Surgical Care." (O'Connor. Department of Medicine and Surgery, VA, August, 1977.) This study restricted itself to the most readily comparable segments of the two health care delivery systems—short-term hospital care.

Besides the policymaking and managerial relevance of the comparative cost issue, this current study was further encouraged by questions (concerning the original study) raised by Senator Cranston at the March 6, 1978, hearings of the Senate Committee on Veterans' Affairs. The CMD responded as follows:

The Committee should know that we're not content with the study and its methodology although we are confident it's the best that can be achieved in the time frame and with the data base that we've had to work with. We will, therefore, be continuing to try and refine it.

In order to honor this commitment, an update of the 1977 study was published in July, 1979, which reflected FY 1978 per diem costs for both VA medical centers and the community medical system. The methodologies and average lengths of stay developed for the original study were used with some small refinements. The updating indicated that, based on changes in costs alone, an episode of medical or surgical inpatient care in a VA medical center is less costly than in a community hospital by a small but significant amount. That updating effort was the first step in our effort to provide a fresh new look at comparative inpatient costs and to be fully responsive to critiques of the 1977 study.

THE FY 1980 NATIONWIDE STUDY

The 1980 study, while constructed on the base of the 1977 effort, represents a significant departure from and major improvement to that study. Two critical changes have been made in the 1977 study's methodology. These are the use of a newly developed technique to estimate comparable lengths of stays (LOS) and the use of a more appropriate data set for community hospital costs. In addition to these major changes there were a number of minor changes designed to refine the study's comparative framework.

ESTIMATING LENGTH OF STAY (LOS)

Background Discussion: Before discussing the mechanics of the LOS estimating process it will be useful to consider the inherent differences between the operational characteristics of the two health care delivery systems. In the community sector, admission to the hospital for the great majority of patients (excluding emergency cases) is preceded by examination and evaluation of the patient by his physician. The community hospital patient is then admitted by his physician for the treatment of a particular condition or a set of associated conditions. In the great majority of the cases the patient is treated by a solo or small group practice physician under a fee-for-service arrangement.

By contrast, approximately 67% of the time, the veteran applies directly to the veterans hospital without benefit of a referring physician's evaluation. It must be recognized that the decision to admit a patient usually can be made rather quickly by the examining physician, but that the comprehensive evaluation and workup which the private sector patient receives at his doctor's office still remains to be done for the veteran. Furthermore, veterans hospitals operate as a comprehensive group practice resulting in the veteran very often receiving care for a number of diverse conditions during the same inpatient episode. These differences between health systems would appear to impact the VA LOS adversely in comparative terms.

While systemic differences, such as those described above, are not amenable to quantification and therefore to adjustment, we have been able to adjust our LOS data to account for differences in both the sociodemographic characteristics and the diagnostic characteristics of the patient population. (The first major improvement to the 1977 study) The desirability of controlling the patient population for sociodemographic characteristics such as age, income, race, and sex has been clearly established in the literature. Sex has an effect on the prevalence of various diagnostic entities as does race, while age, income, and race have an effect on the severity of illness. While the question of "does poverty cause poor health or does poor health cause poverty?" remains unsolved, the relationship between poor health and poverty has been established. Poverty, in turn, has a high correlation with age and race. Thus controlling the sample patient mix to the greatest degree feasible for age, race and sex will minimize LOS variation due to factors other than the relative efficiency of the two health care delivery systems. Controlling for the diagnostic characteristics of patient populations presents a difficult problem that has never been resolved in a completely satisfactory manner. One 1980 study identified and reviewed eight major, patient-based approaches to measuring case mix: (1) The PAS List "A"; (2) Diagnosis Related Groups (DRGs); (3) Disease Staging; (4) Isocost Groups; (5) Patient Management Algorithm; (6) VA Multi-Level Care Groups; (7) Resource need Index; and (8) Complexity Index. ("Describing and Paying Hospitals: Developments in Patient Case Mix." Bentley and Butler. Department of Teaching Hospitals, AAMC, May 1980). Five of the eight approaches are still in the developmental stage with only PAS List "A", DRGs, and Resource Need Index being completed approaches. Of the three completed approaches only the PAS List "A" has been used in any manner in the VA environment and even it presents some difficulties for comparative analysis.

The major clinical attribute around which the PAS List "A" is structured is the discharge diagnosis. The comparability problem arises from the fact that the VA and the community systems use a somewhat different discharge diagnosis concept. In community hospitals the discharge diagnosis represents what the attending physician judges to be the principle medical or surgical condition which occasioned the hospital stay. In the VA system primary diagnosis is defined as being the diagnosis which accounted for the greatest portion of the hospital stay. When the VA was significantly more involved in treating non-acute care patients the distinction between principle and primary was quite important. That was true because the VA patient population, unlike the community hospital patient population, is a mixture of medical, surgical, psychiatric, intermediate, and long-term patients. Thus, there is a significantly greater probability in the VA system for commingling patient types than normally exists for such commingling in the community system. Where such commingling exists it is important to know what diagnosis was the primary factor in determining LOS in order to understand what types of resources are being consumed

and thus what types of resources will be needed in the future. As the VA system has become more of an acute-care system the importance of the distinction between principle and primary diagnosis has decreased. Thus while this distinction still causes some distortion for comparative purposes, the distortion is not nearly as important now as it was in the past.

Estimating Technique: The PAS List "A" is based on length of stay data for 13,911,264 patients discharged during 1977 from 1,838 nonfederal, short-term hospitals. Hospitals providing the individual patient discharge abstracts used by PAS represented 29.7 percent of such hospitals and accounted for 39.4 percent of the beds. Patients studied were selected from a total of 14,649,459 discharges. Excluded were patients who died, transferred to another hospital, left against medical advice or whose abstracts lacked pertinent items of data. Patients with stays of 100 days or more were excluded from all statistics except the percentiles of stay. ("Length of Stay in PAS Hospitals by Diagnosis, United States, 1977": Commission on Professional and Hospital Activities. Ann Arbor, Michigan, March, 1979.)

The PAS data is currently being utilized in the VA/GAO bed sizing model. The model has been developed jointly by the VA and GAO to estimate the need for both total and acute hospital beds. The results of this model determine the number and type of beds that the VA system will need at given times in the future. The PAS data is utilized in estimating the future need for acute care beds while total bed needs are estimated by the application of a time series analysis to historical utilization experience.

As a by-product of the bed sizing model the VA produces an estimate of what PAS hospital LOS would be if those hospitals were treating the VA patient mix. ^{1/} The LOS estimating process is age and diagnosis specific and categorized by the presence or absence of multiple diagnoses and surgery. The resulting LOS are then adjusted to account for the difference in the racial discharge distribution between the PAS data base and the VA data base. Simply stated the PAS diagnostic cell lengths of stay are multiplied by the weights of the VA acute care patient population in the corresponding diagnostic cell to produce an average LOS representing what PAS hospital LOS would be if they were treating the VA patient mix. The bed sizing model, unlike the original PAS data, includes deaths, transfers, and irregular discharges. Thus, 99.5 percent of all VA discharges are included in the data base used in the bed sizing model.

The accounting rules used to produce both the community and VA LOS are the same. The LOS in both the updated 1977 Patient Treatment File (PTF) and in the PAS data file are assigned an upper bound. The maximum LOS permitted in the updated PTF is 365 days. There are two possible maximum LOS permitted for acute LOS. For a patient who died in the hospital, the acute LOS is either his actual LOS or 365 days, whichever is less. For a live discharge with an associated LOS of 100 days or more, the acute LOS is set equal to the LOS at the 95th percentile of PAS data (i.e., that LOS which is exceeded by only 5% (100% - 95%) of the similar discharges in PAS). The following, Table I, indicates the FY '80 estimates of LOS.

^{1/}Report PTF 338: GAO Hospital Sizing Model.

TABLE ILENGTH OF STAY ESTIMATES - FY 1980

<u>Patient Type</u>	Average LOS	
	<u>Community</u>	<u>VA</u>
Medical	10.7	14.7
Surgical	9.3	14.8

Formula A and Formula B on the following pages show how VA LOS were estimated. Report PTF 338 is the source of the community LOS estimates. That report is a by-product of the VA/GAO bed sizing model described, in detail, above.

Formula A. VA Length of Stay (LOS): VA/PAS FORMAT
 -Internal Medicine Patient Data
 - FY 1980 1/

1. Dead Patient Days Counted in VA/PAS Format

$$\left[\begin{array}{l} \text{Dead Discharges} \times \text{LOS} \\ \leq 365 \leq 365 \end{array} \right] + \left[\begin{array}{l} \text{Dead Discharges} \times 365 \\ > 365 \end{array} \right] =$$

$$(31,590 \times 25.1) + (526 \times 365) =$$

$$792,909 + 191,990 =$$

984,899 Dead Patient Days

2. Live Patient Days Counted in VA/PAS Format

$$\left[\begin{array}{l} \text{Live Discharges} \times \text{LOS} \\ \leq 99 \leq 99 \end{array} \right] + \left[\begin{array}{l} \text{Live Discharges} \times 100 \\ > 99 \end{array} \right]$$

$$(384,306 \times 12.4) + (4,229 \times 100) =$$

$$4,765,394 + 422,900 =$$

5,188,294 Live Patient Days

3. Total Patient Days Counted in VA/PAS Format

Dead Patient Days + Live Patient Days =

$$984,899 + 5,188,294 =$$

6,173,193 Total Patient Days

4. Average Medical LOS in VA/PAS Format

$$6,173,193 \text{ Patient Days} \div 420,651 \text{ Patients} = 14.7$$

1/Report PTF 344

Formula B - VA Length of Stay (LOS): VA/PAS FORMAT
- Surgery Patient Data - FY 1980 1/

1. Dead Patient Days Counted in VA/PAS Format

$$\left[\begin{array}{l} \text{Dead Discharges} \times \text{LOS} \\ \leq 365 \leq 365 \end{array} \right] + \left[\begin{array}{l} \text{Dead Discharges} \times 365 \\ > 365 \end{array} \right] =$$

$$(7,668 \times 36.1) + (38 \times 365) =$$

$$276,815 + 13,870 =$$

290,685 Dead Patient Days

2. Live Patient Days Counted in VA/PAS Format

$$\left[\begin{array}{l} \text{Live Discharges} \times \text{LOS} \\ \leq 99 \leq 99 \end{array} \right] + \left[\begin{array}{l} \text{Live Discharges} \times 100 \\ > 99 \end{array} \right]$$

$$(296,304 \times 13.2) + (3,332 \times 100) =$$

$$3,911,213 + 333,200 =$$

4,244,413 Live Patient Days

3. Total Patient Days Counted in VA/PAS Format

Dead Patient Days + Live Patient Days =

$$290,685 + 4,244,413 =$$

4,535,098 Total Patient Days

4. Average Surgical LOS in VA/PAS Format

$$4,535,098 \text{ Patient Days} \div 307,342 \text{ Patients} = 14.8$$

1/Report PTF 344.

ESTIMATING COST

Background Discussion: The second major improvement to the 1977 study is the use of cost data from the American Hospital Association's (AHA) 1980 Annual Survey of Hospitals. (The first major improvement is the newly developed technique for estimating comparable LOS described above) The 1977 study used cost data from the VA fee-basis hospital care program.

When it is in the best interest of the VA and VA patients, public or private hospitals may be used for the care of veterans. If regular demand is anticipated a contractual arrangement is established. When demand is anticipated to be infrequent, individual authorizations on a case-by-case basis are used. VA Regulation 6050.3 limits the use of non-VA facilities as follows:

"The admission of any patient to a private or public hospital at Veterans Administration expense will only be authorized if a Veterans Administration hospital or other Federal facility to which the patient would otherwise be eligible for admission is not feasibly available. A VA facility may be considered as not feasibly available when the urgency of the applicant's medical condition, the relative distance of the travel involved, or the nature of the treatment required makes it necessary or economically advisable to use public or private facilities. In those instances where care in public or private hospitals at VA expense is authorized because a VA or other Federal facility was not feasibly available, as defined above, the authorization will be continued after admission only for the period of time required to stabilize or improve the patient's condition to the extent that further care is no longer required to satisfy the purpose for which it was initiated."

The use of individual authorizations, known as the fee-basis hospital care program, under the above regulation produces a data base that is very small and not representative of either the VA or community hospital patient populations or cost structures. This is due to both the emergency care treatment bias of the regulations and the tendency to use rural hospitals with costs substantially below national averages.

The AHA Annual Survey provides expense ^{2/} data for 6,322 hospitals. This represents the only comprehensive general population cost data currently available. This cost data is collected on a hospital wide basis and therefore is not diagnosis, age, sex, or race specific. The data is grouped into two major nationwide categories of nonfederal hospitals - a) all nonfederal (and various sub-categories) and b) community hospitals affiliated with medical schools.

The category of community affiliated hospitals is the hospital grouping that most closely approximates the key characteristic of the VA system - medical school affiliation. During FY 1980, 126 of the 172 VA medical centers (VAMC) had some type of medical school affiliation. These 126 VAMCs treated 91 percent of all acute medical and surgical inpatients treated by the system, with approximately 75 percent of these patients being treated in VAMCs with intense affiliation programs. The affiliation intensity of the AHA affiliated hospitals appears to be the inverse of the VA intensity mix.

^{2/}Expenses will be assumed to be equal to cost.

That is 81 percent of patients treated in community affiliated hospitals are treated in hospitals with less intense affiliations and only 19 percent in hospitals with more intense affiliations. Since cost per inpatient day is higher for community hospitals with intense affiliations than for those with less intense affiliations, the cost comparison is weighted somewhat in favor of the community system due to the lesser degree of affiliation of the AHA data base. 3/

VA hospital costs come from the Report of Medical Care Distribution Accounts, RCS 14-4. Costs are distributed under criteria in general use in the community hospital system. Details of the distribution methodology can be found in VA Manual MP-4, Part V. The RCS 14-4 is designed to provide specific cost data for VAMCs by type of bed section - medical, surgical, and psychiatric. Costs are divided into two large categories: direct patient care and indirect patient (support) care costs. Table II shows the RCS 14-4 cost structure for medical and surgical bed sections.

3/ "Hospital Statistics, 1981 Edition." Table 8 - Utilization, Personnel, and Finances in Community Hospitals Affiliated with Medical Schools. AHA, 1981.

Table II: RCS 14-4 Cost Structure

<u>DIRECT AND INDIRECT CARE ACCOUNTS</u>			<u>BED SECTIONS</u>		
<u>Cost Center</u>	<u>Dir</u>	<u>Cost</u>	<u>Ind</u>	<u>Medical</u>	<u>Surgical</u>
1.	201 Medical	X		X	X
2.	202 Surgical	X		X	x
3.	203 Psychiatry	X		X	X
4.	221 Social Work	X		X	X
5.	222 Radiology	X		X	X
6.	223 Laboratory	X		X	X
7.	224 Pharmacy	X		X	X
8.	225 Medical Media	X		X	X
9.	226 Libraries	X		X	X
10.	227 Psychology	X		X	X
11.	228 Audiology and Speech Pathology	X		X	X
12.	229 Nuclear Medicine	X		X	X
13.	231 Podiatric	X		X	X
14.	232 Optometric	X		X	X
15.	233 Spinal Cord Injury	X		X	n/a
16.	234 Geriatric Research	X		X	n/a
17.	241 Nursing	X		X	X
18.	242 Rehab. Medicine	X		X	X
19.	243 Dietetics	X		X	X
20.	244 Chaplains	X		X	X
21.	245 Blind Rehab.	X		X	X
22.	246 Recreation Service	X		X	X
23.	251 Dental Clinic	X		X	X
24.	Sub-Total Direct Medical Bed Sections			23	
25.	Sub-Total Direct Surgical Bed Sections				21
26.	Indirect Support Cost Center				
27.	Administration		X	X	X
28.	Engineering		X	X	X
29.	Building Management		X	X	X
30.	Research Support		X	X	X
31.	Education and Training		X	X	X
32.	Sub-Total Indirect - Medical Beds			5	
33.	Sub-Total Indirect Surgical Beds				5
34.	Summary Direct and Indirect Medical Bed Sections			28	
35.	Summary Direct and Indirect Surgical Bed Section				26

For comparability purposes the RCS 14-4 data is augmented by adding the cost of building and equipment depreciation, interest on capital, Central Office overhead, and medical malpractice claims. On the other hand community hospital costs are augmented to include the cost for a patient's attending physician since VA hospital per diems include such physician costs.

Estimating Technique: VA costs were estimated for two packages of services for short-term medical (internal medicine bed section) and surgical (surgical bed section) patients. The first package of services includes all services provided patients in a VAMC regardless of whether or not that service is provided by the community system, i.e., Audiology, Optometry, Dentistry, Chaplaincy, etc... This has been designated the comprehensive service package. The second service package includes only services provided in both systems and has been designated the comparable service package.

The VA costs for direct and indirect patient services (funded costs) are derived from the RCS 14-4 for FY 1980. The unfunded, non-RCS 14-4 costs for FY 1980 equipment depreciation, building depreciation, and interest on net capital investments are computed under the guidelines of VA Manual MP-4, Part V, 6-107, 6-108, and 6-108a respectively. The Central Office overhead is estimated by the Controller. The percentages for FY 1980, which are applied to the total funded costs, were:

Depreciation of Equipment	2.4%
Depreciation of Buildings	0.7%
Central Office Med. Adm. Expenses (C.O. Overhead)	0.7%
Interest on Net Capital Investments	<u>6.0%</u>
 TOTAL	 9.8%

The unfunded cost concepts are used in computing charges for inpatient services furnished by the VA under sharing of medical resources in compliance with the Comptroller General's decision B166870 of June 12, 1970 and are in agreement with OMB Circular No. A-76 cost comparison requirements. As a final comparability element we have estimated a FY 1980 cost of 24 cents per patient day for malpractice awards for medical and surgical bed section patients. The costs were computed in cooperation with the General Counsel's Office, as follows:

126 Medical Malpractice Claims Settled -	\$3,942,312
Administrative Costs - 659 Claims Handled -	<u>2,000,000</u>
	\$5,942,312
All Hospital Patient Days = 24,928,540	
Cost Per Patient Day = \$ 5,942,312 ÷ 24,928,540 = .24	

This figure was doubled for use in the per diems in recognition of the greater probability of malpractice occurring in the acute care setting. Table III on the following pages presents the VA per diems.

TABLE III: FY 1980 VA MEDICAL AND SURGICAL
BED UNIT COSTS - RCS 14-4, TOTAL STATIONS

<u>COST CENTER</u>	<u>DIRECT CARE ACCOUNTS</u>	<u>MEDICAL COMPREHENSIVE SVCS</u>	<u>MEDICAL COMPARABLE SVCS</u>	<u>SURGICAL COMPREHENSIVE SVCS</u>	<u>SURGICAL COMPARABLE SVCS</u>
201	Medical	24.41	24.41	2.10	2.10
202	Surgical	.73	.73	28.87	28.87
203	Psychiatry	.39	.39	.22	.22
221	Social Work	1.79	1.79	1.26	1.26
222	Radiology	4.65	4.65	5.69	5.69
223	Laboratory	10.81	10.81	11.98	1.98
224	Pharmacy	6.58	6.58	8.45	8.45
225	Medical Media	.31	.31	.30	.30
226	Libraries	.61	.61	.55	.55
227	Psychology	.67	-	.27	-
228	Audiology & Speech				
	Pathology	.20	-	.22	-
229	Nuclear Medicine	1.96	1.96	.87	.87
231	Podiatric	.05	-	.05	-
232	Optometric	.07	-	.03	-
23	Spinal Cord Injury	.84	.84	-	-
234	Geriatric Research	.25	-	-	-
241	Nursing	44.54	44.54	54.13	54.13
242	Rehab Medicine	1.75	1.75	1.53	1.53
243	Dietetics	11.89	11.89	12.34	12.34
244	Chaplains	.73	-	.72	-
245	Blind Rehab	.28	-	-	-
246	Recreation Service	.26	-	.11	-
251	Dental Clinic	<u>1.76</u>	<u>-</u>	<u>1.73</u>	<u>-</u>
	Total Direct	115.53	111.26	131.42	128.29

TABLE III Cont'd

INDIRECT CARE
ACCOUNTS 1/

Administration	14.50	13.96 ^{2/}	23.96	23.39 ^{2/}
Engineering	13.68	13.17 ^{2/}	22.76	22.22 ^{2/}
Building Management	7.06	6.80 ^{2/}	11.45	11.18 ^{2/}
Research Support	3.18	-	4.77	-
Education & Training	8.34	8.03 ^{2/}	17.31	16.90 ^{2/}
Total Indirect	<u>46.76</u>	<u>41.96</u>	<u>80.25</u>	<u>73.69</u>
Subtotal Direct & Indirect	162.29	153.22	211.67	201.98
Unfunded Costs(.098)	15.90	15.02	20.74	19.79
Malpractice Costs	<u>.48</u>	<u>.48</u>	<u>.48</u>	<u>.48</u>
Total Per Diem	178.67	168.72	232.89	222.25

1/ Current VA indirect costs prorated to "Medicine" as the percent of total direct care cost for "Medicine" to all direct care costs for all Medical bed sections. (.7527)

2/ Administration, Engineering, Building Management and Education & Training support are reduced in proportion to the adjusted direct cost to the unadjusted direct cost: Medical - .9630; Surgical - .9762.

Community hospital costs are derived from the expenses per adjusted inpatient day estimates for Community hospitals affiliated with medical schools published by the AHA. These costs approximate the federal fiscal year time frame and are used as FY 1980 costs. ^{4/} The cost for FY 1980 was \$294.04 per inpatient day. This cost is for an undifferentiated day of care. In order to differentiate this cost into medical and surgical per diem costs we used the difference between the VA's fee-basis medical and surgical per diems (RCS 14-4 Accounts 721.100.311 and 721.200.311) as the apportionment mechanism. The process of apportionment is as follows:

- o VA FY 1980 Fee-Basis Medical per diem - \$181.83
- o VA FY 1980 Fee-Basis Surgical per diem - \$245.26
- o Medical per diem as a percent of surgical per diem - $181.83 \div 245.26 = 74\%$.

The 74 percent figure is used to develop the differentiating factors in the following manner: $(100+74) \div 2 = 87$. Medical factor = $74 \div 87 = .85$; Surgical factor = $100 \div 87 = 1.15$. These differentiating factors are then multiplied by the undifferentiated AHA FY 1980 cost for community affiliated hospitals. This gives us the following costs:

FY 1980 Community Affiliated Hospital Per Diem
 Medical \$ 294.04 x .85 = \$249.93
 Surgical \$294.04 x 1.15 = \$338.15

To represent the total cost to the government for purchasing these services from the community the per diems must be increased by 3.2% for administrative costs. ^{5/} Thus the final estimated costs (per diem plus administrative expenses) are:

Medical \$ 249.94 x 1.032 = \$ 257.93
 Surgical \$ 338.15 x 1.032 = \$348.97

As pointed out above, these costs represent only hospital expenses while, to be comparable to the VA, the total costs of an episode of hospitalization must include the attending physician's fees. VA per diems include the cost of the attending physician, while community per diems do not include attending physician costs.

Our 1977 study located the only source of information on the cost of attending physician services provided in conjunction with an episode of hospitalization. This was a special survey of Medicare enrollees conducted by the Division of Health Care Insurance, Social Security Administration. The results of their survey provided for FY 1975 the following information. ^{6/}

^{4/} Hospital Statistics, Text Table 18, p.XX, 1981 Edition.

^{5/} FY 1980 RCS 14-4: Administrative costs for Non-VA Inpatient Care.

^{6/} Personal Communication, Mr. D. Frutko, Division of Health Insurance Research, SSA, DHEW.

Number Enrollees Hospitalized	5,074,300
Discharges Per Enrollee	1.40
Total Number of Episodes	7,104,200
Total Physician Charges for:	
Inpatient Services	\$ 2,360,443,800
Medical Services	790,571,600
Surgical Services	1,569,872,200

While the above information permits estimation of attending physician charges for all (medical and surgical) episodes combined, the specific number of surgical and medical episodes was not available. An estimation based on PAS data for CY 1975 was used to apportion the total number of episodes between medical care and surgical care. ^{7/}For 2.7 million stays among patients 65 and over (comparable in age to Medicare enrollees), the patient was operated on for 41.7% of the stays. Applying this to the total Medicare stays of 7.104 million yielded estimates of 2.953 and 4.151 million stays for surgical and medical care, respectively. Attending physicians costs per stay were then determined to be \$532 for surgical and \$190 for medical during CY 1975.

These costs are updated to FY 1980 by multiplying the CY 1975 charges by the increase in the physician fee segment of the Consumer Price Index from the mid-point of CY 1975 (169.25) to the mid-point of FY 1980 (263.55). This is an increase of 55.7 percent. Thus FY 1980 Community Attending Physician charges per episode of inpatient care are:

$$\begin{aligned} \text{Medical } \$190 \times 1.557 &= \$296 \\ \text{Surgical } \$532 \times 1.557 &= \$828 \end{aligned}$$

To represent the total cost to the government for purchasing these services from the community, physician's fees must be increased by the VA's FY 1980 administrative cost of 3.2 percent. ^{8/} Thus the final estimated costs (physician fees plus administrative expenses) are:

$$\begin{aligned} \text{Medical } \$296 \times 1.032 &= \$305 \\ \text{Surgical } \$828 \times 1.032 &= \$854 \end{aligned}$$

Tables IV and V present the comparative episode of care costs.

^{7/} Length of Stay in PAS Hospitals, By Diagnosis, United States, 1975 Commission of Professional and Hospital Activities, Ann Arbor, Michigan, September 1976. Data for apportioning surgical and medical stays based on PAS sample of 1887 short-term Non-Federal hospitals, representing 29.2% of all Short-term hospitals and 40.3% of all beds.

^{8/} FY 1980 RCS 14-4 Administrative Costs for Non-VA Inpatient Care.

TABLE IV

FY 1980 EPISODE OF CARE COST COMPARISON: VA MEDICAL CENTERS VERSUS
COMMUNITY HOSPITALS AFFILIATED WITH MEDICAL SCHOOLS - MEDICAL
AND SURGICAL ACUTE CARE EPISODES

VA Comprehensive Services Comparison^{1/}

<u>Type of Episode</u>	<u>VA Cost \$</u>	<u>Community Cost \$</u>	<u>VA As % of Community</u>
Medical	2,626	3,065	85.7
Surgical	3,447	4,099	84.1
All <u>3/</u>	2,973	3,502	84.9

Comparable Services Comparison^{2/}

<u>Type of Episode</u>	<u>VA Cost \$</u>	<u>Community Cost \$</u>	<u>VA as % of Community</u>
Medical	2,480	3,065	80.9
Surgical	3,289	4,099	80.2
All <u>3/</u>	2,822	3,502	80.6

1/ Includes the costs for all VAMC hospital inpatient cost centers regardless of comparability considerations.

2/ Includes only those services also provided by the community hospitals. Excluded from the VA per diems for comparability purposes are the following services: Psychology; Audiology; Podiatric; Optometric; Geriatric Research; Chaplains; Blind Rehab; Recreation Service; Dental Clinic; and Research Support

3/ Weighted .5777 Medical and .4223 Surgical per FY 1980 VA episode distribution.

TABLE V

ESTIMATED COST PER EPISODE OF CARE IN VA MEDICAL CENTERS
AND COMMUNITY AFFILIATED HOSPITALS DURING FY 1980
BY MEDICAL AND SURGICAL EPISODES

Medical Episode

VA MEDICAL CENTER

Per Diem (Inc. all Physician Costs)	\$ 178.67
Average Length of Stay	x 14.7
Total Hospital and Physician Costs	\$ 2,626.45

COMMUNITY AFFILIATED HOSPITAL

Per Diem	\$ 257.93
Average Length of Stay	x 10.7
Total Hospital Costs	\$ 2,759.85
Cost of Physician Services (Fees)	+ 305.00
Total Hospital and Physician Costs	\$ 3,064.85

Surgical Episode

VA MEDICAL CENTER

Per Diem (Inc. all Physician Costs)	\$ 232.89
Average Length of Stay	x 14.8
Total Hospital and Physician Costs	\$ 3,446.77

COMMUNITY AFFILIATED HOSPITAL

Per Diem	\$ 348.97
Average Length of Stay	x 9.3
Total Hospital Costs	\$ 3,245.42
Cost of Physician Services (Fees)	+ 854.00
Total Hospital and Physician Costs	\$ 4,099.42

CONCLUSION

Two types of comparisons were made. First, costs were compared for providing comparable services in both systems. That is, the costs of services either not provided by community hospitals (Audiology, Optometry, etc.) or not charged for (Chaplains) were excluded from the VA total. As a result, it is 19.4 percent less expensive to provide an average episode of care in VA facilities than it would have been to purchase comparable care in the community during FY 1980.

The second comparison looked at the cost of providing the VA's comprehensive service package as against purchasing the lesser package of services provided by community hospitals. In this case it would have been 15.1 percent cheaper to provide this comprehensive service package ourselves rather than purchasing the lesser package from the community.

Another way of looking at the cost savings resulting from not "mainstreaming" patients is to look at systemwide savings rather than savings per episode of acute care. In FY 1980, the VA provided 727,993 episodes of short-term care at a savings of between \$385,108,297 for the comprehensive services package and \$495,035,240 for the comparable services package.

Thus if the VA purchased the lesser package of services available from the community hospital the additional cost to the taxpayer in actual dollar outlays would have been \$385,108,297. In addition the Veteran would have lost \$109,926,943 in medical services provided by the VA and not provided by community hospitals. This would have resulted in a total additional cost of \$495,035,240 in cash outlay and loss of services as a consequence of "mainstreaming" the VA's medical and surgical acute care patients in FY 1980.

FUTURE DIRECTIONS

This study represents the state-of-the-art based upon existing data bases. Thus if the cost comparison methodology is to be improved further in any significant way new data will be needed. Two areas come immediately to mind.

The first area where new data is needed is the identification of community physician fees associated with hospital episodes of care. An episode of care consists of both the total number of days a patient is continuously hospitalized for any given diagnosis and the physician and hospital outpatient services provided prior to admission to the hospital which are related to establishing the admitting diagnosis. Therefore, in order to capture all non-inpatient costs associated with a given episode of inpatient care we need a data base which links these costs together. There is no such data base currently available. However, the Health Care Finance Administration is trying to create such a data base by linking together the various Medicare data bases; an effort that has not yet been successful. A potentially useful data base is the National Medical Care Expenditure Survey (NMCES).

NMCES is a special study of the National Center for Health Services Research. The results of this massive survey are being published gradually, thus all the data needed will not be available in the near future.

The second area where new data is needed is diagnosis specific per diem costs. This data is not currently available for either the VA or the community system (except for some Medicare data). While both the VA and the community system are working to develop such costs (see the previous discussion on case-mix measurement systems), it appears doubtful that such data will be available in the near future.

A draft version of this paper has been reviewed both within the Department of Medicine and Surgery and without i.e., Office of the Controller, George Washington University faculty, etc.. Comments from these sources have been taken into consideration in the final paper. When new data becomes available and/or additional substantive suggestions are received, they will be incorporated into future study updates.

Appendix A presents the first application of this methodology to a local community -Portland, Oregon.

APPENDIX A
FY 1980 EPISODE OF MEDICAL CARE COST
COMPARISON: PORTLAND/VANCOUVER VA
MEDICAL CENTERS COMPARED WITH
PORTLAND COMMUNITY HOSPITALS--MEDICAL
AND SURGICAL ACUTE CARE EPISODES

OVERVIEW

This appendix presents the first application of the June 1, 1981 revised episode of medical care national cost comparison methodology to a local community. In order to do so, it was necessary to use data applicable to a specific community--Portland, Oregon. There are three data items used in calculating community episode of care cost: Average Length of Stay (ALOS); Per Diem Costs; and Physician Fees. The national study used a newly developed methodology for estimating ALOS. This adjusted ALOS has not been estimated for any but the national level and therefore we had to revise the national figures to reflect the fact that the ALOS in the western U.S. are lower than the national ALOS. Formula A, page 28 describes the process for revising the adjusted national ALOS for use at the local level for both systems.

Specific local per diem rates were available for both systems from the same sources used in the national study. The community data was from the AHA's expenses per adjusted inpatient day for all community short-term hospitals in Portland. ^{1/} The VA data is for the Portland and Vancouver VAMCs and is from the VA cost reporting system. Finally community physician fees developed for the national study were used for the community system since local fees are not available. However, a review of the 1980 Medicare Prevailing Charges for Physician Fees publication indicates that Portland is near the national average. Physician "fees" are, of course, included in the VA per diem rates.

SUMMARY

Two types of comparisons were made. First, we compared the costs of providing comparable services in both systems. That is we excluded from the VA per diems the costs of services either not provided by community hospitals e.g., Audiology, Optometry, etc., or not charged for e.g., Chaplains. As a result, the figures indicate that it is 14.3 percent less expensive to provide an average episode of care in our facilities than it would have been to purchase comparable care in the Portland community during FY 1980.

The second comparison looked at the cost of providing the VA comprehensive service package as against purchasing the lesser package of services provided by community hospitals. In this case it would have been 10.2 percent cheaper for the VA to provide this comprehensive service package rather than purchasing the lesser package from the Portland community hospitals.

Another way of looking at the cost savings resulting from not "mainstreaming" our patients in Portland community hospitals is to look at total savings rather than savings per episode of acute care. Thus in Fy 1980 we provided 11,393 episodes of short-term care at a savings of between \$ 3,759,690 for the comprehensive services package and \$ 5,274,959 for the comparable services package. Tables I through IV present our estimates in detail.

^{1/} Since the Portland VAMC is an affiliated institution and the Vancouver VAMC is non-affiliated, it was felt that the most equitable comparison would be with all community hospitals rather than community affiliated hospitals.

TABLE I
 FY 1980 EPISODE OF CARE COST COMPARISON: PORTLAND/VANCOUVER
 VAMC's AND PORTLAND COMMUNITY HOSPITALS--MEDICAL AND SURGICAL
 ACUTE CARE EPISODES

VA Comprehensive Services Comparison^{1/}

<u>Type of Episode</u>	<u>VA Cost \$</u>	<u>Community Cost \$</u>	<u>VA As % of Community</u>
Medical	2,738	2,776	98.6
Surgical	3,163	3,888	81.4
All ^{3/}	2,918	3,248	89.8

Comparable Services Comparison^{2/}

<u>Type of Episode</u>	<u>Va Cost \$</u>	<u>Community Cost \$</u>	<u>VA as % of Community</u>
Medical	2,583	2,776	93.0
Surgical	3,059	3,888	78.7
All ^{3/}	2,785	3,248	85.7

^{1/} Includes the costs for all VAMC hospital inpatient cost centers regardless of comparability considerations.

^{2/} Includes only those services also provided by the community hospitals. Excluded from the VA per diems for comparability purposes are the following services: Psychology; Audiology; Podiatric; Optometric; Geriatric Research; Chaplains; Blind Rehab; Recreation Service; Dental Clinic; and Research Support

^{3/} Weighted .5754 Medical and .4246 Surgical per FY 1980 Portland/Vancouver VA episode distribution.

TABLE II

ESTIMATED COST PER EPISODE OF CARE IN PORTLAND/VANCOUVER
VA MEDICAL CENTERS AND PORTLAND COMMUNITY HOSPITALS DURING
FY 1980 BY MEDICAL AND SURGICAL EPISODES

Medical Episode

PORTLAND/VANCOUVER VA MEDICAL CENTERS

Per Diem (Inc. all Physician Costs)	\$ 213.90
Average Length of Stay	x 12.8
Total Hospital and Physician Cost	\$ 2,737.92

PORTLAND COMMUNITY HOSPITALS

Per Diem	\$ 287.21
Average Length of Stay	x 8.6
Total Hospital Costs	2,470.01
Cost of Physician Services (Fees)	+ 306.00
Total Hospital and Physician Costs	2,776.01

Surgical Episode

PORTLAND/VANCOUVER VA MEDICAL CENTERS

Per Diem (Inc. all Physician Costs)	\$ 237.82
Average Length of Stay	x 13.3
Total Hospital and Physician Costs	\$ 3,163.01

PORTLAND COMMUNITY HOSPITALS

Per Diem	\$ 388.58
Average Length of Stay	x 7.8
Total Hospital Costs	\$ 3,030.92
Cost of Physician Services (fees)	+857.00
Total Hospital and Physician Costs	\$ 3,887.92

TABLE III

FY 1980 PORTLAND/VANCOUVER VA MEDICAL AND SURGICAL BED UNIT COSTS-
RCS 14-4, COMBINED STATIONS TOTAL

<u>COST CENTER</u>	<u>DIRECT CARE ACCOUNTS</u>	<u>MEDICAL COMPREHENSIVE SVCS</u>	<u>MEDICAL COMPARABLE SVCS</u>	<u>SURGICAL COMPREHENSIVE SVCS</u>	<u>SURGICAL COMPARABLE SVCS</u>
201	Medical	18.61	18.61	.88	.88
202	Surgical	-	-	27.58	27.58
203	Psychiatry	.86	.86	.11	.11
221	Social Work	1.43	1.43	.92	.92
222	Radiology	5.54	5.54	5.29	5.29
223	Laboratory	13.92	13.92	14.00	14.00
224	Pharmacy	8.99	8.99	13.23	13.23
225	Medical Media	.17	.17	.14	.14
226	Libraries	.46	.46	.39	.39
227	Psychology	.67	-	.45	-
228	Audiology & Speech Pathology	.91	-	.11	-
229	Nuclear Medicine	2.49	2.49	1.13	1.13
231	Podiatric	-	-	-	-
232	Optometric	.34	-	-	-
233	Spinal Cord Injury	-	-	-	-
234	Geriatric Research	-	-	-	-
241	Nursing	43.02	43.02	58.42	58.42
242	Rehab Medicine	1.12	1.12	2.23	2.23
243	Dietetics	13.43	13.43	14.48	14.48
244	Chaplains	.67	-	.67	-
245	Blind Rehab	-	-	-	-
246	Recreation Service	.33	-	.27	-
251	Dental Clinic	2.44	-	2.48	-
	Total Direct	<u>115.40</u>	<u>110.04</u>	<u>142.78</u>	<u>138.80</u>
	<u>INDIRECT CARE ACCOUNTS 1/</u>				
	Administration	25.99	24.78 ^{2/}	28.99	28.18 ^{2/}
	Engineering	24.33	23.20 ^{2/}	22.59	21.96 ^{2/}
	Building Management	11.72	11.18 ^{2/}	12.58	12.23 ^{2/}
	Research Support	2.12	-	1.17	-
	Education and Training	19.53	18.62 ^{2/}	13.30	12.93 ^{2/}
	Total Indirect	<u>83.69</u>	<u>77.78</u>	<u>78.62</u>	<u>75.30</u>
	Sub Total Direct/Indirect	199.09	187.82	221.40	214.10
	Unfunded Costs (.072) 3/	14.33	13.52	15.94	15.42
	Malpractice Costs	.48	.48	.48	.48
	Total Per Diem	213.90	201.82	237.82	230.00

- ¹ Current VA indirect costs prorated to "Medicine" as the percent of total direct care costs for Medicine to all direct care costs for all Medical bed sections. (.8855)**
- ² Administration, Engineering, Building Management and Education & Training support are reduced in proportion to the adjusted direct cost to the unadjusted direct cost: Medical -.9536; Surgical -.9721.**
- ³ Per procedures in MP-4, PART V - Station Specific Rates**

TABLE IV
ESTIMATING COMMUNITY COSTS

Hospital Costs^{1/}

FY 1980 Expenses Per Adjusted Inpatient Day - Portland: \$326.47 Undifferentiated Day of Care

Estimating Bed Section Costs^{2/}

Medical	\$ 326.47 x .85 = \$ 277.50
Surgical	\$ 326.47 x 1.15 = \$ 375.44

To represent the total cost to the government for purchasing these services from the community the per diems must be increased by 3.5 % for administrative costs.
3/ Thus the final estimated costs (per diem plus administrative expenses) are:

Medical	\$ 277.50 x 1.035 = \$ 287.21
Surgical	\$ 373.44 x 1.035 = \$ 388.58

Estimating Physician Fees^{4/}

FY 1980 attending Physician Fees per Episode of Inpatient Care - Final Costs (Purchasing price plus administrative expenses)

Medical	\$ 296 x 1.035 = \$ 306
Surgical	\$ 828 x 1.035 = \$ 857

^{1/} "Hospital Statistics, 1981 Edition." Table 6 (Data For Oregon Portion of Portland SMSA). AHA, 1981.

^{2/} Differentiation Factors From Nationwide Study.

^{3/} FY 1980 RCS 14-4. Administrative Costs For Non-VA Inpatient Care. Portland/Vancouver

^{4/} Nationwide Fees Plus Local Administrative Costs.

FORMULA A

AVERAGE LENGTH OF STAY (ALOS) - REGIONAL REVISION PROCESS

Average Lengths of Stay vary by Region of the country. This variation holds true for both the VA and the community hospital systems. Thus in order to make a local comparison, national ALOS must either be replaced with local data or revised in some reasonable manner to approximate local data. Local data adjusted to equalize patient case mix (see pages 5 to 8 of the National Study) is not available and thus we revised the adjusted national ALOS for the local comparison.

Revising the VA ALOS - The national adjusted VA ALOS has been revised to reflect the relationship between the unadjusted ALOS for Portland/Vancouver and the unadjusted ALOS for all VA GM&S hospitals. This revision is bed section specific as follows:

Medical Bed Sections: Portland/Vancouver as % of all GM&S (Internal Medicine)
 $14.5 \div 16.7 = .868$. Revision of the adjusted national ALOS: $14.7 \times .868 = 12.8$.

Surgical Bed Sections: Portland/Vancouver as % of all GM&S (Surgery) $14.7 \div 16.4 = .896$. Revision of the adjusted national ALOS: $14.8 \times .896 = 13.3$

Revising the community ALOS - the adjusted national community ALOS has been revised to reflect the relationship between the unadjusted PAS ALOS for the western region of the U.S. and the unadjusted PAS ALOS for the United States. This revision is operated/not operated specific as follows:

ALOS for patients not operated: Western region as % of U.S. (Medical) $5.8 \div 7.2 = .806$. Revision of the adjusted national ALOS: $10.7 \times .806 = 8.6$.

ALOS for patients operated: Western region as % of U.S. (Surgical) $6.1 \div 7.3 = .836$. Revision of the adjusted national ALOS: $9.3 \times .836 = 7.8$.

Office of the
Administrator
of Veterans Affairs

Washington, D.C. 20420



Mr. Philip A. Bernstein
Director, Human Resources Division
U. S. General Accounting Office
Washington, DC 20548

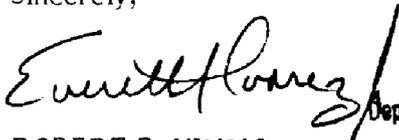
Dear Mr. Bernstein:

Thank you for the opportunity to review the October 4, 1982, draft report, "Results of VA's Medical Care Cost Comparison Studies Are Not Valid." As stated in the "Future Directions" portion of the VA cost comparison study report (Appendix I), the VA recognizes there is room for improvement in our cost comparison methodology. However, I believe the study was based on the best data available at that time.

Because of the concerns raised by GAO, we will review our methodology and, as permitted by the availability of resources to conduct further research, or the development of new data bases for private sector costs, will make adjustments in the methods used to compare the costs of providing health care.

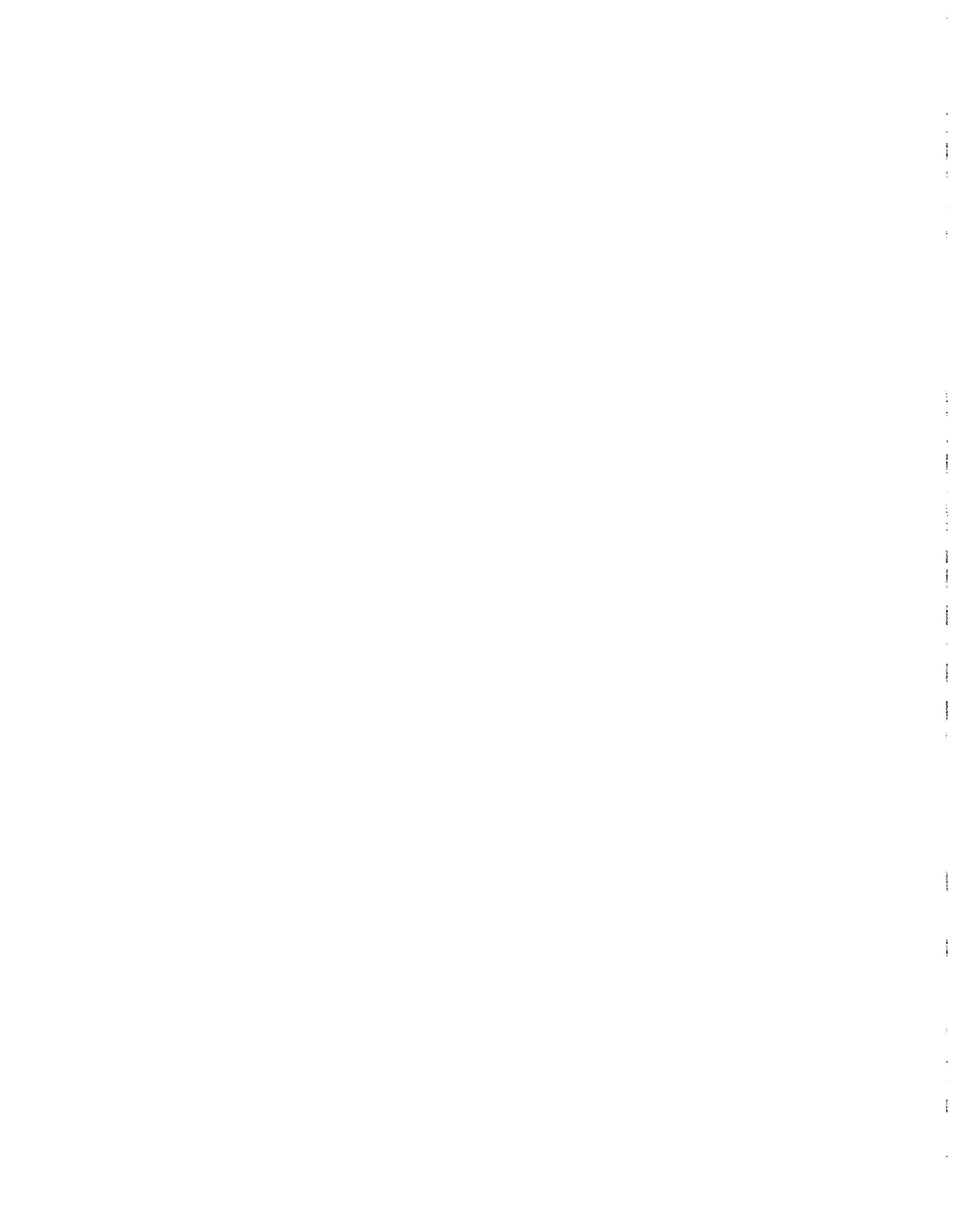
Chapter 3 of this GAO report is critical of the reliability of VA's per diem rate. The Office of Budget and Finance is initiating additional internal controls to insure that VA medical centers update the distribution percentages for the Report of Medical Care Distribution Accounts, RCS 14-4, on a quarterly basis. The VA regulations providing guidance for accumulating this information are being reviewed and additional guidance is being developed. These efforts should improve the distribution of VA medical center cost data and result in more accurate medical and surgical per diem rates.

Sincerely,


Deputy Administrator For
ROBERT P. NIMMO
Administrator

(401919)





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