

GAO

Briefing Report to the Committee on  
Veterans' Affairs, United States Senate

August 1987

# VA HEALTH CARE

## Resource Allocation Methodology Should Improve VA's Financial Management



133830

039865

---

---



United States  
General Accounting Office  
Washington, D.C. 20548

---

Human Resources Division

B-207930

August 31, 1987

The Honorable Alan Cranston  
Chairman, Committee on Veterans' Affairs  
United States Senate

The Honorable Frank H. Murkowski  
Ranking Minority Member  
Committee on Veterans' Affairs  
United States Senate

Your letter of June 3, 1986, requested that we examine the new methodology used by the Veterans Administration (VA) to allocate resources among its medical centers. On April 2, 1987, we briefed your offices on the results of our work. This briefing report presents those results in more detail. It discusses (1) what the new methodology is intended to do and how it is intended to work, (2) how it can improve financial management within VA, (3) problems VA experienced as it implemented the new methodology, and (4) limitations on assessing the impact of the methodology on VA's health care system. As agreed with your offices, we are continuing to evaluate various aspects of the resource allocation methodology.

We reviewed VA documents related to the resource allocation methodology as well as VA workload and cost data for six fiscal years (1982-1987). We interviewed VA central office and field staff including officials in the Resource Management Office responsible for developing, implementing, and monitoring the methodology. To learn about the operation of the methodology at the VA medical center level, we visited four centers in California--Martinez, Livermore, Palo Alto, and San Francisco. Also, we obtained information on the theory, operation, and evaluation of comparable systems in non-VA health settings. We relied considerably on VA documentation and testimonial evidence on the intended operation of the resource allocation methodology. We did not validate the extent to which the methodology accurately measures what VA intended it to measure and whether it performs as expected.

PURPOSE AND OPERATION OF THE  
RESOURCE ALLOCATION METHODOLOGY

In fiscal year 1985, VA implemented a resource allocation methodology intended to help it achieve two goals: (1) movement toward allocating funds in accordance with the work performed and the cost to produce it and (2) improvement in the efficiency and productivity with which medical care is delivered to veterans. The methodology allocates funds to each VA facility according to the facility's performance relative to the system average performance. The methodology assesses each facility's performance in four areas: (1) acute care, (2) ambulatory care, (3) long-term care, and (4) education of physician residents.

To compare the different numbers and characteristics of patient cases among the different facilities, VA created a standardized measure of work produced, called a weighted work unit. Each year, VA calculates the average cost per weighted work unit for each of the four areas.

VA considers facilities whose cost per weighted work unit is lower than the system average to be more efficient than average. These facilities would gain resources under the methodology. Facilities that are less efficient than the system average would lose resources. The gains and losses are only reallocations of a portion of the recurring funds among the facilities; no additional funds are involved.

To minimize disruption of medical centers' operations and allow for a smooth transition to a new approach to resource allocation, VA phased in the new methodology by (1) gradually increasing the funds subject to adjustment by the methodology, (2) limiting the amount of funds a facility could gain or lose in any year, and (3) exempting some facilities from the methodology.

RESOURCE ALLOCATION METHODOLOGY  
SHOULD IMPROVE VA FINANCIAL MANAGEMENT

The methodology is a key component in VA's establishment of an effective financial management structure similar to the one we recommended for all federal agencies and programs.<sup>1</sup> By matching costs with outputs during a given period, VA

---

<sup>1</sup>Managing the Cost of Government (GAO/AFMD-85-35, Vols. I and II, Feb. 1985).

managers at national and local levels should be better able to follow program, project, and organization performance during the budget year and take corrective action when performance goals are not met. Review of such data provides a basis for selecting programs, organizations, and projects for in-depth evaluation efforts to identify the causes of apparent performance problems and ways to improve performance.

#### IMPLEMENTATION PROBLEMS

VA has encountered several problems in implementing the new methodology. Unreliable clinical and financial databases limit VA's ability to establish accurate target allowances to individual medical centers. Also, data reliability problems inhibit medical centers' efforts to assess their performance compared with the system as a whole. VA believed, however, that implementing the methodology would create an incentive for the medical centers to improve the reliability of their data. With the implementation of its decentralized hospital computer program and the development of pilot cost accounting systems, VA is taking some steps to improve the data. Buffers in the form of caps on the amount that a medical facility could gain or lose during any year were created, in part to protect the facilities from any undue impact of unreliable data.

Furthermore, VA central office and field staff have raised concerns about the validity of several measures of workload. Among these concerns are: (1) the validity of the weights assigned to short- and long-term psychiatric patients, (2) whether the methodology adequately accounts for differences among types of facilities, and (3) whether the methodology reasonably accounts for the cost to treat such new illnesses as acquired immunodeficiency syndrome (AIDS) and the use of new procedures.

Since the early developmental phases of the resource allocation methodology, VA also has been concerned about the potentially wide array of negative effects the methodology might produce, such as premature discharge of acute care patients. Although the methodology was first implemented in 1985, VA did not institute a formal process to monitor its effects on the quality of care until fiscal year 1987.

ASSESSMENT LIMITATIONS

At present, assessment of the impact of the methodology on VA's health care system necessarily is limited by the implementation problems discussed above. For example, changes in reported workload and cost data may reflect improvements in data reliability rather than effects of the methodology.

The recency of the methodology's introduction and the many revisions introduced since implementation, such as the change in the portion of a facility's budget that is affected by the methodology, also limit assessment. In addition, assessment is hindered by concurrent changes outside the methodology, such as an emphasis on shorter lengths of hospital stays, that produce effects similar to those intended under the methodology.

CONCLUSIONS

VA's new methodology for allocating resources to its medical facilities appears to be superior to its previous method of budget allocation. The methodology should heighten the sensitivity of field managers and direct service providers to the appropriateness of the services and the cost of providing care. As we discuss in this report, VA has encountered several problems in implementing the methodology and is taking steps toward overcoming them. We believe VA's gradual implementation of the methodology is appropriate as it works toward the resolution of these problems.

- - - - -

As requested by your offices, we did not obtain formal VA comments on this briefing report. However, officials from VA informally reviewed a draft of this briefing report and gave us their comments, which we incorporated where appropriate. We are providing copies of this report to the Director of the Office of Management and Budget, the Administrator of Veterans Affairs, and appropriate congressional committees. We will also make copies available to others on request. For additional information, please contact me on 275-6207.

*David P Baine*

David P. Baine  
Associate Director

## C o n t e n t s

	<u>Page</u>
LETTER	1
VA HEALTH CARE: RESOURCE ALLOCATION METHODOLOGY SHOULD IMPROVE VA'S FINANCIAL MANAGEMENT	7
Background	7
Objectives, Scope, and Methodology	8
Operation of the Resource Allocation Methodology	9
Goals and Objectives of the Methodology	10
Methodology Implemented Gradually	12
Methodology Should Improve Financial Management and Create Incentives for Increased Efficiency and Productivity	17
Problems in Implementing the Resource Allocation Methodology	18
Unreliable Financial and Clinical Data	19
Validity of Workload Measures Questioned	21
Effects of Methodology on Quality of Care Not Monitored Until Recently	22
Limitations on Impact Assessments of the Resource Allocation Methodology	23
Implementation Problems Hinder Assessment	23
Methodology Implemented Gradually	24
VA and Non-VA Health Care Delivery Systems Changing Rapidly	24
Conclusions	27
APPENDIX	
I Major Components of VA's Resource Allocation Methodology	28
Acute Care Model	29
Ambulatory Care Model	32
Long-term Care Model	34
Education Modification Component	36
<u>TABLES</u>	
1 Selected Medical Centers with Large Uncapped Dollar Losses (by Fiscal Year)	15
2 Selected Medical Centers with Large Uncapped Dollar Gains (by Fiscal Year)	16

FIGURE

- 1      Percent of Recurring Target Allowance Adjusted  
         by the Resource Allocation Methodology (by  
         Fiscal Year)

13

ABBREVIATIONS

DM&S	Department of Medicine and Surgery
DRG	Diagnosis related group
GAO	General Accounting Office
HCFA	Health Care Financing Administration
MEDIPP	Medical district initiated program planning
MEDIPRO	Medical district initiated peer review organization
RUG	Resource utilization group
RUG-II	Revised resource utilization group
VA	Veterans Administration



VA HEALTH CARE:  
RESOURCE ALLOCATION METHODOLOGY  
SHOULD IMPROVE VA'S FINANCIAL MANAGEMENT

BACKGROUND

The Veterans Administration (VA), through its Department of Medicine and Surgery (DM&S), operates one of the largest health care delivery systems in the United States. In fiscal year 1986, it treated over 1.3 million patients on an inpatient basis, 23,940 patients in VA nursing homes, and 13,250 patients in VA domiciliaries. Also in fiscal year 1986, it recorded over 19 million visits to VA medical and dental outpatient clinics. This medical care was provided in 172 hospitals, 228 outpatient clinics, 117 nursing home care units, and 16 domiciliaries. Most of DM&S's health care facilities are organized into 160 medical centers. A medical center may consist of one or more hospitals, one or more outpatient clinics, a nursing home, and a domiciliary. DM&S also provided training for about 100,000 health care personnel in fiscal year 1986. The Chief Medical Director and his staff at the VA central office administer the VA's medical programs through 7 regional offices and 27 medical districts.

Each year, Congress appropriates funds to VA for DM&S to operate this system; DM&S allocates these funds among the facilities and programs. The medical care appropriations were about \$9.1 and \$9.5 billion in fiscal years 1986 and 1987 respectively, and the President's budget requested about \$9.9 billion for fiscal year 1988.

Until implementation of the resource allocation methodology in fiscal year 1985, DM&S based its allocations of the medical care appropriation on what each medical facility had received the prior year, adjusted for inflation, new programs, program cancellations, and changes to projected workloads. The VA central office used this information to divide the funds among the regions. Each regional office further divided the budget among its medical districts. Following discussions with each medical center, the district executive council, composed of the medical center directors in that district, prepared a target allowance for each medical facility. A target allowance, therefore, represented that facility's share of the DM&S medical care appropriation.

The medical districts did not use the same allocation system, and in 1981 VA concluded that, overall, the district allocation methods did not directly relate funding to workloads. In addition, the allocation methods did not adequately consider the efficiencies and inefficiencies in medical centers' management and delivery of care. In essence, the methods allocated funds on the basis of previous expenditures, regardless of the amount and type of work produced and the costs incurred to produce the work.

After much consideration, study, and refinement, DM&S selected in 1983 a new allocation methodology for initial implementation in fiscal year 1985. Although it did not establish formal goals for its new methodology prior to beginning its development, DM&S's intent was a more equitable distribution of available funds by adjusting each facility's target allowance according to the work produced and its associated cost. In so doing, the new resource allocation methodology also gave medical facilities incentives to provide care in a cost-efficient manner.

#### OBJECTIVES, SCOPE, AND METHODOLOGY

The Chairman and Ranking Minority Member of the Senate Veterans' Affairs Committee asked us to examine the Veterans Administration's new methodology for allocating resources among its medical centers. As agreed with the offices of the Chairman and Ranking Minority Member, our objectives in this briefing report are to provide the Committee with a description of (1) what the new methodology is intended to do and how it is intended to work, (2) how the methodology can improve financial management within VA, (3) problems VA experienced as it implemented the new methodology, and (4) limitations on assessing the impact of the methodology on VA's health care system.

From August 1986 through July 1987, we reviewed a 9-year span (1979-1987) of documents related to the resource allocation methodology. Among these were decisions of the Chief Medical Director, recommendations of study groups, and other supporting reports and studies. We reviewed workload and cost data for six fiscal years (1982-1987) and interviewed VA officials in the Systems Development Service and the Resource Management Office who were involved in designing, implementing, and monitoring the new allocation methodology. To understand the policy implications, operational procedures, and expected impact of the resource allocation methodology, we interviewed the Assistant Chief Medical Director for Academic Affairs, the Director for Operations, the Director for Medical Services, the Director of the Mental Health and Behavioral Sciences Service, the Director of Quality Assurance, officials of the Office of the Inspector General, and others at the VA central office. In addition, we interviewed project staff who are developing a cost accounting model at the VA medical center in Brockton, Massachusetts.

To learn how the resource allocation methodology works at the VA medical center level, we visited four centers in California. We concentrated our work at the medical center in Martinez because of its staff's reputation within VA central office for being knowledgeable about the methodology and because the center gained resources in each of the 3 fiscal years since the new system was implemented. For additional views and information, we also visited nearby medical centers at San Francisco and Livermore, consistent losers of resources in the same period, and the medical center at

Palo Alto, which lost resources in the first 2 fiscal years and gained them in fiscal year 1987.

To expand our perspective, we learned about the theory, operation, and evaluation of comparable prospective payment systems in non-VA health settings from the health care financing literature and from interviews with federal officials responsible for evaluating health care financing programs. Among these systems were the Medicare program for acute care, administered by the Health Care Financing Administration (HCFA), and state initiatives for reimbursing long-term care costs under the Medicaid program, which is administered by HCFA.

Our scope and methodology were not intended to allow us to draw conclusions about the impact of the resource allocation methodology on medical centers. For example, we did not validate the extent to which the methodology accurately measured what VA intended.

Our work was performed in accordance with generally accepted government auditing standards.

#### OPERATION OF THE RESOURCE ALLOCATION METHODOLOGY

About 8 months before the start of a new fiscal year, VA's central office initiates the process of allocating funds to its medical facilities. It prepares the initial target allowance for each medical facility for the coming fiscal year. The target allowance addresses two kinds of funding: (1) recurring, which covers general day-to-day inpatient and outpatient activities of the medical facilities; and (2) nonrecurring, which covers such items as equipment purchases, non-VA and one-time costs. The resource allocation methodology is used to adjust a portion of the recurring target allowance. The remainder of the recurring target allowance (e.g., laundry, housekeeping) and the nonrecurring portion of the target allowance expenses are referred to as "pass through" expenses because they are not subject to adjustment by the resource allocation methodology.

For each medical facility, the recurring target allowance for the coming fiscal year is developed from its prior year's recurring target allowance, based on funds requested in the President's budget. This figure is adjusted by applying the resource allocation methodology to the facility's reported workload and costs from 2 years prior. For example, the recurring portion of a medical center's fiscal year 1987 target allowance was based on its fiscal year 1986 recurring budget, adjusted (by the methodology) according to the facility's fiscal year 1985 performance compared with the average performance of all facilities in the VA system.

DM&S uses the resource allocation methodology as one adjustment to medical centers' target allowances. The methodology

assesses each facility's performance in four areas: (1) acute care, (2) ambulatory care, (3) long-term care, and (4) education of physician residents. (Each of these is discussed in app. I.) To compare the different numbers and characteristics of patient cases among the different facilities, DM&S created a standardized measure of work produced called a weighted work unit. By dividing the total expenditures system-wide in each area by the total weighted work units earned in that area, DM&S calculates the average annual cost per weighted work unit for each area. DM&S then assesses a facility's average cost per weighted work unit in each of the four areas against the system average cost per weighted work unit in that area.

Adjustments to target allowances are based on a facility's performance relative to the system average performance. DM&S considers facilities whose cost per weighted work unit is lower than the system average to be more efficient than average. These facilities would gain resources under the methodology. Facilities that are less efficient than the system average would lose resources. The gains and losses are only reallocations of a portion of the recurring funds among the facilities; no additional funds are involved.

#### Goals and Objectives of the Methodology

From information letters issued by the Chief Medical Director, minutes of DM&S advisory committee meetings, and internal reports, we identified two goals and several objectives that have evolved as the resource allocation methodology developed to its present format.<sup>1</sup> DM&S's goals are to

- allocate funds in accordance with the work produced and the cost to produce it and
- improve efficiency and productivity at VA medical facilities.

#### Allocating funds in accordance with work produced and cost to produce it

We identified five objectives of the resource allocation methodology that address this issue:

---

<sup>1</sup>In January 1987, we asked VA officials to comment on our description of the methodology's goals and objectives. In a June 1987 letter, the Chief Medical Director concurred with our description, but he also provided a current and more appropriate version of the "Resource Allocation System Principles as of April 1987." The statement, which discussed the purpose of the methodology and the principles and policies guiding it, was similar to and consistent with our statement of goals and objectives.

- Allocate funds based on workload. Creating standardized measures of workload gives DM&S a basis for assigning weights to each facilities' output in terms of the amount and type of workload generated.
- Allocate funds equitably. By comparing a facility's cost to produce a standard unit of work with the system average cost for this production, DM&S can allocate resources on the basis of relative efficiency.
- Support education and research. DM&S believes that the resource allocation system should take into account a facility's mission of educating physician residents and conducting research.
- Account for severity of illness. DM&S believes that the resource allocation system should recognize differences in degrees of illness and, therefore, resource consumption among similar types of patients.
- Improve the databases. Prior to implementation of the resource allocation methodology, DM&S recognized that the principal financial and clinical databases on which the methodology is based were unreliable. In addition, DM&S recognized that it lacked the precise cost-per-patient data needed for an accurate assessment of a facility's cost to provide specific services.

#### Improving efficiency and productivity at VA medical facilities

We identified three objectives of the resource allocation methodology that address issues of efficiency and productivity:

- Place patients appropriately. The Chief Medical Director stated in 1984 that any future resource allocation system should be designed to make hospitals more cost-efficient, staff more productive, and, where medically appropriate, alternatives to inpatient placement more attractive. In the methodology DM&S adopted, facilities' credited work load is expected to be that which is commensurate with the average resource needs of patients; therefore, placing patients in higher levels of care than necessary may prove to be costly to facilities in the allocation process.
- Treat more patients by decreasing the average length of stay. DM&S believes that the allocation system should ensure that the greatest possible number of eligible veterans would receive needed care. The system is expected to do this by creating incentives for facilities to reduce inappropriate admissions and unnecessarily long stays, thus increasing bed availability.

- Maintain quality. DM&S realizes that medical centers' responses to some of the incentives and disincentives built into the resource allocation methodology could negatively affect quality of care. For example, the incentive to shorten lengths of stay could result in premature patient discharges. DM&S had acknowledged the need for additional mechanisms to ensure that quality of care was not jeopardized.

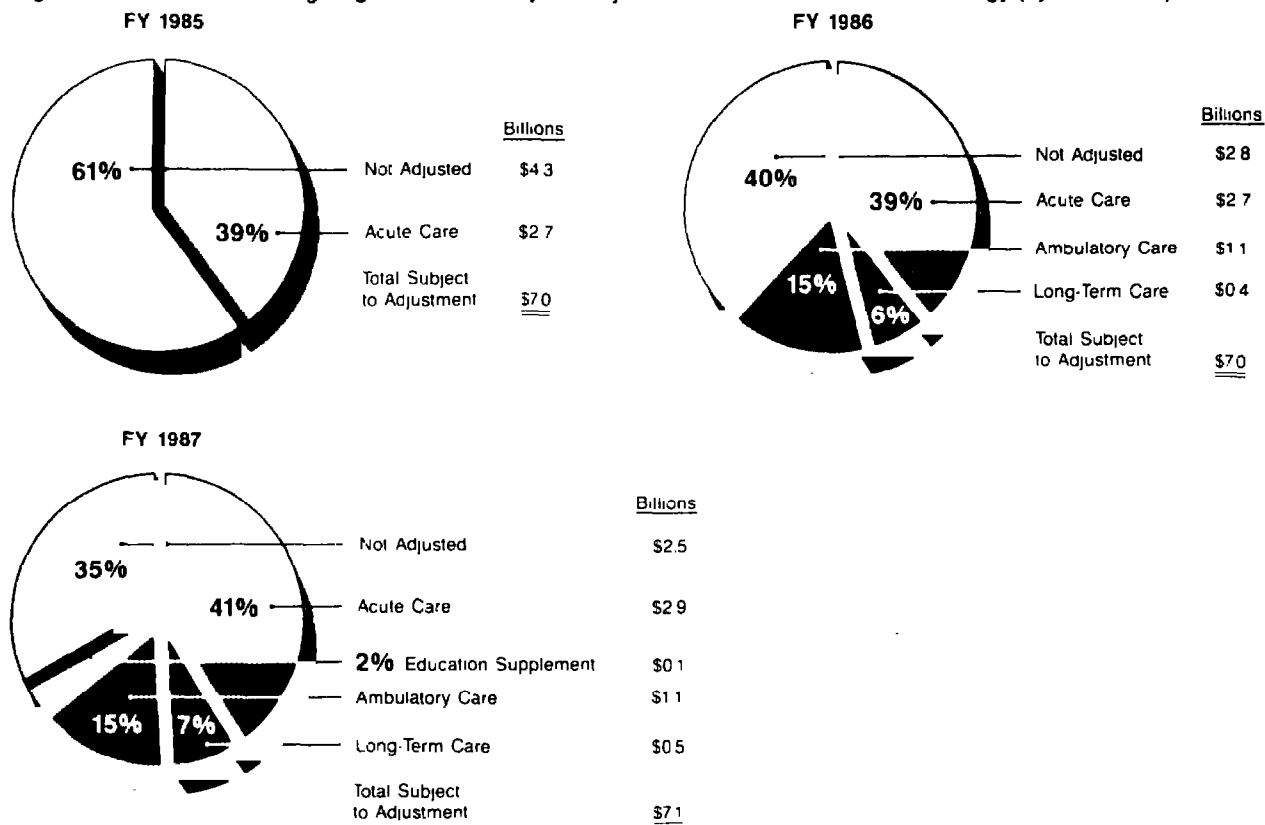
### Methodology Implemented Gradually

To minimize disruption of medical centers' operations and allow for a smooth transition to a new approach to resource allocation, DM&S phased in the new methodology by (1) gradually increasing the funds subject to adjustment by the methodology, (2) limiting the amount of funds a facility could gain or lose in any year, and (3) exempting some facilities from the methodology.

#### Funds subject to adjustment

As shown in figure 1, the amount of the medical care appropriation subject to adjustment by the methodology has increased since fiscal year 1985. Only the acute care portion of the methodology was introduced in that year. The amount of DM&S's recurring target allowance subject to this first adjustment by the resource allocation methodology was approximately \$2.74 billion. This was about 39 percent of the medical centers' \$7.0 billion in recurring target allowance subject to adjustment for fiscal year 1985.

Figure 1: Percent of Recurring Target Allowance Adjusted by the Resource Allocation Methodology (by Fiscal Year)



The ambulatory and long-term care portions were added in fiscal year 1986. In so doing, DM&S increased the amount of the recurring target allowance adjusted by the resource allocation methodology to about \$4.2 billion, about 60 percent of the total recurring target allowance for medical facilities. In fiscal year 1987, the portion adjusted by the methodology was \$4.6 billion, about 65 percent of the total recurring target allowance for medical facilities.

Caps limit gains and losses

To limit the initial impact of the resource allocation methodology on medical facilities, DM&S placed caps on the amounts that a medical facility could gain or lose under the system during any 1 year. Caps serve as a buffer to protect facilities from (1)

large shifts in their budgets, (2) any undue impact of unreliable clinical and financial data used by the methodology, and (3) any technical problems and imprecision inherent in the resource allocation methodology itself. Caps also give medical center management an opportunity to learn about the methodology and improve their data reporting.

For fiscal year 1985, the cap was set at the lesser of (1) 1 percent of a facility's total expenditures for direct medical care and education in fiscal year 1983 or (2) 20 percent of the difference between its total expenditures in fiscal year 1983 and the expenditures it would have incurred with its given workload at the system's average cost per weighted work unit in fiscal year 1983. In fiscal year 1986, the amount of funds a facility could gain or lose was increased from 1 percent and 20 percent to 3 percent and 60 percent. These percentages also were used for fiscal year 1987. The caps were applied to only the net change arrived at by the combination of all areas applicable in a given facility.

For fiscal year 1987, DM&S introduced two changes to the caps:

1. Sixteen small, unaffiliated medical centers (those with fewer than 200 beds and no physician residents) that gained resources under the methodology were allowed no more than a 6 percent gain of acute care resources. DM&S determined that these highly efficient facilities could not absorb all their gains without expanding programs or workloads to levels not justified by the needs of veterans in their service areas.

2. The amount of gain any facility could receive was limited to 50 percent of the capped gain allocated by the methodology to support MEDIPP initiatives (see p. 17). This restriction will be removed for the fiscal year 1988 target allowance.

Had capping limitations not been in place, some medical facilities would have had significantly larger dollar losses or gains under the resource allocation methodology. The impact of caps on four facilities that otherwise would have had large losses in fiscal years 1985 to 1987 is shown in table 1, and the impact of caps on five facilities that would have had large gains without the caps, in table 2.



Table 1:  
Selected Medical Centers  
with Large Uncapped Dollar Losses  
(by Fiscal Year)

<u>Facility</u>	<u>Fiscal year</u>	<u>Base amount<sup>a</sup></u>	<u>Uncapped change</u>	<u>Capped change<sup>b</sup></u>
Bronx	1985	\$31,654,903	-\$10,390,551	-\$ 316,549
	1986	39,586,371	- 10,662,218	- 1,187,591
	1987	39,785,706	- 7,645,878	- 1,193,571
Los Angeles	1985	\$58,441,106	-\$12,837,685	-\$ 584,411
	1986	80,376,857	- 9,990,458	- 2,411,306
	1987	75,946,011	- 1,879,930	- 1,127,958
San Francisco	1985	\$25,590,205	-\$ 3,799,840	-\$ 255,902
	1986	35,829,228	- 11,281,410	- 1,074,877
	1987	37,901,046	- 7,268,260	- 1,137,031
Cleveland	1985	\$46,193,218	-\$ 7,420,228	-\$ 461,932
	1986	65,650,067	- 5,952,778	- 1,969,502
	1987	67,430,217	- 5,713,968	- 2,022,906

<sup>a</sup>Amount includes planned direct medical care and education dollars subject to adjustment under the methodology.

<sup>b</sup>Actual figures used to adjust the base amount.

Table 2:

Selected Medical Centers  
with Large Uncapped Dollar Gains  
(by Fiscal Year)

<u>Facility</u>	<u>Fiscal year</u>	<u>Base amount<sup>a</sup></u>	<u>Uncapped change</u>	<u>Capped change<sup>b</sup></u>
San Antonio	1985	\$32,713,037	+\$ 5,586,002	+ \$ 327,130
	1986	43,543,445	+ 10,647,369	+ 1,306,303
	1987	47,231,842	+ 7,734,165	+ 1,416,955
Minneapolis	1985	\$37,088,721	+\$ 7,721,726	+ \$ 370,877
	1986	52,136,834	+ 7,099,336	+ 1,564,105
	1987	56,483,330	+ 7,505,379	+ 1,694,500
Phoenix	1985	\$21,438,370	+\$ 6,237,885	+ \$ 214,384
	1986	34,793,798	+ 8,677,931	+ 1,043,814
	1987	36,815,968	+ 5,774,792	+ 1,104,479
Jackson	1985	\$20,834,082	+\$ 7,796,861	+ \$ 208,341
	1986	30,611,668	+ 7,109,009	+ 918,350
	1987	32,529,345	+ 4,230,410	+ 975,880
Shreveport	1985	\$16,345,673	+\$ 7,031,108	+ \$ 163,457
	1986	22,891,350	+ 7,209,359	+ 686,741
	1987	24,521,812	+ 3,095,765	+ 735,654

<sup>a</sup>Amount includes planned direct medical care and education dollars subject to adjustment under the methodology.

<sup>b</sup>Actual amount used to adjust the base amount.

Although Resource Management Office officials recognize the need for caps to protect facilities that lose resources under the methodology, there are potential problems as well for facilities that gain. According to DM&S officials, gains can create three problems:

- Given the short time between the announcement of the methodology's adjustment to the target allowance and the start of the next fiscal year (usually only a few months), facilities may not be prepared to spend their gains efficiently in the fiscal year for which the allocation is made.
- To the extent that the facilities cannot produce new workload from the gain, they become less efficient in the next round of the resource allocation methodology, possibly losing the resources they gained.

- Gains that facilities receive are not specifically linked to the local, regional, or national priorities established for construction or program expansion under DM&S's medical district initiated program planning (MEDIPP) process. This decentralized process is used by DM&S to evaluate the future health care needs of eligible veterans and to identify the actions necessary (e.g., construction) to meet those needs.

#### Some facilities exempted

Entire facilities or certain programs within a facility may be exempted from the application of any or all areas of the resource allocation methodology. Exemptions may be based on major construction activities, new program activations, or new affiliations with medical schools. DM&S believes that such activities warrant exemption because they artificially alter the workload-to-cost ratio. For example, during major construction, a medical center may not be able to produce workload in the area of construction because of limitations on space to care for patients. As a result, the center's average cost per weighted work unit would be higher than normal because the center would incur certain fixed costs but could not treat the same number of patients as it could if the space were not limited by the construction project. Eventually this would adversely affect the adjustment to the center's future target allowances.

DM&S attempts to keep exemptions to a minimum. To be exempted, a facility must receive approval from the (1) Regional Director, (2) Director for Operations, (3) Chief Medical Director's Task Force on Exemptions, and (4) Chief Medical Director. Of the 65 applications for exemption received by the Director for Operations in fiscal year 1987, only 12 were submitted to and approved by the Chief Medical Director.

#### METHODOLOGY SHOULD IMPROVE FINANCIAL MANAGEMENT AND CREATE INCENTIVES FOR INCREASED EFFICIENCY AND PRODUCTIVITY

The importance of federal agencies' matching costs with outputs during a given period was emphasized in our report on "Managing the Cost of Government" (GAO/AFMD-85-35, vols. I and II, Feb. 1985). Monitoring such data enables managers and oversight officials to follow program, project, and organization performance during the budget year and take corrective action when performance goals are not met. Review of such data provides a basis for selecting programs, organizations, and projects for in-depth evaluation efforts to identify the causes of apparent performance problems and ways to improve performance.

Use of DM&S's new resource allocation methodology should help VA improve its financial management structure. The methodology's weighted work units are intended to be standardized measures of

output used to measure work produced for most services provided in acute, ambulatory, and long-term care. The application of these standard weights at all medical facilities is intended to allow DM&S national and local managers to (1) compare medical facilities with one another on the basis of output and the cost incurred to produce it and (2) identify strengths and problem areas both system-wide and at individual facilities.

Using weighted work units and reported costs to identify strengths and problem areas should give DM&S national and local managers information to use in improving facilities' efficiency and productivity, one goal of the resource allocation methodology. DM&S explicitly built incentives (e.g., providing additional resources to the more efficient facilities) into the methodology to achieve this.

As we noted in "Managing the Cost of Government," any operation must have data on its own performance and that of similar operations to assess its efficiency and productivity. DM&S currently uses resource allocation methodology measures of efficiency and productivity in its submissions to the Office of Management and Budget for the latter's management and productivity improvement plan in federal agencies.

DM&S's Resource Management Office developed a tool, called the earned/spent analysis, for medical facility management to use in assessing performance in specific areas. The earned/spent analysis is intended to give local managers specific information on facility operations. Medical center directors now can compare the cost data in their facilities' radiology departments, for example, to the average cost at all facilities' radiology departments, according to officials in the Resource Management Office.

In our opinion, the earned/spent analysis is important for facilities that lose resources in the allocation process, as well as those that gain, in assessing the efficiency and productivity with which care is delivered. By using the analysis, local and national managers can pinpoint inefficient, unproductive programs that may require corrective action, according to Resource Management officials. Such actions might include, for example, staffing changes or an increased workload. Also, the earned/spent analysis can help managers identify productive and efficient areas of their operations that may warrant increased emphasis.

#### PROBLEMS IN IMPLEMENTING THE RESOURCE ALLOCATION METHODOLOGY

VA's implementation of the resource allocation methodology has been limited by three factors:

1. Lack of reliable clinical data used to measure workload and financial data used to measure the cost to produce it;

2. Validity of the workload measures used by the methodology, i.e., the extent to which the measures reflect what they are intended to measure; and
3. Lack, until fiscal year 1987, of formalized monitoring systems to assess the impact of the methodology on the quality of care delivered.

#### Unreliable Financial and Clinical Data

When the methodology was introduced for the fiscal year 1985 allocation, it used clinical and financial data that had been judged to be unreliable.<sup>2</sup> DM&S officials told us that, when aggregated on a national basis, the financial data are reliable for use in determining systemwide averages of performance for use as baseline information for allocating resources among the medical centers. They recognized that the reliability problems affect the target allowances provided to individual medical centers by over-allocating allowances to some centers and under-allocating them to others. Also, these problems would limit the data's usefulness at the medical centers in assessments of their performance in relation to the system as a whole.

DM&S believed, however, that implementing the methodology would create an incentive for the medical centers to improve the reliability of their data. With the implementation of its decentralized hospital computer program and the development of pilot cost accounting systems, DM&S is taking steps to improve the data. As indicated earlier, buffers in the form of caps protect the facilities from any undue impact of unreliable data.

VA cost reporting systems do not collect information on the actual cost of caring for individual patients. A medical center can generate only estimates of its cost of producing workload. As noted in our June 1986 report, these estimates are sometimes inaccurate. We reported VA's own finding, for example, that the surgical service at VA's central office experienced problems with the accuracy of certain cost data, finding that some amounts appeared unreasonably low. When VA corrected the data and the cost report was run for a second time, the estimates produced were considerably higher.

Problems in clinical data can result from improper coding. For example, after reviewing medical records at five hospitals in 1984, VA found that 19 percent of the discharges from acute care

---

<sup>2</sup>Financial Management: An Assessment of the Veterans Administration's Major Processes (GAO/AFMD-86-7, June 27, 1986) provides a detailed discussion of the problems that we and VA found with financial and clinical data.

contained coding errors that affected the number of weighted work units credited to the hospitals. Correcting these errors resulted in changes in the facilities' target allowances of from \$239,000 to \$897,000.

Data errors are not limited to one direction. For example, the VA Inspector General estimated in December 1986 that, if the VA medical center in Birmingham, Alabama, corrected its coding procedures in acute care, it would result in a \$2.32 million reduction to the fiscal year 1989 target allowance.<sup>3</sup> On the other hand, the Martinez medical center director reported to us in 1987 that his facility recently under-reported its computed tomography scan<sup>4</sup> workload by 1,100 procedures, thus losing credit for \$330,000 worth of work.

Several efforts now in process may lead to improved data reliability. They include installation of the decentralized hospital computer program, adoption of a decentralized medical management system for cost accounting purposes, improved coding guidelines, and monitoring by medical center data validation committees.

In adopting the decentralized hospital computer program, VA's goal was to develop a totally integrated medical center information system built around a local database of patient and administrative information. The system, for which development began in 1982, involves both computer hardware and software that permit local processing of medical and administrative data. By January 1987, the core modules of the decentralized hospital computer program were operating at least partially at most facilities. These modules, which serve as the foundation of each facility's system include two sets. The initial set contains: (1) patient registration, (2) clinic scheduling, (3) admission/discharge/transfer, and (4) outpatient pharmacy. The second set contains inpatient pharmacy and clinical laboratory. These are expected to be implemented by 1988. Other modules are under development.<sup>5</sup> VA expects the decentralized hospital computer program to alleviate the data problems affecting the estimation of ambulatory care workload.

---

<sup>3</sup>VA, Office of the Inspector General, Audit of the VA Medical Center, Birmingham, Alabama, Rept. 7R3-F03-009, Dec. 9, 1986.

<sup>4</sup>A diagnostic technique using X-ray photographs in which the shadows of structures before and behind the section under scrutiny do not show. Also known as "CT" scanning.

<sup>5</sup>See Hospital ADP Systems: VA Needs to Better Manage Its Decentralized System Before Expansion (GAO/IMTEC-87-28, July 24, 1987) for more details.

Data should be improved also by VA's expected fiscal year 1988 adoption of a cost accounting system. Since 1984, VA has been conducting decentralized medical management system pilot projects designed to integrate an individual patient's clinical and financial data. By providing a more accurate base for determining the costs of each type of acute care patient and outpatient visit and resources used by patients in long-term care, such a system will contribute to medical center operations, VA officials believe.

Improved data may result from two additional efforts, according to VA. During fiscal year 1987, VA central office staff reported that data coding instructions for field staff use were being updated and an American Hospital Association coding manual was distributed to field staff. In addition, at the medical center level data validation committees were created in 1983 to ensure accurate, timely, and consistent submission of administrative, clinical, and financial data to VA central office. The focus of these committees may vary from facility to facility, depending upon the emphasis placed upon it by the medical center director.

#### Validity of Workload Measures Questioned

To create standardized measures of work produced, DM&S developed separate indexes of workload in acute, ambulatory, and long-term care and education (see app. I). We believe that for DM&S to achieve its goals under the methodology, these measures must be valid--must measure what was intended. They must not confound the measurement with extraneous information. To the extent that measures of workload are invalid, implementation of the methodology is compromised.

VA central office and field staff have raised concerns about the validity of several measures of workload. Among the issues are: (1) the validity of the weights assigned to short- and long-term psychiatric care, (2) whether differences among types of facilities are adequately accounted for in the methodology, and (3) whether the methodology reasonably accounts for the cost to treat such new illnesses as acquired immunodeficiency syndrome (AIDS) or to provide such new medical procedures as lithotripsy (used to break up kidney stones without a surgical incision).

Additionally, in May 1987 a DM&S task force on the resource allocation methodology identified for further review 39 issues, of which we believe 28 relate to measurement validity. The Chief Medical Director selected 4 of the 28 validity issues for review and possible application to the fiscal year 1989 target allowance.

We believe these issues are of concern because they can affect the methodology's impact and achievement of DM&S's goals for the methodology. For example, consider one issue: differences in types of facilities. Although the methodology recognizes some

differences among facilities through a salary adjustment factor, it assumes that differences in their ratio of workload to cost occur primarily because of differences in efficiency (assuming the data are reliable). In effect, this means that the methodologies' measures of workload and cost make all facilities equal regardless of differences in mission, number of beds, number of discharges annually, and other variables. Although VA lacks conclusive evidence on the current impact of this assumption, one VA central office study conducted in 1983 demonstrated differences in the unit costs of medical centers grouped by the size of the average daily census.<sup>6</sup>

Effects of Methodology on  
Quality of Care Not  
Monitored Until Recently

Since the early developmental phases of the resource allocation methodology (at least 1982), DM&S has been concerned about the potentially wide array of negative effects the methodology might produce, such as premature discharge of acute care patients. When the methodology was first implemented in 1985, DM&S lacked a formal process to monitor the methodology's effects on the quality of care. Not until fiscal year 1987 did DM&S fully implement the medical district initiated peer review organization (MEDIPRO) to address quality assurance issues.

Because the resource allocation methodology provides incentives to reduce the average per-patient cost of care, DM&S was particularly concerned that providers might prematurely discharge patients or reduce the number and types of diagnostic tests used or special procedures performed. If this happened, it could result in a lessened quality of care, including premature discharges that might necessitate readmissions or follow-up care in inappropriate settings.

Many of these concerns are similar to those expressed by reviewers of HCFA's prospective payment system for the Medicare program. The Office of Technology Assessment,<sup>7</sup> the Prospective

---

<sup>6</sup>This study was performed prior to the introduction of many of the changes in the methodology including implementation of the methodology for ambulatory and long-term care areas.

<sup>7</sup>Office of Technology Assessment, Medicare's Prospective Payment System: Strategies for Evaluating Cost, Quality, and Medical Technology, OTA-H-262 (Washington, DC: U.S. Government Printing Office, Oct. 1985).



Payment Assessment Commission,<sup>8</sup> and GAO<sup>9</sup> all have noted that financial incentives can have both positive and negative effects on quality of care.

Each district's MEDIPRO is to be composed of health care professionals, primarily physicians, drawn from the facilities in the district. The MEDIPRO will evaluate practitioner and patient data at each facility. In addition, under the MEDIPRO program, reviewers will be able to compare individual facility data with national data to identify potential or actual quality of care problems indicated by statistical outliers at the facilities. MEDIPRO is intended to complement and support the quality assurance activities required at all facilities.

DM&S began to design MEDIPRO in 1983 to monitor the quality of care issues created by the methodology. It field-tested MEDIPRO in several medical districts from July 1985 until September 1986. By March 1987, all districts had established and trained MEDIPRO boards. According to one of the central office officials responsible for the MEDIPRO program, all districts' MEDIPROs should be reviewing patient records by the end of fiscal year 1987.

#### LIMITATIONS ON IMPACT ASSESSMENTS OF THE RESOURCE ALLOCATION METHODOLOGY

DM&S recognizes a need to evaluate whether the new methodology is meeting its stated objectives. Any assessment of the methodology, however, will necessarily be limited because of (1) the implementation problems discussed above, (2) the gradual implementation of the methodology, and (3) concurrent changes in VA and non-VA delivery of health care.

#### Implementation Problems Hinder Assessment

In our opinion, the unreliable data and the possibility that workload measures may not accurately reflect a facility's output hinder efforts to assess the impact of the new methodology. Unreliable data may lead to inaccurate assessment because:

1. Specific efforts and initiatives to improve data reliability may vary across facilities, thus hindering comparison,

---

<sup>8</sup>Prospective Payment Assessment Commission, Report and Recommendations To The Secretary, U.S. Department of Health and Human Services, Apr. 1, 1987.

<sup>9</sup>Post-Hospital Care: Efforts to Evaluate Medicare Prospective Payment Effects Are Insufficient (GAO/PEMD-86-10, June 1986).

2. Changes in reported workload and cost data may reflect improvements in data reliability rather than effects of the methodology, and
3. Local and national managers may be making decisions that, because they are based on inaccurate cost and workload data, may be inconsistent with the goals and objectives of the methodology.

Similarly, we believe if the workload measures introduce an unintended bias into the methodology by not accurately reflecting a facility's output, DM&S will not be able to assess the extent to which the methodology is allocating funds to the facilities based on their relative efficiency.

#### Methodology Implemented Gradually

When implemented in fiscal year 1985, the resource allocation methodology adjusted about 39 percent of DM&S's recurring target allowance allocations. Currently, the resource allocation methodology adjusts about 65 percent. This leaves approximately 35 percent of DM&S's recurring allocation unadjusted by the resource allocation methodology. The unadjusted portion includes allocations for medical facilities' indirect costs (except for education) as well as costs for some aspects of direct medical care such as spinal cord injury treatment, dialysis, and hospital-based home care. DM&S plans to include most of this remaining portion in the methodology. Until these are included, we believe assessments of the methodology will be limited.

Assessing the methodology is further complicated by the uncertain future of the caps placed on facilities' gains and losses. In our earlier discussion of caps, we noted that they buffer facilities from the full impact of the resource allocation methodology's adjustment to their target allowance. DM&S anticipates removing the caps but has not set a date. If that buffer is removed,<sup>10</sup> we believe some facilities' responses to the incentives of the resource allocation methodology may be very different from their present reaction.

#### VA and Non-VA Health Care Delivery Systems Changing Rapidly

DM&S introduced the resource allocation methodology at a time when the delivery and financing of all health care in the country were changing in response to the increasing cost of care. Changes

---

<sup>10</sup>Completely removing caps at this time would create a second set of issues centered on the ability of both large losers and gainers of resources to provide quality care efficiently to eligible veterans with greatly changed budgets.

are still occurring and more are expected in both the VA and non-VA health care systems. Furthermore, new approaches such as the resource allocation methodology are often complex, requiring further revision and refinement. We believe all these changes--the changing context in which health care is delivered in the country, the changes in the VA in particular, and the changes in the methodology itself--complicate assessments of the methodology's impact and DM&S's progress toward reaching the goals established for the methodology.

The delivery and financing of non-VA health care have changed substantially over the past few years in response to rising costs. Among many changes we noted in a previous report<sup>11</sup> are: declining occupancy rates and average lengths of stay; increased competition among providers; more emphasis on such alternative delivery systems as walk-in clinics, free-standing emergency rooms, home health care, prepaid group practices, and preferred provider organizations; and financing changes from cost-based reimbursement to prospective payment. VA's health care system operates in the larger context of the nation's approach to health care delivery and financing. We believe that, to the extent that the forces behind these changes and trends also affect VA's system, assessment of the impact of the resource allocation methodology is necessarily complicated.

In our opinion, assessing the effects of the methodology is further complicated by a variety of changes in VA eligibility criteria, characteristics and health care needs of the veteran population, services offered by VA, and policy decisions occurring since introduction of the methodology. In 1986, for example, the Congress authorized VA to use income-based assessment procedures to determine eligibility of veterans with nonservice-connected disabilities for health care; this may affect a facility's workload. Furthermore, VA has been responding to the more extensive health care needs of an increasingly larger population of older veterans by expanding the number and size of alternative services including nursing home services, hospital-based home care, and adult day health care. Moreover, in fiscal year 1987, VA shifted its goals for delivering nursing home care by decreasing emphasis on using its own nursing home care units and increasing emphasis on the use of state veterans' nursing homes.

These changes can have direct effects on the nature and amount of facilities' workloads and costs. Because these changes have been occurring simultaneously with the introduction of the resource allocation methodology, assessment of the latter is further complicated.

---

<sup>11</sup>Constraining National Health Care Expenditures: Achieving Quality Care at an Affordable Cost (GAO/HRD-85-105, Sept. 30, 1985).

Another complicating factor is that DM&S was engaged in efforts to improve medical facilities' efficiency and productivity at about the same time the resource allocation methodology was implemented. Among these efforts were responses to federal initiatives on productivity, increased emphasis on quality assurance, and improvement in the utilization review process. In an earlier report,<sup>12</sup> we recommended that VA improve its utilization review process. Improved utilization review can lead to reduced lengths of stay, we noted, which in turn can reflect movement toward greater efficiency and productivity.

Lengths of stay for medical and surgical patients have been decreasing since 1982. After implementation of the resource allocation methodology, the rate of decrease continued. In addition, the average length of stay for psychiatric patients, which had been increasing prior to the methodology's introduction, reversed and began decreasing after its introduction. Similar reductions in average length of stay have been noted for beneficiaries of the Medicare program since the introduction of its prospective payment system.<sup>13</sup>

Although the resource allocation methodology may be having an effect on length of stay, we believe it is difficult to assess its direct role, given the presence of other efforts focused on the same goal. Any assessment of the methodology's effect on length of stay must be tempered by the possibility that DM&S's length-of-stay rates may have decreased in the fiscal years immediately prior to its implementation in anticipation of its introduction. Moreover, we believe it is too early to judge whether the methodology will cause lengths of stay to continue to decrease, stabilize, or eventually turn upward after medical centers complete their initial adjustment period.

Finally, although the resource allocation methodology has been operating for 3 years, there have been numerous changes and refinements in each succeeding year since implementation. (Some of these are discussed in app. I.) For example, there has been a reduction in the capped amount of gains and losses, a shift to using VA cost data rather than non-VA cost data for acute care, and modifications in the workload credit received for the care of psychiatric inpatients. We believe DM&S's continual modification of the methodology precludes precise assessment of its effects and of DM&S's ability to achieve its goals.

---

<sup>12</sup>Better Patient Management Practices Could Reduce Length of Stay in VA Hospitals (GAO/HRD-85-52, Aug. 8, 1985).

<sup>13</sup>"Impact of the Medicare Prospective Payment System for Hospitals." Health Care Financing Review, Spring 1986, Vol. 7, No. 3; "Medicare Short-Stay Hospital Length of Stay, Fiscal Years 1981-1985." Health Care Financing Review, Spring 1986, Vol. 7, No. 3.

## CONCLUSIONS

DM&S's new methodology for allocating resources to its medical facilities appears superior to its previous method. By attempting to create standardized measures of workload for most aspects of direct medical care, DM&S has begun to improve its ability to measure and compare performances and to give national and local managers information on the operation of specific facilities. In addition, the incentives in the methodology should heighten the sensitivity of field managers and direct service providers to the appropriateness of services provided, the frequency of occurrence of different diagnoses and conditions, and the cost of providing care. Use of this information to allocate resources among all facilities and to identify strengths and weaknesses in each facility should greatly assist DM&S in achieving its goals of moving toward a more equitable system of allocating resources and delivering care in an efficient, productive, and appropriate manner.

Problems such as unreliable data, questionable measures of workload, and the lack of a system to monitor the impact of the new methodology on quality of care, however, have affected DM&S's implementation of the new methodology. Reliable databases and valid workload measures are needed because they are crucial building blocks for the methodology's successful allocation of resources based on facilities' performances. Furthermore, as field managers and service providers respond to the incentives of the methodology, the decisions they make affecting veterans' access to care, the type of care received, and the delivery of that care must be based on current, reliable, complete information and monitored to help assure that the quality of care is not compromised. Although DM&S is taking steps toward overcoming these problems, we believe that DM&S's gradual implementation of the methodology is appropriate, as it works toward the resolution of the issues discussed in this report.

Continued, systematic, and comprehensive assessment of reactions to the resource allocation methodology will be necessary to determine whether DM&S's allocation and efficiency goals are being realized without negatively affecting veterans' access to quality care. In addition to the problems discussed above, the gradual implementation of the methodology and the changing environment in the national health care field make assessments of the actual impact of the methodology difficult. Change has affected and probably, in our opinion, will continue to affect DM&S's implementation of the resource allocation methodology. The changes may result from improvements in monitoring of medical centers' reactions, the availability of more reliable clinical and financial data, improved measures of workload, and shifts in VA policy.

MAJOR COMPONENTS OF VA'S RESOURCE ALLOCATION METHODOLOGY

The Veterans Administration's resource allocation methodology assesses each VA medical facility's performance in four areas: (1) acute care, (2) ambulatory care, (3) long-term care, and (4) education of physician residents. Separate models were developed for acute care, ambulatory care, and long-term care. In addition, facilities receive credit for their education-related workload and costs. The three models and the education component are described in more detail below.

Each year, the VA's Department of Medicine and Surgery calculates the system average cost to produce a standard measure of output (i.e., a weighted work unit) for each of the four areas. It does so by dividing total expenditures in each area by total weighted work units earned in that area. DM&S then assesses each facility's average cost per weighted work unit in each area against the average for all facilities. Adjustments to target allowances are based on a facility's performance relative to the system average performance. Facilities that are more efficient than average, that is, whose cost per weighted work unit is lower than the system average, gain resources; those that are less efficient than the system average lose resources. The target allowance process allocates funds to a facility, not to individual programs. Thus, while comparisons are drawn for each area separately, only one overall adjustment is made to a facility's target allowance.

A geographically based salary adjustment is used in the acute, ambulatory, and long-term care models. It is intended to compensate large, urban medical centers whose operating expenses are perceived to be higher than the system average because of the presence of more highly skilled and therefore highly graded staff and of competition with the private sector for these staff. Salaries of all direct-care, full-time-equivalent employees are included in the adjustment process. Weighted work units produced are adjusted for each facility by the ratio of the facility's average direct care salary to the national average. For example, weighted work units earned by the medical bed section at Martinez in fiscal year 1985 were increased 2.8 percent by the salary adjustment in the fiscal year 1987 target allowance process. The comparable adjustment at Livermore was a 9.5-percent increase, at Palo Alto a 10-percent increase, and at San Francisco, a 9.3-percent increase. At the Columbia, SC, medical center, however, the salary adjustment led to a 4.5-percent decrease in weighted work units earned for the medical bed section.

ACUTE CARE MODEL

The acute care model assesses the relationship between work produced and the resources spent at each medical facility in the general medicine, surgical, psychiatry, neurology, and rehabilitation medicine services. Some services, such as those for spinal cord injury, blind rehabilitation, and hemodialysis, are not included in the acute care model and thus are not subject to the resource allocation methodology.

In fiscal year 1987, about \$7.1 billion of the total DM&S recurring target allowance (discussed on p. 9) for medical care was subject to adjustment by the resource allocation methodology. Approximately 41 percent or \$2.9 billion of this amount was adjusted by the acute care model. As shown in figure 1, the percent adjusted by the acute care model had increased from about 39 percent in fiscal years 1985 and 1986.

Diagnosis Related Groups

Workload is measured in the acute care model through the use of diagnosis related groups (DRGs)--a method used to classify patients by diagnosis and surgical procedure performed, and by patient age, complications, and in some cases discharge status. Each DRG represents a group of patients whose cost of care is expected to be generally comparable based on similar lengths of stay. Each patient discharged from the acute services covered by the resource allocation methodology is classified into one of 470 DRGs. DRGs facilitate crediting hospitals equally based on comparable measured work produced. The Health Care Financing Administration adopted DRGs for use in its Medicare prospective payment system in fiscal year 1984. New Jersey, which has a waiver from the Medicare prospective payment system, has been using a DRG-based system for hospital payment since 1980. In 1986, DRG-based systems also operated in state Medicaid programs in Michigan, Minnesota, Ohio, Oregon, Pennsylvania, South Dakota, Utah, and Washington.

In the DM&S system, each DRG is assigned weighted work units representing the expected average cost of caring for each patient in that grouping. For example, in fiscal year 1987 DM&S assigned 1,000 weighted work units to DRG 103 (heart transplant), its most costly DRG. Under the methodology, a medical facility that performs this procedure will normally receive this weighted work unit value for each patient it discharges in that grouping. All facilities generally receive the same credit regardless of the patient's length of stay (with some exceptions) or the cost incurred in caring for that patient. Consequently, facilities are

rewarded if their cost in caring for each patient is less than the system's average cost for patients with the same DRG.

The process of assigning specific DRGs to patients begins at the medical facility level, where medical staff compile data on each patient, and concludes at a central VA data processing center where the actual DRGs are assigned. When a patient is discharged from acute care services, demographic, diagnostic, and other medical information is coded into the DM&S patient treatment file. Based on physician judgment, the diagnosis responsible for the longest length of stay is identified and coded into the patient treatment file using the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).<sup>1</sup> This information, when entered into a computer program called the DRG grouper, classifies each discharge into one of the 470 diagnostic related groups. The number of patients a medical center treats in each DRG generally determines the amount of credit it will receive under the resource allocation methodology.

With a few exceptions, medical facilities receive credit for the specified weighted work unit value assigned to each DRG regardless of actual costs incurred to provide the care or the patients' lengths of stay. However, discharged patients with lengths of stay beyond established upper boundaries, called high trim points, receive the DRG weighted work unit value plus additional weighted work units equivalent to \$90 per day for each day of care over the high trim point. DM&S established high trim points for most DRGs at the 98th percentile of discharged patients' lengths of stay, and low trim points for each DRG at the 2nd percentile of discharged patients' lengths of stay. All 1-day stays are credited with weighted work units equivalent to \$360. Lengths of stay greater than 1 day but less than the low trim-point days are credited with weighted work units based on a prorated value between \$360 and the value of the full DRG weight.

The resource allocation methodology only credits medical facilities for discharged patients because it is only upon discharge that patients are assigned a DRG. For patients occupying beds at the close of a fiscal year, called census patients, the methodology credits medical centers with weighted work units equivalent to \$90 for each day of care during that fiscal year.

---

<sup>1</sup>The ICD-9-CM is a coding scheme for diseases, disorders, and surgical procedures used to index medical records, review appropriateness of care, and compile medical statistics.



Reweighting DRGs on the basis  
of DM&S costs

New Jersey implemented diagnosis related groups statewide in 1980 as part of a major reform of hospital reimbursement. HCFA adopted this model for introduction of its prospective payment system in fiscal year 1984. DM&S in developing its acute care model used the cost per DRG that New Jersey had developed from its experience. While DM&S believed the New Jersey costs accurately reflected DM&S expenditures by bed section, it recognized differences in total DM&S costs, the number of chronically ill VA patients, and VA medical practices. DM&S decided to reweight its diagnosis related groups for fiscal year 1987, using data it believed reflected VA cost experience.

Weighted work units adjusted  
for psychiatric census patients

In fiscal years 1985 and 1986, DM&S used the resource allocation methodology to reduce what it believed to be inappropriate retention of psychiatric inpatients. During this period, a facility's credited workload for census patients in psychiatry was discounted 20 percent. Census patients are those occupying beds at the close of a fiscal year. VA central office intended the discount to be a disincentive for a medical facility to retain census patients in psychiatric beds. To offset the disincentive and still provide needed care, DM&S encouraged psychiatric care in ambulatory care services by overweighting the workload credit earned for psychiatric outpatient services by about 44 percent. After VA central office noted a significant reduction in lengths of stay for psychiatric patients, the 20-percent discount provision was eliminated for fiscal year 1987.

Patient Transfer Credit Expanded

In fiscal year 1986, facilities earned DRG credits for two types of discharges: (1) those from the facility and (2) those that occurred when patients were transferred between certain bed sections within the facility. In particular, facilities earned full weighted work units for patients discharged from medical or surgical beds to psychiatric beds or from psychiatric beds to the other two bed sections. In an effort to credit facilities with all work performed, DM&S decided to permit facilities to earn full weighted work units for patient transfers between the general medicine, surgical, psychiatry, neurology, and rehabilitation medicine bed sections, starting in fiscal year 1987.

AMBULATORY CARE MODEL

The ambulatory care model is applied to all outpatient services except readjustment counseling (outreach only), hospital-based home care, and hemodialysis. For fiscal year 1987, the model classifies each patient into one of 40 categories depending upon the patient's age, services provided, and the number of times the patient received the services in a fiscal year. DM&S assumes that facilities incur similar costs for patients within each of the 40 groups and therefore assigns specific weighted work unit values to each group. Patients are placed into the highest cost group for which they qualify.

In fiscal years 1986 and 1987, approximately 15 percent or about \$1.1 billion of the DM&S recurring target allowance was adjusted by the ambulatory care model.

Workload Data

DM&S uses its own workload and cost data in its calculations for the ambulatory care model. Workload data are derived from two sources: (1) information accumulated annually from a 20-percent sample of the patients' visits to outpatient clinics and used to classify patients into one of the groupings, and (2) workload information derived from reports of patients' use of specialized ambulatory care services.

Patient groupings

Patients' ages are important variables in the ambulatory care model. DM&S determined that the number of annual visits to an outpatient clinic was closely related to the age of the patient. Generally, older patients visit outpatient clinics more often than younger patients. For example, the fiscal year 1985 20-percent sample of outpatients showed that veterans under age 25 averaged 3.08 visits per person per year. In contrast, veterans age 85 and older averaged 5.95 visits.

Patients can be placed in only one category. Each category has its own weighted work unit value assigned to it based on the average expected cost per person per year in the category. Patients are classified into the highest cost group for which they qualify after the annual statistics are compiled. The five categories are:

- High psychiatry--More than 6 visits to a general psychiatry clinic or more than 12 visits to a special psychiatry clinic during the year;

- High rehabilitation--More than 6 visits per year to a rehabilitation medical clinic;
- High medicine--More than 6 visits per year to a medical clinic;
- Mid-psychiatry--More than 3 visits per year to a general psychiatry clinic or fewer than 6 visits to a special psychiatry clinic; and
- Standard--Fewer than 3 visits per year to a general psychiatry clinic or fewer than 6 visits per year to a rehabilitation, special psychiatry, or medical clinic, and all other visits not classified in the previous four categories.

The model contains disincentives for providing excessive care. It funds "excess visits," that is, visits by an age grouping that exceed the national average for that grouping, at only half the established rate. To encourage the use of outpatient, as opposed to inpatient, psychiatric services, DM&S credits facilities with about 44 percent more weighted work units for high-use psychiatric patients than would be typically expected for the costs incurred.

#### Special ambulatory care services

The second source of workload information consists of reports of all patients' use of specialized ambulatory care services. In fiscal year 1986, these were: (1) cancer chemotherapy, (2) radiation therapy, (3) computed tomography scans, (4) blood and blood products transfusions, and (5) ambulatory surgery. Magnetic resonance imaging was added as a specialized service in fiscal year 1987.

Due to the costly nature of these services, they are credited to the medical facility on an actual count basis. Depending on the specialized service, facilities earn a specified number of weighted work units each time they deliver one of these services. A DM&S official said that, because of indications that some medical facilities were overreporting specialized services, workload credit for these services will be reduced for fiscal year 1988. In fiscal year 1988, facilities will receive full workload credit only for that workload that is at or below the 75th percentile systemwide. Workload that falls above the 75th percentile will be credited at 75 percent of the full weighted work unit value.

LONG-TERM CARE MODEL

The long-term care model accounts for the resource needs of the different mixes of patients in (1) intermediate medicine<sup>2</sup> sections of hospitals and (2) nursing home care units. These patients are generally less acutely ill than patients in acute bed sections, but more likely to have multiple impairments and lengthy stays. The basic premise is that variations in cost of care for the workload assessed by the long-term care model are a function of the amount of nursing care required rather than a particular diagnosis. In turn, the amount of nursing care varies according to the patient's physical and functional status. The long-term care model assigns patients to groups based on their expected use of resources. Weighted work units are then assigned to the groups in accordance with the reported cost of care for patients in each group.

In fiscal year 1986, approximately 6 percent (about \$425 million) of the DM&S recurring target allowance was adjusted by the long-term care model. This proportion increased in fiscal year 1987 to approximately 7 percent (about \$530 million).

Elements of the Model

The long-term care model, implemented in fiscal year 1986, is based on one originally developed by a Yale University research team. It contained nine resource utilization groups (RUGs), which were formed by categorizing patients by their degree of independence in dressing, mobility, and eating and whether their intake and output of fluids was being monitored. To test the applicability of the RUG model, DM&S used its own data from a 1983 survey of 21,617 VA patients. Weighted work units for the model were assigned according to the average nursing time requirements per RUG and an analysis of the other types of costs consumed by the long-term care patients. The average nursing minutes per RUG were converted to weighted work units by assigning 1000 weighted work units<sup>3</sup> to the highest nursing requirement group, RUG 9, while the others were weighted proportionately down to 507 for RUG 1. Under

---

<sup>2</sup>Intermediate medicine beds are hospital beds for patients who need continued hospitalization, access to diagnostic laboratory, radiology, and other treatment facilities available only in hospitals, and require the presence of a physician 24 hours a day.

<sup>3</sup>The weighted work units in the long-term care model are not equivalent to the weighted work units in the acute care model.

the model, patients' needs were assessed quarterly to obtain the data necessary to categorize them into RUGs.

To provide an incentive for medical facilities to find more appropriate levels of care for patients who were functionally independent, DM&S added a tenth RUG. The tenth group contained patients who were functionally independent in the three activities of daily living used in the original model plus bathing/grooming, toileting, and transfer. The weighted work units earned for patients in this latter group were set at one-half the weight earned for patients in RUG 1.

When developing the model, DM&S officials recognized the costly nature of rehabilitating some patients in intermediate medicine and nursing home care units, which might discourage its use when medically appropriate. The model, therefore, contains an incentive to encourage rehabilitation. Thus, if a patient's condition improves from one survey to the next, the facility will continue to receive credit for the higher group even though its costs in caring for that patient have generally decreased. DM&S anticipated that, from a facility's point of view, such patients would be seen as more profitable.

#### Expected Changes

Beginning with the fiscal year 1988 target allowance, the New York State Medicaid nursing home resource utilization groups (RUGs II) are to be used to allocate long-term care resources. DM&S officials believe that the RUG II model is more clinically relevant than the original model because RUG II categorizes patients by dominant medical and behavioral characteristics as well as functional ability. Under RUG II, each patient is first classified into one of five clinical categories: heavy rehabilitation, special care (e.g., comatose or requiring nasal gastric feeding), requiring clinically complex treatments (e.g., dialysis or chemotherapy), severe behavioral problems (e.g., physical aggression or hallucinations), or reduced physical functioning. Patients are placed into the highest cost group for which they qualify, thus insuring adequate funding for patients with multiple problems. Measures of functional dependence (i.e., eating, toileting, and transferring) are used to divide the 5 clinical categories into 16 resource utilization groups. Since cost of rehabilitation is built into the RUG II weights, no additional incentive is required for providing such care.

Weighted work unit values for the RUG II model were based on (1) New York state Medicaid research data, (2) DM&S cost experience, and (3) DM&S patient statistics. The latter are based

on surveys of all DM&S's long-term care patients shortly after admission and semiannually thereafter. The group that required the largest amounts of resources, a heavy rehabilitation category, was given a value of 1,000 weighted work units and the remaining groups were reduced proportionately.

#### EDUCATION MODIFICATION COMPONENT

One of the missions of DM&S is to provide training to physician residents. In fiscal year 1987, 95 DM&S medical centers had affiliation agreements with medical schools for training physician residents. For academic year 1986-1987, DM&S anticipated training about 27,000 physician residents. The education component of the resource allocation methodology adjusts workloads for physician residents, but not for students from other health professions such as dentistry and nursing.

Although residency training programs are believed to be costly, determining the extent of their incremental costs is difficult. Extra costs are believed to result from technology uniquely found in teaching institutions, 24-hour laboratory services, additional tests and procedures associated with training residents, and increased staffing levels in teaching institutions. One problem associated with determining exact costs, DM&S officials reported to us, was the lack of precision in cost reporting for physicians' time spent on training residents.

The resource allocation methodology contains adjustments for the cost of training physician residents. In fiscal year 1985, DM&S used a system that distinguished between facilities with and without physician residents. In fiscal year 1986, DM&S adopted a three-tier system, indexed to the number of full-time equivalent physician residents assigned to a facility, to supplement the weighted work units earned in acute and ambulatory care. A facility was categorized as (1) fully supplemented if it had three full residency programs, of which two had to be in Internal Medicine and Surgery, and 35 or more total residents or 17.5 full-time equivalent physician residents; (2) intermediately supplemented if it had 10 to 34.9 physician residents; and (3) without supplementation if it had fewer than 10 physician residents.

In fiscal year 1987, DM&S changed its method for crediting affiliated medical centers for their education-related workloads and costs by (1) using the reported expenditures for education (excluding physician residents' stipends) and (2) subtracting the average cost per weighted work unit produced in unaffiliated medical centers from the similar cost in affiliated medical

centers, thus isolating the estimated incremental costs of education. Combining the amount from each process resulted in a cost per physician resident of \$17,771.18, which was used to adjust the target allowance of facilities with physician residents.

(401962)





---

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office  
Post Office Box 6015  
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are \$2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

---

United States  
General Accounting Office  
Washington, D.C. 20548

Official Business  
Penalty for Private Use \$300

Address Correction Requested

---

First-Class Mail  
Postage & Fees Paid  
GAO  
Permit No. G100