

Chapter 6

Adopting, Using, and Financing Devices

Adopting, Using, and Financing Devices

The desired result of all the activities directed toward medical devices is the appropriate adoption and use of these devices. In examining the capacity of the Veterans Administration (VA) to meet veterans' needs for such devices, it is thus necessary to look at the VA system of adopting and using devices, including selecting, providing, and paying for them. Issues of resource allocation must also be considered in examining this system.

Veterans adopt and use medical devices, depending primarily, though not entirely, on the VA programs and services for which veterans are eligible. Through these programs and services, veterans receive devices directly, have them financed, and learn about them (109). I

¹The issue of eligibility becomes particularly important since, according to VA estimates, 58 percent of VA patients are at or below the poverty line. Data compiled by the National Center for Health Statistics from 1971 to 1974 show that the lower a hospitalized veteran's income, the more likely he is to be treated in a VA rather than non-VA hospital. In 1980 the VA estimated that veterans dis-

The VA makes available an enormous range of medical devices, including, for example, over 300 sensory aids for the blind (13). During fiscal year 1982, the VA provided over \$81 million in prosthetic services. Each year it provides commercially available prosthetic devices and services to about 1 million disabled veterans (118). In addition, it provides a range of devices through routine patient care services.

Since adopting and using medical devices depends to a great degree both on veteran eligibility and VA budgeting and financing, these topics are discussed first. More specific policies and issues affecting adoption and use of devices—rehabilitative devices and medical equipment and supplies—are then examined. Finally, more explicit approaches that consider device adoption in light of resource allocation are addressed.

charged from VA hospitals were five times more likely to have annual incomes under \$4,000 (26 percent) than over \$10,000 (5 percent) (96).

VETERAN ELIGIBILITY FOR PROGRAMS AND SERVICES²

Many VA programs serve veterans' needs, including those for: 1) income maintenance, 2) medical care, 3) social services, 4) educational services, 5) vocational rehabilitation and independent living, and 6) housing assistance. VA programs vary not only in purpose, but in origin, eligibility criteria, and ways of providing services (e.g., through funding only, funding and referral to services, or direct provision of services), and in financing and administration.

The greatest expenditures for medical devices are made through income maintenance and related transfer payments and medical care programs.

²Except as noted, this discussion is based on an earlier OTA report *Technology and Handicapped People* (109).

Income Maintenance

The VA administers a major income maintenance program through compensation for service-connected disabilities and pensions for non-service-connected disabilities. The VA estimated that in fiscal year 1983, an estimated \$10.2 billion would be spent for 2.6 million veterans through the compensation program, and \$4.0 billion for 1.8 million veterans through the pension program.

The amount veterans are compensated for service-connected disabilities depends on how much their disabilities affect their earning capacity in civilian occupations. Additional compensation is provided for dependents. To be eligible, a veteran must have contracted a disease, suffered a non-misconduct injury, or aggravated an existing disease or injury in the line of duty, during war or

peacetime. Proof of disability is based on service medical records. Service connection may be granted by presumption if a veteran develops one of several chronic diseases within 1 year of discharge from service, tuberculosis or Hansen's disease within 3 years, or multiple sclerosis within 7 years. Once service connection is established, the VA assigns a percentage to the disability from an established "Schedule for Rating Disabilities" (111). Eligibility is thus based on medical criteria and proof of service. Vocational factors were considered only in developing the "Schedule for Rating Disabilities." An individual does not have to prove the inability to earn an income or to support himself or herself with unearned income.

Pensions for non-service-connected disabilities provide incomes to totally and permanently disabled veterans and their dependents whose income is below an established standard. To be eligible, veterans must have served at least 90 days, including at least 1 day of wartime, must be medically determined to be disabled, and must have personal resources and income below a legislated amount. At age 65, veterans are considered disabled regardless of their physical condition or income. Disabled survivors of veterans may also receive benefits if they meet the income test (95). Eligible veterans receive VA cash payments (with the amount determined by statute), medical and social services, and housing and education benefits.

Erlanger and colleagues note that although the distinction between service- and non-service-connected disabilities has always been made in discussing veterans' benefits, the legitimacy of all veterans' pressure for benefits has never been seriously questioned, as was observed in the 1980 hearings on the Veterans' Disability Compensation and Survivors' Benefits Amendments (111). Veterans' disability programs have always been separate from civilian programs, with better benefits and less strict eligibility requirements. The major concern of policymakers has been the cost of providing all eligible disabled veterans with all necessary services (26).

Income maintenance programs are important for disabled veterans not only for income, but also for supplemental benefits and referrals to other services. Both device and service technologies are provided under supplemental benefits, while the

income itself allows recipients to purchase devices not covered by supplemental benefits. Income maintenance from both compensation and pension programs are funded from general revenues.

Health and Medical Care

Chapter 2 described the VA's comprehensive medical and rehabilitative services for veterans with service-connected disabilities and for those with non-service-connected disabilities unable to pay for medical care. These services are federally funded. Priority for medical and rehabilitative care is given to veterans with service-connected disabilities, an estimated 3 million people. Veterans with non-service-connected disabilities may be admitted to VA hospitals if they are unable to pay for hospital care elsewhere and if beds are available.³ Approximately 80 percent of VA patients are veterans without service-connected disabilities (114).

VA health and medical benefits include pre-hospitalization, hospitalization and posthospitalization care, prosthetic and medical devices, nursing home and domiciliary care, devices, transportation services, outpatient services, and prescribed drugs. Unlike coverage under Medicare and Medicaid, all technologies and devices suited to an eligible veteran's circumstances and needs are made available. The VA provides blind veterans with necessary services and devices to overcome their handicap and provides other disabled veterans with technologies and devices deemed medically necessary. A growing concern of VA users and policymakers is the cost of covering all available technologies and devices. There are now funding restrictions for some medical care for veterans without service-connected disabilities; for example, a foster home program is available to such veterans only when they can pay its cost (109).

³The "inability to pay" requirement does not apply to veterans: 1) 65 or older, 2) receiving VA pensions, 3) eligible for Medicaid, 4) rated service-connected disabled, or 5) considered former prisoners of war. It also does not apply to those requesting medical services in connection with exposure to dioxin or other toxic substances in herbicides or defoliants (e.g., Agent Orange) used for military purposes in Vietnam Aug. 5, 1964, through May 7, 1975, in connection with exposure to ionizing radiation from detonated nuclear devices as a result of participation in the testing of such a device, or in the U.S. occupation of Hiroshima and Nagasaki between Sept. 11, 1945, and July 1, 1946 (96).

VA FINANCING AND RESOURCE ALLOCATION

Table 6 shows outlays for veterans' benefits and services by functional categories for fiscal years 1981 through 1983. Approximately 70 percent of the VA budget represents entitlement programs, such as the pension and compensation programs. Spending for these programs is "uncontrollable" in that Congress must modify existing law by changing the eligibility criteria in order to affect spending. The remaining 30 percent of the VA budget goes to discretionary programs, primarily medical care. Spending for discretionary programs can generally be changed through the appropriations process (96).

Veterans who seek VA medical care, then, are served within the limits of VA resources and legislated priorities (94). Under a limited and controlled budget, the VA health care system plans for 1 and 5 years ahead. Alternative plans are prepared, ranging from a 5 percent cut in the present budget to an increase in real terms. Once Congress fixes the appropriation, the budget is then set for the following fiscal year. A reduced appropriation, of course, requires a corresponding reduction in staff or services.

Once its appropriation is set, the VA health care system is characterized by highly decentralized planning and financial management. The VA has regional and functional health care market areas

Table 6.—Outlays for Veterans' Benefits and Services, Fiscal Years 1981-83

| Items | Outlays by fiscal year (millions of dollars) | | |
|---|---|---------------------|---------------------|
| | 1981 (actual) | 1982 (estimated) | 1983 (estimated) |
| Income security | \$12,909 | \$14,070 | \$14,843 |
| Education, training, and rehabilitation. | 2,254 | 1,883 | 1,557 |
| Hospital and medical care | 6,965 | 7,594 | 8,108 |
| Housing | 201 | -68 | -863 |
| Other benefits and services | 662 | 680 | 741 |
| Offsetting receipts. | -3 | -3 | -3 |
| Total outlays | \$22,988 | \$24,155 | \$24,383 |

SOURCE Budget of the United States Government for Fiscal Year 1983, pp. 5-166, as reported by U.S. Congress, Congressional Research Service, *Medical Care Programs of the Veterans Administration*, Report No. 63-99 EPW (Washington, DC, May 16, 1983).

and has assigned fiscal and budgetary authority to the regional consortia of its medical centers.

Regional allocations are prospectively budgeted by the Central Office. There are now 28 subdivisions known as "Veterans Administration Medical Districts" (fig. 6). Each medical district typically represents 4 to 10 VA medical centers that all offer primary and secondary care and some access to tertiary care. This "regionalization" in medical district budgeting is intended to help coordinate services provided by all members of the district, to avoid unnecessary duplication and to encourage new services only where they are required by large populations (16).

The formula used in resource allocation gives some weight to outpatient visits but more to bed occupancy. A new system for budgeting inpatient care based on diagnosis-related groups (DRGs) is being introduced (see the corresponding section below). In the future, the formula maybe changed to reflect the size of the veteran population, adjusted for age (29,59).

Management Initiatives

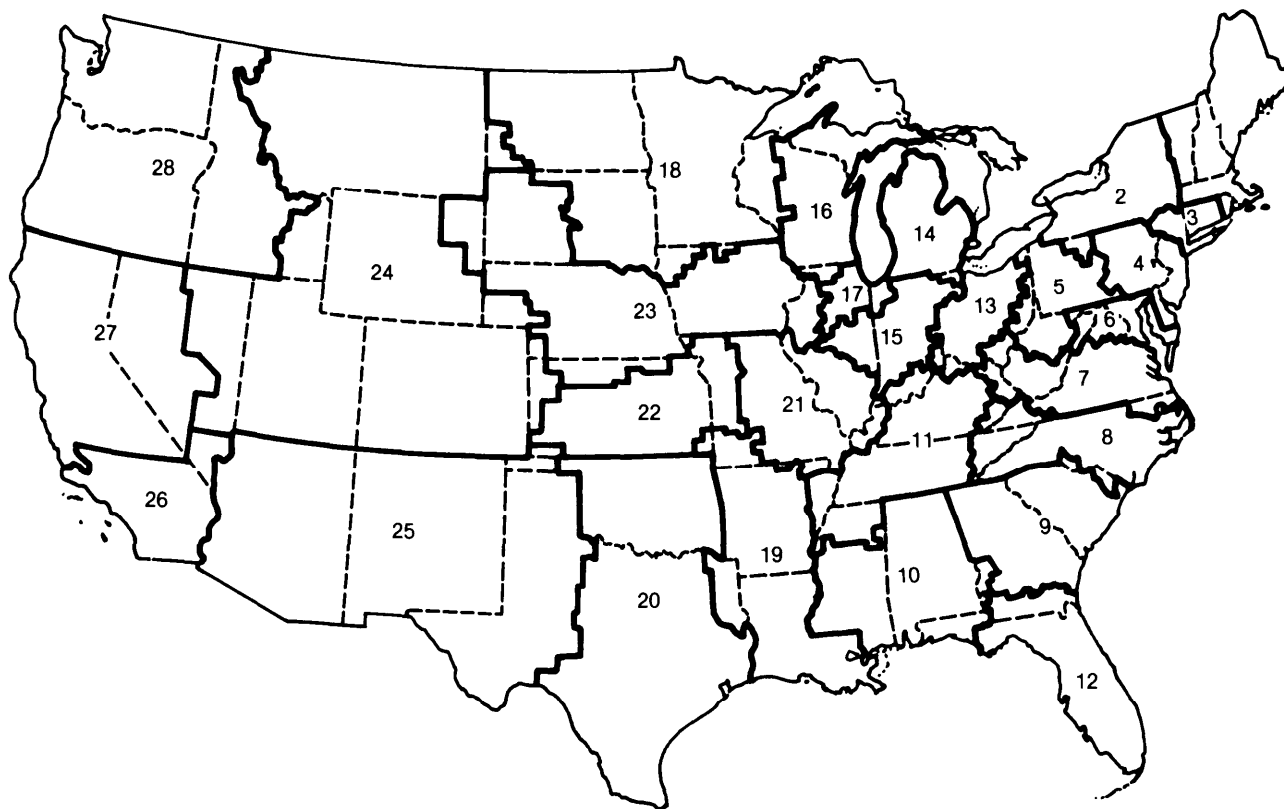
Several health care management initiatives have been taken in recent years through both legislative mandate and administrative fiat. These initiatives affect the VA's allocation of resources and adoption and use of devices, particularly equipment.

Facility Planning

Each VA medical center annually prepares a construction and facility improvement plan covering the next 5 years. This plan, which is reviewed and approved by the Central Office, proposes construction according to program and service plans.

Each year, the VA develops and submits to Congress a 5-year comprehensive medical facility construction plan for VA projects requiring over \$2 million. The plan submitted in June 1982, covering fiscal years 1983 through 1987, identified 252 projects with a total estimated cost of \$5.4 billion (119).

Figure 6.—Veterans Administration, Department of Medicine and Surgery Medical Districts, 1983



SOURCE: U.S. Veterans Administration, as reprinted in U.S. Congress, Congressional Budget Office, Human Resources and Community Development Division, *Veterans Administration Health Care: Planning for 1990* (Washington, DC, February 1983).

Construction needs for projects costing less than \$2 million are also identified from the medical center facility plans. For fiscal years 1983 through 1987, such projects numbered more than 1,400, with an estimated total cost of \$850.4 million. In fiscal year 1982 the VA began emphasizing these smaller projects and proposed an increase for its fiscal year 1983 budget for this purpose (119).

Medical Equipment Reporting System

Not surprisingly, the VA's medical equipment inventory has increased in both quantity and complexity over the years. To manage all this medical equipment, the VA has developed an interactive computer-based Medical Equipment Reporting System to help both VA medical centers and the Central Office maintain and access equipment histories, identify important performance trends, track mandated corrective actions, and establish

a data base for utilization review and resource planning. Each VA medical center will eventually have access to both local and systemwide experiences and trends (119).

Health Resources Sharing

Public Law 97-174, the VA-Department of Defense Health Resources Sharing and Emergency Operations Act, was intended to promote cost savings while providing veterans and the military more comprehensive services. The two agencies plan several joint efforts (121):

- Establishing a VA-Department of Defense Health Care Resources Sharing Committee to review policies and practices and to recommend changes. Monitoring the acquisition of major equipment and the locations of new facilities will be part of the committee's responsibilities.

- Publishing guidelines based on the committee's recommendations, which must not adversely affect the range of services, quality of care, or established priorities of either agency.
- Authorizing interagency sharing agreements among all medical facilities for referrals, with reimbursement to the facility delivering care.

The VA is first determining services that can be shared, to permit direct reimbursement. Sharing will primarily be locally initiated, but a few programs will be developed in the VA's Central Office and the Pentagon.

The VA's authority to share specialized medical resources was first established in 1966 (in Public Law 89-785) to permit VA medical centers to share underutilized, specialized, scarce, and costly resources with other medical centers, community hospitals, Federal and State hospitals, clinics, and blood and organ banks, so as to eliminate duplication. The law similarly permits the VA to use community resources for veterans. Shared resources have included computed tomography (CT) scanners, electron microscopy studies, specialized laboratory procedures, nuclear medicine services, radiation therapy, cardiac catheterization, open heart surgery, dialysis, ultrasound, and mammography (119).

Medical District Initiated Program Planning

Perhaps the VA's most important step for the adoption and use of devices has been Medical District Initiated Program Planning (MEDIPP), begun in 1981. MEDIPP is a long-range "strategic planning system" giving greater responsibility for resource allocation to the VA's 28 medical districts (136).

MEDIPP evolved to respond to two seemingly incompatible conditions: the short-range demand for more (and different) services and long-range declining demand, both a function of the aging veteran population. As the many veterans of World War II and the Korean conflict enter their 60s and 70s, their health care needs will increase. Yet, as these veterans die, the demand for services will drop sharply, especially if no major military conflict brings large numbers of veterans into the system (123).

From 1970 through 1979 VA medical care appropriations tripled, from roughly \$1.7 billion to \$5.3 billion. Cost consciousness increased correspondingly toward the end of the decade. Since 1977 the VA has faced stable or declining health care budgets (adjusted for inflation). Given the general political concern about VA spending and the changing demographics of the veteran population, the VA has recognized that past planning and management approaches are no longer feasible. MEDIPP is intended to provide the basis for planning and managing the VA's changing health care delivery needs (59,123).

Since the VA will certainly have to discontinue some services or facilities, organizational and constituency understanding and acceptance may be significant hurdles for MEDIPP's success. For this reason, MEDIPP will involve administrative and clinical personnel at several levels within the VA Department of Medicine and Surgery.

MEDIPP begins its work each year on November 1 when the VA's Chief Medical Director publishes a list of the general issues, objectives, and goals for the immediate and long-range future of the Department of Medicine and Surgery programs. This report is used by each VA medical district, which appoints a district planning board and staff to develop a district plan. District plans reflect demographic analysis, a workload forecast, and a review of local resources submitted by the VA facilities within its jurisdiction. District plans are reviewed by district and regional administrators and councils, and when approved, submitted to the VA Central Office (119,136).

In MEDIPP's first year, 28 medical district plans were submitted to the Central Office on November 1, 1982, covering fiscal years 1985 through 1990. More than 400 administrative and clinical personnel helped prepare the plans, along with the representatives from veterans' service organizations who served on medical district planning boards, advisory committees, and task forces. These initial district plans will provide the basis for developing a national strategy that identifies program directions of the Department of Medicine and Surgery, trends in veterans' health care needs, and the types and sizes of facilities and mix of health care services required to meet these needs (119).

An initial problem in MEDIPP has been developing adequate program standards and criteria toward formulating VA district plans and national policies. Like health planning laws and programs (e.g., certificate-of-need requirements) that regulate private health care investments, MEDIPP must set quantitative and other standards for specific technologies, such as general hospital beds, open heart surgery, cardiac catheterization, and end-stage renal disease services. The VA is also now developing case-mix workload and general staffing guidelines for new planning standards (7,59).

The promise of MEDIPP is in providing the VA an initial framework for rational planning in an era of dwindling health care resources. Its significance in relation to devices mostly concerns equipment. District plans will propose the creation, expansion, or dismantling of services, specifying requirements for construction, staffing, and new equipment. The implications of the plans for medical supplies will probably be vague. Likewise, changes in the adoption and use of prosthetic devices will be identified through MEDIPP only in the case of new rehabilitative services. However, MEDIPP could identify and monitor the need and demand for various types of major medical equipment. MEDIPP could then be used not only in planning, but also to track the adoption and use of major equipment. Requests and proposals for device equipment could then be considered in light of their cost effectiveness in delivering care. To some extent, VA-initiated research has already begun to explore these possibilities, as discussed below.

ADOPTION AND USE OF DEVICES

Eligibility and payment for services obviously affect the adoption and use of devices. The decision of whether to include a device in a specific service or to provide a device to an individual in delivering care is also assumed to have a major influence on adoption and use.

Individuals' circumstances and needs have traditionally been identified at the clinical level, within the relationship of patient and provider.

Diagnosis-Related Groups

Another new process that may affect medical device adoption and use is setting VA inpatient budgets using DRGs (28). Although the VA has budgeted prospectively because of the congressional appropriations process, the use of a case-mix measure such as DRGs is intended to distribute funds more rationally among medical centers than have previous arrangements. DRGs classify patients by principal diagnosis, surgical procedure, age, presence or absence of significant comorbidities or complications, and other relevant criteria. The new Medicare prospective payment system for hospitals is also based on DRGs. The VA budgeting system and the Medicare payment system use similar mathematical models to assign patients to DRGs and to allocate resources among DRGs.

Data sources for the VA system include all VA discharge abstracts, costs by different service categories (medical, surgical, psychiatric), the current model of 470 DRGs used by Medicare, and the New Jersey Reimbursement Schedule. Since the VA has no patient-based method of assigning costs, the VA used New Jersey cost data to assign relative DRG weights to the VA discharges, and these weights were used for allocation decisions (27).

DRGs will also be used in VA utilization review and quality assurance programs (27). Capital purchases are excluded from the DRG rate, and hospitals do not keep surpluses. Thus, DRG budgeting will affect the use of devices more than their purchase, which will be affected more by MEDIPP.

VA medical, surgical, and rehabilitative services have been relied on to determine need, develop rationales for specific devices, and request procurement formally through the VA Office of Procurement and Supply (13).

Rehabilitative Devices

After World War II, VA rehabilitation services were concerned primarily with treating a fairly

large group of young war-injured veterans. The VA's rigorous pursuit of this mission, according to a 1977 National Academy of Sciences (NAS) report, led to its world leadership in the clinical use of devices and techniques for aiding physically handicapped people (62).

Today more than 80 percent of those treated through the VA's rehabilitative services have non-service-connected disabilities, with many suffering from the chronic diseases associated with aging. The postwar period has also seen rapid growth in medical knowledge and technology, including substantial changes in treatment approaches in rehabilitation (62).

The VA provides rehabilitative devices through a number of special services and programs.

Rehabilitation Medicine

All VA hospitals have rehabilitation medicine services, but only 52 have rehabilitation medicine bed sections. The VA rehabilitation programs vary in size, type, and organizational arrangement (62,119). For example, there is a cardiopulmonary rehabilitation program at the VA medical center in Wood, Wisconsin, and driver training programs for the handicapped at several other medical centers. In fiscal year 1982, the VA began using an additional teaching vehicle (the MED-VAN Mark IX system) for severely disabled veterans, such as quadriplegics, at two VA medical centers. Six independent living centers were established in 1981 at VA medical centers to eliminate the barriers that limit veterans in community living, including barriers that are physical, psychological, social, and environmental. More than 25 VA medical centers are also involved in rehabilitation programs focusing on the aging veteran (119).

Spinal Cord Injury Centers

There are now 19 VA Spinal Cord Injury Centers across the country. They provide initial care, rehabilitation, and long-term care for about 7,200 patients. In addition, there are about 31,000 yearly outpatient visits of those with spinal cord injuries. Home care programs for these patients recorded 14,600 visits in fiscal year 1982. Many special services must be provided to the spinal-cord-injured patient, from medical and rehabilita-

tion care to adjustment counseling. Urodynamic laboratories have been established recently for Spinal Cord Injury Centers to provide intensive rehabilitation and sustaining care. Urodynamic laboratories are essential for evaluating the neurogenic bladder, and proper diagnosis often permits patients to be catheter-free and avoid urinary tract infections (119,145).

Blind Rehabilitation

In the Blind Rehabilitation Program, services are provided by the six VA Blind Rehabilitation Centers and Clinics, and by 75 Visual Impairment Service Teams located at VA medical centers.

The Blind Rehabilitation Centers give training in orientation and mobility, communication, manual skills, and activities of daily living, along with evaluating vision and prescribing aids such as electronic reading and travel aids. The Blind Rehabilitation Centers also provide counseling to patients and their families, physical reconditioning, and recreation, and they conduct research on blindness and rehabilitation, prosthetics, and sensory aids for blind people.

The Visual Impairment Service Teams focus on outpatient treatment, annually reviewing the health profiles, living circumstances, social adjustment, and personal needs of blind people. These teams include staff physicians, social workers, and other VA medical center personnel.

The VA also has a Vision Impairment Center to Optimize Remaining Sight. Currently there is only one such center, at the VA medical center in Kansas City, Missouri, under the Hospital Optometry Section of the Eye Clinic (141).

Audiology and Speech Pathology

During fiscal year 1982, the VA issued approximately 34,000 hearing aids to eligible veterans throughout the Nation. The procedure for obtaining a hearing aid from the VA is straightforward. The eligible veteran applies for a hearing aid at the nearest VA facility, and is given orological and audiological examinations. During 1982 more than 574,000 patient visits were reported by the 98 VA audiology and speech pathology programs. Additionally, a program offering services by com-

puter is being pilot tested in the southeastern region of the country (119,127).

Prosthetics

By regulation, the prosthetic shops ("Orthotic Laboratories") of VA hospitals may make only temporary prostheses. Definitive prostheses must be obtained from commercial vendors under contract to the VA.

Definitive prostheses are obtained through a prosthetics representative, a veteran with a service-connected disability who is the purchasing agent for all prostheses, from eyeglasses to motorized wheelchairs. The **96** prosthetics representatives at **some 80 VA facilities dispense more than \$84 million** per year in devices in initial and repeat prescriptions (62). Table 7 gives a sample of rehabilitative devices distributed to veterans in fiscal year 1982.

Clearly, the prosthetics representative is central in the adoption process. Representatives must be thoroughly familiar with all VA-authorized prosthetic, orthotic, and sensory aid devices, and other rehabilitative equipment. Representatives must also know fitting techniques, eligibility requirements, and device sources. They are responsible for educating the clinical and management staff at their hospitals about the prosthetics program. Finally, they must submit administrative reports and work with contracting prosthetics suppliers (159).

Prosthetics representatives serve as counselors for veterans who need prostheses. Clinic teams of physicians, physical or occupational therapists,

prosthetists, and prosthetics representatives meet with the veteran to decide which, if any, prosthesis should be prescribed. They choose from among the devices approved by the Prosthetic and Sensory Aids Service (PSAS) of the VA. PSAS makes its decisions through its Prosthetic Technology Evaluation Committee on the basis of evaluative research conducted by the VA or other investigators. In some cases, clinic staff may recommend a prosthesis that has not yet been evaluated. PSAS is asked to rule on these cases individually (88). **When it determines that new commercially available devices are needed**, PSAS will formulate the technical specifications for the devices, and negotiate service contracts with private manufacturers directly or through professional associations, such as the American Orthotics and Prosthetics Association (13,24).

PSAS also directs the national VA prosthetics program, including the VA Prosthetics Center (see chs. 3 and 4); 20 Prosthetic Treatment Centers, which provide specialized services for a region; 53 Orthotic Laboratories, which fabricate and fit temporary limbs; 11 Restoration Clinics, concerned with artificial eyes, facial and body restorations, cosmetic hands, plastic ear inserts, and similar items; and prosthetic activities within VA medical centers and outpatient clinics (143).

Past Problems

Prosthetics representatives specifically and the VA prosthetics program generally have been the focus of criticisms over the last several years. The **1977 NAS study** of the VA concluded that the VA took much longer to obtain prosthetic devices than did private hospitals. In addition, the study questioned the prosthetics representatives' refilling device prescriptions that did not require a medical recertification of need (62). A 1979 VA program evaluation concurred with the NAS report, concluding that some prosthetic services for patients were too slow, and also noted that the program's efficiency and effectiveness were diminished by other factors (143). One was the reduction in the Central Office staff for PSAS from eight in 1973 to four in 1979. The report stated: "Liberalizing legislation has had the effect of increasing Prosthetic and Sensory Aid workload, yet program staffing was decreased. . . . Present

Table 7.—Sample Rehabilitative Devices Distributed to Veterans, Fiscal Year 1982

| Item | Number of devices | Value (dollars) |
|-----------------------------|-------------------|-----------------|
| Aids for the blind. | 15,156 | \$ 512,352 |
| Artificial limbs | 10,598 | 10,171,840 |
| Braces | 36,308 | 2,336,293 |
| Corset belts | 20,641 | 236,884 |
| Eyeglasses | 101,286 | 3,419,484 |
| Hearing aids | 32,252 | 243,625 |
| Shoes. | 29,597 | 704,740 |
| Wheelchairs | 30,981 | 10,055,721 |

SOURCE: U.S. Veterans Administration, VA *Annual Report 1982* (Washington, DC, 1983).

staffing of the service would appear inadequate. " To minimize increased workload and decreased staffing, various VA Central Office functions were assigned to selected field facilities. In several cases, no authority was delegated and no official transfer documents addressed these significant operating changes (2,143). The VA report further found no evidence of major program planning in the PSAS Central Office.

The NAS evaluation also concluded that the VA chain of command, in which prosthetics field personnel report directly to hospital directors, resulted in lack of direction to prosthetics representatives in the field (62):

There is a lack of sufficient communication between VA Central Office program officials and [VA medical center] prosthetic representatives. Most problems in this area are due to a lack of upward communications. Upward communications must pass through [VA medical center] Operations to get to Prosthetic and Sensory Aids Service.

Recent Policy Changes

Since the VA's internal evaluation of PSAS, the latter's Central Office staff was increased from four to eight persons and began to address some of the problems of the prosthetics program. To speed prosthetics procurement, for example, VA medical centers have been allowed since 1981 to directly purchase (through decentralized contracts) new, commercially available prosthetic or orthotic appliances and repairs for other prosthetic appliances costing up to \$300 (2,118). Other efforts begun in 1982 were comprehensive training programs for new prosthetics representatives and other prosthetics personnel, revised contracting procedures for artificial limbs, a more systematic evaluation program (see ch. 4), a newsletter, and revisions of outdated training and specification manuals, many dating to the 1950s. In addition, the VA is now discussing reorganization that would put Rehabilitation R&D, PSAS, and the VA Prosthetics Center in one administrative structure (13).

Veterans' groups, such as Disabled American Veterans and Paralyzed Veterans of America, have supported recent PSAS policy changes, but feel many more are needed (2,39). Because of

PSAS'S very large field staff, veterans' groups are concerned that Central Office policy changes will be delayed (159). (App. B further discusses the concerns of veterans' organizations.) There are still many reports of disabled veterans' being provided inappropriate devices, because of either the practices of prosthetics representatives or Central Office policies. For example, wheelchairs procured by VA medical centers for hospital transportation are often distributed to veterans as prescription chairs. Such chairs have often not met veterans' needs and have not proved durable outside hospitals.

Future Issues

Perhaps the major PSAS issue that the VA must address *over* the next few years is the prosthetics budget and related fiscal practices. The PSAS budget has tripled in 8 years to \$84 million and has been projected to reach \$500 million annually in 4 to 5 years (24). One reason for the steep rise in costs has been the increased purchase of sophisticated technology for handicapped people. Another reason is the increasing population of veterans whose mobility and senses are affected by aging (119). Probably the most significant force behind the escalation, however, is that providing prosthetics to veterans is unlimited by law (38 U.S.C. sec. 5023):

The Administrator may procure prosthetic appliances and necessary services required in the fitting, supplying, and training and use of prosthetic appliances by purchase, manufacture, contract, or in other such manner as the Administrator may determine to be proper, without regard to any other provisions of the law.

Because the prosthetics budget receives no separate congressional appropriation, funds for prosthetics are drawn from the VA's annual appropriation for medical care, which is fixed prospectively. As a result, the prosthetics budget has drained resources from other parts of the health care budget as prosthetics costs have expanded.

The unconstrained prosthetics budget has also contributed to undesirable administrative practices within the VA. Because PSAS handles a high volume of devices, and because of the general availability of prosthetic devices, other VA rehabilitative services (Blind Rehabilitation, Spinal

Cord Injury Centers, etc.) have come to use PSAS as a purchasing clearinghouse for their own supplies and devices. PSAS therefore orders such supplies as pacemakers and kidney dialysis machines, which have very little to do with the functions of prosthetics representatives. Although this handling of supply functions has helped hold down the personnel requirements of other rehabilitative services, it has of course placed fiscal and administrative burdens on PSAS (24,160).

The VA has tried to constrain prosthetics costs through somewhat paradoxical fiscal practices. Although PSAS directs national VA prosthetics policies, it has little control or advisory function over the program's budget outside the Central Office. PSAS participates in the Central Office's initial distribution of funding to medical districts. The distribution of funds within the medical districts, however, is the responsibility of the medical district directors, and that within medical centers is the responsibility of the medical center directors. All medical districts and medical centers are semiautonomous, so that prosthetics services receive whatever budget allotment their medical center director determines. Poor communication between the PSAS Central Office and prosthetics representatives about budget needs has sometimes resulted from the separation of program and budget lines of authority (143). The proposed administrative realignment mentioned earlier should ameliorate this situation.

VA policymakers are examining several ways to resolve the increasing budgetary and fiscal problems in providing prosthetic devices. One approach is to have Congress appropriate a prosthetics budget separate from other health care funding. A second would limit devices to veterans with service-connected disabilities, now a minority of the disabled veterans served by the VA. A third approach is to assess more thoroughly the impact of the range of rehabilitative devices on the health and well-being of the individual veteran and on VA costs. The third approach would allow the VA to plan resource allocations more rationally. The VA has already implemented this approach to some extent through the Prosthetics Technology Evaluation Committee, as discussed in chapter 4. This committee makes decisions about rehabilitative device adoption and use in

the context of general VA health care goals. Similar approaches can be taken in acquiring and using other devices, as discussed below.

Medical Equipment and Supplies

Although the VA centrally plans its general policy, daily planning, administration, and delivery of health care is carried out by VA medical facilities. The VA Service Directors in the Central Office issue performance guidelines and routinely monitor the utilization and quality of all program units, but have very little authority over medical centers' decisions about device adoption and use. As noted above, budgets are allocated regionally, and medical equipment and supplies are purchased by local supply officers. The VA provides its central Testing and Evaluation Staff, but its role is advisory. The main Central Office influence over routine device purchase and use is through establishing testing standards, evaluating and centralizing contracting in light of those standards, and establishing purchasing source priorities for VA facilities. The determining factors for many device purchases are found within individual VA health care facilities (38,62). Physician freedom in choosing medical devices, for example, has been at least an implicit VA policy since the early 1960s.

Controlled Item Acquisition

A clear exception to this purchasing pattern exists with equipment and supplies that the VA Central Office regulates as "controlled items." The controlled medical device items (listed in table 8) **are generally relatively costly equipment, requiring an initial investment of \$5,000 or more. They may also require substantial outlays for facility space, staffing, disposable, and maintenance (157). Controlled item acquisition can be regarded as analogous to certificate-of-need requirements (84).**

Acquisition of medical and dental equipment on the VA's controlled item list may be initiated either locally or through a Service Director in the Central Office. In the first case, VA medical facilities often rely on Major Medical Equipment Committees, a cross-section of medical center staff and clinicians, to determine medical need. When it is warranted, the committee will request that

Table 8.—VA Controlled Item List for Medical and Dental Equipment, 1982

| Equipment type | Cost threshold (dollars) |
|--|--------------------------|
| Cardiac defibrillation | \$4,500 |
| Physiological monitoring | (b) |
| Clinical laboratory equipment and instrumentation | 30,000 ^c |
| Electroencephalograph | 7,500 |
| Gastric hypothermia | 10,000 |
| Electron microscope for use in clinical laboratory | (b) |
| X-ray apparatus | (b) |
| Nuclear medicine | 5,000d |
| Ultrasonic unit, diagnostic | 5,000 |
| X-ray film processor, automatic or manual ^e | (b) |
| Dental cabinet, modular or unitized ^e | 1,200 |
| Dental operating chair | (b) |
| Dental operating unit ^e | (b) |
| High velocity oral evacuation unit ^e | (b) |
| Dental operating light ^e | (b) |
| Automatic dental X-ray film processor | 1,000 |
| Dental X-ray apparatus | 2,500 |
| Acupuncture equipment and needles ^f | (b) |
| Neurosurgical subcutaneous stimulator | (b) |
| Surgical laser, including accessories | (b) |
| Cardiac pacemaker surveillance equipment | (b) |

NOTE: If a device's purchase price exceeds the "cost threshold," the purchase must be specially reviewed.

^aConstant display of electrocardiographic curve, temperature, respiration, and blood pressure.

^bNo cost threshold.

^cPer item or where combined cost components total \$30,000 or more.

^dPer item or items costing this amount in a single purchase.

^eExcept when acquired from a VA supply depot, a VA decentralized schedule, the VA Marketing Center, or a Federal Supply Schedule contract.

^fRestricted to research in the Surgical Service.

SOURCE: U.S. Veterans Administration, *VA Manual*, subchapter E, change 155 (Washington, DC, Oct. 14, 1982).

an additional evaluation be performed on site in the medical center. Evaluations may also be conducted in conjunction with the VA's Medical Research Service, as was the case for CT scanners. The committees generally meet as needed to consider equipment standards and safety, to resolve problems involved in acquisition and use, and to develop and recommend policy (140).

Service Directors in the Central Office approve or disapprove controlled item acquisitions based on more or less explicit criteria of program needs, experimental or commercial status, and the support provided to other VA facilities and districts. Often, specific standards of productivity or utilization are developed in advance and disseminated to medical facilities.

Service Directors also seek to ensure that resources are available for planned or authorized program growth. If funding is not available through a facilities budget allotment, equipment may be reimbursed through a special fund maintained by the Chief Medical Director's office. This fund is used to allocate moneys, as they become available during the year, toward unfunded VA needs, although no explicit criteria are used in making these supplemental allocations (62).

When device acquisition has been part of a broader effort to initiate so-called specialized medical services (e. g., renal transplantation or open heart surgery), the VA's Chief Medical Director has in the past also established ad hoc advisory groups. These groups have been composed of VA and non-VA physicians with expertise in the particular program specialties, who, through regular meetings, and sometimes site visits, provide quality overviews of the programs.

For example, the shift toward purchasing CT scanners, rather than contracting for CT services, was justified in a 1978 VA report by the Special Central Office Advisory Group for Computerized Tomography Units (155). The report found that the cost of performing a CT examination on VA-owned scanners was only about 60 percent of the cost of the same examination obtained under contract from a civilian institution, which led to the VA's policy of purchasing CT equipment whenever possible (108).

Social and Political Forces

As this chapter has shown, the VA has often developed well-defined procedures, conducted analyses, and presented technical criteria for equipment acquisition within its facilities. However, these facts should not obscure the political and social factors in VA device adoption and use. Regardless of the VA's planning, medical school preferences and politics have considerably influenced the VA system.

Thompson, for example, has argued that the VA's desire to be associated with medical schools has shaped hospital construction decisions far more than other concerns, such as promoting veterans' access to medical care (91). To ensure the

quality of their personnel and foster medical professionalism, VA administrators have wished to locate facilities near medical schools and have sought to make their institutions hospitable places for teaching and research. Medical schools have successfully encouraged VA hospitals to seek the latest equipment and specialized facilities. The 1977 NAS study noted a proliferation of various special care units, for example, nearly 70 cardiac catheterization units (62). Each VA hospital seemed to want its own specialized resources, in part to satisfy its medical school affiliates, even though these resources were frequently underused.

Two other factors have also affected resource allocation, namely, the VA's voluntary relationships with regional and State health planning agencies and the absence of effective utilization review. Under Public Law 93-641, the National Health Planning and Resources Development Act of 1974, the VA was given voting membership on State health coordinating councils and on regional health systems agencies.⁴ A VA hospital was supposed to submit an application to the health systems agency for new construction or equipment. The agency made a recommendation to the VA Central Office, which could approve or disapprove without regulatory constraint and did not have to explain its action. NAS recommended that the VA become part of the general health care planning process established for communities and regions (62).

The absence of effective utilization review is a second possible reason for inefficient resource allocation. VA hospitals have not been under the Professional Standards Review Organization (PSRO) program, the peer utilization review for Medicare and Medicaid. The VA moved, somewhat slowly, to establish a VA Health Services

⁴The main reasons for this legislation were to establish mechanisms for developing national health planning policy and to augment areawide and State planning for health services, manpower, and facilities, in order to curtail the rise in health care expenditures, improve access to care, and ensure quality of care. A non-VA hospital needed to apply for approval of substantial construction and expensive equipment to the local or areawide health systems agency, which made a recommendation to the State planning agency. The State agency approved the recommendation or reversed it with an explanation; the applicant could appeal. Final approval or denial of an application was made by the Secretary of Health and Human Services.

Review Organization for quality assessment and utilization review. As part of this initiative, Thompson (90) notes that the VA may have adopted some of the shortcomings of the PSRO program, such as deriving standards for hospitals in peer groups by examining treatment processes, which would identify outlier hospitals but would not pinpoint excesses committed by all facilities in a peer group.

Other social and political forces have constrained the VA's adoption and use of devices. For example, the VA's attempts to increase its CT scanners were criticized in a General Accounting Office report (98) and opposed by Congress in the late 1970s. When, in 1978, the VA moved to purchase 13 new scanners to supplement its existing 24, congressional resistance prompted the VA to withdraw the request. Furthermore, the Office of Management and Budget placed considerable pressure on the VA to reduce hospital beds. The VA reduced them, as a result, from about 121,000 in 1964 to fewer than 90,000 in 1980 (91). (Recent legislation [Public Law 97-174] requires the VA to operate at least 98,000 beds.)

Generally, the social and political pressures on the VA to overadopt devices in some areas of care and to constrain expenditures in others have an additional important implication. The VA's resources may be adequate for its functions, but may not be distributed equitably or efficiently among geographic areas, types of facilities, or functions within and across hospitals. The VA's often sporadic adoption and use of devices and other technologies and patterns of care seem to provide ample evidence of this. The VA has demonstrated international leadership in such areas as cardiac care and radioisotopes. Yet in 1983 fewer than one-third of VA hospitals had CT scanners (40), and the 1977 NAS study found evidence of maldistribution of equipment, basic and specialized services, staff, and beds (62).

NAS also found that some of this poor distribution could be attributed to the VA Central Office and its Service Directors, because some important allocation decisions seemed to rest more on judgment than on explicit criteria. Recent evidence suggests that the VA has not restructured its allocation process to address this problem.

The VA recently decided to purchase a nuclear magnetic resonance (NMR) unit, which is one of the newest advances in medical imaging and diagnosis, and which some experts believe may assume many of the present functions of the CT scanner. As the clinical potential of this new scanning technique becomes better understood, many VA medical centers may want to procure their own units. NMR is an expensive technology, however, costing \$1 million or more for the machine alone and necessitating facility modifications that may cost an additional \$1 million (84). Because of its cost, policymakers have urged a thorough assessment of its health benefits before widely using it.

The VA Central Office decided to purchase an NMR unit early in 1983. On the recommendation of the Director of Nuclear Medicine, the Chief Medical Director chose to place this unit at the St. Louis VA Medical Center. This particular VA facility was chosen because it represented, in the Service Director's judgment, the best mix of support equipment, staff, and physical location (81).

The decision to place the NMR unit at the St. Louis VA medical center may have been correct, but the NMR decision process has been questioned by observers both within the VA and elsewhere. Explicit criteria for choosing a location were never developed, nor was an expert advisory group formed, nor were protocols developed for an objective evaluation of VA needs.

Early in the adoption process, the VA Medical Research Service proposed a strategy to introduce NMR into the VA system: a solicitation of all interested VA medical centers to submit proposals for an NMR center. These proposals would be evaluated by an ad hoc advisory committee, and their recommendations forwarded to the Chief Medical Director for review and action. Importantly, the review would include studies of the cost effectiveness of NMR compared to more conventional imaging devices (35).

The proposed strategy, however, was not initially considered by the office of the Chief Medical Director. Only in November 1983, after the first NMR unit was being placed in St. Louis, did the office of the Chief Medical Director begin to implement such a strategy. The VA's apparent lack of system in decisions about new technology

raises serious concerns about VA resource allocation. Because of NMR's clinical potential and because of its high costs, NMR is an important test of VA policy. At this time, though, it would appear that the VA has not developed a wise policy for acquiring major medical devices, such as NMR.

Future Acquisition Issues

The VA must continually confront issues about many new devices and other technologies such as NivIR, assess their need, demand, and relative value, and make decisions about their purchase and use. This chapter has discussed the VA's current related policies and programs. There is some evidence, however, that VA methods of acquiring devices and other technologies may be in transition.

An internal VA study examined the relationship between technology needs and MEDIPP (15). An earlier section of this chapter examined MEDIPP as a framework for VA planning and discussed its usefulness in identifying VA needs for major medical equipment. In MEDIPP's first year, ending in November 1982, 28 district plans were analyzed, and two significant findings emerged regarding device adoption and use. The first was that, in addition to traditional routing requests, VA districts are unexpectedly using MEDIPP to request the purchase of controlled item equipment. There were specific requests for over 40 major equipment items, including seven CT and six NMR scanners, six cardiac catheterization items, two computerized electrocardiography devices, and digital subtraction angiography equipment. Some districts requested major equipment items through both traditional Central Office channels and MEDIPP. Other districts made no major equipment requests through MEDIPP.

The second finding was that MEDIPP identified about 50 VA-wide issues for future health care delivery. Of those 50, the acquisition of devices (and the larger issue of medical technology) was among the four considered most important.⁵ VA administrators and planners believed that both

⁵The other issues were (in order) bed levels, geriatric care, and data validity (good recordkeeping).

immediate and secondary impacts of technology acquisition are crucial in planning and resource allocation.

The findings from the first MEDIPP cycle confirm the potential utility of MEDIPP, not only in planning but also in tracking major equipment adoption and use. As new equipment requests are made through medical district plans, a good evaluation program could guide technologies' diffusion within the VA (15).

One evaluation that might be effective is technology assessment, or comprehensive technology assessment, as it is sometimes called. This form of policy analysis provides information on the effects of a device or other technology, including social, ethical, political, economic, and technical effects. Technology assessment uses various methods and draws on many disciplines. It takes several important factors into account: 1) unintended and unanticipated impacts of technological appli-

cations; 2) indirect effects; and 3) the distribution of costs, benefits, and other effects among all interested parties.

Technology assessment has not been used very extensively in the VA health care system. In June 1983, however, the Chief Medical Director of the VA formed a High Technology Assessment Group, which will "determine what course the VA should follow with respect to acquisition of major new technology in the future" (84). As the VA faces changing health care delivery needs and stable or declining health care budgets, some analytical method is needed to address more comprehensively the many factors involved in adopting and using costly equipment. Appropriate evaluation methods are probably needed for several kinds of VA users, from technicians to Service Directors. Such an effort might be very useful to the VA in allocating health care resources more efficiently and equitably.