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ABSTRACT

Graduate medical education (GME) in the military services was investigated with respect to the following concerns: the maximum capacity of each military medical department to conduct GME programs in its own hospital; how these programs affect the recruitment and retention of military physicians; and the optimal sizes of such programs. It is suggested that since the Navy and the Air Force are both approaching a new era in which physician shortages will no longer be a problem, the size of the GME programs--along with other physician manpower policies affecting recruitment, retention, promotion, and assignment of physicians--will have to be adjusted to function in a period of likely surpluses of physicians in many specialties. Based on site visits, it was concluded that all three military medical departments probably have expanded their GME programs to the maximum capacity (based on currently available facilities and resources, including staff and patients) or slightly in excess of maximum capacity in some cases. The optimal size of the GME program is a function of the availability of the numbers and kinds of military physicians needed. Since the pertinent circumstances of each of the three medical departments are different, no basis was seen for assuming that all three departments should be required to operate with the same proportion of their active duty medical officers in GME status. It is recommended that the Department of Defense withdraw its 1977 directive to the three military medical departments to limit the fraction of active duty physicians in military GME assignments to not more than 20 percent of the active duty physicians strength in 1985. Maintaining high quality military GME and scholarships is addressed. A bibliography and sample interview guides are appended. (SW)

INSTITUTE OF MEDICINE

REPORT OF A STUDY

Graduate Medical Education and Military Medicine

July 1981

GRADUATE MEDICAL EDUCATION

AND/

MILITARY MEDICINE

Report of a Study
by a Committee
of the
Institute of Medicine

July 1981

National Academy Press

Washington, D. C.

NOTICE The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the Councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competencies and with regard for appropriate balance.

This report has been reviewed by a group other than the authors according to the procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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PREFACE

I have the honor of presenting to the Institute of Medicine a report of a study supported by the Department of Defense entitled, "Graduate Medical Education and Military Medicine". This report was commissioned over a period of 14 months and the committee members were all involved in on-site visits as well as meetings of the committee as a whole.

Our committee was made up of a number of distinguished individuals, many of whom had had significant military experience which made the work of the committee somewhat easier. I would like to particularly thank David Tilson, Study Director, Deborah Schwartz, Staff Associate, and Jeffrey Schneider, M.D., Consultant. The staff contributed enormously toward the organization of the study and in arranging rather complex logistics for site visiting and interviewing.

A note about the organization of the report: Chapter I is a summary intended to provide the reader who does not wish to read the entire report with the essentials and highlights of the report. Thus, there is a redundancy between that chapter and succeeding chapters. At the same time for the reader who will go through the entire report, the first chapter does serve as a useful guide to the fuller discussion in chapters 2-5.

Leonard W. Cronkhite, Jr., M.D.

GLOSSARY

ACGME – Accreditation Council for Graduate Medical Education. The organization that officially accredits graduate medical education programs in all specialties. Its membership consists of the American Medical Association, the Association of American Medical Colleges, the American Hospital Association, the Council of Medical Specialty Societies, and the American Board of Medical Specialties. It was formed in 1981 to replace the Liaison Committee on Graduate Medical Education, a similar organization which performed these functions through 1980.

CHAMPUS – The Civilian Health and Medical Program of the Uniformed Services. A program similar to health insurance under which civilians eligible for Medical care in military facilities can obtain needed care from civilian providers when they cannot obtain needed services in military facilities. Costs are shared between the Department of Defense and the patients.

DOD – Department of Defense

GME – Graduate Medical Education

GMENAC – Graduate Medical Education National Advisory Committee. A public advisory committee appointed by the Secretary of the Department of Health, Education and Welfare in 1976 to advise the Secretary on the numbers of physicians required in each specialty to bring supply and requirements into balance, methods to improve the geographic distribution of physicians and mechanisms to finance graduate medical education. Its final report was published in September 1980.

HMO – Health Maintenance Organization

HPSP – The Armed Forces Health Professions Scholarship Program

IOM – The Institute of Medicine of the National Academy of Sciences

USU – The Uniformed Services University of the Health Sciences

CHAPTER 1

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Introduction

The three military medical departments expanded their graduate medical education (GME) programs very rapidly after the doctor draft ended in June 1973. By the late 1970's, a substantial fraction of active duty military physicians were interns, residents, or fellows. In 1979, the Department of Defense issued a directive to the three Surgeons General to limit the fraction of military physicians in graduate medical education positions by 1985 to not more than 20 percent of their authorized physician strength. All three Surgeons General disagreed strongly with this directive. The Assistant Secretary of Defense for Health Affairs then requested the Institute of Medicine (IOM) to undertake a study of graduate medical education in the military services that would address three questions:

1. What is the maximum capacity of each military medical department to conduct GME programs in its own hospitals considering the availability of (a) patients, (b) staff, (c) facilities, and (d) other pertinent resources?

2. How do these programs affect the recruitment and retention of military physicians?

3. What are the optimal sizes of such programs?

The IOM contracted to do the study in May 1980. A study committee was appointed and held its first meeting in June 1980. At that meeting the three Surgeons General pointed out that the most important reason for the decision to expand GME programs in military hospitals was the need to increase the number of physicians on active duty status. The GME programs, in conjunction with the Armed Forces Health Professions Scholarship Program (HPSP), assisted in the recruitment and retention of physicians—assistance that was badly needed because the military medical departments were below authorized strength and were particularly short in certain specialties.

Because most military GME programs are conducted in a relatively small number of major medical centers, the expansion of GME has concentrated substantial numbers of active duty physicians in these centers. About 60% of Army physicians, for example, are assigned to eight medical centers, most of which are located in large cities that are not near posts with large troop concentration. Many of the Army's "community" hospitals on posts with large numbers of active duty personnel and dependents are short of physicians. Hence, some observers considered that the decision to expand GME extensively has had adverse consequences for the staffing of "community" hospitals. This is the central point of disagreement that led to the study. Other questions implied by the charge to the committee include: Is it necessary for the military to operate any GME programs at all? Is there a need for a "cap" on military GME? Is it reasonable or appropriate to expect each military medical department to operate the same proportionate amounts of GME? To what extent, and in what ways, are changing external circumstances--in the civilian medical education and health care sectors--likely to affect the military physician manpower pools and the role of military GME?

After exploring the literature and the availability of data, the committee concluded that the report should be based on information derived from three sets of activities:

- A review of the literature and analysis of ad hoc data to be obtained from the Department of Defense (DOD). This would be used to examine the missions/roles of the military medical departments, the resources available to them, and the public policy and other circumstances relevant to the questions being addressed by the committee.

- Site visits to a sample of military hospitals--both teaching hospitals and community hospitals without GME programs--to interview residents, staff physicians, hospital commanders and others.

- Analyses of probable trends in military physician manpower using a mathematical model developed for the purpose by a DOD contractor.

If should be understood that none of the questions addressed by the committee can be answered objectively and unambiguously by straightforward collection and analysis of data and the application of objective criteria to the findings. The responses rest heavily on professional judgement. The information derived from site visits to nine medical centers and from the Advisory Council on Graduate Medical Education (ACGME) provided the basis for responding to the question on maximum capacity of GME. The site visit interviews, plus a review of the literature, provided the basis for responding to the question on the effects of GME on recruitment and retention of

physicians. Analysis of trends in military physician manpower pools under various assumptions, together with other materials, including the recent report of the Graduate Medical Education National Advisory Committee (GMENAC), provided a basis for discussing the optimal sizes of the GME programs.

Perspectives on Military Medicine

The primary responsibility of each military medical department is to maintain the health of the active duty forces and to be prepared to treat a large number of casualties in case of war. In peacetime they also provide medical care--on a space available basis--to the dependents of active duty personnel, to retirees and their dependents, and to the dependent survivors of deceased active duty personnel. The two missions--the "readiness" mission and the "beneficiary" mission--are both complementary and competitive. They are complementary because civilian patients are needed in peacetime to maintain the skills of the professional and supporting staffs of the medical department for the "readiness" mission. They are competitive because the mix of services--and the types of specialists--needed by civilian beneficiaries in peacetime are very different from those needed by active duty personnel in wartime.

The committee recognized that the "optimal size" of the GME programs is clearly related to the authorized size of the military medical departments in peacetime. And the size of the military medical departments should be derived not only from purely military considerations--e.g., size and deployment of the armed forces, the nature of the wartime "scenarios" on which military plans and capability are based, theater evacuation policy, the size and readiness of the reserves, initial wartime casualty estimates--but also the potential relationships with civilian medical facilities in peacetime and in war. But the committee was advised by the study sponsor that exploration of these issues was well beyond its terms of reference. Accordingly, the size of each of the medical departments--and the numbers and types of physicians each is authorized to have for its mission--was accepted without review by the committee.

The three military medical departments are responsible for providing medical care to about 2 million active duty personnel, 2.5 million dependents, and 3.9 million retirees, their families, and other civilian beneficiaries. Although not all of the civilian beneficiaries rely on the DOD for their medical care, a large number obtain their care from military medical facilities or the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). The military rely on civilian patients in peacetime to maintain professional and technical staff skills to support GME programs, so

they prefer to keep CHAMPUS as a less satisfactory alternative to use of military medical facilities for civilian beneficiaries--that is, as a fall-back position. The fact that CHAMPUS is viewed as a less desirable alternative to direct care (because of the co-payments required and the fact that some medical services are not covered by CHAMPUS) is a cause for dissatisfaction. This has generated strong pressures on the Congress to reduce CHAMPUS co-payment requirements and to increase the service coverage. Currently, an experiment is underway to determine whether CHAMPUS beneficiaries should be allowed to enroll in civilian health maintenance organizations (HMOs) with CHAMPUS contracting to cover a substantial portion of the premiums. Should this prove popular, especially for retirees, it could reduce demand for services at a number of major military medical centers and force reductions in medical care and GME programs at those centers.

World War II ended military medicine's relative isolation from the mainstream of American medicine. After the war, all three military medical departments started GME programs to maintain continuing associations with academic medical centers and to attract highly qualified physicians to choose careers in military medicine. During the period from World War II until June 1973, the draft and the Berry Plan (which permitted medical students who volunteered for military service to defer entry on active duty until they had completed their graduate medical education) provided as many trained physicians as were needed by the military.

The end of the draft in 1973 brought about two major changes in circumstances: (1) the military could not recruit sufficient numbers of physicians to maintain authorized numbers on active duty, and (2) severe shortages in key specialties appeared and persisted for years. The ability of the military to recruit physicians in the mid-1970s was affected by the other changes that had occurred since World War II:

- the rapid growth of private third-party health insurance beginning in the 1950s and the passage of Medicare and Medicaid in the mid 1960s, all of which helped to stimulate inflation in hospital costs and physicians' incomes
- a large expansion in the number of hospital beds in the country
- rapid growth in medical research, centered largely in the medical schools, which led to growth in medical specialization, increases in numbers of full time clinical faculty, and increases in specialty training
- a change in the proportion of graduating physicians planning to undertake 3-6 years of GME; 94 percent of all recent graduates plan to complete GME and acquire board certification.

By the late 1950s and early 1960s there was a widely-shared perception that there was a serious national shortage of physicians. This prompted federal action to stimulate establishment of new medical schools and to expand enrollment of existing schools. By 1980, the number of medical schools had increased by 40 percent and enrollment had doubled. At the same time, tuition fees had climbed steeply, particularly in the private schools. The federal government also adjusted its immigration policies to attract foreign medical graduates and many entered this country.

In 1972, the year before the draft ended, the Uniformed Services Health Professions Revitalization Act was passed. This law established the Armed Forces Health Professions Scholarship Program which authorized the three military medical departments to provide a total of 5000 scholarships per year to students in health professional schools in exchange for service obligations (on a year-for-year basis) after graduation. It also established the Uniformed Services University of the Health Sciences, the principal component of which is a military medical school. The scholarship (HPSP) program is now the main source of physician recruits for the military, although physician volunteers also are important. The USU graduates will become increasingly important in the mid-to-late 1980s.

The effects of the federal actions to ease physician shortages have already begun to change the physician population ratios significantly. The GMENAC report estimated that the number of physicians per 100,000 population in the U.S. will increase from 171 in 1978 to 220 by 1990 and 247 by the year 2000 if the currently projected output of U.S. medical schools is sustained throughout this period.

Physician Manpower and Military Medicine

Military medicine has experienced two eras since World War II and is about to enter a third. The first was the draft era which lasted from World War II until June 1973. During this period the military had no problems in obtaining the numbers and types of physicians they needed. The second era is a period of transition in which shortages of physicians are gradually eased by the growing output of the HPSP, USU, and volunteer recruitment programs. The third era--which the Navy and Air Force are now entering, and which the Army should enter in a few years--is one in which physician shortages will no longer be a problem, even without the draft.

The transition era differed from the draft era in the following ways:

1. Total numbers of physicians on active duty dropped below the numbers each medical department needed and was authorized to have on active duty. In 1977 the Army was 23 percent below, the Navy 5 percent and the Air Force 13 percent below their authorized strengths.

2. Severe shortages of certain specialists appeared and persisted--e.g., radiologists, anesthesiologists, orthopedic surgeons and other surgical specialists.

3. Most of the new recruits were untrained physicians--either new graduates from medical schools or recent graduates who had completed an internship but had not had residency training.

4. Of the relatively small number of fully-trained volunteers who could be recruited, a significant fraction were foreign medical graduates, many of whom came from countries with very different languages and cultures.

Both the Navy and the Air Force currently have reached their authorized physician strengths and are emerging from the transition era. But both still have substantial fractions of their physicians in GME positions, and about one fifth of their physicians not in training status who have patient care assignments are general medical officers or flight surgeons who have not had residency training. Both services still have shortages in some specialties. The Army is still 13 percent below its steady-state authorized strength.

Analysis of the probable trends in military physician manpower--using a mathematical model that permitted examination of the consequences of a number of explicit assumptions--led the committee to conclude that:

1. Unless some events occur to make military service less attractive to physicians than is currently the case, the end of the era of physician shortages is in sight.

2. Maintaining high levels of GME will help the Army to reduce the number of years it will take to achieve its authorized level of active duty physicians. The Navy and the Air Force may not need to continue maintaining such high levels of GME.

3. The total number and distribution of HPSP recipients among the three medical services should be re-examined. The Navy and the Air Force share probably should be reduced and the Army's increased (as is explained in chapter 4).

The committee commenced its study with the assumption that the central concern of all three military medical departments was the shortage of military physicians. Presentations by all three Surgeons General had emphasized this view.

It is now clear that circumstances are changing so rapidly that, all three military services must start to adjust to a very different set of problems; namely, how to maintain a properly-balanced, high quality force of active duty physicians in a civilian environment in which physicians in most specialties will not be in short supply. Policies and programs affecting recruitment, assignment, promotion and career retention must be adjusted to circumstances that require a certain number of new physicians to enter each year, a certain number to leave after completion of obligated service, but well before retirement eligibility, and some to remain on active duty until they retire. Sophisticated new planning and management techniques will have to be developed and some critical policy decisions made by each of the military medical departments to function effectively in the newly emerging era.

As the military services achieve their authorized active duty strength, there is an opportunity to use the HPSP, together with military GME, to staff the reserve components of each medical department. At present, the Army's physician reserves are staffed at only 27 percent of authorized strength. The Navy and the Air Force reserves are at 76 percent and 77 percent, respectively, of authorized strength. If the HPSP legislation were amended to permit payback of obligated service by service in the reserves--e.g., three years of reserve service in lieu of one year of active duty service--these deficits could be remedied in a relatively few years.

Even with this authorization in place, in two or three years both the Navy and the Air Force will have more HPSP recipients becoming available for service each year than they will be able to assign either to active duty or reserve positions at present authorization levels. But the Army will still have substantial requirements both for active duty and reserve service. Modifying the distribution of HPSP recipients to give the Army a much larger share is clearly appropriate.

Graduate Medical Education and Military Medicine

Military GME trainees as a fraction of total active duty physicians grew very rapidly since the early 1970s. In the Army, GME expanded from 14 percent of the active duty force to 39 percent between 1970 and 1980. Comparable figures for the Navy were 17 percent and 30 percent; for the Air Force, 9 percent and 19 percent.

The role of military GME is becoming more significant in the national context. In 1970, military GME positions were 3 percent of the national total of GME positions. In 1980, military GME accounts for 5 percent of all GME positions. This has occurred during a

period in which the ratio of the number of first year GME positions to the number of U.S. medical graduates each year has diminished from 1.8 to 1.2. Thus, the relative importance of military GME compared with the civilian programs has clearly increased. There are strong pressures in the civilian sector to reduce GME programs. This is a circumstance of great importance for military medicine because it clearly will affect DOD decisions on the amount of GME to be conducted in DOD hospitals and the amount to be sponsored in civilian hospitals.

GME programs are as important for their process effects as for their output of trained specialists. The process effects include (1) the quality and the quantity of patient care in the hospitals in which the programs are operating; (2) the number and quality of physicians assigned to the medical centers as GME trainees and teaching staff; and (3) the attitudes toward, and understanding of, military medicine by the GME trainees. The output affects (1) the numbers and quality of specialists produced and available for field assignments, and (2) the number of specialists oriented toward careers in military medicine.

The relative importance of military GME has varied in each of the eras of military medicine. In the draft era, the qualitative effects were most important. In the transition era, both qualitative and quantitative effects--especially the latter--were important. In the physician surplus era, concerns both for quality and for achieving optimal quantities will become important. The quantitative concerns will be to adjust the size of the enterprise so that the output each year will not exceed the number of vacancies for staff physicians in each of the specialties.

The committee has concluded, on the basis of its site visits, that all three military medical departments probably have expanded their GME programs to the maximum capacity (based on currently available facilities and resources, including staff and patients) or slightly in excess of maximum capacity in some cases.

From the standpoint of the missions of the military medical departments, the optimal size of the GME program is a function of the availability of the numbers and kinds of military physicians needed. When there are more than enough physicians available, the optimal size could be as small as the minimum size judged to be necessary to sustain high quality patient care. When there are persistent shortages of physicians, the optimal size of the GME program is the maximum consistent with resource availability and maintenance of high quality educational programs.

The committee sees no basis for assuming that it would be appropriate to require all three medical departments to operate with the same proportion of their active duty medical officers in GME status. The pertinent circumstances of each department are

different. Each has a different amount, type, and distribution of patient care facilities suitable for conducting GME programs and each has very different requirements for operational assignments for its physicians.

Conclusions

The Role of GME in Military Medicine

GME programs in military hospitals have two major functions: (1) to affect the quality and quantity of patient care, and (2) to affect the quality and quantity of the military physician manpower pool. GME programs help to insure the capability of the three military medical departments to deliver high quality patient care in the medical centers and they also help to sustain the quality of care elsewhere in the system. This, in turn, contributes to the medical departments' primary military mission to be ready to deal with a sudden influx of wartime casualties. During a period of physician shortages, the manpower effects of military GME are very important. The larger the number and size of the programs, the larger the number of physicians on active duty training status and in teaching positions at the hospitals in which the programs are conducted, and the larger the number of specialists turned out who have been trained in military hospitals.

During the period from the end of World War II until the end of the draft in 1973, military GME was important primarily for its qualitative effects on patient care. The program levels were modest. But with the end of the draft, the military medical departments found themselves in an era of physician shortages and they all enlarged their military GME programs as much as possible and used them in conjunction with the HPSP to maximize their recruitment and retention leverage.

This set of circumstances is now changing. The Navy and the Air Force are both approaching a new era in which physician shortages will no longer be a problem. The Army is likely to be in the same position in a few years. When physician shortages are no longer the central concern, the size of the GME programs, along with other physician manpower policies affecting recruitment, retention, promotion and assignment of physicians, will have to be adjusted to function in a period of likely surpluses of physicians in many specialties. The GME programs and other manpower and personnel policies (e.g., assignments, promotions) may have to maintain a high quality physician force under circumstances in which it will be necessary to allow only a fraction of those who wish to do so to become career medical officers in order to permit the continued

enrollment of young physicians and to assure reasonable age and grade distribution. The function of GME under these circumstances will be somewhat different than it was in either of the two previous eras.

Since passage of the Uniformed Services Health Professions Revitalization Act in 1972, the military services have become deeply involved in undergraduate as well as graduate medical education. The complete education of physicians depends on the quality of both undergraduate and graduate phases. With the evident improvement in the ability of the armed forces to attract and retain physicians, the military medical educational programs should be geared to attracting and retaining talented students. Through the provision of graduate medical education programs of high quality, both Uniformed Services University of the Health Sciences graduates and HPSP scholarship recipients can be prepared to operate medical departments that can be maintained at a high state of readiness and simultaneously provide high quality medical care to civilian beneficiaries in peacetime. The future challenges will be to select very talented students for the USUHS and the HPSP, to establish policies and procedures that will permit the services to offer career opportunities to those who demonstrate that they are the most capable and strongly motivated during the course of their undergraduate and graduate medical education, and to limit the service of those who are not as qualified. Graduate medical education in military hospitals provides important opportunities to evaluate the talents and qualifications of potential career medical officers. It should be an important phase in the development of career medical officers of the highest quality.

Maximum Capacity for Conducting Military GME

Based on available staff, patients, and other current resource constraints, the three services have expanded their military GME programs to maximum capacity or slightly beyond, in some cases. Although only 4 out of 243 programs are on probationary status, the committee is convinced that each of the services has some additional programs that are pressing the limits of available resources.

Effects of Military GME on Recruitment and Retention

The primary recruitment and retention effects of GME in military hospitals stem from the way that, in conjunction with the HPSP, the increased size of the GME programs makes it possible to bring more HPSP graduates on duty and to keep them for longer periods than would otherwise be possible. They are on active duty during the years they spend in residency training and only afterwards do they begin to

serve their obligated service. In addition, enlarged GME programs increase the number of teaching staff who remain on active duty voluntarily because they are interested in teaching assignments. Finally, it is probable that a larger fraction of the physicians who receive their GME in military hospitals elect to remain on active duty after completion of their obligated service than do those who commence obligated service after completing GME in civilian facilities.

Optimal Size of GME Program

The committee concludes that under the circumstances that have faced military medicine since the end of the draft in 1973 (i.e., physician shortages, heavy reliance on HPSP for new recruits), the most appropriate size of the military GME program is the maximum consistent with high quality. The Army medical department is still substantially below its authorized physician strength, hence the optimum size of its GME program for the next few years will continue to be the maximum GME it can conduct consistent with quality and with the changing circumstances in particular specialties. As physician scarcities begin to ease--a change already being experienced by the Navy and the Air Force--optimal amounts of military GME undoubtedly will be lower, but the precise amounts will depend on a number of factors and policy determinations, including:

- the extent to which patient availability at the various military medical centers is affected by future statutory changes in CHAMPUS (such as an HMO enrollment option)
- the extent to which the civilian physician labor market softens and is reflected in the increasing numbers of military physicians who are willing to remain on active duty indefinitely; i.e., a circumstance in which the emphasis will shift from how to maximize recruitment and retention incentives to how to determine how many and which physicians should be recruited, and how many and which of those desiring to remain in service should be allowed to continue on active duty
- with a routine surplus of physicians, the fraction of the active duty force that should be allowed to be careerists and the fraction that should be expected to leave after obligated service or some period beyond obligated service, but short of retirement eligibility. The number of career medical officers should be kept to some specified fraction--probably considerably less than half--of the total active duty force for three reasons: (1) an annual infusion of newly-trained young physicians is important to avoid

professional stagnation; (2) a balanced distribution of age and rank is necessary to facilitate appropriate assignment patterns; and (3) to contain long run retirement costs

- the fraction of the supply of new physicians each year (in addition to the USU graduates) that should come from the HPSP and the fraction that should be fully-trained volunteers or volunteers for military GME.

- the promotion and career assignment policies that should be adopted to be consistent with the above policies.

These emerging circumstances pose complex planning and management requirements for the DOD and for each of the three military medical departments.

Armed Forces Health Professions Scholarship Program (HPSP)

The full output of the HPSP probably will be required for the next few years, but two modifications appear to be necessary: (1) The Army should have its share increased to 45-50 percent with the Navy and the Air Force sharing the balance, and (2) authority to permit HPSP graduates to discharge their service obligations in the reserves (e.g., with 3 years of obligated reserve service for each year of HPSP support) should be sought. The ability to use the HPSP to fill vacancies in the reserves would be particularly valuable to the Army because its physician reserves are currently at 27% of authorized strength. Both the Navy and Air Force have some vacancies, but their problems are much smaller than the Army's. Planning should be started very soon to determine the long-term HPSP levels needed to meet anticipated requirements when the services reach their "steady-state" levels. It is important not to make sudden changes in this program--changes should be gradual and should be coordinated with related changes in GME and other physician manpower policies that each of the medical departments will be developing.

DOD Administrative Ceiling on GME

The committee sees no public interest or management efficiency to be served by imposing an administrative ceiling on military GME. Each of the military medical departments is faced with a different set of circumstances and requirements. Military GME is only one of a set of interrelated programs and policies available to the Surgeons General to use in managing their resources to carry out their

responsibilities as effectively as possible. Imposition of an arbitrary ceiling on GME cannot help.

Recommendations

Ceiling on Military GME Programs

The committee recommends that the Department of Defense withdraw its 1979 directive to the three military medical departments to limit the fraction of active duty physicians in military GME assignments to not more than 20 percent of the active duty physician strength in 1985. Each military medical department should be allowed to adjust its own military GME programs to meet the changing physician manpower circumstances and requirements that it faces.

Armed Forces Health Professions Scholarship Program

The committee recommends that:

- as soon as feasible, the Army be allowed to increase its share of the HPSP to at least 45 percent of the total
- legislative authority be requested to authorize HPSP recipients to serve obligated service in the reserves on the basis of three years of obligated reserve service for each year of scholarship support; the military medical departments should be given the authority for determining whether an individual HPSP recipient shall be permitted to fulfill part or all of his service obligation on active duty or in the reserves
- a study be undertaken to determine the number of HPSP scholarships that will be needed in the future as the physician manpower shortage eases and is replaced by a different set of circumstances
- changes in the HPSP be made gradually rather than abruptly.

Maintaining High Quality Military GME

The committee recommends that each military medical department institute as soon as possible a system to review the quality of all

of its GME programs on a regular basis. These reviews should make use of outside experts. Where programs are identified that are marginal because of inadequacies in staff, patient volume, or other necessary resources, action should be taken either to provide the additional resources, to reduce the scope of the programs, or to merge them with other programs. The military medical departments should not rely entirely on the Residency Review Committees to perform this function. The committee notes that this recommendation is consistent with the "Revised General Requirements for the Essentials of Accredited Residencies" which were adopted by the ACGME in March 1981. These include a requirement that institutions develop internal mechanisms for quality control of their graduate medical education programs.

Planning for a New Era

The committee recommends that the Department of Defense initiate a major effort to identify the policy and program changes needed to maintain an effective military medical establishment in the face of rapidly changing circumstances in the 1980s. Each military medical department should be required to commence planning to identify the changes it will need in its programs and policies to manage its physician manpower requirements under the emerging circumstances of potential physician surpluses. The planning activities of the three services should be coordinated as appropriate by the Department of Defense. The ultimate objective is to produce a set of planning guidelines, programs, and personnel policies that each service will need to function effectively from the early and mid-1980s into the indefinite future. This effort should be given very high priority. All related programs, including HPSP, USU, the reserves, and CHAMPUS should be included in the effort.

CHAPTER 2

INTRODUCTION

Purpose of the Study

Graduate medical education (GME) programs in military hospitals were expanded rapidly after the draft ended in 1973. By 1980, 39 percent of the Army's active duty physicians were interns, residents or fellows in Army teaching hospitals. Comparable figures for the Navy and Air Force were 30 percent and 19 percent, respectively. Concern for the effects on the distribution of physicians, support staff, and other resources of such high levels of GME prompted the Department of Defense to issue a memorandum directing each of the military medical departments to start reducing overall GME programs in 1981 so that by 1985 not more than 20 percent of each service's active duty physicians would be in GME trainee status. The three Surgeons General strongly disagreed with this proposal. They maintained that it was neither necessary nor desirable for the DOD to impose an administrative "cap" on military GME and that the deleterious consequences of the policy would make it very difficult for the medical departments--especially the Army--to carry out their missions.

Because the issues are both important and complex, and because all three services disagreed strongly with the DOD position, the Assistant Secretary of Defense for Health Affairs requested the Institute of Medicine, in the spring of 1980, to undertake a study that would address three specific questions:

1. What is the maximum capacity of each military medical department to conduct GME programs in its own hospitals considering the availability of (a) patients, (b) staff, (c) facilities, and (d) other pertinent resources?

2. How do these programs affect the recruitment and retention of military physicians?

3. What are the optimal sizes of such programs?

The charge to the committee anticipated that other issues may emerge in the course of the research to be conducted by the Institute of Medicine Committee responsible for the study.

Underlying Issues

The end of the draft in June 1973 posed immediate physician manpower problems for the military. The military medical departments had relied on the draft for physicians since World War II. The draft ended at a time when circumstances in the civilian sector made it difficult for the military to recruit fully-trained physicians in the specialties they needed, and to retain sufficient numbers on active duty of those who complete obligated service.

The problems posed by the end of the draft were expected to diminish in a few years with the increasing availability of medical school graduates who were recipients of Armed Forces Health Professions Scholarships, graduates of the Uniformed Services University of the Health Sciences, and volunteers. But the first two sources provided physicians who had not had GME, and well-qualified fully-trained volunteers were difficult to recruit in the early and middle 1970s. All three Surgeons General informed the committee that these circumstances led to the decisions to expand GME programs in military hospitals as much and as rapidly as possible. The principal reasons they gave for the expansion were:

1. GME helped increase the number of physicians on active duty at a time when each of the medical departments was below its authorized physician strength. GME in military hospitals increases the amount of time scholarship recipients spend in uniform because they do not begin discharging their obligated service commitments until they have completed graduate medical education. For example, a scholarship recipient with four years of obligated service who enters a four-year GME program in a military hospital will serve eight years in uniform before completing obligated service. During this period--except for the GME-1 year--he is available for immediate worldwide reassignment should a military emergency occur. Therefore, more active duty service is obtained from the scholarship recipients who go through GME in military hospitals than is the case for those who perform obligated service after completing their specialty training in civilian hospitals.

2. Physicians who obtain their specialty training in military hospitals are much more likely than those trained in civilian hospitals to volunteer to continue on active duty after completing their obligated service.

3. GME in military hospitals helps to ease the shortage of key specialists by filling training slots in military medical centers with scholarship recipients who, upon completion of training, are assigned to serve their obligated service at posts which otherwise would not have such specialists available. The conduct of GME programs in these important specialties at the medical centers also helps to retain in uniform well-qualified and experienced physicians who are assigned as faculty at these centers. Their availability is particularly important for achieving and maintaining satisfactory "readiness" status for the medical department of each military service. Also, some residents can be rotated to "community" hospitals on other posts where they can assist in providing specialty care at those posts.

4. More military tertiary care capacity can be maintained in peacetime than could be managed without GME programs. This capacity would be immediately available in an emergency. Moreover, although most of the medical centers are authorized to operate at well below their installed capacity in peacetime, if they are operating effectively additional beds could quickly be made operational when they are needed.

The decision to increase graduate medical education programs to assist in recruiting and retaining physicians has affected the distribution of active duty physicians among the facilities operated by each military medical department. For example, almost 60 percent of active duty Army physicians are assigned to eight Army medical centers where most of the GME is provided. Most of these centers are located in large cities that are not near posts with major troop concentrations. Thus, a significant portion of the patients treated in the medical centers are retirees, their dependents, and other secondary beneficiaries.

During a period of physician shortages, it appeared to some DOD and congressional observers that the assignment of the substantial numbers of physicians and support staff needed to operate large GME programs in the major medical centers may have had adverse consequences for the staffing of the military "community" hospitals operated by the Army and the Air Force. Some posts in relatively remote areas are unable to provide certain essential medical services for active duty personnel or their dependents, primarily because of physician shortages.[1] The inability to provide direct medical care to dependents poses morale problems because the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) is not always a satisfactory substitute for direct care in military facilities. This is particularly troublesome at the 15 Army hospitals, 32 Air Force hospitals and one Navy hospital that are located in remote or medically underserved geographic areas in the United States.[2] Dependents at these posts may be unable to obtain the medical services they need from civilian providers located nearby. Another is that CHAMPUS requires co-payments which may be burdensome for some

beneficiaries, particularly dependents of lower ranking active duty personnel. Moreover, certain services are not covered by CHAMPUS (e.g., well baby care, including immunizations) although they usually are obtainable at military facilities.

The questions to be addressed by the committee also raise additional issues. Is it necessary for the military to operate any GME programs at all? Is there a need for a "cap" on military GME? Is it reasonable or appropriate to expect each military medical department to operate the same proportionate amount of GME? To what extent, and in what ways, are changing external circumstances--in the civilian medical education and health care sectors--likely to affect the military physician manpower pools and the role of military GME?

Study Approach

The committee reviewed the literature and explored the availability of appropriate data in the Department of Defense and the three military medical departments. It found substantial background information in many of the recent studies done (or sponsored) by the DOD or the offices of the three Surgeons General. A physician manpower projection model developed for the Department of Defense by Presearch, Inc. appeared to be particularly useful for this study. There did not seem to be any reason to conduct an attitude survey because several surveys of military physicians had been done in recent years and contained extensive information on the attitudes, circumstances, and conditions that affect the career choices and professional behavior of military physicians. The committee concluded that the study should consist of three sets of activities that would be designed to obtain the information needed to respond to the questions:

- Review the literature and request, assemble, and analyze ad hoc data from the DOD to examine the missions and roles of the medical departments, the resources available to them, and the public policy and other circumstances relevant to the questions being addressed by the committee.

- Site visits to a sample of military hospitals--both teaching hospitals and community hospitals without GME programs--to interview residents, staff physicians, hospital commanders, and others. The purpose of the visits and the procedures used by the committee in conducting the visits are described below. Findings are in Chapters 4 and 5.

- Analyses of the projected trends in military physician manpower using a mathematical model of the dynamics of the military physician manpower pools. The procedures are described, and the findings presented in Chapter 4.

The report is organized as follows: the balance of Chapter 2 discusses the methodology of the site visits, the methodological issues posed by the questions, and the committee's decisions on how to handle them. Chapter 3 examines and describes the context in which military medicine functions: its missions, changing national circumstances, the CHAMPUS program, and the resources available. Chapter 4 examines military physician manpower per se--how each of the services has fared since the end of the draft, and the trends, based on projections using a manpower model, likely in the next few years. The relevant findings from the site visits are presented. The possibility of using the HPSP in combination with military GME to fill the reserves is discussed. Chapter 4 describes the scope of the GME programs, including specialty distribution. It discusses the process and output aspects of GME and the quantitative and qualitative effects of each. It discusses the issues of quality and capacity of the GME programs on the basis of the site visit findings. Finally, it examines optimal levels of GME and presents the committee's findings on this issue. Chapter 1 presents the committee's conclusions and recommendations.

Site Visit Procedures

Teams of committee members and consultants visited 17 military hospitals operated by the three medical departments. The objectives were (1) to assess the quality of a sample of the GME programs being operated by the military medical departments; (2) to assess the adequacy of the resources available to support these programs--patients, facilities, supporting services, numbers, and qualifications of staff physicians serving as faculty; (3) to assess the attitudes of residents and staff physicians toward the GME programs and toward careers in military medicine, and the factors that were perceived as being most important in helping to shape these attitudes; and, (4) to visit military community hospitals without GME programs to determine how physicians at those hospitals perceived the role of GME, what their relationships were to the medical centers and their attitudes toward military medical careers.

The seventeen hospitals visited were located in six regions of the country: Denver, San Antonio, San Diego, San Francisco, Washington, D.C., and Louisiana. Except for the hospital in Louisiana, each area had at least one major medical center and one community hospital on a military training installation not too far away. Each team visited a large medical center on the first day and, on the following day, a community hospital.

A total of nine medical centers were selected for site visits: four Army medical centers (Brooke in San Antonio, Fitzsimons in

Denver, Letterman in San Francisco, and Walter Reed in Washington, D. C.); three Navy medical centers (Bethesda, Oakland, and San Diego) and two Air Force centers (Wilford Hall in San Antonio and David Grant on Travis Air Force Base in California). The GME programs chosen for review at each of these medical centers always included medicine and surgery. Residency programs in the departments of pediatrics, family practice, obstetrics/gynecology, orthopedic surgery, pathology, radiology, anesthesiology, and psychiatry were selected in some hospitals but not in others. Three community hospitals visited have residency training programs in family practice. The site visit team also reviewed the emergency medicine residency program at Darnell Army Hospital at Fort Hood, Texas.

In addition to looking at the residency programs and at the community hospitals, the committee was interested in the relationships of community hospitals to major medical centers and the adequacy and availability of medical services for the active duty troops and their dependents. The committee also was interested in assessing the problems of physician retention and professional isolation in those community hospitals without any residency programs. Fort Polk was selected so that the committee could observe the problems of providing medical care to the troops and their dependents in a relatively isolated, medically underserved area.

The permission of the Surgeons General was obtained for the committee to request copies of the Residency Review Committee reports on the GME programs in the hospitals to be visited. These documents were made available on a confidential basis to the site visit teams to help acquaint them with the specifics of each program including issues reflecting on the quality and capacity of the training program such as adequacy of the resources, patient volume, and supervision.

Interview guides were used so that the committee members would obtain a common core of information in the interviews. Separate guides were used for interviews of house staff and attending staff. The guides are shown in appendixes B and C.

Prior to the site visit, the committee staff obtained a list of residents and staff physicians at each institution. These lists were used to identify the individuals to be interviewed. The list included the names of the physicians, the names and location of the colleges, undergraduate and graduate medical education institutions they attended. In the case of staff physicians, the list also contained information on previous military assignments. Individuals to be interviewed were selected from the list so as to be reasonably representative of the group as a whole.

Each site visit team consisted of three or four committee members and/or consultants, one of whom was a surgeon. At the medical centers, each member of the site visit team reviewed two residency programs. They interviewed several residents--at least one in each

year of training--several teaching staff members with different ranks and backgrounds, and the chief of service of each program. This procedure was modified somewhat at the community hospitals, but in all cases a full day was spent by each site visitor in 20-30 minute interviews with physicians. All the site visits were started with a meeting between the site visit team, the Hospital Commander, the Chief of Professional Staff, the Director of Medical Education and the Chief Nurse. The individual physician interviews were supplemented with an informal luncheon meeting between the service chiefs and the site visitors. In aggregate, committee members on the site visit teams talked to 407 military staff physicians and residents, who constituted 9 percent of the total number of physicians assigned to the 17 hospitals visited.

Notes on Methodology

None of the questions addressed by the committee can be answered objectively and unambiguously by straightforward collection and analysis of data and the application of entirely objective criteria to the findings. Rather, the responses all rest in varying degree on professional judgment. The reasons are that the questions about graduate medical education concern a highly complex, dynamic, interactive system containing a very large number of variables, not all of which can be controlled or even measured.

The committee was faced with questions of how detailed and extensive an effort was necessary to assemble sufficient information on which to rest its professional judgments. For example, the three services operate 243 GME programs. Was it necessary to conduct detailed reviews of all of them to respond to the question concerning the maximum capacity to conduct GME in military hospitals? The committee concluded that it was neither feasible nor necessary to do so and that it would be more realistic to rest its judgments on reviews of the ACGME materials on military GME programs and site visits to a sample of the programs in the major teaching hospitals.

The question of the effects of GME on recruitment and retention of physicians posed problems of a different type. How relevant are historical data on recruitment and retention of physicians when current and future circumstances both in military medicine and in the civilian sector are so different than they were in the past? The committee considered the possibility of undertaking a detailed statistical analysis of the personnel records of a sample of military physicians to explore some of the variables--including the locus of GME--associated with retention of physicians on active duty. But when it became clear that the data required for such a study could not be obtained from the automated personnel files of any of the services, the committee concluded that it would rest its judgments in

part on the findings of earlier studies and in part on the results of interviewing a sample of staff physicians and GME trainees at the hospitals it visited. The findings are in chapters 4 and 5.

An even more difficult conceptual problem is determining the optimal size of the GME programs. The word "optimal" means "most desirable or satisfactory" in a given set of circumstances. Because graduate medical education has both process and output effects that are important, and because each has both qualitative and quantitative aspects, this question entails complex, interactive value judgments. Moreover, the relevant circumstances for which GME is to be optimized are, in fact, dynamic. Thus, optimal size will vary with changes in key military medical system variables as well as with changes in the civilian medical education and medical care environment. Although the question implies an expectation of a straightforward quantitative response, in fact the committee concluded early that such a specific response would be neither possible nor meaningful. Rather, a more useful response will be to analyze the changing circumstances facing each medical department and to point out the factors that must be taken into account explicitly in making the judgments of what constitutes optimal GME program size.

CHAPTER 3

PERSPECTIVES ON MILITARY MEDICINE

Missions

The primary responsibilities of the medical departments of the military services are to maintain the health of the active duty personnel and to be prepared to care for a sudden, very large increase in sick and wounded in the event of war. The military medical departments also are responsible in peacetime for providing medical care to the dependents of active duty personnel, to retirees and their dependents, and to the dependent survivors of deceased active duty personnel. This is done either directly or through the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). The Rice report[1] points out that these two missions (which are referred to as the "readiness" and the "beneficiary" missions) are mutually supportive in some respects, but conflicting in others. For example, the specialty mix and facilities needed for the readiness mission would be heavily weighted toward surgical capacity, with requirements for substantial numbers of neurosurgeons, thoracic surgeons and orthopedists, as well as general surgeons, urologists and ophthalmologists. Each medical service should be prepared to deal with large numbers of traumatic injuries in wartime. There would have to be a number of large, well-equipped, and well-staffed hospitals in the U. S. concentrated near major airports to deal with a heavy flow of casualties from abroad. In peacetime, the mix of services required is skewed toward primary care, with secondary and tertiary care services for women, children, and older people as well as for the active duty forces. Resources should be distributed fairly widely to provide necessary medical services to active duty personnel, their dependents, and retirees and their families. It is clear that the two missions therefore must compete to some extent for resources in peacetime because of budgeting constraints. At the same time, availability of "beneficiary" patients is essential to operate many military medical services that are needed for the "readiness" mission, but which would be seriously underutilized if they were to be used only for active duty personnel in peacetime. These services must be operating

effectively to maintain the skills of the professional and technical support staffs. The beneficiary mission and the readiness mission are therefore complementary as well as competitive.

Factors Affecting Size of the Medical Departments

Although the reason for operating military medical departments in peacetime might be considered to be identical to that for maintaining armored divisions or aircraft carriers, there is an important difference: the medical care services provided by the military medical departments in peacetime are, by and large, indistinguishable from similar services provided in the civilian medical care system. Moreover, the military medical systems must produce these services continuously and effectively, using the latest medical technology, to maintain their readiness. But since the peacetime patient care activities in the military medical services--unlike many of the peacetime activities of armored divisions or aircraft carriers--are essentially indistinguishable from their civilian counterparts, there are special questions concerning the size, scope, and management of the military medical system, its actual and potential relationships to its counterparts in federally-operated civilian medical systems (particularly the Veterans Administration's Department of Medicine and Surgery) and to the non-federal civilian medical care facilities in the United States. The judgments about the required sizes of the peacetime active duty medical departments therefore should be determined by taking into account the speed with which access to civilian medical facilities in the United States (and abroad) could be obtained in the event of emergency, the size and organizational readiness of the reserve medical forces, and the possible ways in which the military services might establish active peacetime relationships with civilian medical facilities that might enlarge their medical readiness capabilities--especially for hospital-based services--well beyond those that can be maintained by the military directly. Other key factors include the geographic distribution of peacetime forces and facilities, the nature of the wartime "scenario" on which military plans and capabilities are based, theater evacuation policy (and air evacuation capabilities), initial wartime casualty estimates, and the speed with which a wartime draft could be put into effect.[2] The extent to which the required sizes of the peacetime medical departments could (or should) be modified by developing cooperative arrangements with civilian facilities is an important and relevant question because the "optimal" amount of graduate medical education in military facilities is related to the required size of the military medical establishment in peacetime. If greater reliance could be placed on civilian facilities--including the VA medical system--in peacetime and in war, the size of the peacetime military medical establishment might be reduced. A detailed analysis of this set of issues was not undertaken by the

committee, however, because it clearly exceeded the study's terms of reference. Likewise, the committee did not consider the degree to which physician's assistants and nurse practitioners are or could be utilized. The committee simply accepted the numbers of physicians officially authorized for each medical department in conducting this study.

It is important to understand the distinction between "authorized" strength and "required" strength. The "required" physician strength in peacetime is the number each Surgeon General believes he needs to have on active duty to carry out his responsibilities. Each service has a different method for arriving at its required strength and each uses different and sometimes inconsistent assumptions.[3] The "authorized" strength is the number of physicians that a military medical department is authorized to have on active duty in a given fiscal year and for which funds have been approved by that military service's Chief of Staff. It is a number which is usually determined by negotiations between the medical department and the Chief of Staff's office. It reflects three major considerations: (1) the number of physicians the medical department says it requires to carry out its mission; (2) the number that probably can be recruited and retained that year; and (3) overall service-wide constraints on numbers of active duty officers in all departments of the service and the needs of departments other than the medical department for all kinds of resources. That is, each military medical department competes for resources, including personnel, with other departments in its own military service. In the case of the Army, the medical department has an agreed "steady state" authorized strength of 5273 physicians. But physician strength is still far below this level so its current annual authorized strength is set at a level approximating that it is expected to achieve. The maximum authorized strength--its "steady-state" level--will be reached by 1985. Both the Navy and the Air Force have had "steady-state" authorized levels for some years. The Air Force Surgeon General believes he requires 4700 physicians, but his authorized level remains at about 3500. The Navy's authorized strength is stabilized at about 3600, a number that appears to be acceptable to the Navy's Surgeon General.

If the Reagan administration proposals to expand the size of the armed forces are approved and implemented, the authorized physician ceilings for each of the services may well be increased in the next couple of years because the size and geographic distribution of the armed forces and their supporting services obviously have an important bearing on medical department size and resource requirements. The historic relationship between the numbers of active duty military and the numbers of active duty medical officers is shown in Table 1. Although the size of the armed forces has fluctuated considerably since 1945, and the numbers of physicians on active duty have varied accordingly, the ratio of physicians to total active duty personnel has changed only moderately through the years.

Table 1. RATIO OF ACTIVE DUTY MEDICAL OFFICERS TO TOTAL ACTIVE DUTY PERSONNEL - 1945-1980

Year		Active Duty Personnel (000)	Active Duty Medical Officers	Med. Officers Per 100,000 Active Duty Personnel[2]
1935-39[1]	Army	172.5	1,031	597.6
	Navy	111.8	807	721.8
	Total	284.3	1,838	646.5
1945	Army	8,267.9	46,600	563.6
	Navy	3,380.8	13,722	405.8
	Total	11,648.7	60,322	517.8
1952-56[1]	Army	1,333.9	8,685	651.0
	Navy	735.0	3,708	504.4
	Total	2,068.9	12,393	599.0
1969-78[1]	Army	1,114.1	6,180	554.6
	Navy	636.1	4,144	651.4
	Air Force	765.1	3,870	505.7
	Total	2,515.3	14,194	564.3
1975-79[1]	Army	778.0	4,280	550.1
	Navy	528.6	3,502	662.5
	Air Force	579.8	3,206	552.9
	Total	1,866.4	10,988	582.4
1980	Army	774.0	4,353	562.4
	Navy	528.0	3,556	673.4
	Air Force	559.0	3,266	584.2
	Total	1,861.0	11,175	600.4

Source: Francis Moore, M.D. "War and Peace", Scudder Oration on Trauma, paper delivered at the Clinical Congress, American College of Surgeons, Atlanta, Georgia, October 1980.

[1]Mean values for the 5-year period

[2]The civilian beneficiary population is not included in these ratios. In 1980 the civilian beneficiaries outnumbered active duty personnel by more than 300 percent.

If the size of the active duty forces is to be increased in the near future, presumably the requirements for physicians (and other medical resources) will increase proportionately.

CHAMPUS

The policies concerning health benefits to the eligible civilian beneficiaries are important because they can affect the demand for military medical services, particularly in the major medical centers where most of the GME is conducted. At present, the total beneficiary population consists of approximately 2 million active duty personnel, 2.5 million of their dependents, and 3.9 million retirees, their families, and other civilian beneficiaries. Not all of these eligible beneficiaries rely primarily on the DOD system for medical care. Some have health insurance through their civilian employment and prefer to rely on civilian facilities. Exact data are not available on how many of which categories of eligible beneficiaries rely for most or all of their medical care on military facilities or CHAMPUS, but it appears that a large number do. As noted earlier, the military medical facilities depend on civilian patients in peacetime for the level and variety of patient care activities needed to maintain professional and technical staff skills and to support GME programs. Each military hospital commander controls access to CHAMPUS (for inpatient care) by civilian beneficiaries who reside within 40 miles of the hospital. Because services authorized for reimbursement under CHAMPUS are not as extensive as those provided directly by the military medical departments, and the copayments required are perceived as a significant (and unfair) burden by many CHAMPUS beneficiaries, CHAMPUS is viewed as an unsatisfactory alternative to care provided in military hospitals or clinics by many beneficiaries. The civilian beneficiaries--and active duty personnel concerned about health care for their dependents--tend to view medical care as an entitlement, one of the promised benefits that go with military service. Most of the recruiting literature tends to support this view by either being vague about the extent of the health care benefits available to civilian beneficiaries, or even, in some cases, promising "free care" for active-duty personnel, retirees and their families. (The law does not guarantee such benefits to civilian beneficiaries.) The unrealistic expectations and consequent frustration and dissatisfaction with the military health care system have generated strong political pressures on the Congress to increase the service coverage and reduce the copayment requirements for CHAMPUS. The last Congress authorized CHAMPUS to experiment with voluntary enrollment of eligible beneficiaries in civilian pre-paid group practices (health maintenance organizations).[4] A three-year demonstration project, commencing in 1981, will determine whether an HMO offering comprehensive care is sufficiently attractive and cost effective to

offer enrollment in one as an option to all CHAMPUS beneficiaries located near satisfactory HMOs. Should this prove to be a popular choice, especially for retirees, it could reduce demand for services at a number of major military medical centers and, in turn, force reductions in the medical care and GME programs at those centers. Other changes in CHAMPUS legislation to authorize dental care coverage and well baby care are likely to be enacted. The changes in eligible population and utilization of CHAMPUS are shown in Table 2.

Changing Circumstances

Before World War II, military medicine (as was true of other Federal medical systems, such as the Veterans Administration and the Indian Health Service) was relatively isolated from the mainstream of American medicine. This changed dramatically during World War II when thousands of physicians were drafted and many leading civilian physicians became high ranking officers in the military medical departments. Table 1 shows that in 1945 there were over 60,000 physicians in uniform as compared to fewer than 2000 in 1939. After the war, each of the military services established approved internship and residency programs in all of the major specialties to foster continuing professional associations with academic medical centers, and to maintain a professional environment that would attract highly-qualified physicians to make career commitments to military medicine. The GME programs were conducted mainly in the services' medical centers, which provided tertiary care, and which were generally affiliated with medical schools.

During the 1950s, 1960s and early 1970s, the physician draft and the Berry Plan (which permitted medical students who volunteered for military service to defer entry on active duty until they had completed their graduate medical education) insured an adequate supply of fully-trained physicians who could be assigned wherever they were needed. Very few physicians--less than 5 percent--who received their training under the Berry Plan elected to remain in uniform after completion of their obligated service. But this was not a serious problem because there were sufficient numbers of career medical officers (who had been recruited in other ways) to provide the continuity and leadership needed to make effective use of the Berry plan physicians. GME in military hospitals appeared to be associated with career choice to an important extent: about 25 percent of the physicians who received their specialty training in military hospitals elected to remain in service beyond their obligated period of service.[5] Many committed themselves to full careers of 20 or more years in the military.

Table 2. CHAMPUS Eligible Population, Utilization, Government Expenditures (Continental United States)

	FY 1965	FY 1970	FY 1975	FY 1980[1]
Eligible Population (Total)[2]	3,442,000	5,656,000	6,307,000	6,452,000
Dependents of Active Duty Personnel	3,442,000	3,380,000	2,827,000	2,541,000
Retirees and Other	0	2,276,000	3,481,000	3,910,000
Utilization				
Inpatient Admissions	Not avail.	387,000	441,000	285,000
Outpatient Visits	Not avail.	Not Avail.	3,210,000	Not Avail.
Government Expenditures	Not avail.	272,000,000	504,000,000	695,000,000
User Beneficiaries (Total)	Not avail.	787,000	1,034,000	881,000
Dependents of Active Duty Personnel	Not avail.	536,000	450,000	332,000
Retirees and Other	Not avail.	251,000	584,000	559,000

Source: Office of the Civilian Health and Medical Program of the Uniformed Services.

[1]Fiscal Year 1980 utilization data is estimated to be 91% complete.

[2]The estimated number of eligible beneficiaries were obtained from several sources which may have used different methods for making the estimates.

During this period, an ample supply of physicians trained in all specialties was available to the military services. This made it possible for the medical departments to supply fairly comprehensive medical services to active duty personnel, to their dependents, and to significant fractions of the other beneficiary categories (retirees and their dependents and the dependents of deceased active duty personnel).

The termination of the draft in 1973 changed these circumstances in two respects: (1) it became difficult to recruit sufficient numbers of physicians to maintain authorized strengths either for the active duty force or for the reserves, and (2) severe shortages began to appear in such specialties as radiology, anesthesiology, and some of the surgical specialties.

The ability of the military services to recruit physicians was affected by the major changes in the U. S. health care and medical education systems that had occurred since World War II, and particularly since the mid-1960s when the Medicare and Medicaid legislation was enacted. These changes included:

- The growth of health insurance. Prior to World War II, relatively few people had hospital or broader health insurance coverage. Beginning in the 1950s health insurance coverage grew rapidly. The major health insurance event of the 1960s was passage of the Medicare and Medicaid legislation in 1965. This increased demand for hospitals and physicians' services and stimulated a steep inflation in both hospital costs and physicians' fees. Physicians' incomes (in the private sector) grew rapidly.

- Expansion of the number of hospital beds in the country. This process was aided by passage of the Hill-Burton act in 1947 and by the growth of hospital insurance, which made it relatively easy for hospitals to borrow money for construction.

- Rapid growth in the 1950s and 1960s of the medical research enterprise centered largely in the medical schools and their affiliated hospitals and supported mostly by Federal grants (primarily from NIH). This, in turn, had several major consequences: continuous changes in diagnostic and therapeutic technology; growth of medical specialization as the knowledge base broadened and deepened; growth in the size of the medical schools and the numbers of full-time clinical faculty, which made it possible to increase the clinical responsibilities of the academic centers through affiliation agreements with both voluntary and public hospitals, and to increase the numbers of specialty training

programs, and, therefore, the numbers of residents in all specialties.

- A change in the proportion of graduating physicians who undertake 3-6 years of graduate medical education. Before World War II, only a fraction of the physicians in practice in the United States were board-certified specialists. Since World War II, graduate medical education for the purpose of acquiring board certification as a specialist has become the norm. Board certification has become a de facto licensing mechanism in American medicine.[6] Data from the annual Association of American Medical Colleges' Graduation Questionnaire indicate that 94 percent of all graduates now expect to complete the requirements for certification by a specialty board.

The growth in demand for medical services that started in the 1950s as health insurance coverage increased and hospital beds became more available led to a widely shared perception by the late 1950s and early 1960s of a serious national shortage of physicians. This prompted two federal responses:

(1) Legislation was enacted initially in 1963 to stimulate establishment of new medical schools and to expand enrollment in existing schools. The stimulus worked: the number of medical schools increased by 40 percent and enrollment doubled in less than 20 years. But the rising costs of health care and the general inflation in costs in all sectors affected tuition fees, which began to climb steeply; especially in the private schools.

(2) The immigration laws were amended and administered so as to facilitate the admission of foreign medical school graduates (FMGs) who were seeking to enter this country. The high incomes of American physicians attracted a large flow of FMGs, many from developing countries in the Middle East, the Far East, and Latin America. Most came for specialty training and then remained in this country in private practice, but many took salaried positions in local, state and federal government agencies--positions that had become increasingly unattractive to American physicians.

Thus, by the time the draft was terminated in 1973, the circumstances in the civilian sector were such that the military services could not recruit enough fully-trained physicians to meet DOD requirements for physicians, especially in the critically-needed medical and surgical specialties. Of those recruited, a substantial portion were likely to be FMGs. And the rapidly escalating costs of medical education were certain to be very burdensome for American medical students.

The problems and opportunities inherent in these circumstances were recognized by DOD and the Congress. In 1972, Public Law 92-426,

the Uniformed Services Health Professions Revitalization Act, was passed. This established the Armed Forces Health Professions Scholarship Program, which authorized the three military services to provide a total of 5000 scholarships to students in health professional schools in exchange for service obligations after graduation. The HPSP scholarships cover tuition, fees, and books and provide a monthly stipend for living costs. An obligation of a year of active duty service (with a minimum service obligation of two years) is incurred for each year of schooling for which scholarship support is provided. The same law also established the Uniformed Services University of the Health Sciences, the principal component of which is a medical school designed to produce career physicians for the uniformed services.

The HPSP is now the primary source of new physician recruits for the military medical services, although the direct recruitment of physician volunteers for active duty--either fully trained physicians or those applying for specialty training in military medical centers--also is important. The Uniformed University of the Health Sciences Medical School will become more important as a source of career military physicians as more classes graduate. USU is scheduled to reach its capacity of about 170 graduates per year in a few years.

At the same time, the effects of the above-mentioned public policy actions to increase the numbers of physicians has begun to change the civilian environment likely to affect the ability of the military to recruit and retain physicians in the 1980s and beyond. The recently-published report of the Graduate Medical Education National Advisory Committee (GMENAC) has estimated that growth in U.S. medical education will increase the number of physicians per hundred thousand population from 171 in 1978, to 220 by 1990, and 247 in the year 2000.[7] The changing relationships between numbers of active physicians and total population in the U. S. are shown in Table 3.

The changes in specialty distribution projected by the GMENAC report are shown in Table 4. Although the specific numbers are only estimates based on a very large number of assumptions, it is reasonable to say that the perceptions of physician shortages that persisted through the 1970s are likely to be displaced in the 1980s by perceptions--at least in some specialties--of surpluses. This should greatly facilitate recruitment and retention of physicians by the military services.

Table 3. PHYSICIAN-TO-POPULATION RATIOS

	Physicians	Population	Physician/ 1000,000 pop.
1965	276,000	194,300,000	142
1970	292,000	204,900,000	143
1975	326,900	213,600,000	153
1980	374,800	219,500,000	171
1990	535,750	243,513,000	220
2000	642,950	260,378,000	247

Notes: 1965-80 physician data obtained from AMA and AOA for active M.D.s and D.O.s. 1990 and 2000 estimates from GMENAC Report, Table 2, p. 16. Population data from Bureau of the Census reports and projections.

Military Medical Resources

The FY-1982 budget estimate for health-related activities in the Department of Defense is about $5.8 billion dollars. It is 3.3 percent of the budget authority of DOD and 6.4 percent of all federal health expenditures.[8] Table 5 shows how these funds are allocated among the medical activities of the three military services. Of the total, 86 percent is for delivery of medical care by the military medical departments and CHAMPUS. The CHAMPUS program accounts for 19 percent of medical care expenditures. The Army's share of the direct care budget is 35 percent, the Navy and the Air Force each have about 23 percent. Seven percent of the DOD budget for health affairs is allocated for the education and training of all types of medical personnel.

As shown in Tables 6 and 7, the Department of Defense currently operates 164 hospitals with a total of over 18,000 beds worldwide. Of these totals, 128 hospitals with 15,894 beds are in the United States and 39 hospitals with 2791 beds are abroad. The Army operates a total of 50 facilities, 14 of which are overseas. The Navy runs 36 hospitals, 10 of which are overseas and the Air Force runs 81 hospitals with 15 outside of the United States. The facilities are programmed to run at an 80% occupancy rate, and most could be expanded rapidly if it were necessary.

As shown in Table 8, there are 120,466 personnel supporting DOD health activities. Of this total, 84,175 are military and 36,291 are civilians. The distribution of personnel among the three services is similar to the division of the workload: 46 percent Army, 22 percent Navy and 32 percent Air Force. Almost 42 percemt of the personnel in Army medical facilities are civilians; the comparable proportions are 24 percent and 15 percent in the Navy and the Air Force, respectively.

Tables 9 and 10 show the utilization of the DOD health care facilities for fiscal year 1980. Forty-five percent of the 880,000 inpatient admissions to DOD hospitals were to Army facilities. The dependents of active duty personnel accounted for the largest proportion of DOD admissions (38 percent), while retirees and other beneficiaries accounted for 28 percent of total admissions. Active duty personnel were responsible for 41 percent of the 48 million outpatient visits, their dependents 33 percent of the total. Approximately 44 percent of both inpatient admissions and outpatient visits took place in Army facilities, 25 percent in Naval facilities and 31 percent in Air Force facilities.

TABLE 4: SUPPLY OF PHYSICIANS BY SPECIALTY 1978, AND ESTIMATES FOR 1990

	1978	1990 a/	Percent Change
All Physicians	374,800	535,750	+43
Osteopathic General Practice	13,550	23,850	+76
General Family Practice	54,350	64,400	+18
General Pediatrics	23,800	37,750	+59
Pediatric Allergy	450	900	+100
Pediatric Cardiology	600	1,000	+65
Pediatric Endocrinology	N/A	250	N/A b/
Pediatric Nephrology	N/A	200	N/A b/
Neonatology	N/A	700	N/A b/
General Internal Medicine	48,950	73,800	+51
Allergy and Immunology	2,100	3,050	+45
Cardiology	7,700	14,900	+94
Endocrinology	1,400	3,850	+175
Gastroenterology	2,900	6,900	+138
Hematology-Oncology	3,000	8,300	+177
Infectious Diseases	850	3,250	+282
Nephrology	1,450	4,850	+235
Pulmonary Diseases	2,800	6,950	+148
Rheumatology	1,000	3,000	+200
Neurology	4,850	8,650	+78
Dermatology	5,000	7,350	+47
Psychiatry (General)	25,250	30,500	+21
Child Psychiatry	3,050	4,100	+34
Obstetrics/Gynecology	23,100	34,450	+49
General Surgery	30,700	35,300	+15
Neurosurgery	3,000	5,100	+70
Ophthalmology	11,750	16,300	+39
Orthopedic Surgery	12,350	20,100	+63
Otolaryngology	6,100	8,500	+39
Plastic Surgery	2,600	3,900	+50
Thoracic Surgery	2,100	2,900	+38
Urology	7,100	9,350	+32
Emergency Medicine	5,000	9,250	+85
Preventive Medicine	6,100	5,550	-9
Anesthesiology	14,850	19,450	+31
Pathology	12,650	16,850	+33
Physical Medicine & Rehab.	2,000	2,400	+20
Radiology	18,550	27,800	+50
All other & Unspecified	14,000	9,700	-31

N/A not available

Footnotes a/ and b/ are on page 36

Source: Table 3, p.17, Report of the Graduate Medical Education National Advisory Committee to the Secretary, Department of Health and Human services, September 1980.

Notes to Table 4

a/ Includes all professionally active physicians (M.D.s and D.O.s) together with 0.35 of all residents in training in the year indicated. The 1990 and 2000 figures assume that U. S. allopathic medical school first year enrollment will increase 2.5 percent per year until 1982-83 for a total increase of 10 percent over the 1978-79 enrollment of 16,501, and then will remain level at 18,151, that U. S. osteopathic medical school enrollment will increase 4.6 percent per year until 1987-88 for a total increase of 41 percent over the 1978-79 number of 1,322 and then will remain level at 1,868, and that FMGs will be added to the residency pool at the rate of 3,100/year in 1979-80, increase to 4,100/year by 1983, and then remain level.

b/ The 1978 AMA Masterfile does not contain data for the pediatric subspecialties other than for pediatric allergy and cardiology. Therefore, the 1978 as well as the 1990 supply for the pediatric subspecialties are likely to be significantly undercounted.

Table 5. DEPARTMENT OF DEFENSE BUDGET REQUEST FOR HEALTH AFFAIRS, FY-1982
(Thousands of Dollars)

	Army	Navy	Air Force	DOD	Total
DIRECT CARE	1,740,963	1,113,865	1,146,861	928,757	4,930,446
Regional Defense Facilities	555,420	287,392	246,144		1,088,956
Station & Clinic Hospitals	782,353	364,415	704,866		1,851,634
Dental Activities	161,199	81,157	116,508		358,864
Other Health Activities	202,635	338,182	52,872		593,689
Care in Non-DOD Facilities	39,356	42,719	26,471		108,546
CHAMPUS				928,757	928,757
EDUCATION & TRAINING	164,634	82,639	101,964	35,564	384,801
HPSP	27,786	25,138	21,757		74,861
USUHS	---	---	---	35,564	35,564
Other Education & Training	136,848	57,501	80,207		274,556
RESEARCH AND DEVELOPMENT	115,224	57,565	2,070	39,070	213,929
CONSTRUCTION	158,410	46,860	29,110		234,380
TOTAL	2,226,098	1,330,075	1,310,234	1,007,394	5,763,556

Adapted from OSD(HA) FY 1981 estimate of FY 1982 budget.

Table 6. DOD MEDICAL FACILITIES IN THE UNITED STATES*

	ARMY		NAVY		AIR FORCE		DOD TOTALS	
	# facili-ties	# beds	# facili-ties	# beds	# facili-ties	# beds	# facil-ties	# beds
Over 500 beds	5	2748	2	1149	1	1000	8	4897
200-500 beds	8	2508	2	750	4	1175	14	4433
75-200 beds	8	1170	12	1520	9	990	29	3680
Less than 75 beds	15	741	10	308	52	1835	77	2884
TOTAL	36	7167	26	3727	66	5000	128	15,894

Source: Office of the Assistant Secretary of Defense (Health Affairs).
* Includes all 50 states.

Table 7. DOD MEDICAL FACILITIES OUTSIDE THE UNITED STATES

	ARMY		NAVY		AIR FORCE		DOD TOTALS	
	# facili-ties	# beds	# facili-ties	# beds	# facili-ties	# beds	# facili-ties	# beds
OVER 200 beds	2	625	0	0	1	220	3	845
75-200 beds	5	740	1	113	2	250	11	1193
Less than 75 beds	7	220	9	384	12	239	25	753
TOTAL	14	1585	10	497	15	709	39	2791

Source: Office of the Assistant Secretary of Defense (Health Affairs). January 1981.

Table 8. DOD PERSONNEL PROVIDING DIRECT CARE

	ARMY	NAVY	AIR FORCE	DOD TOTAL
Regional Facilities[1]	17,272	9,379	7,825	34,476
Military	9,385	6,903	6,007	22,295
Civilian	7,887	2,476	1,818	12,181
Station Hospitals & Clinics[1]	25,664	12,868	23,062	61,594
Military	14,854	10,003	19,046	43,903
Civilian	10,810	2,865	4,016	17,691
Dental Care[1]	5,987	3,062	4,784	13,833
Military	3,849	2,751	4,396	10,996
Civilian	2,138	311	388	2,837
Other Health Care[1,2]	6,139	1,131	3,293	10,563
Military	3,549	430	3,002	6,981
Civilian	2,590	701	291	3,582
TOTAL[1]	55,062	26,440	38,964	120,466
Military	31,637	20,087	32,451	84,175
Civilian	23,425	6,353	6,513	36,291

Source: Office of the Secretary of Defense (Health Affairs), April 1981.
[1]Total of military and civilian.
[2]Operational medicine, Airevac.

Table 9. INPATIENT ADMISSIONS TO DOD HOSPITALS FY-1980[1]
(% of Total DOD Admissions)

	Army Hospitals	Navy Hospitals	Air Force Hospitals	DOD Total
Active Duty Personnel	131,052 (15%)	74,138 (8%)	92,899 (11%)	298,089 (34%)
Dependents of Active Duty	153,193 (17%)	86,111 (10%)	99,019 (11%)	338,323 (38%)
Other Beneficiaries[2]	110,013 (13%)	52,475 (6%)	80,649 (9%)	243,137 (28%)
TOTAL	394,528 (45%)	212,724 (24%)	272,567 (31%)	879,549 (100%

[1]Data furnished by the Office of the Secretary of Defense (Health Affairs), April 1981.
[2]Includes retirees and their dependents.

Table 10. OUTPATIENT VISITS TO DOD FACILITIES FY-1980[1]
(% of Total DOD Admissions)

	Army Facilities	Navy Facilities	Air Force Facilities	DOD Total
Active Duty Personnel	8,820,377 (18%)	5,500,407 (12%)	5,110,467 (11%)	19,431,251 (41%)
Dependents of Active Duty	6,231,412 (13%)	3,860,652 (8%)	5,590,201 (12%)[b]	15,682,265 (33%)
Other Beneficiaries[2]	5,342,072 (11%)	3,141,879 (7%)	4,088,068 (8%)	12,572,019 (26%)
TOTAL	20,393,861 (42%)	12,502,938 (27%)	14,788,736 (31%)	47,685,535 (100%)

[1]Data furnished by the Office of the Secretary of Defense (Health Affairs) April 1981.
[2]Includes retirees and their dependents.

CHAPTER 4

PHYSICIAN MANPOWER AND MILITARY MEDICINE

Military Physician Manpower Eras

Military medicine has experienced two eras since World War II and is apparently about to enter a third. The first era lasted until June 1973, when the draft officially was terminated. There were no shortages of physicians for the military during this period because the Berry Plan ensured an adequate supply of fully-trained physicians in all specialties. Circumstances changed when the draft ended and the second era began--a period of transition in which shortages of physicians were experienced by the military services for several years until the HPSP, USU, and volunteer recruitment programs began to yield sufficient numbers of new recruits. As will be seen below, the Air Force and the Navy appear to be entering the third era--one in which physician shortages are no longer a problem even without the draft.

Some aspects of the transition era can be seen in Tables 11-14. The growth of the numbers of medical students in the HPSP pipeline between 1973 and 1980 is shown in Table 11. Tables 12, 13 and 14 show the changing sources of new physicians for the Army, Navy, and Air Force between 1974 and 1981. The overwhelming reliance on the Berry Plan in 1974, and its replacement mainly by the HPSP and volunteer program by the end of the period, shows clearly in these tables.

The transition era that started in late 1973 differed from the draft era in the following ways:

(1) Total numbers of physicians on active duty dropped below the numbers each medical department needed and was authorized to have on active duty for their "readiness" mission;

(2) Shortages of certain specialists appeared and persisted, e.g., in radiology, orthopedic surgery, anesthesiology, thoracic surgery, etc.;

(3) Most of the new recruits were untrained physicians--being either new graduates from medical schools or recent graduates who had completed an internship year but had had no residency training;

Table 11. MEDICAL STUDENTS RECEIVING ARMED FORCES HEALTH PROFESSIONAL SCHOLARSHIPS

	Army		Navy		Air Force		Total DOD	
	#	%	#	%	#	%	#	%
1973	360	30	503	42	324	27	1187	100
1974	990	34	1042	36	887	30	2919	100
1975	1191	37	1052	33	945	30	3188	100
1976	1295	39	1050	31	993	30	3338	100
1977	1367	37	1038	28	1311	35	3716	100
1978	1328	33	1385	34	1337	33	4050	100
1979	1408	34	1294	32	1403	34	4105	100
1980	1479	35	1326	31	1431	34	4236	100

Data furnished by the Offices of the Surgeons General. April 1981

Table 12. ARMY PHYSICIAN ACCESSIONS BY PROGRAM
(% Total Accessions)

Fiscal Year	Berry Plan	HPSP	Early Commission	Volunteer Program	AR 601-112 Disctd. 1977	USU	Total Accessions
1974	764 (73)	90 (9)	84 (8)	72 (7)	34 (3)	--	1044
1975	658 (67)	102 (10)	72 (7)	75 (8)	77 (8)	--	984
1976 [1]	955 (57)	399 (24)	92 (5)	111 (10)	59 (4)	--	1676
1977	141 (21)	296 (44)	44 (7)	150 (22)	41 (6)	--	672
1978	45 (5)	451 (51)	43 (5)	326 (37)	18 (2)	--	883
1979	14 (2)	422 (52)	39 (5)	332 (41)	8 (1)	--	815
1980	3 --	396 (52)	47 (6)	294 (39)	1 (1)	14 (2)	763
1981	1 --	363 (54)	28 (4)	250 (37)	6 (1)	23 (3)	671

Source: Office of the Army Surgeon General.

[1] Includes the FY-76 Transition Quarter July-September 1976.

Table 13. NAVY PHYSICIAN ACCESSIONS BY PROGRAM
(% Total Accessions)

Fiscal Year	Berry Plan	HPSP	Early Commission	Volunteer Program	MOSP[2]	USU	Total Accessions
1974	651 (70)	2	209 (23)	22 (2)	43 (5)	--	927
1975	518 (55)	51 (5)	139 (15)	159 (17)	79 (8)	--	946
1976	417 (53)	164 (21)	27 (3)	117 (15)	67 (8)	--	792
1977	159 (21)	329 (45)	29 (4)	176 (24)	37 (5)	--	730
1978	33 (5)	357 (58)	8 (1)	174 (29)	39 (6)	--	611
1979	9 (2)	344 (60)	--	193 (34)	27 (5)	--	573
1980	1 --	293 (59)	1 --	180 (36)	17 (3)	6 (1)	498
1981	--	282 (65)	--	116[1] (27)	17 (4)	22 (5)	437

Source: Office of the Navy Surgeon General.

[1]Projected.

[2]al Officer Scholarship Program.

Table 14. AIR FORCE PHYSICIAN ACCESSIONS BY PROGRAM
(% Total Accessions)

Fiscal Year	Berry Plan	HPSP	Early Commission	Volunteer Program	ROTC	AFR 36-13 AFR 36-42	USU	Total Accessions
1974	754 (79)	18 (2)	17 (2)	28 (3)	15 (2)	121 (13)	0	953
1975	574 (58)	92 (9)	2 --	216 (22)	15 (2)	97 (10)	0	996
1976	642 (45)	155 (11)	0	551 (38)	5 --	88 (6)	0	1441
1977	103 (15)	170 (24)	0	345 (49)	5 (1)	87 (12)	0	710
1978	28 (4)	258 (41)	0	270 (43)	3 (1)	71 (11)	0	630
1979	4 (1)	289 (54)	0	203 (38)	7 (1)	32 (6)	0	535
1980	3 --	327 (59)	0	176 (32)	17 (3)	25 (5)	6 (1)	554
1981	0 --	374 (67)	0	138 (25)	7 (1)	24 (4)	19 (3)	562[1]

Source: Office of the Air Force Surgeon General.

[1]Projected for end of FY-81.

(4) Of the relatively small number of fully-trained volunteers who could be recruited, a significant fraction consisted of foreign medical graduates, many of whom came from countries of very different languages and cultures than those of the U.S.

Table 15 shows the authorized numbers of military physicians on active duty and those actually on duty at the end of each fiscal year from 1976 to 1980. It is evident that the military medical departments have had somewhat different experiences in the transition era. The Army clearly has had the most severe problem: in FY-1977, its lowest point, it had only 4043 physicians on active duty--23 percent below the authorized "steady-state" level. Its position has improved since then, but it is still 13 percent below the authorized level of 5273. The Navy did not have a very serious problem. In 1976, its lowest point, it was 5 percent below its steady-state authorized level but reached it in 1977 and has been close to it ever since. The Air Force's position was more serious than the Navy's, but less than the Army's: its low point was 1976 when it was about 13 percent below the steady-state authorized strength of 3500. Its position has improved steadily since then and it is now about at authorized strength.

Table 15. ACTIVE DUTY MILITARY PHYSICIANS, 1976-80

Fiscal Year	Army		Navy		Air Force	
	Auth.*	Assigned	Auth.	Assigned	Auth.	Assigned
FY-76	4473	4398	3656	3430	3441	3051
FY-76T (transition quarter)	4738	4368	3696	3628	3495	3186
FY-77	4738	4043	3674	3665	3402	3249
FY-78	4009	4140	3643	3487	3447	3209
FY-79	4201	4403	3627	3584	3285	3310
FY-80	4402	4578	3600	3632	3542	3441

Source: Presearch, Inc.; data obtained from each medical department's personnel tapes.

* The Army's "steady state" authorized strength reaches 5273 by 1985. The Navy and Air Force "steady state" authorized strengths remain about 3600 and 3500 respectively.

These aggregated figures do not reveal some important facts about the composition of the physician pools: the fraction of the active duty physicians who are in training status (interns, residents, fellows), the fraction of the board-eligible or board-certified physicians who are assigned to teaching hospitals, and the fraction of physicians in operational assignments who have not had any specialty training--the "general medical officers", and the flight surgeons,[1] most of whom have completed only their internship year. Tables 16, 17, and 18 contain the most recent data on the distribution by specialty of physicians in the three departments. They also show, as a subset of the physicians on active duty, those who are in GME training status either in military hospitals or in civilian institutions. Table 16 reveals that of a total of 4578 active duty Army physicians in May 1981, 39 percent were GME trainees in Army hospitals, 4 percent were GME trainees in civilian hospitals, and 12 percent were general medical officers not in training status. The data in Table 16 underline the Army's physician manpower problems: the army is still 13 percent below total authorized physician strength, more than one fifth of its active duty physicians not in training status are general medical officers or flight surgeons who have not completed specialty training but have patient care assignments, and 42 percent of their active duty medical officers are in GME training status. The Army obviously is still in the transition era.

The Navy's circumstances, as shown in Table 17, are quite different. It has reached its authorized strength, although it still has 29 percent of its total active duty physicians assigned as GME trainees. About 17 percent of its physicians not in training status are general medical officers. It clearly is approaching the end of the transition era although it is still heavily dependent on large military training programs in some specialties.

The Air Force (Table 18) is only 3 percent below its authorized strength, and except for general surgery, orthopedic surgery, and family practice, is reasonably close to meeting its needs for specialists. However, it has about 500 physicians in patient care assignments who are either flight surgeons or general medical officers without specialty training. This is about one fifth of the active duty physician force not in training status. The Air Force, has less GME training capacity than either the Army or the Navy. It sponsors more GME training in civilian facilities: almost 16 percent of its GME trainees are in civilian GME training. A total of 24 percent of its activity duty force is in GME training status. As is true for the Navy, the Air Force apparently is approaching the end of the transition era.

Table 16. DISTRIBUTION OF ARMY PHYSICIANS BY SPECIALTY, May 1981

	Auth.	Active Duty	Shortfall/ Surplus	GME Trainees Mil. Hosp.	Civ. Hosp.
General Internal Medicine	473	475	+ 2	269	1
Medicine Sub-specialties	549	484	- 65	251	17
General Surgery	336	326	- 10	147	1
Neurosurgery	25	25	- 1	9	4
Ophthalmology	98	93	- 5	36	3
Orthopedic Sur.	274	177	- 97	78	4
Other Surgical Specialties	279	231	- 48	107	7
Psychiatry	270	233	- 37	88	-
Pediatrics	287	355	+ 68	128	-
OB/GYN	282	290	+ 8	124	4
Emergency Medicine	168	46	-122	30	-
Preventive Medicine	77	67	- 10	62	15
Physical Medicine	26	27	+ 1	5	1
Anesthesiology	137	128	- 9	62	5
Nuclear Medicine	45	30	- 15	9	-
Pathology	215	230	+ 15	82	-
Radiology	234	217	- 17	111	15
Neurology	80	73	- 7	31	1
Family Practice	802	314	-488	106	1
Other	616[1]	757[2]	+142	61	39
Total	5273	4578	-695	1796	118

Data furnished by Office of Surgeon General, May 1981.

[1] Includes interns, GMO's, dermatologists, flight surgeons, operational medicine (e.g., hospital commanders and others in administrative positions).

[2] Includes flexible interns, operation medicine officers, 548 GMO's and 100 flight surgeons only 18 of whom are board-certified.

Table 17. DISTRIBUTION OF NAVY PHYSICIANS BY SPECIALTY

	Auth.	Active Duty	Shortfall/ Surplus	GME Trainees Mil. Hosp.	GME Trainees Civ. Hosp.
General Internal Medicine	308	438	+130	182	1
Medicine Subspecialties	158	180	+ 22	51	4
General Surgery	272	316	+ 44	128	–
Neurosurgery	28	21	– 7	4	2
Ophthalmology	72	76	+ 4	23	2
Orthopedic Surgery	143	115	– 28	46	2
Other Surgical Subspecialties	216	168	– 48	63	1
Psychiatry	152	149	– 3	51	–
Pediatrics	216	262	+ 46	58	3
OB/GYN	208	190	– 18	77	1
Emergency Medicine	6	9	+ 3	1	3
Preventive Medicine	78	67	– 11	12	6
Physical Medicine	5	6	+ 1	1	–
Anesthesiology	157	140	– 17	51	–
Nuclear Medicine	12	15	+ 3	5	–
Pathology	116	134	+ 18	46	–
Radiology	172	155	– 17	55	3
Neurology	37	34	– 3	9	2
Family Practice	276	262	– 14	119	1
Other	968[1]	895[2]	– 73	56	7
Total	3600	3632	+ 32	1014	38

Data furnished by Office of the Navy Surgeon General, May 1981.

1 Includes 456 GMO's, aviation, submarine and executive medicine, research and dermatology.

2 485 GMOs; balance in aviation, submarine and executive medicine.

Table 18. DISTRIBUTION OF AIR FORCE PHYSICIANS BY SPECIALTY

	Auth.	Active Duty	Shortfall/ Surplus	GME Trainees Mil. Hosp.	GME Trainees Civ. Hosp.
General Internal Medicine	271	302	+ 31	96	0
Medicine Sub-specialties	166	185	+ 19	30	15
General Surgery	302	242	- 60	76	4
Neurosurgery	20	23	+ 3	0	8
Ophthalmology	60	67	+ 7	9	6
Orthopedic Surgery	180	1151	- 65	19	21
Other Surgical Specialties	161	167	+ 6	31	16
Psychiatry	162	130	- 32	27	3
Pediatrics	291	348	+ 57	78	12
OB/GYN	215	218	+ 3	56	5
Emergency Medicine	16	38	+ 22	1	6
Preventive Medicine	11	17	+ 6	2	0
Anesthesiology	75	77	+ 2	21	0
Nuclear Medicine	11	12	+ 1	2	1
Pathology	85	88	+ 3	12	3
Radiology	164	194	+ 30	49	13
Neurology	34	33	- 1	7	1
Family Practice	652	320	-332	123	1
Other	666[1]	865[2]	+199	47	19
Total	3542	3441	-101	686	134

Data furnished by the Office of the Air Force Surgeon General, April 1981

[1] Includes 551 physicians in aerospace medicine, generals, dermatologists and GMOs.

[2] Includes 537 physicians in aerospace medicine, generals, dermatologists and GMOs.

A Look Ahead

The dynamics of the three military physician manpower pools are complex because the number of interacting variables is large. Figure 2 is a schematic diagram of the routes of entry and movement of physicians through the military medical system. It does not show many important factors including the routes among specialty training programs. (Not all trainees complete training in the specialty in which they start; some switch after the first year of GME, some after the second, etc.) Another set of variables is retention or continuation rates of active duty physicians. Continuation rates are defined as the probability that a physician on active duty at the start of a year of service will be on active duty at the end of that year. Four sets of continuation rates are important: (1) the continuation rates during GME training; (2) the rates during the period of obligated service; (3) the rate at the initial decision point--that is, the decision made during the final year of obligated service as to whether to extend the period of service voluntarily for at least another year; and (4) the post initial decision continuation rates, i.e., the probability of extending service for another year of those who have completed at least one year beyond their period of obligated service.

These variables have been incorporated into a physician manpower projection model entitled MEDFORCE developed by Presearch, Inc. for the office of the Assistant Secretary of Defense (Health Affairs). The committee used MEDFORCE to explore how changes in numbers of GME positions in military hospitals would affect the total numbers of physicians on active duty in each of the military services. Specific assumptions were made about accessions of volunteers and HPSP recipients and retention rates of physicians who have completed their obligated service. The analysis deals only with aggregate numbers of physicians because the MEDFORCE model does not disaggregate by specialty.

The first set of analyses used the following baseline assumptions:

1. The number of GME positions in military hospitals will remain constant in DOD hospitals at 1980-81 levels.

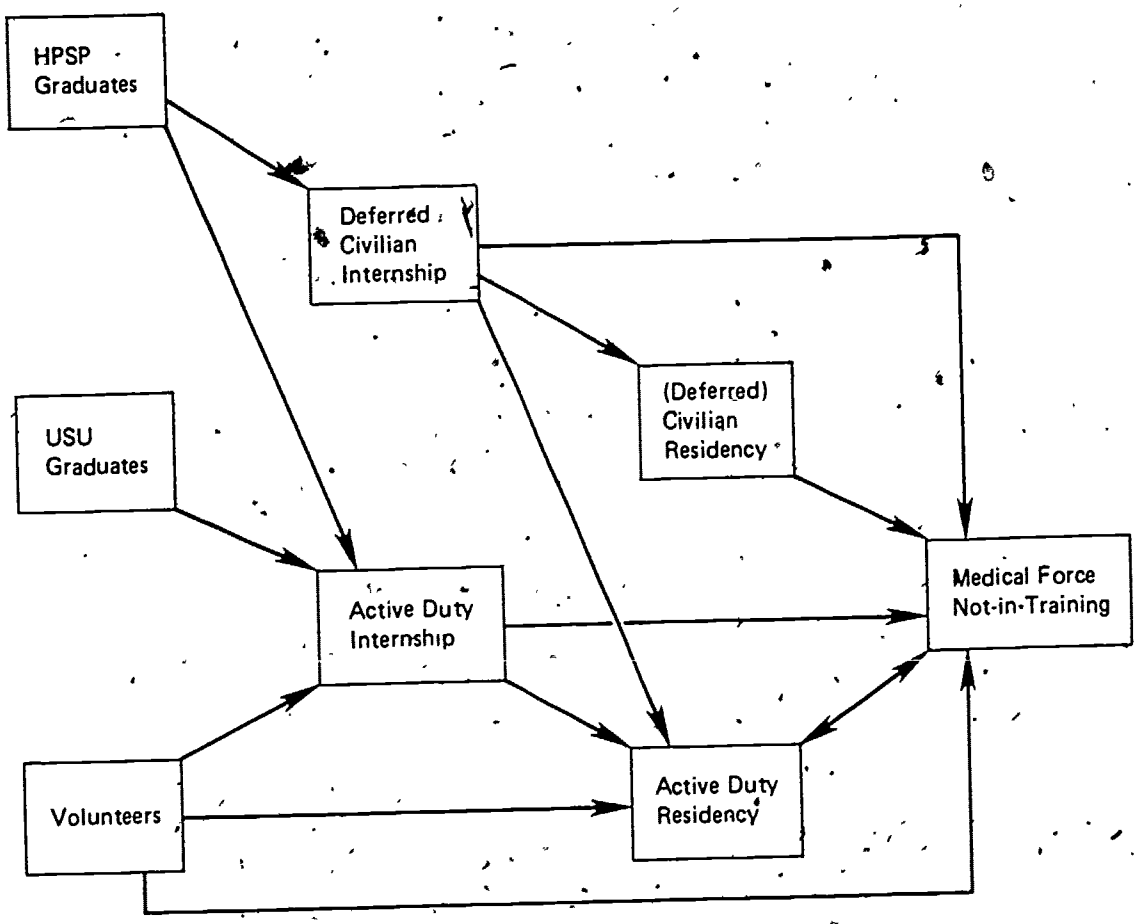
2. The average duration of GME training for HPSP graduates, and the average amount of time owed by HPSP graduates, will remain constant at 1980 levels.

3. The number of HPSP recipients who graduate from medical schools will be as currently projected, and each service will be successful in recruiting its allotted share.

4. Physician recruitment and retention patterns will remain as they were in 1980.

Figure 1: MILITARY PHYSICIAN MANPOWER POOL.

ACCESSION AND TRAINING PATHWAYS REPRESENTED IN MEDFORCE MODEL.



Adapted from information prepared by Presearch, Inc.

5. All USU graduates go into military GME. As many HPSP graduates as can be accommodated in military internship and residency positions are so assigned, the others are allowed to start GME in civilian hospitals. Each service is allowed to assign as many of the latter group to general medical officer positions (after completion of GME-1) as is necessary to fill vacant GMO positions.

Table 19 shows the results of the analysis. It displays the numbers of physicians projected to be on active duty in each military medical department at the end of each fiscal year through 1989. It is evident that with these assumptions only the Army has a problem. The Army would not reach its authorized physician strength until 1988, whereas both the Navy and the Air Force have already reached their authorized strengths. Furthermore, both the Air Force and the Navy would have to take some combination of actions such as reducing new physicians being brought on active duty, reducing the numbers in training status, and probably reducing retention rates, to avoid exceeding their authorized strengths by a considerable margin.

Table 19. EFFECTS ON PHYSICIAN STRENGTH OF BASELINE ASSUMPTIONS

	Army		Navy		Air Force	
	Proj. # of M.D.s	Author. # of M.D.s	Proj. # of M.D.s	Author. # of M.D.s	Proj. # of M.D.s	Author. # of M.D.s
1979[1] (actual)	4287	4402	3559	3594	3282	3554
1980	4519	4402	3678	3594	3569	3554
1981	4654	4576	3778	3594	3811	3492
1982	4813	4750	3806	3594	3811	3495
1983	4816	4924	3911	3594	4040	3496
1984	4820	5098	3593	3594	4048	3503
1985	4980	5273	4042	3594	4120	3503
1986	5057	5273	4121	3594	4218	3503
1987	5183	5273	4219	3594	4288	3503
1988	5350	5273	4304	3594	4340	3503
1989	5459	5273	4367	3594	4399	3503

Source: Presearch, Inc.

[1]At the time these analyses were done, Presearch, Inc. did not have complete data for FY-1980, so the 1979 actual data were used. The model is set up to handle projections for 10 years. The 1980 data in Tables 19-28 are projected, therefore, and may differ slightly from similar data found elsewhere in the report.

The next set of analyses holds assumptions 2 through 5 above constant, but reduces Army and Navy military GME positions in 1985 to 20 percent of authorized physician strength. Air Force military GME positions are held constant at the current amount (20 percent). This analysis is intended to show the effects of limiting GME to approximately 20 percent of the active duty physician force as specified in the DOD directive. Table 20 shows the results. It is evident that the Army would be seriously handicapped by a cutback of this size in its GME programs because it could not achieve its authorized physician strength until about 1991 unless either its retention rates or the numbers of volunteers increased appreciably. The Navy could still maintain its physician strength in excess of authorized strength even with such a cut in GME. (The Air Force data are unchanged from those shown in Table 19.)

Table 20. EFFECTS ON PHYSICIAN STRENGTH OF REDUCED GME PROGRAMS IN ARMY AND NAVY

	Army		Navy	
	Proj. # of M.D.s	Author. # of M.D.s	Proj. # of M.D.s	Author. # of M.D.s
1979(actual)	4287	4402	3559	3594
1980	4513	4402	3639	3594
1981	4641	4576	3704	3594
1982	4766	4750	3683	3594
1983	4720	4924	3735	3594
1984	4657	5098	3727	3594
1985	4704	5273	3713	3594
1986	4697	5273	3761	3594
1987	4765	5273	3830	3594
1988	4893	5273	3900	3594
1989	5017	5273	3945	3594

Source: Presearch, Inc.

Table 21 displays the results of analyses made by holding baseline assumptions 1,2,3 and 5 constant and examining the effects of increasing retention (continuation) rates 20 percent above the baseline (i.e., current) rates.

Table 21. EFFECTS OF 20% INCREASE ABOVE CURRENT RETENTION RATES

	Army		Navy		Air Force	
	Proj. # of M.D.s	Author. # of M.D.s	Proj. # of M.D.s	Author. # of M.D.s	Proj. # of M.D.s	Author. # of M.D.s
1979 (actual)	4402	4287	3559	3594	3282	3554
1980	4402	4608	3705	3594	3634	3554
1981	4822	4576	3832	3594	3942	3492
1982	5044	4750	3885	3594	4170	3495
1983	5735	4924	4012	3594	4317	3496
1984	5216	5098	4082	3594	4408	3503
1985	5440	5273	4187	3594	4543	3503
1986	5571	5273	4287	3594	4704	3503
1987	5743	5273	4398	3594	4831	3503
1988	5969	5273	4498	3594	4940	3503
1989	6122	5273	4576	3594	5058	3503

By increasing the retention rate 20 percent, the Army could reach its authorized physician strength by 1985, three years earlier than in the baseline assumption. The Navy and Air Force would, of course, considerably exceed their authorized strengths.

Table 22 shows the effects of an increase in retention rates of 20 percent while simultaneously assuming that GME in all three services would be reduced to 20 percent of authorized strength by 1985. (Data for the Air Force are not shown in this table because the Air Force military GME is currently about 20 percent of authorized strength.) It is seen that the Army would not be able to reach its authorized strength until 1989, but the Navy would continue to grow well beyond its authorized strength.

Table 22. EFFECTS OF 20% INCREASE IN RETENTION RATES ASSUMING REDUCED GME PROGRAMS

	Army		Navy	
	Proj. # of M.D.s	Auth. # of M.D.s	Proj. # of M.D.s	Auth. # of M.D.s
1979 (actual)	4287	4402	3559	3594
1980	4519	4402	3657	3594
1981	4730	4576	3739	3594
1982	4853	4750	3731	3594
1983	4581	4924	3792	3594
1984	4845	5098	3800	3594
1985	4961	5273	3794	3594
1986	4991	5273	3859	3594
1987	5064	5273	3942	3594
1988	5216	5273	4015	3594
1989	5321	5273	4073	3594

If retention rates were to drop 20 percent and current GME program levels were maintained by all three medical departments, the results would be as shown in Table 23. It is clear that a drop in retention rates would pose very severe problems for all three services even if they maintained their current levels of military GME. All would experience net losses in physicians. The importance of maintaining policies that at least sustain current retention rates is clearly underlined by this illustrative analysis.

Table 23. EFFECTS OF 20% DECREASE IN RETENTION RATES, CURRENT GME PROGRAMS

	Army		Navy		Air Force	
	Proj. # of M.D.s	Auth. # of M.D.s	Proj. # of M.D.s	Auth. # of M.D.s	Proj. # of M.D.s	Auth. # of M.D.s
1979 (actual)	4287	4402	3559	3594	3282	3554
1980	4145	4402	3276	3594	3136	3554
1981	4044	4576	3111	3594	3107	3492
1982	4045	4720	2947	3594	3063	3495
1983	3918	4924	2916	3594	2971	3496
1984	3820	5098	2845	3594	2858	3503
1985	3901	5273	2845	3594	2810	3503
1986	3911	5273	2861	3594	2826	3503
1987	3980	5273	2836	3594	2834	3503
1988	4098	5273	2937	3594	2832	3503
1989	4166	5273	2965	3594	2860	3503

The effects of 20 percent and 50 percent increases in the numbers of fully-trained Army physicians who volunteer for service, assuming current GME levels and all the other baseline assumptions, are shown in Table 24. The effects on the Army are rather modest: with a 20 percent increase in volunteers each year, the Army would achieve its authorized strength by 1987; with a 50 percent increase, by 1985. (The Navy and Air Force have been omitted from this analysis because they would obviously exceed their authorized strengths by a considerable margin.)

Table 24. EFFECTS OF 20% AND 50% INCREASES IN NUMBERS OF FULLY-TRAINED VOLUNTEERS ON PROJECTED NUMBERS OF ACTIVE DUTY PHYSICIANS, GME PROGRAMS AT CURRENT LEVELS

	Army		
	Proj. # of Physicians		Authorized
	20% Incr. in vols.	50% Incr. in vols.	Strength
1979	4287	4287	4402
1980	4513	4513	4402
1981	4681	4576	4576
1982	4872	4984	4750
1983	4905	5064	4924
1984	4924	5112	5098
1985	5095	5309	5273
1986	5180	5412	5273
1987	5318	5567	5273
1988	5490	5752	5273
1989	5607	5879	5273

The effects of 20 percent and 50 percent decreases in the numbers of fully-trained volunteers, other baseline assumptions remaining the same, are shown in Table 25. The Army would not reach its authorized strength until 1990 if its volunteer rate dropped 20 percent below the 1979 level; a 50 percent drop would delay reaching authorized strength until 1992. Neither the Navy nor the Air Force would have a problem even with a 50 percent reduction in volunteers.

TABLE 25. EFFECTS OF 20% and 50% DECREASES IN NUMBERS OF VOLUNTEERS PER YEAR, GME PROGRAMS AT CURRENT LEVELS

	Army			Navy			Air Force		
	Proj. # of M.D.s		Author. Strength	Proj. # of M.D.s		Author. Strength	Proj. # of M.D.s		Author. Strength
	20% Decr. in Volunteers	50% Decr. in Volunteers		20% Decr. in Volunteers	50% Decr. in Volunteers		20% Decr. in Volunteers	50% Decr. in Volunteers	
1979	4287	4287	4402	3559	3559	3594	3282	3282	3554
1980	4513	4513	4402	3639	3568	3594	3522	3449	3554
1981	4602	4544	4576	3704	3565	3594	3719	3576	3492
1982	4719	4607	4750	3704	3498	3594	3836	3636	3495
1983	4687	4527	4924	3789	3530	3594	3880	3637	3496
1984	4666	4487	5098	3811	3507	3594	3869	3590	3503
1985	4809	4596	5273	3889	3543	3594	3917	3609	3503
1986	4868	4637	5273	3955	3577	3594	4001	3662	3503
1987	4984	4736	5273	4037	3631	3594	4054	3690	3503
1988	5139	4878	5273	4114	3680	3594	4087	3700	3503
1989	5240	4969	5273	4164	3714	3594	4133	3726	3503

Table 26. EFFECTS OF 20% AND 50% INCREASE IN NUMBERS OF VOLUNTEERS PER YEAR, GME PROGRAMS AT REDUCED LEVELS

	Army			Navy		
	Proj. # of Physicians		Authorized Strength	Proj. # of Physicians		Authorized Strength
	20% Increase in Volunteers	50% Increase in Volunteers		20% Increase in Volunteers	50% Increase in Volunteers	
1979	4287	4287	4402	3559	3559	3594
1980	4519	4519	4402	3734	3806	3594
1981	4694	4752	4576	3889	4029	3594
1982	4882	4995	4750	3957	4163	3594
1983	4906	5067	4924	4079	4337	3594
1984	4877	5086	5098	4133	4438	3594
1985	4997	5211	5273	4171	4515	3594
1986	5015	5248	5273	4266	4645	3594
1987	5081	5428	5273	4374	4783	3594
1988	5203	5462	5273	4475	4907	3594
1989	5304	5577	5273	4549	5000	3594

Table 27. EFFECTS OF 20% and 50% DECREASES IN ANNUAL NUMBERS OF VOLUNTEERS, GME PROGRAMS AT REDUCED LEVELS

	Army			Navy		
	Proj. # of Physicians		Authorized Strength	Proj. # of Physicians		Authorized Strength
	20% Increase in Volunteers	50% Increase in Volunteers		20% Increase in Volunteers	50% Increase in Volunteers	
1979	4287	4287	4402	3559	3559	3594
1980	4359	4359	4402	3639	3568	3594
1981	4295	4237	4576	3704	3565	3594
1982	4367	4254	4750	3644	3439	3594
1983	4385	4224	4924	3706	3446	3594
1984	4	4171	5098	3700	3395	3594
1985	44	4246	5273	3726	3381	3594
1986	4511	4070	5273	3687	3309	3594
1987	4317	4070	5273	3431	3022	3594
1988	4246	3985	5273	3207	2774	3594
1989	4056	3786	5273	2972	2517	3594

The consequences of the combined effects of decreases in GME programs and increases in volunteers are shown in Table 26. The Army would reach its authorized ceiling in 1988 with a 20 percent increase in volunteers and in 1986 with a 50 percent increase. The Navy would have no problem in maintaining its force at or above ceiling levels. (Neither would the Air Force, because it is already functioning at the 20 percent GME level.)

If, however, there were reductions in the numbers of volunteers as well as reductions in GME, the consequences, as shown in Table 27, are very serious for the Army almost immediately and also would pose a potential problem for the Navy in the mid-to-late 1980s.

Finally, how would the surplus of physicians projected by GMENAC affect the physician recruitment and retention problems of the Army? Table 28 shows the effects of simultaneous increases of 20% in both the numbers of volunteers recruited each year and in the retention rates of Army physicians with the other baseline assumptions obtaining. The Army would attain its authorized ceiling level by 1984 under these assumptions, and by 1985 if only retention rates increased 20 percent.

Table 28. EFFECTS OF SIMULTANEOUS 20% INCREASE IN VOLUNTEERS PER YEAR AND IN RETENTION RATES, GME AT CURRENT LEVELS

	Army	
	Projected No. of Physicians	Authorized Strength
1979	4287	4402
1980	4610	4402
1981	4867	4576
1982	5118	4750
1983	5232	4924
1984	5204	5098
1985	5487	5273
1986	5573	5273
1987	5698	5273
1988	5892	5273
1989	6039	5273

In sum, these illustrative analyses suggest three conclusions:

(1) Unless some events occur to make military service less attractive to physicians than is currently the case--and the GMENAC report suggests that the growing number of civilian physicians is likely to make military service more attractive in the 1980s--the end of the era of military physician shortages is in sight. It appears to be almost at hand for the Navy and the Air Force. The Army still has a problem, but it is likely to disappear in a few years.

(2) Maintaining high levels of military GME will help the Army to reduce the number of years it will take to achieve its authorized level of active duty physicians. Both the Navy and the Air Force may not need to continue maintaining such high levels of GME to assist in maintaining their physician pools at authorized levels.

(3) The total number and distribution of HPSP recipients among the three medical services should be re-examined. The Navy and the Air Force shares probably should be reduced and the Army's increased.

Implications for Military Physician Manpower Policy

The design of the above analyses was based on the committee's initial perception that the central concern of all three medical departments was the shortage of military physicians. All three Surgeons General had emphasized to the committee that every bit of policy leverage they could muster--including the GME programs--was oriented toward maximizing recruitment and retention of military physicians for active duty service.

It is now clear that circumstances that made that view appropriate are changing rapidly. The Navy and the Air Force have almost emerged from the transition era and are entering an era in which alleviating physician shortages will no longer be their central problem. Rather, they must be more concerned about how to maintain a properly-balanced, high quality force of active duty physicians in a civilian environment in which physicians in most specialties will not be in short supply. The Army is likely to enter this new era in a few years and clearly must start to make plans for adjusting its manpower policies and programs accordingly.

From the manpower policy perspective, the problems to be faced in the new era are not only very different from those in the post-draft shortage era, but they are also very different from those that obtained in the draft era (prior to 1973) in two respects: (1) a significant number of new recruits each year will be HPSP and USU graduates without GME training and with substantial periods of obligated service; (2) the increasing physician-population ratios in the civilian sector probably will result in significant increases both in the number of fully-trained civilian physicians who will seek military commissions and in the number of military physicians on active duty who will wish to remain on active duty. The policies and programs affecting recruitment and retention will therefore have to be modified and adjusted so that the numbers of physicians being recruited through the HPSP, USU and volunteer programs, and the size and output of the military GME programs, are compatible with the number of vacancies. Moreover, the policies on assignment, promotion, and career retention must be congruent and fit the circumstances that require a certain number of new physicians to enter, a certain number to leave after completion of obligated service, a certain number to leave after some years of volunteer service but well before retirement eligibility, and some to remain for 20 or more years. Service-specific criteria and procedures will have to be developed, making allowances for the different circumstances affecting each of the specialties. Some critical policy judgements will have to be made. For example, what fraction of the physician force should be made up of career medical officers? How much continuing reliance should be placed on HPSP graduates as compared with recruitment of volunteers, either fully-trained or recent graduates seeking military GME? After how much service should a decision be made as to whether an officer should be retained in the career group, and what criteria and what means should be used to make this decision? What policies should be adopted to determine how many and which physicians should not be invited to remain on active duty after completion of obligated service? How should promotions, variable incentive pay, and assignments be used to support the manpower goals in the steady state situation? These are complex and sensitive questions. It is apparent that advanced planning and management techniques and policies will have to be developed by each of the medical departments to function effectively in the era now beginning.

Some of the findings from the committee's interviews with residents, staff physicians and senior administrators at the 17 hospitals it visited are of interest. For the most part, the respondents shared the perception that the military services are now facing, and will continue to face, serious physician shortages. Their observations about the factors that seem most important for recruitment and retention of military physicians are nonetheless important for each of the medical services to take into account as they start to adjust their physician manpower policies and programs to changing circumstances.

The committee's site visitors found a bimodal distribution of attitudes among military physicians: one modal point represents those who think of themselves as professionals in the armed services; the other, those who identify more with their civilian medical peers. Individuals in the former group are interested in the operational missions of the military and readily accept the discipline required. Often they come from military families or received their pre-medical education at the military academies or were in the Reserve Officers Training Corps (ROTC) during college. These are the physicians who are most likely to make an early career commitment to military medicine.

The other group, those that identify more with the civilian medical community, for the most part entered the military as a consequence of their having received Department of Defense scholarship support for their medical education. They were grateful for the support--most said they could not have completed medical school without it--but viewed their military service simply as an obligation to be fulfilled en route to a civilian medical career. Although these physicians expressed satisfaction with their clinical experience in large medical centers, they seldom saw, or gave much thought to, the direct relevance of their positions to the operational functions of the military. The site visitors were repeatedly made aware of some of the problems of transforming civilians into military physicians. The inherent discipline and, therefore, the perceived rigidity of the military medical system, an organizational characteristic that is required for rapid response to a national emergency, bothers many young residents. They are in a profession that encourages self determination and many of them therefore have a difficult time accepting the way in which the apparently arbitrary decisions of the military bureaucracy can affect their careers. The manifestations of military discipline--dress, rank, assignments made without prior consultation--are often resented by physicians who are trained to use their own medical judgement in life-and-death situations. The site visitors became particularly aware of the problems of orienting physicians into the military system when talking to them about undesirable career paths and assignments that some young physicians were forced to take by their commanding officers.

Dissatisfaction with military medicine would be reduced among scholarship recipients if they were permitted to remain in the large medical centers. However, it is obviously necessary to assign physicians to the smaller medical facilities on military installations or naval ships. The Navy assigns 35 percent of its physicians to operational tours on ships, in dispensaries, or with the Marines or Naval Construction Battalions (Seabees). Approximately 60 percent of the Navy's residents are sent to such operational assignments after completing GME-1. Most are reassigned for specialty training after completing at least one year of duty as a

general medical officer. The Air Force and Army have similar assignment policies, although the proportions of those whose GME programs are interrupted in this way is different for each service. The committee was informed that the Navy instituted this policy partly because it believes an operational assignment prior to residency training increases the probablility that young physicians will remain in the Navy. The site visitors found that doctors who are assigned to military installations seem to develop a better understanding of the readiness mission than those whose experience has been limited to the medical centers. In some cases, the proximity to the operational forces of the armed services contributes to a feeling of esprit de corps among military physicians. A number of them told the site visitors they felt they were part of a team providing medical services to active duty forces and their families, and had, in consequence, become more understanding of the requirements of the military system. Others felt that the military dominance of the line officers over the medical staff had a negative effect on medical officer morale. And some of the physicians practicing on military bases expressed concern about professional isolation. Often there were only one or two physicians in any given specialty, or even a single doctor in an operational facility. This makes it difficult to consult, to participate in clinical conferences, or to take time off. These small facilities are not equipped to deliver complex clinical care so patients requiring specialized care are transferred to the medical centers. As a result many of the young physicians who were assigned to these posts after completing GME were worried about losing some of the clinical competence they recently acquired in their residencies.

Retention of fully trained physicians has been a major problem for the armed services. The Surgeon General of the Army told the committee that 85 percent of Army physicians have had less than 12 years of service. The site visit teams found that the teaching staff at the medical centers frequently were much younger than their counterparts in the civilian sector. In some programs, most of the faculty were still on obligated service. It was evident that most physicians in specialties such as anesthesiology fulfill their obligatory service and then move to the civilian sector.

The site visitors found that approximately half of the physicians who remained in military medicine after their obligated service did so because of the assignments they were offered--primarily teaching positions in one of the large medical centers. Some physicians were encouraged by their ability to do clinical research on a relatively large and well-regulated population. However, the more academically inclined of the military physicians were dissatisfied because they had so little time or financial support for research. On the other hand, the implicit obligation to accept administrative responsibilities with advanced rank served as a deterrent to remaining in the military for some of the physicians interviewed.

Some physicians who remained in the military beyond the initial period of obligation expressed a clear preference for military medical practice over civilian practice. Many told the site visitors that they enjoyed providing clinical care without having to deal with malpractice, office management problems, and other aspects of the business side of private medical practice. Others pointed to their ability to control their working hours, the richness of clinical material, the collegial atmosphere of military medicine, and the opportunity to travel.

The site visitors found that most military physicians believe that career commitments to military service could be increased by a combination of better pay, improved personnel management, and a more supportive work environment, especially additional ancillary personnel and more dependable and up-to-date equipment. Initially, the pay differential between the military and the civilian sectors encourages some individuals to seek military residencies because military physicians in GME assignments receive higher salaries than civilian residents. This allows them to repay debts they incurred during medical school, yet live decently during their residency training. As they move further along in their careers, their military salaries fall below the incomes of their counterparts in civilian practice, a disincentive for retention. In the highly paid specialties (i.e., radiology, anesthesiology, orthopedic surgery) very few currently remain on active duty after serving obligated time, although this may be changing. Many military physicians "moonlight" to supplement their military pay, especially those working in large urban areas. One of the chiefs of service told the site visitors that he encourages "moonlighting" on leave time to get some appreciation of what private practice is like. By the time military physicians reach the peak of their careers professionally, many have been on active duty for a full 20 years and there is a strong financial incentive to retire at half pay and start a second career.

The site visitors were told of many dissatisfactions associated with military medicine or military life in general. Instability of assignments and lack of choice and predictability in career paths were mentioned as strong negatives. Morale also has been damaged by what has been perceived as broken promises about career assignments and promotions and opportunities to attend professional meetings on official travel status. Military physicians in community hospitals frequently complained to the site visitors about poor equipment, overworked and poorly-trained support staff, and feelings of professional isolation.

The site visit teams found that--except for those strongly drawn to teaching--graduate medical education programs apparently are not as important for retention after completion of obligated service as are adequate pay and a good working environment. Some of the suggestions given to the site visitors for improving the lot of

military physicians include:

- differential incentive pay for scarce specialties
- a distinguished physician award, similar to that offered by the V. A.
- sabbatical leave--allowing physicians to work in civilian institutions for a year
- more academic activities in training programs, such as encouraging competition for NIH grants or other outside funding for research
- increase funds to finance attendance at professional meetings
- develop military/civilian shock trauma units to increase interaction between the two sectors.

An Opportunity to Fill the Reserves

As was noted in Chapter 3, the concept of "readiness" involves not only the size and character of the active duty forces, but also the reserves. The status of the reserve physician forces of the three military services is shown in Tables 29-31. It is evident from Table 29 that the Army is very seriously below authorized strength for physicians in its reserve components and National Guard units. Only 27 percent of its authorized positions are filled. The Navy's physician reserves (Table 30) stand at 76 percent of authorized strength, but there are significant shortages in general surgery, orthopedic surgery, anesthesiology and primary care. There are significant shortages in the Air National Guard units where about 36 percent of the positions are unfilled. Overall, the Air Force has filled 77 percent of its authorized reserve physician positions. In all, the Army needs to recruit 3158, the Navy 200, and the Air Force 242 physicians to reach authorized reserve strength.

The possibility of using HPSP recipients to repay some or all of their obligated service in the reserves--serving perhaps three or four years in the reserves in lieu of one year on active duty--seems worthy of serious exploration. The Navy and the Air Force are likely to require fewer new HPSP recipients for their active forces in future years than they are currently programmed to receive. If the law were changed to authorize payback time in the reserves, the Navy and Air Force requirements could be filled very quickly. Indeed, it seems essential to reallocate the HPSP to give the Army a much larger share of the HPSP output to help it achieve its authorized levels of both active duty and reserve physicians. This point is illustrated

Table 29. ARMY RESERVE AND NATIONAL GUARD PHYSICIAN STAFFING FY-1981

	Actual	Authorized	Shortfall
General Int. Med.	200	642	-442
Med. Subspecialties	33	155	-122
General Surgery	252	814	-562
Neurosurgery	12	59	-47
Ophthalmology	20	69	-49
Orthopedic Surgery	51	352	-301
Other Surg. Specialties	56	275	-219
Psychiatry	36	137	-101
Pediatrics	20	36	-16
OB/GYN	18	82	-64
Emergency Medicine	1	--	--
Preventive Medicine	35	100	-65
Physical Medicine & Rehabilitatin	5	24	-19
Anesthesiology	26	131	-105
Nuclear Medicine	1	2	-1
Pathology	27	85	-58
Radiology	31	170	-139
Neurology	5	41	-36
Family Practice	10	--	+10
Gen. Medical Officer	344	1167	-823
Totals	1183	4341	-3158

Source: Office of the Surgeon General - March 1981.

Table 30. NAVY RESERVE PHYSICIAN STAFFING, FY 1981

	Actual	Authorized/ Required	Shortfall/ Surplus
Gen. Internal Med.	64	13	+51
Med. Subspecialties	--	--	--
General Surgery	33	110	-77
Neurosurgery	10	5	+ 5
Ophthalmology	39	5	+34
Orthopedic Surgery	32	58	-26
Other Surg. Specialties	49	11	+38
Psychiatry	35	3	+32
Pediatrics	29	0	+29
OB/GYN	32	0	+32
Emergency Medicine	12	0	+12
Preventive Medicine	13	7	+ 6
Physical Medicine & Rehabilitation	2	0	+ 2
Anesthesiology	18	74	-56
Nuclear Medicine	1	0	+ 1
Pathology	22	0	+22
Radiology	20	4	+16
Neurology	5	0	+ 5
Family Practice	39	0	+39
Gen. Medical Officer	120	110	+10
Dermatologist	8	0	+ 8
Flight Surgeon	9	97	-88
Primary Care Med. Officer	31	326	-295
Totals	623	823	-200

Source: Office of the Surgeon General, April 1981.

Table 31. AIR FORCE RESERVE PHYSICIAN STAFFING MEDICAL MOBILIZATION AUGMENTEES. FY-1981

Specialty	Actual	Authorized	Over/ Shortfall
Staff Clinician	7	7	0
Family Physician	30	30	0
Aerospace Med. Physician	22	22	0
Pediatrician	13	13	0
Internist	15	15	0
Emergency Physician	1	1	0
Surgeon	26	26	0
Urology	3	3	0
Ophthalmology	10	10	0
Otorhinolaryngology	2	2	0
Orthopedic Surgery	11	11	0
OB/GYN	9	9	0
Pathology	8	8	0
Diagnostic Radiology	13	13	0
Dermatology	2	2	0
Anesthesiology	3	3	0
Neurology	1	1	0
Psychiatry	15	15	0
Unspecified Specialty Authorizations	0	66	-66
Totals	191	257	-66

AIR FORCE RESERVE UNITS PHYSICIAN STAFFING

Family Physician	37	10	+27
Aerospace Med. Physician	164	183	-19
Internist	26	10	+16
Surgeon	26	29	-3
Orthopedic Surgeon	12	20	-8
Totals	265	252	+13

AIR NATIONAL GUARD UNITS PHYSICIAN STAFFING

Family Physician	70	167	-98
Aerospace Med. Physician	235	286	-51
Internist	1	0	+ 1
Surgeon	10	21	-11
Orthopedic Surgeon	2	20	-18
Totals	318	494	-176

Source: Office of Surgeon General, USAF, - February 1981

by Table 32 which shows, assuming the baseline assumptions (p. 52) obtain, how many HPSP graduates could be available to each of the services to divert to the reserves because they would be in excess of the number needed to maintain authorized active duty strength.

Table 32. POTENTIAL AVAILABILITY OF HPSP GRADUATES FOR RESERVES

	Army	Navy	Air Force
1981	0	100	150
1982	0	30	150
1983	0	120	150
1984	0	110	140
1985	0	170	150
1986	0	130	150
1987	[illegible]	200	150
1988	60	190	150
1989	120	210	150

Source: Presearch, Inc.

After two or three years, it is evident that both the Navy and the Air Force will have far more HPSP recipients becoming available for service each year than they will be able to assign either to active duty or reserve status at present authorization levels. At the same time, the Army's needs for additional physicians will still be substantial, at least in the reserves. Authorization of cross-service transfers to permit HPSP recipients to be required to serve obligatory service in the reserves of a military service other than the one they signed up for, may be a desirable feature in legislation authorizing such a program.

CHAPTER 5

GRADUATE MEDICAL EDUCATION AND MILITARY MEDICINE

Scope of Military GME

The growth in military GME programs since 1965 is summarized in Table 33. In 1970, before the end of the draft and during the Viet Nam conflict, there were 14,968 physicians on active duty in all three services, 2028 of whom (13.5 percent), were GME trainees in military hospitals. By 1980, the total number on active duty was 11,651, of which 3522 (30.2 percent) were military GME trainees. The change in the proportion of active duty physicians who are interns, residents or fellow in military hospitals was particularly large for the Army, where it went from 14 percent in 1970 to 39% in 1980. The comparable proportions in the Navy went from 17 percent to 30 percent and in the Air Force from 9 percent to 19 percent. All three services also send some active duty physicians to civilian GME programs. As shown in Tables, 16, 17 and 18, during fiscal year 1981, the Army is sponsoring 118 medical officers (6 percent of its GME trainees) in civilian GME programs, the Navy 38 (4 percent of its GME trainees) and the Air Force 134 (16 percent of its GME trainees).

The distribution of military GME programs by specialty is shown in Table 34. The Army operates 53 percent of the 243 GME programs in military hospitals and has 51 percent of the 3,522 GME trainees. The Navy has 28 percent of the programs and 31 percent of the trainees. The Air Force has 19 percent of the programs and 18 percent of the trainees. The differences are, of course, a reflection of the differences in size and structure of each military medical department and of the facilities each has available.

Table [illegible] shows how the relative distribution of GME positions among groups of specialties differs among the three services. The problems (and opportunities) associated with distributing resources in peacetime between the "readiness" and the "beneficiary" missions is illustrated by these data. The relatively major emphasis given to training in pediatrics, Ob-Gyn, and family practice by the Air Force, which accounts for 37 percent of its GME positions--in contrast to

Table 33. GRADUATE MEDICAL EDUCATION IN MILITARY HOSPITALS, 1965-1980

	1965	1970	1975	1980
ARMY				
Total[1] GME Trainees in Military Hospitals	770	953	1132	1796
Total Active Duty Physicians	4655	6830	4482	4578
GME Trainees as % of Total Active Duty Physicians	16.5	14.0	25.3	39.2
NAVY				
Total[1] GME Trainees in Military Hospitals	N.A.	722	934	1082
Total Active Duty Physicians	N.A.	4144[2]	3391	3632
GME Trainees as % of Total Active Duty Physicians	N.A.	17.4	27.5	29.8
AIR FORCE				
Total[1] GME Trainees in Military Hospitals	288	353	532	644
Total Active Duty Physicians	3649	3994	3251	3441
GME Trainees as % of Total Active Duty Physicians	7.9	8.8	16.4	18.7

Source: Offices of the Surgeons General.
[1] Includes interns, residents & fellows.
[2] Average strength, 1969-1973. From Table 1.

Table 34. GME* PROGRAMS IN MILITARY HOSPITALS, 1980-81

	ARMY		NAVY		AIR FORCE		DOD TOTAL	
	Programs	Positions	Programs	Positions	Programs	Positions	Programs	Positions
Gen. Internal Medicine	12	269	4	191	4	106	20	566
Medical Subspecialties	25	251	4	60	7	21	36	332
Gen. Surgery	8	147	4	132	4	66	16	345
Neurosurgery	1	9	1	4	-	-	2	13
Ophthalmology	5	36	3	27	1	7	9	70
Orthopedics	7	78	4	48	1	16	12	142
Other Subspecialties	13	107	12	74	4	24	29	205
Psychiatry	4	88	4	60	2	30	10	178
Pediatrics	7	128	4	58	4	69	15	255
OB/GYN	7	124	4	74	4	50	15	248
Emergency Med.	3	30	-	-	-	-	3	30
Anesthesiology	3	62	4	48	1	24	8	134
Nuclear Med.	2	9	2	6	1	1	5	16
Pathology	8	82	4	48	1	10	13	140
Radiology	5	111	3	62	3	54	11	227
Neurology	2	31	3	9	1	16	6	56
Family Practice	6	106	5	148	5	119	16	373
Other	10	128	3	33	4	31	17	192
Total	128	1796	68	1082	47	644	243	3522

* Includes interns, residents and fellows.
Data furnished by the Offices of the Surgeons General.

Table 35. DISTRIBUTION OF MILITARY GME POSITIONS BY SPECIALTY, 1980-81

	Army		Navy		Air Force		DOD	
	No. of GME Positions	%	No. of GME Positions	%	No. of GME Positions	%	No. of GME Positions	%
Medicine & Medical Specialties	520	29	251	23	127	20	898	25
Surgery and Surgical Specialties	377	21	285	26	113	17	775	22
Primary Care Specialties* (Beneficiary-Oriented)	358	20	280	26	238	37	876	25
Other	541	30	266	25	166	26	973	28
Totals	1897	100	1082	100	644	100	3522	100

*Pediatrics, OB-GYN, Family Practice

the Army's 20 percent and the Navy's 26 percent--presumably is more an indication of the facilities and resources (including patients and staff) available for expanding GME rather than an indication of mission and specialty priorities. The Surgeons General have informed the committee that physicians with these primary care specialties can serve effectively in wartime and that in peacetime they are very much needed. The committee believes that as the military medical departments begin to emerge from the physician shortage era, planning for long-term "steady-state" military GME should consider the balance and training priorities among the specialties.

The role of military GME in the context of total national GME is becoming more important. In 1970, when military GME positions totalled 2028, they represented about 3 percent of the total accredited 61,468 GME positions available throughout the country. In 1980, the 3522 military GME positions constitute 5 percent of the total of 70,672 national GME positions. Even more significant is that in 1970 there were 1.8 first year GME positions for each American medical school graduate. But in 1980 there were only 1.2 first year GME positions per U.S. medical school graduate.[1] Clearly, the relative importance of the military GME programs in relation to the civilian programs has increased. Moreover, with their current major dependence on the HPSP programs for recruiting new physicians, the military medical departments have to be aware of changing GME programs in the civilian sector. The committee notes that the pressures to reduce GME positions in civilian hospitals appear to be strong: the rapid growth in the proportion of acute care hospital beds that are owned by private for-profit hospital chains that do not sponsor GME programs, the hospital cost containment pressures being exerted on teaching hospitals by third party payers, and the concerns of the specialty boards about producing too many specialists, particularly in light of the GMENAC report, are likely to have the effect of reducing the number of programs and residents by imposing tougher standards for accreditation. If these trends continue, it is entirely possible--unless some form of governmental or coordinated professional intervention occurs--that in a few years there may not be enough GME positions to accommodate all U. S. medical school graduates. (The committee is not predicting this will happen; it is merely noting that it could happen.) Such a development would have major significance for the military medical departments. They will have to make carefully planned, long-term policy decisions on the amount of GME they will wish to sponsor both in military hospitals and in civilian hospitals (where they may have to pay the salaries of the trainees to secure their positions). The policy and planning consequences of these trends and potential developments for the military medical departments merit careful attention by DOD.

GME programs are as important for their process effects as for their output. The process of military GME affects:

- o both the quality and the quantity of patient care in the hospitals in which such programs are operating
- o the number and quality of physicians assigned to the medical centers as GME trainees and teaching staff
- o the attitudes toward, and understanding of, military medicine by the GME trainees.

The output of military GME training is important both for the numbers and quality of specialists produced and available for field assignments, and for the fraction of the output oriented toward career commitments in military medicine.

The relative importance of military GME as a tool for achieving physician manpower goals has varied during the two eras that have been experienced since World War II, and the new era into which the medical departments are now moving. During the draft era the quantitative effects of GME were relatively unimportant, but the qualitative aspects were very important for two reasons:

(1) To assure that the quality of medical care continues to meet professional standards. Medicine is a dynamic, technology-based profession, the practice of which is being continuously modified by the new knowledge and new technology being produced by a vast civilian biomedical research and development enterprise. It is essential for the "readiness" mission that the military medical departments practice high quality, technologically up-to-date medicine in peacetime. The operation in military medical centers of accredited GME programs provides an institutional mechanism for making this both feasible and necessary. The reason is that the GME accreditation process, to assure adherence to the educational standards set by the specialty boards, exerts strong pressures on the military to keep their medical department technology current (because new residents must be trained to use the latest diagnostic and therapeutic technologies), to provide competent patient care as assessed by the ACGME applying current civilian standards, and to retain as clinical faculty adequate numbers of well-qualified staff physicians who are generally interested in maintaining linkages to academic medical centers where the interrelation of research, patient care, and education keep both faculty and students aware of the shifting frontiers of biomedical science. The committee is convinced, on the basis of its visits to 17 military hospitals, that the GME programs do exert a powerful positive affect on the quality of military

medicine. This is observable not only at the medical centers, but also throughout the system.

(2) To orient young physicians to military medicine. A majority of the medical officers who make career commitments to military medicine are drawn from those who did their specialty training in military hospitals.

After the draft ended, and the military were faced with serious shortages, the quantitative concerns became dominant because the GME programs were used as a tool to help increase the total number of physicians (including GME trainees) in uniform, as well as to help retain experienced physicians as long as possible by giving them teaching staff appointments. Maximizing the output of trained specialists--especially in such fields as anesthesiology, radiology, and many of the surgical specialties--also was important.

In the physician surplus era into which the military are now--or will soon be--moving, concerns for both quality and for achieving optimal quantity levels will become important. The quantitative concerns will be to adjust the size of the enterprise so that the output each year will not exceed the number of vacancies for staff physicians in each of the specialties. As explained below, determining the appropriate size of the GME programs will be part of a larger requirement for promulgating simultaneously a number of interrelated policies needed to manage the physician manpower pools effectively.

Quality and Capacity of Military GME Programs

Each military medical department anticipates that in wartime it should be prepared to deal with large numbers of patients with traumatic injuries or massive exposure to toxins or infectious agents. The training that young physicians receive in peacetime in military medical facilities is intended to assure that the physicians in the medical departments have the necessary military and medical skills to provide such service. Although the medical centers are aware that the purpose of the residency programs is to train physicians to support the operational missions of the armed services, in fact the clinical care aspect of the training programs in military hospitals in peacetime is indistinguishable from that being provided to their counterparts in civilian hospitals. The main difference between residency programs in military hospitals and those found in civilian hospitals is that the Department of Defense programs orient the residents to the military system. The site visitors were told that new military physicians trained in the civilian sector perform inefficiently during their first few months of active duty when learning how to function in a military organization. It was said that physicians who received their graduate medical education in the

military can walk into a military hospital and perform immediately since they are familiar with the language, the administrative environment and procedures, and the jobs performed by medical corpsmen. This could be important when military doctors are called to active duty in a national emergency.

All residency training programs visited by the committee were approved by the Liaison Committee on Graduate Medical Education (now the ACGME) so that--except for four programs (of a total of 243) on probationary status--the programs at least met the minimum standards for accreditation. Most of the programs appear to be providing good clinical training and, on the whole, the residents appeared to be satisfied with the programs in which they are enrolled, though a number remarked on their lack of opportunity to engage in research. The residents seemed to display a generally high level of clinical confidence. Their competence is documented by their adequate performance on the Specialty Board examinations.

In studying the residency review committee reports, an increased need for staff supervision was mentioned in a number of programs. These findings were confirmed by the site visit teams. It was observed that in some programs the ratio of faculty to trainees is on the borderline of acceptability, both in numbers and in depth of experience; additional senior staff was needed to strengthen them. Some of the reviewers thought that the residents had too much independence and needed more direct supervision, especially when learning surgical techniques. Several of the site visitors suggested that some of the residency programs should include more didactic conferences and should require the residents to engage in more scholarly activities.

Another area of concern of both the site visit teams and the Residency Review Committees was the amount of clinical experience available to the residents. Certain residency programs rely very heavily on their affiliations with other hospitals for clinical experience. Most frequently, it is the specialized surgical training programs where this is the case. Consolidation of some of these programs into one regional military medical center open to residents from all three military services was suggested by some of the site visitors as a means of strengthening borderline residencies, eliminating wasteful duplication of facilities, and improving the quality of care on these services. In other programs, the residents could be better utilized if there were adequate equipment and support personnel available. The site visitors were told that military physicians spend a lot of time providing services that ancillary personnel perform in the civilian sector.

A number of the site visit teams felt that changes in the practice patterns of military medicine had the potential to disrupt the capacity for training at some of the less utilized facilities. For instance, one program was having trouble sustaining the patient

load to support training programs in pediatrics, obstetrics, internal medicine and family practice. The establishment of family practice panels had drawn ten percent of the patient load away from the other three services. In the future, if the option to enroll in a health maintenance organization proves popular with CHAMPUS beneficiaries, it has the potential of seriously reducing patients needed for training purposes at some of the major medical centers and, therefore, of reducing or eliminating some of the GME programs at those centers.

In sum, the committee believes on the basis of its visits to nine medical centers, that all three medical departments probably have expanded their GME programs to their maximum capacity or even slightly in excess of maximum capacity. The problem of identifying those programs that have been expanded too far, or that are borderline as far as quality goes, is one that each of the military medical departments should address in a systematic way. The committee believes it is important for each medical department to develop internal procedures to review the quality of the programs on a regular basis. Such reviews should assess the resources available for GME including the scope and volume of patient services, educational resources, and the adequacy of the teaching staff. These reviews should involve expert consultants and should be conducted in addition to the periodic accreditation reviews by the ACGME. When resources for a program are found to be inadequate and cannot be brought to the needed level, the program should be reduced in size, phased out, or consolidated with a program at another medical center.

Optimal Size of GME Programs

The purposes of military GME programs have differed in the two post World War II eras of military medicine because the eras differed in one major circumstance: the ability of the military medical departments to recruit the numbers of physicians they needed. During the draft era, when the Berry Plan provided the military with all the trained specialists they needed, military GME was maintained at moderate levels because there was no need to maximize the quantitative effects of either the process or the output aspects of GME. But, as discussed earlier, the end of the draft impelled each of the military medical departments to turn to the GME programs to provide as much additional leverage as possible--in conjunction with the HPSP--for recruiting and retaining physicians on active duty.

Thus, from the standpoint of the missions of the military medical departments, the optimal (i.e., the most appropriate) size of the GME program is a function of the availability of the numbers and kinds of military physicians needed. When there are more than enough military

physicians available, the optimal size could be as small as the minimum size judged to be necessary to sustain high quality patient care. When there are persistent shortages of physicians, the optimal size of the GME program is the maximum consistent with resource availability and maintenance of high quality educational programs.

The committee considers that each of the military medical departments acted reasonably and appropriately in maximizing military GME during a period of persistent shortages of military physicians. Under the circumstances that have obtained since 1973, maximal GME (consistent with maintenance of high quality programs) is the optimal size to help approach and maintain the authorized levels of physician staffing considered necessary for the "readiness" mission.

Three caveats are necessary: (1) special efforts appear to be necessary to avoid exceeding maximum capacity consistent with quality, (2) the balance among specialties may require attention because the shortages in some specialties are likely to disappear sooner than in others, and (3) advance planning for reducing GME programs must be undertaken to adjust smoothly to reduced size of GME programs required in a new "steady-state" era in which the military no longer will be faced with shortages of physicians.

On the condition that these caveats be observed and acted on, the committee believes it would be appropriate for the Army to maintain its military GME programs at maximal size until it reaches its authorized active duty strength and has made substantial progress in filling its vacancies for reserve physicians. It could then begin scaling down its GME programs to the much smaller size that would be compatible with the requirements for maintaining high quality active duty and reserve forces at authorized strengths.

The circumstances of the Navy and the Air Force are such that planning for the approaching physician surplus [illegible]a should be undertaken on a priority basis. Although neither service has reached the point that physician shortages are no longer a matter of concern--both medical departments still assign to patient care large numbers of general medical officers and flight surgeons who have not completed residency training--it seems clear that they are rapidly approaching a time when a shortage of physicians will no longer be the problem. Any reduction of their GME programs should be planned so that the reduced outputs for each specialty will be compatible with a situation in which the sizes of the career and non-career pools will have been pre-determined and the policies, mechanisms, and criteria governing promotions and assignments also will have been adjusted appropriately to the new circumstances.

The committee sees no basis for assuming that it would be appropriate to require all three medical departments to operate with the same proportion of their active duty medical officers in GME status. The pertinent circumstances of each department are

different. Each has a different amount, type and distribution of patient care facilities suitable for conducting GME programs and each has very different requirements for operational assignments for its physicians. The committee believes, however, that it will be very important for the Department of Defense to require that each department develop a set of planning criteria and personnel policies--as well as GME program sizes--that are appropriate for the forthcoming era of military medicine and that are based on appropriate and explicit assumptions that are consistent among the services and with overall DOD policy.

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Appendix B

INTERVIEW GUIDE
for
IOM SITE VISITORS

Interns, Residents, Fellows at Military Hospitals

1. Name _____
2. Specialty of Residency _____
3. Year of Training _____
4. Medical School attended (dates) _____
5. How recruited into military service _____
6. Date of enlistment _____
7. Amount of obligated time _____
8. Marital status _____
9. Number of dependents _____
10. Why did you choose military GME? _____
11. Does this residency meet your expectations? Why? _____
12. Do you feel that there is a fair mix between providing medical services and medical education in this residency program? _____
13. What billets would you like to be assigned to? Why? _____

14. Do you plan to remain past obligated service?

15. What are your professional plans?

16. What is (or is not) desirable about a career in military medicine?

17. Expected date of separation?

18. In your opinion, what are the most undesirable billets?

19. How does the assignment of these billets affect the decision to remain in the military?

20. When do you expect to leave military service?

Appendix C

INTERVIEW GUIDE
for
IOM SITE VISITORS

Staff Physicians at Military Hospitals

1. Name _____
2. Specialty _____
3. Length of Service _____
4. Grade or Civil Service _____
5. How recruited into military _____
6. Medical school attended _____
7. Location of GME _____
8. Amount of obligated time _____
9. Marital status _____
10. Number of dependents _____
11. Chronological list of billets _____
12. Why did you choose a career in military medicine? _____

13. What are your principle responsibilities?

14. Are there any outstanding institutional problems that hinder your ability to carry out your duties?

15. How is the institutional morale?

16. Describe the reliance on affiliations for teaching staff. Clinical material?

17. What kind of responsibility does the medical staff take for delivery of care in satellite units?