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ABSTRACT

This background paper, prepared by two members of the Institute of Medicine's Committee on Strengthening the Geriatric Content of Medical Education, addresses the progress made in physicians' geriatric and gerontological education. The report appears in six chapters. After a brief introduction on health care reform and medical education, geriatric medicine and geriatricians are discussed in chapter 2. Some of the topics examined here include the historical development of geriatrics, physician certification, and the utilization and financing of health services. Chapter 3 analyzes past efforts to develop geriatrics and explores increases in geriatric faculty, geriatric fellowship programs and residencies, continuing medical education, and obstacles to the development of academic geriatrics. Chapter 4 assesses the demand for geriatricians and faculty, while in chapter 5, some strategies to strengthen physicians' geriatrics training are presented. Some of these strategies include revised financial policies, the revamping of service delivery, the strengthening of faculty development and academic programs, and recruiting and marketing ideas. The last chapter comments briefly on the 1993 Institute of Medicine Report. The recommendations made in the above report were grouped into five categories: (1) improved education in geriatrics; (2) leadership centers; (3) enhanced attractiveness of geriatrics; (4) revision in payment policies; and (5) research support. (RJM)

INSTITUTE OF MEDICINE

Training Physicians to Care for Older Americans: Progress, Obstacles, and Future Directions

1994

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David B. Reuben and John C. Beck

A Background Paper Prepared for the Committee on Strengthening the Geriatric Content of Medical Education

Division of Health Care Services

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Foreword

In December 1993, the Institute of Medicine (IOM) released the report *Strengthening Training in Geriatrics for Physicians*, which was the product of a nine-member Committee on Strengthening the Geriatric Content of Medical Training. The work of that committee was enhanced by a background paper authored by committee member David B. Reuben and John C. Beck. Their paper, *Training Physicians to Care for Older Americans: Progress, Obstacles, and Future Directions*, is published in this volume.

In this paper the authors address the progress in geriatric and gerontological education that has been made throughout the educational continuum for physicians. The interpretations and conclusions expressed are their own, and do not necessarily reflect the views of the IOM Council, the committee, or IOM staff. Because this publication postdates the release of *Strengthening Training in Geriatrics for Physicians*, the authors have added a chapter that summarizes the committee's recommendations found in that report.

The IOM committee's work and the publication of both its report and this background paper were supported by The John A. Hartford Foundation. We are particularly grateful to the Foundation's senior program officer, Donna Regenstreif, and program officer. Laura Robbins, for the encouragement they provided for publishing the paper. In addition, Mary Jay Ball, IOM project assistant, played an essential role in preparing this manuscript for publication: we appreciate her quality work.

John A. Benson. Jr., *Chair*
Committee on Strengthening the
Geriatric Content of Medical Training

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Introduction

As the people born during the baby boom (about 76 million people born between 1946 and 1964) get older, rapid growth in the numbers of older people requiring a constellation of health care services will occur, but all health professionals are ill prepared to provide those services. Projections of the U.S. Bureau of the Census, using a middle level mortality assumption, estimate a more than doubling of the number of individuals age 65 or older by 2050 (30 million in 1989 to 68 million in 2050) (U.S. Bureau of the Census, 1989); and suggest an increase of from 1.3 million to 4.5 million in the number of institutionalized older adults over this same time period. The growth in the population age 85 and older, which represents the nation's most rapidly growing population segment (of which 58 percent were considered disabled in recent national health surveys), will have a dramatic effect on the need for acute-care, home-based care, and institutional long-term-care services.

HEALTH CARE REFORM

Although health care reform has intermittently surfaced on the national political agenda and then disappeared from the scene, its reemergence at this

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time has gained a momentum that may be sustained. The call for reform has been fueled by increases in health care expenditures that are well beyond yearly increases in inflation, the large number of uninsured or underinsured individuals, the fact that Medicare recipients' out-of-pocket expenditures exceed their costs of medical care prior to the institution of Medicare, the prohibitive costs of long-term care, and finally, the fact that U.S. health care spending is far in excess of that of other industrialized nations. Although the plan that will eventually be implemented is not clear at this time, there appears to be consensus on issues such as the need for universal access to care, a meaningful basic benefits package, equity and fairness in the system, and a rational use of the nation's health care resources.

MEDICAL EDUCATION

There is a growing consensus that the medical education system is unable to meet the health care needs of the population in an appropriate way and that reform is overdue (Blendon et al., 1992; Council on Graduate Medical Education, 1992; Josiah Macy, Jr., Foundation, 1992; Levinsky, 1993; Petersdorf, 1993; Physician Payment Review Commission, 1993). The Pew and Josiah Macy, Jr., Foundations, the Council on Graduate Medical Education, the Physician Payment Review Commission, the Association of American Medical Colleges, and others have concluded that there is a major shortage of generalists (general internists, family physicians, and general pediatricians) and an excess number of specialists. This situation has contributed to rising health care costs and poses a major constraint on the provision of affordable and high-quality care to all Americans. In its most recent (fourth) report, the Council on Graduate Medical Education again recommended that funds be increased to improve the capacities of medical schools to train more generalist physicians in the care of elderly people (Council on Graduate Medical Education, 1994). It is upon this substrate that two needs have emerged: physicians with increased knowledge and skills of caring for elderly people and their special problems and an appropriate system of care that can be used to provide improved care for elderly people.

This paper addresses the progress in geriatric and gerontological education that has been made throughout the educational continuum for physicians. It focuses sequentially on undergraduate education; graduate education in family practice, internal medicine, and psychiatry; as well as certain specialties whose primary focus is the elderly, such as orthopedic surgery. Since the bulk of care provided to elderly people today is provided by those already in practice, the paper also considers the more fragmentary data in the area of continuing medical education. The paper specifically addresses the present numbers of academic leaders in the area of geriatric medicine, including clinical geriatricians and those in selected specialties, and presents projections for work force needs over the next several decades.

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Geriatric Medicine and Geriatricians

HISTORICAL DEVELOPMENT AND CURRENT TRENDS IN HEALTH CARE DELIVERY TO OLDER PEOPLE

The evolution of geriatrics began in the late 1800s and early 1900s. The first American textbook on the diseases of old age was published in 1914 by Nascher, who is also credited with having coined the term *geriatrics* (Nascher, 1914). Interest in geriatrics waned during World War I and resurfaced only briefly in the late 1920s and early 1930s. It has been suggested that physicians were reluctant to enter the field of geriatrics because it was considered to be less interesting than other fields and because of the difficulty in developing an economically viable practice. Elderly people were perceived as having less money and more illnesses than the rest of the population.

In the early 1940s, there was an upsurge of public interest in the status of elderly people and the diseases of old age. This led to the formation of the American Geriatrics Society (1942) and the Gerontological Society of America (1945). The American Geriatrics Society is a professional organization and its members primarily comprise physicians, while the Gerontological Society of America was designed to serve a much broader constituency. The founding of the societies was coincidental with the recognition that almost 7 percent of the population was over age 65 in the 1940s as well as the realization that the care of elderly people was a multidisciplinary process. This reemergence of activity was short-lived, and not until the 1960s was there a reawakening of concern for elderly people. The passage of the Amendments to the Social Security Act in 1965, known as Medicare, resulted from this concern. It is curious that in the face of a massive infusion of funds via Medicare for the medical care of elderly

people, there was no professional or academic response to the medical needs of this patient population.

Data on the number and characteristics of physicians with an interest in geriatrics were initially derived by the University of California, Los Angeles, and the RAND Corporation from a 1977 American Medical Association (AMA) survey (Kane et al., 1980a). Only 0.2 percent of responding physicians listed geriatric care as one of three possible areas of emphasis in their practices. Some 629 respondents listed geriatrics as their specialty: as the primary specialty by 371, as the secondary specialty by 187, and as the tertiary specialty by 71. Adjusting for the 88 percent response rate reported by the AMA, this was equivalent to 715 of the then 363,619 physicians in the United States. Physicians who listed geriatrics as their primary specialty most commonly considered their secondary specialty to be general or family practice, internal medicine, psychiatry, general surgery, or orthopedic surgery. The 125 physicians who indicated that geriatrics was their sole interest were older than the other responding physicians, and they were less likely to have specialty certification or to be members of professional societies.

The emerging system of care for older people must be perceived within a larger system of health and welfare services that need to be mobilized and coordinated to bring about an appropriate level of quality care to the elderly. The two extremes of this system are the acute tertiary-care hospital and the home. Between these extremes lie nursing homes, board and care facilities, physicians' offices and ambulatory care clinics, day hospitals, other partial hospitalization arrangements and day-care centers, geriatric evaluation units—both ambulatory and institution-based, geriatric rehabilitation facilities, a variety of congregate housing arrangements that are integrated with the provision of health care, and other alternatives that have yet to be developed.

Several decades ago, discussions about the care of elderly people led to a striking dichotomy of views. The "social model" argued that aging was a social problem with primarily social solutions, such as improved housing, income, and social services. The "medical model" stressed that accurate diagnosis and problem identification with appropriate treatment would lead to improvements in the functional status of elderly people and lessen their dependency. The proponents of the social model clearly felt that the responsibility for the care of elderly people should not rest solely with physicians but, rather, should be directed by more socially oriented professionals who could call in physicians for technical assistance to address strictly medical problems. Clearly, at the time and perhaps even more strongly now, the distinction between the social and medical models might be useful conceptually in highlighting the complex interactions of the multiple problems that beset some elderly individuals. The dichotomy is a counterproductive one, however, and to facilitate the delivery of appropriate care to the elderly, a melding of both approaches is critical.

UTILIZING AND FINANCING HEALTH SERVICES

With the greater prevalence of chronic conditions in older people, it is not surprising that they use medical personnel and facilities more frequently than the younger cohorts do (Aging America: Trends and Projections, 1991). On average, people over age 65 visit a physician nine times a year, whereas the average for the general population is five visits a year. They are hospitalized over three times as often as the younger population, their hospital stays are 50 percent longer, and they use twice as many prescription drugs. Health care utilization is greatest in the last year of life and among those who are over age 80. Those over age 85 have a threefold greater risk of losing their independence, seven times the chance of entering a nursing home, and two and a half times the risk of dying than people 65 to 74 years of age.

The use of hospitals by older people, as measured by the number and rate of hospital discharges, rose steadily between 1965 and 1983 but has declined steadily since then. Average hospital length of stay has also been declining until recently. This indicator fell from 14.2 days per stay in 1968 to 8.5 days in 1986, but it then rose to 8.9 days in 1988. In 1987, people over age 65, then representing 12 percent of the population, accounted for 31 percent of all hospital discharges and 42 percent of all short-stay hospital days of care. The population age 75 and over (5 percent of the population in 1987) accounted for 16 percent of all hospital discharges and 23 percent of all hospital days. Most hospital admissions of older people are for acute episodes of chronic conditions.

The demographic changes will create a greater demand for physician care. According to projections based on 1989 physician contact rates and projections for the noninstitutionalized elderly population, the demand for physician contacts will increase by 22 percent (from 259 million to 296 million contacts) by the year 2000 and by 115 percent (to 556 million visits) by 2030.

In addition to physician and hospital services, older individuals use professional dental care, prescription drugs, vision aids, and medical equipment and supplies at higher rates than the rest of the population. Medicare's home health benefit expenditures are one of the fastest-growing components of the Medicare program. In 1989, Medicare's Hospital Insurance paid $2.1 billion for home health care for people over age 65, up from only $437 million in 1980.

Acute-care services are primarily covered by Medicare; only 5.2 percent of acute-care services were not covered in 1989. In addition to Medicare coverage, many older people are also covered under private health insurance, which either is available from their current or former employers or is purchased independently (so-called Medigap insurance). The Medicaid program is directed at low-income people and so also covers low-income elderly people; among older people living in the community in 1989, 6 percent were enrolled in the Medicaid program as well as in Medicare. Medicaid is the primary source of public payment for nursing home care, and the vast majority of the elderly lack both public and

private insurance coverage for long-term care.

In 1987, one third of the country's personal health care expenditures was for people over age 65, and per capita spending for health care for the elderly reached $5,360 in 1987. Of this total, the elderly paid more than one third of the cost directly through direct payments to providers or indirectly through premiums for insurance. The estimated cost of personal health care expenditures for the elderly in 1987 was $162 billion.

Major portions of the health care system in the United States are oriented toward acute illness and the practice of specialty and subspecialty medicine. Although these elements are highly developed and meet some of the health care needs of the elderly, the basic approach does not respond to the regularly expected health care experiences of older people. Many elderly people do not have access to primary medical care services. Individuals requiring multiple types of health care services often find such services disarticulated and in separate sections of their community. Continuity of care for older people is difficult to achieve.

Whereas younger patients with acute illnesses can find health care providers who are interested in their usually straightforward medical problems, elderly patients—with their complex medical, mental health, social, and economic problems—encounter substantial difficulties locating health care providers with the requisite attitudes, interest, knowledge, and skills in geriatric medicine.

For most people over age 65, the Medicare experience has been, on the whole, a positive one. Coverage for acute care services in the hospital has been good; that for physician services has been fair. Major deficiencies relate to costs—both to the individual and to society—and the failure to cover preventive and long-term care. These omissions have an effect on health and contribute both to the ever-increasing fragmentation of services and to the unacceptable rise in costs.

In the future every elderly person should have access to an identifiable source of primary care. Such care should emphasize responsible and continuing surveillance by a primary care practitioner, usually a family physician, general internist, or a nurse practitioner or physician's assistant specially trained to deal with older people. The availability of periodic preventive services, referrals to specialized services, long-term and terminal care, and centralized comprehensive medical records is essential for such primary care.

There appears to be consensus on the view that the care of the elderly population should primarily be the responsibility of appropriately trained primary care physicians. A 1978 Institute of Medicine (IOM) report initially recommended that geriatrics should be developed and recognized within various disciplines in order to advance research and education in geriatrics/gerontology and to train leaders in the field (Institute of Medicine, 1978). This view is still the predominant one. The various disciplines, however, have responded to this recommendation with different levels of enthusiasm (Beck and Vivell, 1984). It

is important to emphasize that since publication of the 1978 report there have been substantial changes: (1) there clearly has been a growing acceptance of geriatrics as a discrete area within medicine that requires special knowledge and skills; (2) there has been increasing financial support for faculty, program development, and research in geriatrics from both the public and private sectors; and (3) there is evidence of increasing interest in geriatric educational programs, although the quantity and quality of that training, especially at the undergraduate and graduate levels, are considered suboptimal.

Reform in health care has focused primarily on cost, quality, and access. The Pew Health Professions Commission was the first to identify an essential element for reforming the health care system that was missing, namely, the education and reeducation of health care professionals (O'Neil, 1993). They emphasized that the skills, attitudes, and values of the nation's 10 million health care workers have a fundamental impact on health care. The kind of care that health professionals provide, how they provide it, what they value, how they interact with patients, how they define quality, and how efficiently they work determine to a great extent the quality, cost, and availability of health care. Thus, the reformation of the health education system is a major foundation of the long-term reform of health care.

Although the future of health care is always perceived dimly, it is reasonably certain that it will be oriented more toward health--stressing injury and disease prevention, health promotion, and elimination of environmental hazards, as well as individual responsibility for health-related behaviors. At the same time, it seems reasonable to predict that the system will be population based and that much activity will be concerned with the community's needs as well as with the needs of the individual patient. Consumer participation in health care-related decision-making will clearly accelerate the availability of information on the outcomes of interventions and treatment effectiveness. It can also be reasonably predicted that care will be much more integrated and coordinated, with teams of providers carrying responsibilities quite different from those held by today's providers, who provide care largely on an individual provider-oriented basis. The revolution occurring in the information sciences will also play a prominent role.

Thus, in considering reform of the health and medical education systems, geriatrics emerges as one of the templates for demonstrating many of these new attributes of the health care system.

ROLES OF PHYSICIANS: GENERALISTS AND SPECIALISTS

During the last one to two decades there has been a growing recognition that there is a need for physicians who are better trained to care for the elderly population. There has been less agreement on how this need should be met. In essence, four options have been considered:

1. The 1978 IOM report supported continuation of the heavy reliance on existing physician types—especially primary care providers in internal medicine and general and family practice (Institute of Medicine, 1978). It envisaged more intensive training in geriatrics during medical school and graduate medical education and remedial education in geriatrics through continuing medical education for those already in medical practice. This would require a cadre of academic geriatricians whose sphere of influence would be confined to the academic medical centers. However, it should be pointed out that the training of such a cadre of academicians would also produce a core of practicing geriatricians because experience from multiple fellowship training efforts would suggest a "spillover" rate of 40–50 percent into private practice.

2. A second option was the development of trained geriatricians who would perform both the academic and the practice roles. It was envisaged that they would serve as consultant specialists in the management of complex geriatric problems and, possibly, would also maintain ongoing responsibilities for some subset of older patients.

3. A third approach was an attempt to estimate the need for geriatricians by identifying the areas in which their activities would be focused. In this scenario, a strong emphasis was placed on nursing homes and teaching hospitals for the estimates.

4. Finally, the option of producing a cadre of specialist physicians whose primary role was to look after the elderly just as pediatricians look after children was examined. Clearly, this option was ruled to be not feasible in the work force modeling studies that were done at the time (Kane et al., 1980b).

From a variety of national data sets, it is clear that the bulk of medical care for the elderly age group in the United States is provided by primary care physicians. This was very apparent in an examination of practicing physicians by the University of Southern California's Division of Research in Medical Education (Kane et al., 1980a). It indicated that approximately 80 percent of all visits to physicians by people age 65 or older were made to primary care physicians. Conversely, at that time elderly people made up 30–40 percent of these physicians' practices. From the same data base, it was evident that family and general practitioners provide the largest proportion of non-hospital-based care and that general internists provide the largest fraction of hospital-based care.

CERTIFICATION OF GERIATRICIANS

Beginning in 1988, the American Boards of Internal Medicine and Family Practice jointly offered a certifying examination for a Certificate of Added Qualifications in Geriatric Medicine (CAQGM). Certification is intended to provide a means by which internists and family physicians can obtain formal recognition

of their expertise in geriatric medicine. Physicians have been admitted to the examination through one of four pathways: (1) the completion of 2 years of advanced training in geriatric medicine; (2) the completion of 2 years of advanced fellowship training in general internal medicine, including 1 year of acceptable training in geriatric medicine; (3) certification by the American Board of Internal Medicine in a subspecialty and the completion of advanced training in geriatric medicine; and (4) a clinical practice pathway (available only through the 1994 examination) that allows diplomates who can document at least 4 years of substantial practice experience involving elderly patients to sit for the examination (subspecialty certification has been accepted as the equivalent of 2 years of substantial practice experience) (Steel et al., 1989). During the first year it was offered, 4,282 diplomates sat for the examination and 56 percent passed. Performance on the examination was positively correlated with scores on the general certifying examinations and with training in geriatric medicine (Steel et al., 1989). Of those physicians who passed the examination, 11 percent of internists and 5 percent of family physicians had formal training in geriatrics. Reuben et al. (1990a) surveyed candidates for the first CAQGM examination as well as a comparison group of physicians who had not expressed interest in the examination. The vast majority of physicians who took the examination (92 percent of internists and 84 percent of family practitioners) reported that the care of older persons was a focus of their professional work. However, a substantial minority of those physicians without interest in the examination (39 percent of internists and 42 percent of family practitioners) also stated that the care of older people was a focus of their professional work (Reuben et al., 1990a). The CAQGM examination was offered subsequently in 1990 and 1992 to internists and family physicians and is being offered in 1994. The numbers certified and the number of these who have had formal training are presented in Table 1.

In 1991 the American Board of Neurology and Psychiatry offered its first certifying examination in geriatric psychiatry. To be eligible, an applicant must have completed a minimum 1-year fellowship in geriatric psychiatry, or an applicant may be eligible through a clinical practice pathway (available during the first 5 years) by virtue of spending 25 percent of his or her practice time with geriatric patients. Four hundred ninety psychiatrists were certified in 1991, and an additional 359 were certified in 1992 (Table 1).

REVIEW OF LAST DECADE OF INITIATIVES AND PROGRAMS IN EDUCATION AND TRAINING IN GERIATRIC MEDICINE

During the period from 1981 through 1992,both Federal and private monies have been devoted to geriatrics training (Laura Robbins, The John A. Hartford Foundation, personal communication, 1993). The programs will be described in this section, and the outcomes of those programs will be described in Chapter 3.

TABLE 1 Numbers of Certified Geriatricians[a]

	No. Certified in:				
	1988	1990	1991	1992	Total
Internal medicine	1,645	1,204		1,254	4,103
Formal training	183	178		123	484
Family medicine	753	473		597	1,823
Formal training	43	25		65	133
Psychiatry			490	359	849
Total	2,398	1,677	490	2,210	6,775

[a]The first examination was given in 1988, but none was administered in 1989 or 1993. No examination was given in internal medicine or family medicine in 1991. The first examination was given in psychiatry in 1991.

Federal support has come from the National Institute on Aging (NIA), the National Institute of Mental Health (NIMH), the Bureau of Health Professions, and the U.S. Department of Veterans Affairs (DVA). NIA invested approximately $58.8 million in research training during that time period. NIMH has had two programs; the first supports pre- and postdoctoral research training on aging and has supported approximately 25 to 30 trainees per year, and the second is the Career Development Award mechanism for physicians. NIMH estimates that approximately $19 million has been spent on training since 1982. The Bureau of Health Professions has supported the training of 57 two-year fellows between 1989 and 1992 and the 1-year retraining of nine physicians in geriatric medicine during the same time period. The investment was approximately $14.6 million.

DVA has supported training through the Geriatric Research Education and Clinical Centers (GRECCs) and by supporting non-GRECC fellows. Approximately 284 geriatric medicine fellows have been supported since 1982, and total estimated support has been $27.7 million. In 1991, DVA began training geriatric psychiatry fellows at nine sites, and 12 psychiatrists had graduated as of June 1993. In 1993, DVA began training geriatric neurology fellows at four sites; seven neurologists have enrolled, but none has yet graduated from these programs (W. F. Dube, DVA, personal communication, 1993).

The John A. Hartford Foundation began its Aging and Health program in 1983, initially with a strategy to train midcareer faculty to become leaders in academic geriatrics. The program supported 29 scholars over 5 years. Following

the advice of an Institute of Medicine report in 1987, the next phase of the foundation's efforts in this program was the Academic Geriatrics Recruitment Initiative, which concentrated resources in Centers of Excellence in geriatrics. Initially, 10 centers were funded, and this number was expanded to 13 in 1991. The foundation has also supported the cross-training of five other specialists (in anesthesiology and gynecology) in geriatrics. Under the Aging and Health program, commitments to academic geriatrics since 1983 have totaled $10.1 million (Donna Regenstreif, The John A. Hartford Foundation, personal communication, 1993).

Since 1985, the Brookdale Foundation has supported 28 fellows, providing support totaling $5.6 million. The Commonwealth Fund has provided $1.7 million for training in geriatric medicine, but funding was discontinued in 1992. The Dana Foundation no longer funds training in geriatric medicine, but between 1985 and 1991, 27 Dana Foundation fellows were supported at a cost of approximately $2.5 million.

Since 1987, the Merck Foundation has supported two junior faculty per year for geropharmacology or geroepidemiology research. Merck's estimated contribution to geriatric training has been $1.4 million. Each year, Pfizer has supported two 2-year postdoctoral scholarships for geriatric pharmacology research; since 1982, Pfizer has devoted an estimated $1.3 million to this training program. SmithKline awarded a one-time grant of $1.5 million to the University of Pennsylvania for training in geriatric medicine. The Travelers Insurance Companies have awarded a $1.0 million endowment to the University of Connecticut for the Travelers Center on Aging, whose mission includes training.

Over the 10-year period, these governmental and private sources of funding for training in geriatric medicine have contributed a total of $145.2 million.

PROFILES AND INVENTORY OF GERIATRICIANS

A number of studies have attempted to characterize the practices of former geriatrics fellows and geriatrics faculty. According to recent figures provided by the National Study of Internal Medicine Manpower, a considerably higher percentage of graduates of geriatrics fellowship programs enter full-time academic positions compared with graduates of cardiology and pulmonary fellowship programs (Table 2). Siu et al. (1989) surveyed graduates of training programs in geriatric medicine and geropsychiatry who had completed training as of July 1, 1986. That study revealed that the typical alumnus of fellowship training in geriatric medicine is an internist who spends roughly half of his or her time on direct patient care and about one-half of a day a week each on research and on teaching, with most of the patients being seen in an ambulatory care setting or in a hospital. A substantial percentage of graduates in each specialty reported that they spent more than half of their time in direct patient care (44

percent of the geriatric medicine graduates and 39 percent of geropsychiatry graduates). Medical school appointments were held by 69 percent of geriatric medicine graduates and 83 percent of the geropsychiatry graduates. Only 6.7 percent of geriatric medicine graduates and 3.3 percent of geropsychiatry graduates spent more than 50 percent of their time in research. The limited number of publications by faculty geriatricians was similar to that by faculty in general internal medicine programs (who averaged 1.3 papers annually). The problems that confront faculty in these two specialty areas with respect to their progress in academe seem somewhat similar. The low publication rate among the graduates surveyed also suggests that scholarly research activities might not have been optimally pursued during their training.

TABLE 2 Activities of 1991–1992 Graduates of Geriatrics, Cardiology, and Pulmonary Fellowship Programs[a]

Activity in the Next Year	Percentage		
	Geriatrics Fellows	Cardiology Fellows	Pulmonary Fellows
Continued training	15	16	15
Full-time academic position	37	22	25
Full-time practice			
Outside hospital	27	48	44
Hospital position	12	5	7
Other	10	8	8

[a]Data are based on National Study of Internal Medicine Manpower Study data (Kohrman et al., in press). Totals may not add up to 100 percent because of rounding.

On the basis of the results of that survey, physicians who had completed fellowships in geriatrics appeared to be involved in providing interdisciplinary services (involving health professionals other than physicians) to patients older than those seen by other types of primary care physicians. Whereas patients over age 65 account for approximately one third of office visits to internists, the geriatricians in the survey reported that people over age 75 alone accounted for 45 percent of their patients. Not surprisingly, they also reported spending more

time on each patient visit. Over half of the formally trained geriatricians reported that they spent more then 40 minutes on each new patient. This is in comparison with a reported 28 minutes for internists and 17 minutes for family physicians seeing new patients over age 65 (Radecki et al., 1988). Assuming that there are no differences in efficiency, this would suggest either that the geriatrician's patients are more complex or that the geriatrician is providing a different type of clinical service. Both of these possibilities are supported by the fact that geriatricians reported in the survey that they use interdisciplinary services extensively.

Of those who responded to the survey, 93 percent were either satisfied or very satisfied with their decision to pursue a career in geriatrics. Greater satisfaction with geriatrics was reported by those physicians whose current activities most closely resembled the model advanced by the professional leaders in the field (i.e., an academic leadership role). Characteristics that were independently predictive of satisfaction included practices in which more than 50 percent of the patients were over age 75, practices in which more than 50 percent of the patients were prepaid, practices in which the geriatrician accepted patients through Medicare assignment, the geriatrician had a role as a clinician-researcher, and the geriatrician had a medical school appointment (Siu and Beck, 1990). They expressed the least satisfaction with resource-related issues. Their responses indicated that they were relatively dissatisfied with their work force and personnel resources and their abilities to meet the complex needs of elderly patients. Similarly, they reported low levels of satisfaction with their own salaries and incomes. The relationship between lower income (the rule among geriatricians) and professional satisfaction has been reported by others (Kravitz et al., 1990). These frustrations with resources were not surprising given the limited reimbursements available for cognitive evaluation and management services of elderly people.

Barker and Podgorski (1991) reported somewhat different figures on the basis of a survey of physicians who completed geriatric fellowships from 1980 to 1988. More than 60 percent reported currently active participation in research, and 85 percent reported that they did some teaching in geriatric medicine.

A nationwide survey of geriatrics faculty in five specialties (internal medicine, family practice, neurology, physical medicine and rehabilitation, and psychiatry) in 1989 indicated that a minority (46 percent of internist faculty and 38 percent of family practice faculty) had received formal training in geriatric medicine. These faculty in geriatric medicine spent their professional time teaching, primarily in association with patient care delivery (32 percent across all specialties), research (13 percent), and administration (8 percent). Of particular note, 30 percent of the time of geriatrician faculty was spent providing nonteaching patient care or care to people younger than age 65 (Reuben et al., 1991).

3

Analysis of Effectiveness of Past Efforts to Build Geriatrics

INCREASE IN NUMBER OF GERIATRICIANS

As reported in Table 1, the number of certified geriatricians in internal medicine, family medicine, and geriatric psychiatry continues to rise. Nevertheless, several important trends must be noted. First, in internal medicine and family practice, the number of geriatricians who have been certified has increased at a steady rather than an increasing rate over the last two examinations. Whether a sharp increase will occur in 1994, the last year for which admission to geriatric medicine certification under the practice pathway is available, remains to be determined. Second, the number of geriatricians who have received formal training has remained relatively constant at each biennial examination. This number is quite close to the number of trainees in geriatric fellowship programs that would be expected to graduate over a 2-year period. These figures suggest that, given the current training levels, a steady state of approximately 200 physicians with formal training in geriatric medicine will be taking the examination every 2 years. This is far short of the recommendations made by the Institute of Medicine (Institute of Medicine, 1987).

Although the current number of certified geriatricians (6,784) exceeds the recently projected needs for the number of geriatricians who will be needed to provide clinical care for older people under all scenarios except for steady economic growth (Reuben et al., 1993b), certification in geriatrics is limited by time. Accordingly, physicians who became certified in 1988 and 1990 will have to be recertified within the next few years. The vast majority of these geriatricians were not trained on fellowships and many of them are older physicians (Reuben and Robertson, 1987). By the year 2000, a number of these geriatricians will have retired, and it is likely that others will have decided not to renew their certifications. Therefore, the actual number of geriatricians may fall by the end of the decade.

INCREASE IN NUMBER OF GERIATRICS FACULTY

Accurate information on the historical and current supply of geriatrics faculty has been difficult to obtain. The results of an accreditation survey by the Liaison Committee on Medical Education (LCME) from 1991 to 1993 indicated that there were 621 faculty members nationwide with primary responsibility for teaching geriatric medicine (LCME, unpublished data, 1993). From 1969 through 1989, the Association of American Medical Colleges (AAMC) recorded 215 faculty appointed in geriatric medicine. During that same time period, 36 faculty in geriatric medicine were recorded as being deactivated (Brooke Whiting, AAMC personal communication, 1993). In 1992, the AAMC faculty roster listed 42 family physician faculty members as having geriatrics as a specialty, 169 internist faculty as having geriatrics or geropsychiatry as a specialty, and 20 psychiatrists as having geriatrics as a specialty (Association of American Medical Colleges, 1992). Because of poor response rates and other factors, these figures are regarded in the geriatrics community as being quite low.

Additional insight may be obtained from a 1988 survey of geriatrics training in residency programs in family practice and internal medicine (Reuben et al., 1990b). In that survey a 33 percent random sample of programs was employed, and the response rate was 100 percent. Internal medicine residency programs reported an average of 2.8 full-time geriatrics faculty available, and family practice programs reported an average of 2.3 geriatrics faculty available. When extrapolated to include all programs, estimates of the number of full-time geriatrics faculty might be as high as 869 in family practice and 1,176 in internal medicine. Although that study examined only physician faculty who were teaching at the residency level, it is likely that many of these faculty were also teaching at other levels of medical education (e.g., undergraduate and fellowship levels). These figures may also be high, because it is possible that faculty could be teaching in more than one residency program or across specialty disciplines.

As part of a contract to the Health Resources Services Administration, the University of California, Los Angeles (UCLA), School of Medicine and RAND conducted a study of the adequacy of geriatrics faculty and surveyed geriatrics faculty. Survey results were adjusted for sampling and for response rate to provide national projections of the number of geriatrics faculty in U.S. medical schools and residency programs. The number of faculty was multiplied by an adjustment factor that was the ratio of the number of students (or residents) nationwide to the number of students (or residents) in schools (or programs) responding to the survey. That study estimated the following numbers of current geriatrics physician faculty at U.S. medical schools (Table 3): internal medicine, 909; family practice, 574; neurology, 267; psychiatry, 438; and physical rehabilitation and rehabilitation. 86 (Reuben et al., 1993a).

TABLE 3 Geriatrics Faculty (M.D.s) Available and Currently Needed as Determined by Two Estimation Methods

Estimation Method	Internal Medicine	Family Practice	Neurology	Psychiatry	Physical Medicine
Method 1 (advisory panel)					
Minimum no. of faculty needed to sustain a division[a]	2,407	1,866	867	1,143	558
No. of faculty available	909	574	267	438	86
Faculty deficit (no.)	1,498	1,292	600	705	472
Method 2 (teaching needs)					
No. of faculty needed (FTEs)[b]	1,102	846	257	467	149
Current distributions of teaching between M.D.s and non-M.D.s (%)	74	69.7	79	67.3	—[c]
FTEs needed	2.82	3.18	4.94	3.89	2.12

Times adjustment for % that is teaching	823	590	203	314	131
No. of faculty needed	2,320	1,874	1,004	1,221	227
No. of faculty available	909	574	267	438	86
Faculty deficit (no.)	1,411	1,300	737	738	191

[a]Needs are based on the assumption that 9 faculty are needed at each academic medical center and 6 faculty are needed at each affiliated or freestanding residency program. Faculty are distributed between physicians by using current ratios of teaching FTEs except in medicine, for which an 85:15 ratio is assumed but cannot be calculated.

[b]Assumes 2 FTEs for each medical school to teach undergraduates and 2 FTEs for each residency program. Faculty are distributed between M.D. and non-M.D. faculty on the basis of current ratios for each specialty (except for physical medicine, for which an 85:15 ratio is assumed but cannot be calculated).

[c]—, Unable to estimate.

SOURCE: Reuben et al., 1993a.

OUTCOMES OF MIDCAREER TRAINING PROGRAMS

From 1984 through 1988, The John A. Hartford Foundation supported 29 physicians in academic medicine who decided to redirect their careers toward geriatric medicine by participating in a 1-year midcareer faculty development program. Robbins (1993) recently reviewed the experiences of these trainees and found that 87 percent now spend a significant amount of their time training others in geriatrics. Fifty-eight percent published at least one peer-reviewed article as a result of work completed during their fellowship year. The most commonly related disadvantages to the program were the burden of relocation for a year, the lack of academic support after returning to their home institution, and the fact that a 1-year training period was too short (Robbins, 1993). The Bureau of Health Professions funded nine physicians in 1-year retraining programs from 1989 to 1992. All nine accepted faculty positions subsequent to completion of their faculty retraining program (Susan Klein, Bureau of Health Professions, personal communication, 1993).

INCREASE IN NUMBERS OF GERIATRICS FELLOWSHIP PROGRAMS

The number of geriatric fellowship training programs almost tripled from 1980 to 1987, from 36 in 1980 to 103 in 1987. A survey of geriatric fellowship programs done by investigators at UCLA revealed that 262.5 positions were available in geriatric medicine and geropsychiatry in the 1986 academic year, and 88 percent of these positions were filled (Vivell et al., 1987).

In 1988, the Accreditation Council for Graduate Medical Education began accrediting geriatric medicine fellowship programs in internal medicine and family practice. Initially, 62 internal medicine programs were accredited (as of July 1988). By January 1994, 84 geriatric medicine fellowships had been accredited by the Residency Review Committee in Internal Medicine. Initially, 16 family medicine programs were approved by the Residency Review Committee in Family Practice; this number rose to 17 by January 1994 (Karen Lambert, Accreditation Council for Graduate Medical Evaluation, personal communication, 1994). In addition, there are other nonaccredited programs in geriatric medicine. To date, there have been no accredited geriatrics psychiatry fellowship programs, although a process for accreditation was approved in September 1993. In other specialties of medicine, there is no process for accreditation of geriatric medicine programs.

The American Association for Geriatric Psychiatry has maintained an inventory of geriatric psychiatry fellowship programs. In 1992, the inventory listed 55 programs in 26 states and the District of Columbia. The majority of the programs (74 percent) were started in the 1980s. Assuming a maximum capacity of two positions per program per year and a minimum training duration of 1 year, the maximum capacity of the nation's geriatric psychiatry fellowship programs would be 106 board-eligible

fellows per year (Small et al., 1988; Jeffrey Foster, American Association for Geriatric Psychiatry, personal communication, 1993).

The American Geriatrics Society published directories of geriatrics fellowship programs in 1987 and 1990 (as well as an update in 1993) that listed geriatrics programs in geriatric neurology, geriatric psychiatry, as well as accredited and unaccredited geriatric medicine fellowships in the United States and Canada. In 1987, the directory listed 125 fellowship programs, anticipated programs, and residency programs. By 1990, this number had risen to 145, and by 1993, 7 new fellowship programs had been added and 1 fellowship program had been discontinued (Melissa Silvestri, American Geriatrics Society, personal communication, 1993).

NUMBER OF UNFILLED FELLOWSHIPS SLOTS

Statistical information on graduate medical education in the United States is collected annually by the American Medical Association (AMA) Department of Directories and Publications. Information on the numbers of geriatric medicine fellowship positions that are filled has been available only since 1990. Only accredited programs are surveyed. Table 4 presents the number of positions offered, the number of positions filled, and the percentage of positions filled for the years 1990–1992. Although there was a 17 percent rise in the number of geriatric medicine fellowship positions offered in internal medicine from 1990 to 1992, the percentage of positions filled declined over the 3-year period. In family practice, the number of geriatric medicine fellows remained constant over the 3 years, while the number of positions available increased by 52 percent.

These figures are particularly disappointing when they are compared with the trends in other fellowships in internal medicine (Table 4). Over the same 3-year period, cardiology fellowships have been overfilled twice, despite a 35 percent increase in the number of fellowship positions offered. The rates that pulmonary fellowships were filled was 96 percent or greater in each year, despite a 21 percent increase in the number of positions offered. In nephrology fellowships, the fill rates fluctuated over the 3-year period (between 75 percent and 94 percent), but the number of positions available increased 23 percent. Data from the National Study of Internal Medicine Manpower (NaSIMM) provide different figures but indicate similar trends. From 1981 to 1992, the number of cardiology fellows increased from 1,556 to 2,627, while the number of geriatric medicine fellows increased from 74 to 230. The increase in the number of cardiology fellows is due in large part to changes in the duration of training and the increased number of fellows in advanced years of fellowship training. Between 1976 and 1992, the number of first-year cardiology fellows increased by only 19 percent. Nevertheless, in 1992 the ratio of first-year cardiology fellows to first-year geriatrics fellows was 13.6:1 (Kohrman et al., in press).

TABLE 4 Geriatric Medicine, Cardiology, Pulmonary, and Nephrology Fellowship Positions Offered and Filled, 1990–1992[a]

	1990			1991			1992			1993
Discipline	No. of Positions Offered	No. of Positions Filled	% Filled	No. of Positions Offered	No. of Positions Filled	% Filled	No. of Positions Offered	No. of Positions Filled	% Filled	No. of Positions Offered
Internal medicine (geriatrics)	170	153	90	259	181	70	270 (180)[b]	199	74	299 (142)[b]
Family practice (geriatrics)	31	15	48	49	17	35	47 (35)	16	34	42 (21)
Cardiology	1,537	1,677	109	1,948	1,925	99	2,057	2,079	101	2,180
Pulmonary	756	725	96	918	881	96	915	911	100	953
Nephrology	470	417	88	639	482	75	580	544	94	614

[a]Includes all years of fellowship training.

[b]Number of first-year positions is indicated in parentheses. For previous years, these numbers are unavailable.

SOURCE: American Medical Association, Department of Directories and Publications.

In addition to the less than optimal fill rates of geriatric medicine fellowships, the quality of applicants for these positions can be questioned. A 1992 survey of the Association of Directors of Geriatric Academic Programs (ADGAP) indicated that among 46 program directors of academic programs in geriatric medicine who responded to this item, they considered only 46 percent of the applicants to be acceptable (Jerome Kowal, ADGAP, personal communication, 1993). The survey results also ranked "the lack of qualified applicants" (ranked by 16 percent of 70 responders) as the most important negative factor affecting the ability to attract trainees.

In 1991 and 1992, NaSIMM asked program directors to designate the factors important in planning the number of future fellowship positions (Kohrman et al., in press). The number of qualified applicants was mentioned by 86 percent of the program directors when planning geriatrics fellowships, whereas it was mentioned by 56 and 64 percent of directors when planning cardiology and pulmonary fellowships, respectively. Furthermore, when asked about their recent ability to attract more or fewer qualified applicants to their programs, 54 percent of geriatric fellowship program directors reported attracting fewer (34 percent) or significantly fewer (18 percent) qualified applicants. In contrast, 58 percent of cardiology, 67 percent of gastroenterology, and 50 percent of pulmonary fellowship program directors reported attracting more qualified applicants. Anecdotally, many geriatric fellowship program directors have indicated that their candidates for fellowship positions are not among the top graduates of internal medicine and family practice residency programs, so recruitment remains a major obstacle.

GERIATRICS IN RESIDENCY TRAINING

Although the number of established academic units offering geriatric residency training increased from 28 to 40 between 1979 and 1984, this was in sharp contrast to the 442 residency programs in internal medicine and the 380 programs in family practice that were accredited by the Accreditation Council for Graduate Medical Education (Vivell et al., 1987).

More recent insight into geriatrics education during residency training can be obtained from two surveys of medical education at this level conducted in the late 1980s. In 1988, Reuben et al. surveyed a random sample of 33 percent of all 378 family practice and 420 internal medicine training programs accredited in the United States. They found that 80 percent of the family practice programs, but only 36 percent of internal medicine programs, reported having curricula in geriatric medicine in place. In internal medicine 61 percent of the curricula were required, and in family practice 92 percent of the curricula were required. Current curricula in both specialties were, on average, approximately 5 weeks long, and about three fourths of the time was spent in clinical experience (Reuben et al., 1990b).

As part of a contract to the Bureau of Health Professions, Friedman and

colleagues (Trustees of Boston University, 1989) surveyed residency programs in 10 specialties in 1989. For six specialties (otolaryngology, orthopedic surgery, neurology, psychiatry, urology, and physical medicine and rehabilitation), a 100 percent sample of the training programs was used. For the remaining four specialties (obstetrics and gynecology, general surgery, family practice, and internal medicine) a random 50 percent sample was obtained because of the large number of training programs in these disciplines. The overall response rate to the survey was 72 percent and the range was from 61 to 83 percent. Training programs in only five specialties (internal medicine, family practice, neurology, psychiatry, and physical medicine and rehabilitation) offered specific geriatric medicine rotations for residents. The percentages of training programs that required a geriatric medicine rotation varied widely among the specialties. Fifty-five percent of family practice residency programs required a geriatric medicine rotation whereas only 2 percent of neurology residency programs did. Elective rotations in geriatric medicine were offered by up to one quarter of the training programs in the five specialties. In no specialty did more than half of the eligible residents take the elective. The study estimated that 62 percent of family practice residents, 26 percent of internal medicine residents, 17 percent of physical medicine and rehabilitation residents, 48 percent of psychiatry residents, and 3 percent of neurology residents had taken either a required or an elective rotation in geriatrics (Trustees of Boston University, 1989). The discrepancies between the 1988 and 1989 surveys conducted by UCLA and Boston University may be due to differences in sampling, the definition of a "required" rotation or curriculum, and the response rates.

NUMBER OF MEDICAL SCHOOLS WITH REQUIRED COURSES IN GERIATRICS OR GERONTOLOGY: CHANGE OVER TIME

In 1976, 2 U.S. medical schools required undergraduates to take courses in geriatrics or gerontology, and only 15 medical schools had separate educational programs in geriatrics or gerontology. By 1984, a UCLA survey reported that 54 percent of the departments of internal medicine, 30 percent of the departments of psychiatry, and 37 percent of the departments of family practice reported that they sponsored at least one clinical program in geriatric medicine (Vivell et al., 1985).

According to the 1988–1989 AAMC curriculum directory, only 13 medical schools required courses or clinical experiences in geriatrics or aging (Association of American Medical Colleges, 1988-1989). By the 1992–1993 academic year, only 9 of 142 schools (including Canadian medical schools) required a separate course (Brownell Anderson, AAMC, personal communication, 1993). The LCME reports somewhat different figures, indicating that 14 U.S. medical schools taught geriatrics as a separate required course (Joanne Schwartzberg, American Medical Association, personal communication, 1993). According to the LCME, 102 of 126 reporting medical schools also taught geriatrics as part of a required course (e.g., medicine

clerkship); AAMC data indicate that 121 of 142 schools (including Canadian schools) taught geriatrics as part of a required course during the 1992–1993 academic year. Although the information from these two sources is not in complete agreement, both sources concur that there have not been substantial changes in the geriatrics curriculum over the past several years.

The 1983 graduation questionnaire conducted by AAMC reported that 3.2 percent of the graduating class for that year had had clinical experience in geriatrics. In 1988, 3.5 percent of the graduating class reported having taken an elective in geriatrics, but this percentage declined from 1988 to 1993. Among 1992 graduates, only 2.9 percent had taken an elective in geriatrics (Wendy Colquitt, AAMC, personal communication, 1993).

STUDENT RESEARCH OR OTHER PARTICIPATION IN GERIATRICS

Since 1989, the John A. Hartford Foundation has been sponsoring summer student research projects under the auspices of its Academic Geriatric Recruitment Initiative awards. The number of students participating in summer research in geriatrics and aging and presenting the results of that research at American Geriatrics Society (AGS) annual meetings increased from 49 in 1990, to 55 in 1991, and to 82 in 1992 (Patricia Reineman, University of Michigan, personal communication, 1993).

Between 1985 and 1991, the Dana Foundation in collaboration with the American Federation for Aging Research (AFAR) supported 90 medical students in geriatrics experiences; these were usually of 1-month duration at Centers of Excellence. Under its medications program and in collaboration with AFAR, the John A. Hartford Foundation has supported 43 medical students in geriatric pharmacology projects.

From 1986 through 1992, the Boston University School of Medicine and AGS offered a Summer Institute in Geriatrics for medical students, who were usually in their third or fourth year of medical school. Except for 1987 and 1993, when the program was not offered, between 16 and 20 medical students participated each year. The total number of participants was 111. The number of applicants was quite variable from year to year. In 3 years (1986, 1988, and 1989), the number of applicants was more than twice the number of available positions. In the other years, the program did not fill the available slots. In 1993, however, 27 applicants applied for 20 positions, but the program lost its funding (Anita Landry, Boston University, personal communication, 1993).

CONTINUING MEDICAL EDUCATION

Continuing medical education programs are one main link in the transfer of new

knowledge about treatments and technology from the laboratory to community-based practices. The majority of practicing physicians, especially those whose formal training ended before 1985, has never been exposed to organized geriatric training in medical school or during residency training. A study conducted by UCLA found that continuing medical education programs in geriatrics were not reaching practitioners. It was estimated from a survey for 1984 and 1985 combined that no more than 8,000 physicians attended at least 1 day of continuing medical education devoted solely to geriatrics. This was of a total population of 450,000 patient-care physicians in the United States at that time (Vivell et al., 1989). In 1986 Schneider and Williams observed that only 1 percent of continuing medical education courses dealt with geriatric medicine, despite the development of much new information and clinical technology in the field.

Since 1984, the Bureau of Health Professions has provided geriatrics education to physicians through its Geriatric Education Centers program. From 1984 to 1990, 21,440 allopathic or osteopathic physicians participated in programs of fewer than 40 hours' duration, and 879 participated in training programs of 40 or more hours. Moreover, the rise in the number of participants has been steady, from 274 in 1984 to 9,087 in 1990 (for fewer than 40 hours of training). The number of enrollees in programs of 40 hours or more increased dramatically from 1984 (9 physicians) to 1987 (177 physicians) and has remained within a range of 177–225 since that time (Ann Kahl and Susan Klein, Bureau of Health Professions, personal communication, 1993).

The advent of the joint certification examination of the American Boards of Internal Medicine and Family Practice for the Certificate of Added Qualifications in Geriatric Medicine, and subsequently in Geropsychiatry, has led to a virtual blossoming of continuing medical education efforts in the field. The American Medical Association compiles a semiannual guide called Continuing Education Opportunities for Physicians. These guides are based on continuing medical education programs that are sent in for publication in the *Journal of the American Medical Association's* listings and are not a comprehensive inventory of courses. From September 1992 through August 1993, 29 courses in geriatrics were listed in the guides (American Medical Association Division of Continuing Medical Education, 1992, 1993).

OTHER MEASURES OF GROWTH IN GERIATRICS

Other measures of growth in geriatrics include increases in the number of people who attend the AGS annual meeting and an increase in the number of abstracts submitted to that meeting. In 1983, attendance at the AGS annual meeting was 200. By 1987, this number had risen to 709, and by 1992, 1,786 people attended the AGS annual meeting (Angie Legaspi, AGS personal communication, 1993). Similarly, Landefeld (1993) noted a rise in the number of abstracts submitted to the AGS

annual meeting from the early 1980s to the early 1990s. This came at a time when the overall number of submissions to the American Federation for Clinical Research, the American Society for Clinical Investigation, and the Association of American Physicians have fallen (Landefeld, 1993). Furthermore, sections on aging have been established for the spring meetings of the three societies, reflecting additional growth in research on aging.

OBSTACLES AND CONSTRAINTS TO THE DEVELOPMENT OF ACADEMIC GERIATRICS

A number of studies have been conducted by UCLA and by the ADGAP over the past decade. Those have focused on the constraints in developing educational programs in geriatric medicine. While the emphasis on the various constraints that have been raised has changed over time and occasionally a new constraint has appeared, the constraints of a decade ago are still perceived to be the major obstacles to implementation of geriatric educational programs today. The most pressing obstacle impeding the development of academic programs in geriatrics appears to be recruitment into the field and the consequent lack of adequate numbers of faculty. As noted above, the ADGAP survey identified the lack of qualified applicants as the most frequently mentioned factor that negatively affects recruitment. A striking demonstration of the problem is presented by following the cohort of students entering medical school in September 1985 (Figure 1). These students are now at the point when they could be completely first-year fellowships in geriatrics. As noted in Figure 1, 0.8 percent of entering medical students eventually select fellowships in geriatrics medicine. This figure is inflated because it also includes foreign medical graduates; on the basis of the results of the AAMC longitudinal tracking survey, only 0.2 percent of 1989 U.S. medical graduates began geriatrics fellowships in 1992 (Robert Haynes, AAMC personal communication, 1993). The 1991–1992 NaSIMM survey (Table 2) indicated that 37 percent of graduates of geriatrics programs went directly into full-time academic positions and another 15 percent continued their training (Kohrman et al., in press). On the basis of the assumption that half of the graduates of fellowship programs in geriatric medicine pursue academic careers, it is obvious that the field is able to attract only a very small number of physicians. To place the recruitment problem in perspective, one's chances of surviving stomach cancer for 5 years are 10 times greater than the chances of a beginning medical student entering academic geriatrics.

Traditionally, faculty in geriatric medicine are recruited from the primary care disciplines of internal medicine and family practice, where they were trained. Since 1981, the percentage of students who participate in the residency matching program and opt for internal medicine has fluctuated from a low of 34.6 percent (in 1981) to a high of 37.6 percent (in 1988). The most recent match (1993) identified 36.3 percent of participants entering internal medicine. Similarly, family practice has

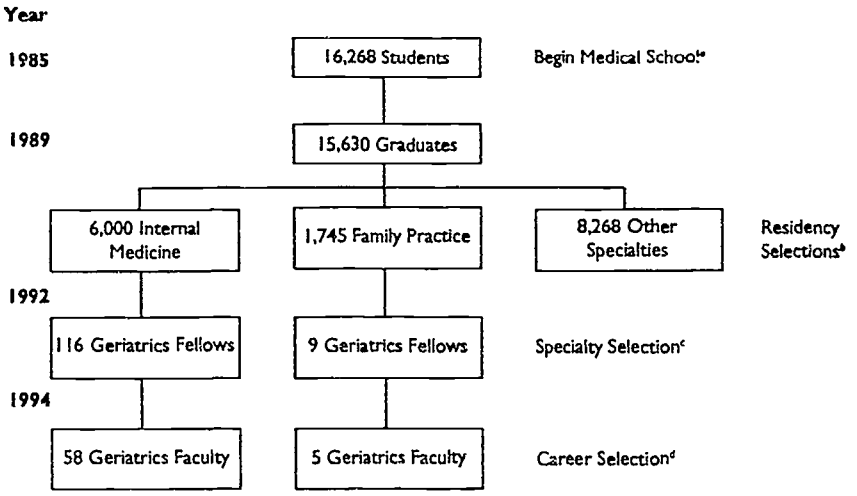

FIGURE 1 Yield of faculty trained in geriatric medicine from the medical school class entering in 1985. The total number of residents (16,013) includes some foreign medical graduates and thus is greater than the number that graduated from U.S. medical schools in 1989 (15,630). SOURCES: [a]Section for Student Services, Association of American Medical Colleges; [b]National Resident Matching Program; [c]American Medical Association Department of Directories and Publications, adjusted to estimated number of first-year fellows on the basis of the continuation rate of 70 percent from the first to the second year (does not include geropsychiatry training) (Kohrman et al., 1989); and [d]estimated from historical trends.

represented a fluctuating proportion of the match, ranging from 10.3 percent (in 1992) to 13.1 percent (in 1981). In 1993, 11.8 percent of those who participated in the matching program entered family practice (Association of American Medical Colleges, 1993; Paul Jolly, AAMC, personal communication, 1993). However, on the basis of the NaSIMM projections from 1989 to 1990, an estimated 60 percent of internal medicine graduates enter subspecialty training (Andersen et al., 1992). Furthermore, this trend toward increasing specialization has been progressive and substantial. In 1982, 36.1 percent of graduating medical students planned to practice a general specialty of family practice, general internal medicine, or general pediatrics. By 1992, this percentage had fallen steadily to 14.6 percent (Medical School Graduation Questionnaire, Section for Educational Research [Association of American Colleges, 1993]).

TABLE 5 Possible Reasons for the Decline in Interest in Internal Medicine

Financial Considerations
Reaction to cost-containment strategies[a]
Lower income potential[a]
The Practice of Internal Medicine
Difficult lifestyle[a]
The struggle against chronic disease[a]
Problem patients[a]
Medical Education
The hospital-based medical clerkship[a]
Out-of-date residency programs[a]
Distant faculty role models
The threat of AIDS
Desire to limit areas of competence[a]
Lure of other specialties[a]

[a]Indicates possible reasons for lack of interest in geriatric medicine.

SOURCE: Schroeder, 1992.

Schroeder (1992) has identified possible reasons for the decline in interest in internal medicine (Table 5). Many of these also apply to a lack of interest in geriatric medicine. Financial considerations may be a major factor. Data from the 1992 Medical School Graduation Questionnaire administered by the AAMC Section for Educational Research (Association of American Medical Colleges, 1993) indicate a mean educational debt of indebted graduates (80.5 percent of medical school graduates have some debt) of $55,859 overall and an indebtedness of $69,479 for those who graduated from private institutions. According to the 1989 Survey of Total Compensation of U.S. Physician Employees, geriatricians earned approximately $81,000 per year, the lowest paid specialty area (*AHA News*, 1990). Furthermore, as implemented, the Resource-Based Relative Value System does not recognize either the ages or the medical complexities of geriatric patients in its reimbursement scheme.

The perceived need for faculty in geriatric medicine has remained largely unchanged over the past decade, and it is clear that the need as perceived by medical schools and their affiliated institutions far exceeds the capacity of the system to train faculty in geriatric medicine. There is a general perception that the training of faculty in geriatric medicine has emerged as an important medical education and health policy priority.

Clinical training sites are a second limiting factor in the development of academic geriatrics (Vivell et al., 1987). From repeated surveys, they appear to be

insufficient in number and often inadequate in quality, although there appears to have been an improvement in quality over time. The training sites that have been identified have included geriatric evaluation units in hospitals or ambulatory care clinics, geropsychiatry units, nursing homes of adequate quality, and a whole host of other available clinical sites which are largely community based; nevertheless, there continues to be a paucity of training sites. The lack of appropriate training sites appears to be related to the reticence of many academic medical centers to take on additional peripheral responsibilities away from their immediate physical locations. In part, this reluctance may be due to the lack of profitability of these sites. For example, Part A Medicare graduate medical education funds do not reimburse hospitals for the time spent by residents in home care, office, and nursing home settings. It is also of note that the use of institutional long-term-care settings as teaching sites has clearly improved over the past decade, but it also appears that some educational programs may regard the nursing home clinical experience as a sufficient exposure to geriatric medicine. This is clearly incorrect since nursing home care is only a relatively small component of the field.

A third major obstacle limiting the development of academic geriatrics is the overcrowding of the medical education curriculum. This problem has consistently been reported as a highly important one whether it relates to the undergraduate curriculum or that of residency programs. Other worthy courses or disciplines compete for medical students' time, and it is an important issue for the undergraduate curriculum. In addition, other factors which have contributed to the inadequate expansion of curricular time are quarrels among family practice, psychiatry and internal medicine over responsibilities for geriatric medicine curriculum development, debates over the necessity of special courses in geriatrics medicine, and limited financial resources. Not all medical schools have encountered these problems, and in some, they are felt much more keenly than in others. In terms of the core training in internal medicine and family practice, it is important that, given the current and projected amounts of time that family practitioners and internists devote to the primary care of older people, a process for setting new educational priorities in residency training be developed. There must also be a willingness to reduce the time spent in other clinical experiences or to eliminate certain other clinical experiences currently in the residency programs. Otherwise, residencies must be lengthened.

It is difficult to implement structural changes to increase geriatrics training in the undergraduate curriculum and residency programs in part because of the attitudes of deans and departmental chairs. Interestingly, in a survey carried out by UCLA, internal medicine faculty ranked the importance of geriatric training lower than family physician faculty did. Furthermore, within internal medicine, program directors and/or departmental chairs ranked geriatrics lower than geriatricians did (Reuben et al., 1990b).

A fourth obstacle is the poor levels of reimbursement for the clinical activities of faculty in geriatric medicine. The current evaluation and management Common Procedural Terminology codes allow approximately $115 (including copayment) for

a visit of high complexity with a new outpatient; a follow-up visit of moderate complexity (approximately 25 minutes) is reimbursed at a total rate of $55 for an established patient (Sheila Kopic, UCLA Medical Center, personal communication. 1993). Other insurance systems for younger patients (including capitated contracts) reimburse providers at far higher rates. Although there are no systematic data that support the view that the low levels of reimbursement for the care of the elderly patients may be an obstacle to adequate levels of recruitment into the field, there is a perception based on anecdotal evidence that the reimbursement issue is a major factor leading to the lack of attractiveness of geriatrics as a career track. This intensifies the shortage of faculty by two mechanisms: (1) inadequate recruitment into the field and (2) excessive use of faculty time to generate clinical income to bring faculty salaries to a level comparable to that of faculty in other disciplines.

Other obstacles in the academic environment that relate to the lack of attraction of geriatrics to faculty include the roles that academic geriatricians must assume. The rapid growth in numbers of programs in geriatric medicine must be tempered invariably by the fact that growth and quality may not be synonymous. There is evidence that many of the fellowship programs may not be of optimal quality; in a UCLA survey (1987), fewer than 15 percent of the programs at that time could be considered strong (Vivell et al., 1987). Weaker programs are less attractive to students at all levels, including the fellowship training level. Academic leaders in a field must have credibility in research, teaching, and clinical service or in a combination of these domains. In addition, those who have real credibility in research can only do the research if they are effective in acquiring extramural funding. However, in geriatric medicine other qualities of leadership have emerged. These include management and program development expertise and skills at relating with other academic departments and disciplines, and with community-based ambulatory care facilities, nursing homes, and other caregivers. These qualities, taken together with the complex medical needs of the elderly, may be more than one could expect to find in more than just a few extraordinary individuals. It suggests that the development of several types of leaders in geriatric medicine may be a more rational objective than what has been attempted to date.

Finally, the limited academic success of geriatricians as physician-scientists and clinical investigators has been an obstacle to the development of academic geriatrics. There is a convincing body of evidence that indicates that faculty must have been involved in extensive research training beyond that of the traditional 2-year fellowship for success in research. Data from several sources suggest that the median duration of research training lies between 3.5 and 4 or more years. Success in research is determined by a variety of criteria, including the ability to acquire independent funding through the investigator-initiated RO-1 award or comparable mechanisms (Oates, 1982).

Of note, other obstacles that were perceived to be major ones a decade ago—such as the lack of professional recognition in geriatrics—have now been solved and no longer appear to be major.

4

Assessment of Level of Need for Geriatricians and Faculty

FACULTY FOR TEACHING NEEDS

In the 1980 study by the University of California, Los Angeles (UCLA), and the RAND Corporation, it was estimated there was a need for between 900 and 1,600 faculty in geriatric medicine, 1,300 Ph.D. basic scientists in geriatric medicine, and 450 geropsychiatrists to serve the needs of academic geriatric medicine alone. That study also estimated the total need of physician faculty of 2,100 and 8,000 full-time equivalent (FTE) geriatric specialists (including 1,100 geropsychiatrists) by the year 2000. These estimates were based on the assumption that geriatricians would provide improved care to people over age 75 as consultants and primary care givers, with the delegation of a moderate amount of responsibility to nurse practitioners, physician's assistants, and social workers (Kane et al., 1980a).

Other groups, such as the Association of Program Directors of Internal Medicine and the American Academy of Family Physicians (AAFP) have also made estimates. The former estimated that 1600 academic geriatricians are needed for the approximately 800 internal medicine and family practice residency programs; the AAFP estimated that 400 qualified faculty are needed for the existing family practice residency programs.

In its document *Personnel for Health Needs of the Elderly through Year 2020,* the National Institute on Aging (NIA) (1987) estimated the need for 1,000 to 2,000 academic geriatricians both in the year 2000 and in 2020. More recent estimates have predicted the need for geriatrics physician faculty (Table 3) to

range from a low of 277 in rehabilitation to a high of 2,407 in internal medicine (Reuben et al., 1993a). These estimates are based on (1) the minimum number, or "critical mass," of faculty needed to sustain a division (or comparable unit) of geriatrics or (2) the number of faculty estimated to provide "core" geriatrics training as defined by the American Geriatrics Society Education Committee. When compared with the current supply of geriatrics physician faculty (see above), these figures suggest that the current supply of geriatrics physician faculty is less than half the number needed in each specialty. Moreover, given the current capacity for training, there will be a net loss of such faculty each year in each specialty. These projected faculty needs do not include the additional faculty that might be required for continuing medical education.

FACULTY FOR RESEARCH NEEDS

A number of attempts at projecting the needs of faculty for research in geriatrics and gerontology have been made. The first was the 1980 UCLA-RAND study in which it was estimated that there was a need for between 900 and 1,600 geriatric medicine faculty, 1,300 Ph.D. basic scientists, and 450 geropsychiatrists to serve the needs of academic geriatric medicine alone. That study did not delineate the percentage of time that they envisaged physicians in academic medicine would spend on research, although the researchers assumed that at least half of their time would be devoted to this endeavor. They assumed that the 1,300 Ph.D. basic scientists would be fully engaged in research activities.

In 1987, NIA, in a report to the U.S. Congress, made the observation that the number of trainees in clinical and biomedical research on aging was far short of the number needed at that time and recommended that the first step that needed to be taken to repair this deficiency included the provision of support for 200 additional trainees per year in basic biomedical science. In the same report, NIA predicted that there was a need for 1,500 nonbiomedical faculty, including behavioral and social scientists, by 1990 to fulfill the research needs in the field of aging and that more than 3,500 such professionals would be needed by the year 2000. The report observed that only a small percentage of the training needs for 1990 had been met at that time and, thus, recommended an additional 200 doctoral trainees per year in the behavioral and social sciences in aging and an additional 140 trainees per year in health services research (U.S. Department of Health and Human Services, 1987).

The 1987 Institute of Medicine (IOM) study recommended that the number of graduates in academic geriatric programs in schools of medicine be increased from the 1987 level of 100 per year to 200–250 per year to meet the estimated 2,100 medical faculty members needed in the field by the year 2000 (Institute of Medicine, 1987). Another IOM study, entitled *A National Research Agenda on*

Aging: Extending Life, Enhancing Life, (Institute of Medicine, 1991) recommended that additional funds should be phased in over a 5-year period to implement this recommendation and assumed that advanced training programs would last 2 to 3 years and would thus support an additional 200–300 trainees at all levels. In addition, the report recommended that funds be provided for 100–150 junior faculty investigators engaged in research on aging.

The same IOM report observed that the existing training programs in aging-related research in schools of medicine were undersubscribed and suggested that it might be more prudent to phase in more support for training programs after it had been demonstrated that the increased investment in research that was taking place was attracting more students to the field. The report stated that the current cadre of faculty members with age-related research interests was adequate to provide initial training for increased numbers of students in the area. Subsequent workforce and personnel projections would suggest that this observation is incorrect. The present academic leadership in geriatric medicine believes that the training capacity at the various Centers of Excellence exceeds the level of funding needed to support advanced trainees and that if adequate funding was provided to meet the present training capacity, competent advanced trainees would oversubscribe the training programs (Kowal, 1993).

The IOM committee suggested that an additional 200 doctoral trainees in the behavioral and social sciences and an additional 140 trainees in health services research would be needed each year. The committee used the assumption that the average cost would be $50,000 per trainee and that since approximately 1,000 additional trainees were recommended, the non-inflation-adjusted cost for this training effort would be $50 million per year phased in over a 5-year period (Institute of Medicine, 1991).

It is of interest that a vast majority of the Americans surveyed recently supported expanded medical research on aging. The survey was conducted for the Alliance of Aging Research by an independent public opinion research firm. Eight of ten people polled (82%) said that health care reform efforts should include an emphasis on research to cure and prevent diseases affecting older people. In addition, more than seven of ten people (76%) polled agreed that spending money on medical research now as a means of reducing future health care costs for the elderly is an important mission. Support for these views transcended political party lines (Alliance for Aging Research, 1993).

PHYSICIANS FOR CLINICAL NEEDS

In its 1987 document *Personnel for Health Needs of the Elderly through Year 2020,* the National Institute on Aging estimated the need for clinical/consultative geriatricians for the year 2000 to range between 9,000 and

29,000, depending upon the mode of geriatric practice and whether the care of older people would be improved. For the year 2020, the range of estimates was between 13,000 and 42,000.

More recent projections of the physician supply needed to care for older people focused initially on the target year 2000 and provided estimates under three economic scenarios (moderate growth, recessionary economy, and steady growth). All nonsurgical specialties were included in the model. The result of the study suggested that by the year 2000 the number of FTE physicians needed to provide medical care for older people will increase above the mid 1980s level by 34–51 percent. Estimates of the number of FTE positions in the primary care specialties of internal medicine and family and general practice needed in the year 2000 were far greater (146–151 percent) than the largest need projected by the NIA for that year. This analysis assumed that primary care physicians would continue to provide the bulk of this care (62–69 percent depending on the scenario). For the year 2000, the model estimated that somewhere between 3,668 and 9,705 geriatricians would be needed to provide clinical care for older people. The need for geriatrician services was based on the estimates of an expert panels' estimates of the percentage of older people who would need to see a geriatrician because of the complexity of their biopsychosocial problems or for geriatric assessment to prevent decline (Reuben et al., 1993b).

The American Association for Geriatric Psychiatry (AAGP) has estimated the total supply of certified geriatric psychiatrists by the year 2010 to be 2,980 assuming that there are 676 certifiable specialists without fellowship training, that the number of individuals in graduate fellowship programs was at maximum capacity for 18 years, and that an additional 50 graduates entered into new fellowship programs for 9 years. The assumption of 676 certified geriatric psychiatrists without fellowship training may be low because this pathway is available for only 5 years. The AAGP also estimates that there will be 7,479,000 mentally ill elderly people by the year 2010, which would require a caseload of 2,500 patients per geriatric psychiatrist and only 1.0 hour per patient per year to render all diagnostic and treatment services (Small et al., 1988; Jeffrey Foster, AAGP, personal communication, 1993).

The degree to which non-primary-care specialists will care for the clinical needs of older people has not been determined. Nevertheless, in these nonmedical specialties, the care of older people plays an important role. Data from the National Ambulatory Medical Care Survey (NAMCS) (Table 6) indicate the percentages of all ambulatory visits to various specialties are by people age 65 or older. Over 45 percent of visits to urologists, ophthalmologists, and cardiologists in 1991 were by people age 65 or older. In addition, more than 30 percent of the visits to general surgeons and internists were by people age 65 or older (David Woodwell, National Ambulatory Medical Care Survey, personal communication, 1993).

TABLE 6 Ambulatory Visits to Various Medical Specialties by People Age 65 and Older

Specialty	Percentage of Total Visits in:			
	1978	1981	1985	1991
All specialties	16.1	18.4	20.1	23.2
General/family practice	17.1	19.3	19.6	19.9
Internal medicine	31.1	34.4	39.2	37.7
Cardiology	39.1	46.1	47.2	53.4
Opthalmology	30.0	39.3	43.8	55.0
Urology	29.9	37.6	39.6	45.8
General surgery	21.9	20.1	27.2	32.2
Neurology	13.2	17.7	21.0	19.9
Dermatology	12.2	13.4	18.3	27.9
Otolaryngology	14.1	16.9	17.0	17.7
Orthopedic surgery	10.9	13.7	13.9	17.9
Psychiatry	4.5	4.6	6.5	7.0
Obstetrics/gynecology	2.2	2.6	3.3	4.5
Other	5.0	6.0	10.2	12.2

SOURCE: National Ambulatory Medical Care Survey, National Center for Health Statistics.

The preparation of trainees in non-primary-care specialties for caring for older people has been limited. In their survey of surgical residency programs, Friedman and colleagues (Trustees of Boston University, 1989) determined that only 24–31 percent of surgical residency programs (including general surgery, otolaryngology, orthopedics, urology, and obstetrics and gynecology) provided formal training on mental status assessment. Between 22 and 50 percent (the highest being orthopedics) provided formal training on functional status assessment. That study also identified factors limiting the introduction of geriatrics into residency programs. The most commonly cited factors included limited time in residency, insufficient numbers of trained faculty, insufficient funds, lack of organization of geriatrics specialists, and lack of special clinical units for geriatric patients.

5

Strategies to Strengthen Geriatrics Training for Physicians

Strategies to strengthen geriatric training for physicians must be focused at two levels: the overall strengthening of the geriatrics medicine movement and the creation of specific strategies designed for use at various levels of medical education. In a recent report of the Select Committee on Aging of the U.S. House of Representatives, *Shortage of Health Care Professions Caring for the Elderly: Recommendations for Change,* Jerome Kowal speaking for the Association of Directors of Geriatric Academic Programs (ADGAP) stated:

> If we are to achieve our goal of increasing the number of trained academic geriatricians, we need to create incentives for physicians to choose a career in geriatric medicine, to provide greater opportunities for clinical research training, to increase geriatric content of undergraduate and postgraduate medical programs, to improve attitudes towards geriatrics by medical students, housestaff, and academic administrative leaders, and to develop public policy initiatives that will mandate increased geriatrics training and facilitate the development of clinical programs targeting older persons.
>
> A considerable effort must be made to overcome some of the significant factors currently impacting negatively on the interest of people in geriatrics careers. . . . Currently reimbursements are skewed towards high technology subspecialties such that brief evaluations of procedures or tests generate more income in a few minutes than the hours of intense care for very sick patients (Kowal, 1993).

The following strategies have been suggested or follow from the issues identified in previous chapters of this report.

REVISION IN REIMBURSEMENT POLICIES

Pawlson (1993) has identified 10 reimbursements that adversely affect the supply of physician services for older people. Among the approaches that he suggests can be used to improve the situation are creating modifiers that denote patients with multiple functional impairments, expanding the number of payment codes for evaluation and management services and further increasing the assigned value for these services, creating a set of payment codes for comprehensive geriatric assessment, and developing Medicare Part B reimbursement for graduate medical education or allowing the time spent by residents in home care, office, and nursing home settings to be reimbursed by Medicare Part A graduate medical education funds.

ALLIANCE FOR AGING RESEARCH EFFORTS

The Alliance for Aging Research is engaged in the development of leadership centers in geriatrics established through one-time $1.5 million grants (one grant per institution) from a corporate or other private sponsor. They also propose the creation of a National Geriatrics Development Fund to be cosponsored by multiple foundations and individual donors to augment the initial grant to each leadership center. The alliance envisions as many as 10–15 leadership centers in geriatrics at U.S. medical schools (Alliance for Aging Research, 1993).

ADGAP PLAN

ADGAP has developed a proposal, "Geriatrics in the Next Decade: a Blueprint for Change" (David Lipshitz, ADGAP, personal communication, 1993). The document outlines a number of specific strategies for addressing the work force shortage in geriatrics, the lack of leaders in geriatric medicine, and the lack of support for training in geriatrics medicine by administrative heads of academic programs. Among the strategies proposed are (1) higher salaries for trainees and geriatric fellows, (2) low-interest loans for the development of academic careers in geriatric medicine, (3) a loan forgiveness program for physicians entering training in geriatrics medicine programs, (4) improved reimbursement for interdisciplinary care of geriatric patients, (5) training programs that are aimed at amplifying and fostering the research skills of geriatrics fellows, (6) increased funding for Claude D. Pepper Older Americans Independence Centers and Geriatric Academic Programs, and (7) creation of a 4-year dual certification program that would combine 2 years of training in general medicine and 2 years of training in geriatrics medicine. The report also recommended the development

of an aggressive marketing campaign targeted at administrators and students to effect a major change in attitudes toward geriatric medicine. It emphasized the need for marketing professionals to be at the core of this effort.

GERIATRICS CURRICULUM AND IMPLEMENTATION GRANTS

Besdine (1993) has recommended the establishment of geriatrics curriculum development and implementation grants to medical schools that develop and implement mandatory basic science and clinical curriculum components on aging. He also recommends similar awards to residency programs for the addition of mandatory training in geriatrics. The ADGAP proposal also recommends the development of public policy initiatives that will require institutions that receive a great deal of revenue from Medicare to offer appropriate geriatric training experiences in suitable clinical settings.

INCREASING EXPERTISE IN NON-PRIMARY CARE SPECIALTIES

At the residency level, the John A. Hartford Foundation awarded the American Geriatrics Society a planning grant for "increasing geriatrics expertise in non-primary care specialties." The following were among the general recommendations emanating from that planning grant.

1. Work with residency program directors to (a) sensitize them to the need for more training in geriatrics, (b) develop a cadre of leaders with additional expertise in geriatrics, and (c) develop a model core curriculum for training programs.
2. Work with credentialing bodies to review the national medical examinations for their geriatrics contents, to test performance on geriatrics questions, and to explore the development of additional questions on geriatrics.
3. Encourage joint educational activities between geriatrics and non-primary care disciplines.
4. Support research in geriatrics-related topics within each discipline.
5. Work with medical specialties that decide to support graduate courses and symposia on geriatrics topics and special interest groups in geriatrics.

CENTERS OF EXCELLENCE

In the study carried out by the University of California, Los Angeles (UCLA) in 1981 at the request of the National Institute on Aging, it was suggested that one of the important strategies to be considered in developing a

cadre of academic leadership for the field was the creation of a limited number of what was termed Centers of Excellence (Kane et al., 1981a). It was felt that this was particularly applicable in the early stages of the evolution of geriatrics as a field of medicine. This model had been followed in a number of other areas of medicine that were provided core funding to undertake both research and training activities. These centers were expected to supply both personnel and techniques of care to the larger medical field, and the recommendation emphasized that, given the small number of currently qualified individuals available at that time and the broad range of needed talents and disciplines, this approach had very real appeal. That report also emphasized that this consolidation strategy would raise issues of how best to allocate research and training support and pointed out that the Centers of Excellence approach would be of maximal benefit in the early days of faculty training, when most of the needed products of training would not have been deployed.

The 1987 Institute of Medicine (IOM) report on leadership for academic geriatric medicine also recommended the creation of centers of academic excellence. The conferees at the IOM prereport writing conference had clearly been influenced by the recognition of the need for contributions from several of the relevant disciplines involved in academic training programs in order to implement strong clinical and research programs in geriatrics in academic medical centers. The report emphasized that the Centers of Excellence would focus on the training of faculty geriatricians in an environment with model teachers for educational training, vigorous basic, clinical, and health services research; and a variety of clinical opportunities.

Since publication of the IOM report, the Centers of Excellence concept has developed slowly on the national scene. Most, if not all, centers have been pieced together from multiple funding sources from both the public and the private sectors. This funding has been of varying duration and has been influenced by the national economic constraints of the day. The resulting instability of the support mechanism for the Centers of Excellence approach threatens the continuance of many centers. There is anecdotal evidence, for example, that the recent major reduction in funding by the Bureau of Health Professions in support of its two major programs on aging may make it impossible for some of the established Centers of Excellence to survive. As part of national policy, it would seem to be critical to ensure the survival of those centers that are meeting national needs in training and research in geriatrics.

Geriatrics can clearly benefit from the history of academic programs in other areas, most pertinently, oncology. The environment, however, is very different from that when academic programs were established, in that most of the other special areas matured in times of abundant economic resources and not in the current period of economic austerity. Oncology was an unattractive area until the federal government spurred an interest in all research related to cancer. The national commitment guaranteed stable and adequate financial support through

the National Cancer Institute, and as a result, oncology developed a high-quality academic identity on the basis of its clinical care, training, and research efforts. This experience provides a valuable model for the future development of academic geriatrics, because there are important parallels between oncology and geriatrics: the existence of a clinical data base, a patient population that cuts across many disciplines, the presence of a defined scientific data base, and a large central funding source that supports research and training on aging.

Perhaps the most compelling evidence for the value of the Centers of Excellence model stems from the U.S. Department of Veterans Affairs (DVA) Geriatric Research, Education and Clinical Centers (GRECCs) (Marsha Goodwin, DVA, and John Morley, St. Louis University School of Medicine, personal communication, 1993). Beginning in 1975, GRECCS were established nationwide and now number 16. The staffing model adopted for each GRECC specifies 12 full-time equivalent employees, including a director, three associate directors (research, education and evaluation, and clinical), five researchers (a combination of basic and clinical scientists), and three administrative support staff. These Centers of Excellence have had remarkable success in meeting each of their missions (research, education, and clinical service). Especially noteworthy has been the ability of GRECC researchers to compete for non-DVA research funding. In fact, funding from non-DVA sources has made up an increasing proportion of their total research funding (from 48 percent in 1981 to 79 percent in 1991). Concurrently, the number of publications from GRECCs has risen from 254 in 1981 (8 GRECCs) to 617 in 1991 (12 GRECCs). As mentioned above, approximately 284 geriatric medicine fellows have been trained since 1982, and the GRECCs train more than 1,000 medical, dental, nursing, and associated health trainees on an annual basis. GRECCs have been instrumental in the development of geriatric evaluation and management units and dementia units as well as other clinical programs. Such success argues strongly for stable funding of Centers of Excellence.

REPLICATING THE USPHS AND NIH MODEL

A modification of the John A. Hartford Foundation-funded Student Research Program might be made. Its purpose would be to further develop and retain undergraduate medical students with an interest in geriatrics medicine. The ultimate goal would be for the students to attain faculty leadership positions when they had completed their formal research and educational training process. The principles have succeeded in successfully recruiting students to such programs in the past, perhaps best typified by U.S. Public Health Service (USPHS) initiatives in directing physicians to underserved communities, might be used. A program of this type might support medical students in their undergraduate years by providing tuition and a small stipend for living expenses,

with the provision that the student would spend an equivalent amount of "payback" time in further training in geriatrics.

This same model was used by the National Institutes of Health (NIH) in its fellowship programs. Those programs had positive outcomes; several of those who participated in the program remained involved in research either in academic or private-sector laboratories. A program such as this would clearly be subject to attrition or the loss of trainees to other areas, but this would not be a financial burden to the funding agencies because students who did not complete the undergraduate and graduate training programs in geriatrics could be required to repay the scholarship plus interest. A multiplicity of details about a program of this type would need to be addressed, in part on the basis of whether it was funded from public or private sources.

JOINT GERIATRIC OR OTHER SUBSPECIALTY TRAINING PROGRAMS

A strategy to recruit first-class trainees into physician-scientist training programs in geriatrics medicine must recognize one of the reasons for the difficulty in recruiting trainees that both prospective trainees and departmental chairs have voiced. Potential trainees recognize that it is essential for them to develop specific key skills and expertise in well-recognized areas of scientific investigation to compete successfully for funding and promotion in the demanding environment of academic medicine. Department chairs, in an informal survey carried out at UCLA, perceive the importance of developing physician-scientists with expertise in geriatrics within their departments so that those individuals can assume positions in the academic leadership However, they often do not see these people coming from the present stream of fellowship trainees in geriatrics because they believe, often for very valid reasons, that trainees in other areas closely related to aging are far superior in terms of their commitments to careers as physician-scientists.

Unfortunately, the majority of the geriatric fellowship programs in the United States focus heavily on clinical training in the usual 2-year fellowship program. The majority of the programs are unable to produce graduates who can compete successfully for Research Career Development Awards and other research grants required to build a successful academic career. A large number of top-ranking medical house staff with strong research interests and talents in areas that are very relevant to geriatric medicine (e.g., cardiology, rheumatology, and endocrinology) choose fellowships in these specific areas rather than in geriatrics. These young future academicians find the majority of geriatric medicine fellowship programs less desirable because they perceive that the programs will not prepare them during the training period to be competitive in their specific field of interest.

On this basis, this obstacle to recruiting first-rate trainees might be overcome by developing a mechanism for supporting combined fellowship training programs in which the individual would take overlapping fellowship training in geriatric medicine and another subspecialty area. Typically, the trainee might spend the first year in intensive clinical training in either geriatrics or a related subspecialty, and during the first 2 years of this combined clinical training there would be a major educational effort directed at preparing the trainee to become a first-rate investigator. The third and fourth years would then be devoted largely to research in aging as it relates to both special areas. The two clinical and the combined research interests would be developed jointly, and the trainees would emerge from such programs highly competitive for essential First Grants and career development awards. It would also have a beneficial effect on the faculty trainers from both disciplines. In addition, it would produce significant savings in training time and decrease the chances of losing the trainee to a single special area. Typically, at least 1 year of training would be saved, a major advantage in attracting trainees and in financing the program. Such combined programs at an academic institution would also put geriatric medicine at the center of a significant portion of the overall academic faculty training effort. This model is conceptually very similar to the Clinical Scholar Program model that was originally jointly sponsored by the Carnegie Corporation and the Commonwealth Fund and that subsequently has received Robert Wood Johnson Foundation funding. The results of that programs have been outstanding.

The requirement for initiating such a program would be the need for a strong host institution with established excellence in both geriatric medicine and subspecialty training, a faculty with the innovative bent and energy needed to put forth the effort required to establish and maintain a successful dual training program, and greater flexibility in the financial support for the combined training effort.

SOLVING THE ACADEMIC LEADERSHIP CRISIS IN GERIATRICS BY RETRAINING SPECIALISTS FOR LEADERSHIP IN AGING

It has been estimated (Lundberg, 1991) that, in attempting to achieve the national goal of a 50:50 specialist-to-generalist ratio, there is an oversupply of 100,000 specialists and subspecialist physicians. It has recently been suggested on a number of occasions (American Board of Internal Medicine, personal communication, 1993; Lundberg, 1993; Physician Payment Review Commission, personal communication, 1993) that the national primary care problem might be reduced by retraining specialists to gain specific competency in primary care medicine. A similar strategy might be highly effective in geriatrics, as can be seen from the midcareer training programs sponsored by both the John A. Hartford Foundation and the Bureau of Health Professions. It would necessitate

the creation of a system of incentives and disincentives that encourages the shift of academic and practicing specialists and subspecialists into geriatrics. Such a system would require a yet-to-be-developed program of retraining or continuing medical education for a population of subspecialist-physicians. Members in the field of geriatrics have already studied the competencies required for the field, and interestingly, these competencies are closely allied to the specific competencies that have been identified by the Pew Health Professions Commission. A next step would be the development of a methodology for assessing the extent to which a potential specialist or subspecialist might have these competencies, and when areas of deficiency are identified, programs could be tailor-made to produce effective faculty in geriatrics with leadership capabilities. Thus, the curricula for these retraining efforts are envisaged to take different lengths of time and offer various types of educational experiences so that individual physicians might achieve competency as leaders in geriatrics faculty. However, retraining would take less time than training new physicians.

Several important practical issues must be considered when developing midcareer retraining programs. First, mechanisms for maintaining physician salaries during the retraining period must be developed. Current stipends for midcareer training under the Bureau of Health Professions fellowship training grants are tied to fellowship salaries, which are frequently less than one third of midcareer faculty salaries. Such salary reductions, even if only transient, might be a deterrent rather than an incentive to retraining and would seriously impair recruitment efforts. Second, issues such as relocation during retraining (if this training was to occur outside of the physician's home institution) and institutional support after the retraining period must be addressed by such programs.

STRENGTHENING FACULTY DEVELOPMENT AND RETENTION PROGRAMS TO REDUCE ATTRITION FROM FACULTY LEADERSHIP ROLES

Previous studies under the auspices of UCLA referred to elsewhere in this report showed that few of those who had formal training in geriatrics were actually assuming the academic roles envisioned for them. It was clear from those data that one of the major obstacles is the excessive amount of clinical and administrative time required of them. The greatest satisfaction with academic geriatrics as a career choice was reported by those physicians whose current activities most closely resembled the models advanced in the 1987 IOM report, that is, an academic leadership role. Job variety and involvement in something other than full-time patient care were associated with more satisfaction by the former trainees. This finding has important implications for the retention of academic geriatricians and emphasizes the importance of faculty leaders (departmental and divisional chairs), facilitating the maintenance of job and role

diversity in teaching and research and limiting the amount of clinical service. Although this is a problem for most faculty in clinical disciplines, it seems particularly important to the younger generation of academic geriatricians.

RECRUITMENT AND MARKETING STRATEGY

Further efforts need to be directed toward changing the attitudes of individuals in leadership positions, medical students, and residents concerning the importance of geriatrics and the major opportunities that exist of they were to embrace the area. Marketing professionals should be involved with professional organizations in highlighting the need, the value, and the opportunities that exist in geriatric medicine. The efforts might begin at the time of enrollment into medical school and be reinforced throughout the undergraduate curriculum. Students who are selecting their residency programs as well as residents who are making fellowship training decisions could also be targeted.

INCREASING THE GERIATRIC MEDICINE CONTENT IN NATIONAL EXAMINATIONS

Nationally sponsored examinations throughout the medical educational continuum are often not considered to have any major effect on the course content of the undergraduate, graduate, or fellowship training curricula. The realities are that, from the potential examinees' perspective, they very much influence what students learn. There needs to be a systematic study of how the national examinations might contain questions that address the special content areas and, when applicable, the skills that are required for the care of elderly people by physicians.

VISIBILITY OF GERIATRICS MEDICINE ON THE NATIONAL AND STATE LEGISLATIVE SCENE

Geriatrics and gerontology often appear to be underrepresented in the ongoing efforts at influencing national legislative and funding decisions. In all probability, several factors contribute to this lack of effectiveness, but one is clearly the large number of lobbying organizations involved but the lack of a coordinated lobbying effort. The Alliance for Aging Research has attempted to address this issue, but much more needs to be done. In a multi- and interdisciplinary activity, conflicting priorities understandably arise, and no effective mechanisms for their resolution exist at this time.

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The 1993 Institute of Medicine Report

In December 1993, the Institute of Medicine published its report *Strengthening Training in Geriatrics for Physicians.* That report was the culmination of a 5-month study conducted in 1993. For that study, the Institute of Medicine convened an expert committee that met twice, commissioned a background paper, and listened to testimony at a 1-day invitational workshop. The committee's recommendations included needs in five general categories: (1) improved education in geriatrics, (2) leadership centers, (3) enhanced attractiveness of geriatrics, (4) revision in payment policies, and (5) research support.

The specific recommendations regarding the need for improved education in geriatrics included the following: the need for funding for development of models of undergraduate curriculum development, increased geriatrics medicine experience in internal medical and family practice residency programs (at least 6 months by 1996 and 9 months by 1999), combined (geriatric medicine and subspecialty) training programs, and the development of a high-quality, national-level clinical scholars-type program in geriatrics. In addition, the report supported an increase in expertise in geriatric medicine by those in non-primary care specialties through a variety of strategies. Finally, the report recognized the importance of developing effective midcareer retraining programs.

Under the heading leadership centers, the report recommended continued federal support for Centers of Excellence sponsored by the National Institute on Aging and the U.S. Department of Veterans Affairs. Moreover, it recommended additional support to allow for a more comprehensive focus on research, education, and clinical services.

The report recommended several strategies to enhance the attractiveness of

geriatrics. Included among these were foundation support for medical student research programs in geriatrics and gerontology and financial stimuli, including low-interest loans for those starting academic careers in geriatric medicine and loan-forgiveness programs for physicians entering training programs in geriatric medicine. The report recognized the need for a marketing effort to create positive attitudes about the importance of geriatrics and the major opportunities that exist in this area; it noted that complementary efforts should be taken to increase the public's awareness of geriatrics as well. In addition, the report recommended that geriatric medicine faculty be protected from excessive clinical obligations.

The report recommended several revisions in payment policies, including separate payment codes for planning and coordinating services for frail elderly patients, the provision of appropriate payment for all health professionals on geriatric teams, and inclusion of nonhospital settings as part of the payment formula used in calculating Medicare's indirect medical education adjustment. Finally, the report recommended increased federal funding for academic and research activities in geriatric medicine.

With that report, the Institute of Medicine outlined a framework and strategy for strengthening training in geriatrics for physicians that may guide health policy decisions in federal and state governments. It may also help foundations to determine priority areas for funding programs in geriatrics. Finally, it helps to provide an inventory for the academic geriatrics community to take stock of its current strengths and weaknesses and plan for the future.

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Acronyms

AAFP	American Academy of Family Physicians
AAGP	American Association for Geriatric Psychiatry
AAMC	Association of American Medical Colleges
ABFP	American Board of Family Practice
ABIM	American Board of Internal Medicine
ACGME	Accreditation Council for Graduate Medical Education
ADGAP	Association of Directors of Geriatric Academic Programs
AFAR	American Federation for Aging Research
AFCR	American Federation for Clinical Research
AGRI	Academic Geriatrics Recruitment Initiative
AGS	American Geriatrics Society
AMA	American Medical Association
ASCI	American Society for Clinical Investigation
CAQGM	Certificate of Added Qualifications in Geriatric Medicine
DVA	U.S. Department of Veterans Affairs
FTE	Full-time equivalent
GRECC	Geriatric Research Education and Clinical Center
IOM	Institute of Medicine
LCME	Liaison Committee on Medical Education

NaSIMM	National Study of Internal Medicine Manpower
NIA	National Institute on Aging
NIH	National Institutes of Health
NIMH	National Institute of Mental Health
UCLA	University of California, Los Angeles
USPHS	U.S. Public Health Service

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