Chapter 10

Manpower and Training

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Manpower and Training

INTRODUCTION

The five medical technologies discussed in the preceding chapters represent an impressive variety of devices and substances capable of sustaining life. This chapter focuses on a crucial element that is common to them all-dependence on qualified personnel. The chapter examines factors that influence the supply, the training, and the interrelationships of pertinent health professionals with each other and with their patients—all of which influence the accessibility, quality, and cost of health care for elderly persons for whom life-sustaining technologies are, or might be, used.

The professions involved in the care of life-threatened elderly people are numerous, diverse, and *changing.* The advent of new technologies to sustain life has been accompanied by major expansion of training initiatives and career opportunities, both inside and outside the traditional health professions. Within the professions of medicine and nursing, new specialties and subspecialties have developed, and members of the traditional professions and older specialties have had to acquire new knowledge and new skills. In addition, entirely new health professions have been created. In the past 25 years, tens of thousands of people have moved into "technology-dependent" health professions.

During roughly the same period, recognition of the vast and growing numbers of elderly persons in the U.S. population has created a new focus within the health professions. After a consciousness-raising characterized as '(almost a revolution" (93), there is now wide agreement among health professionals that "the elderly are not simply old adults" (129), and a significant commitment has emerged within medicine, nursing, and some allied health professions to redress past neglect of the elderly (89).

Another important development is the growing recognition that today's health professionals need to be prepared to deal with the ethical, legal, and economic constraints that modern medical technologies bring to the fore. There is increased attention to the fact that decisionmaking about life-sustaining technologies demands caregivers who understand and are sensitive to ethical and humanitarian principles. These caregivers must not only know their profession and understand the patient population, they must show good judgment and caring, respect for patients' wishes, communication skills, ability to work as part of a health care team, and readiness to help even when healing is no longer possible.

The health professionals who care for elderly patients receiving life-sustaining technologies come from diverse professions and specialties that, very broadly, represent two orientations: the generalist approach of primary care and, in contrast, the more focused approach of critical or intensive care. Specialized care of the elderly, i.e,, *geriatrics,* is closely aligned with adult primary care.

Health professionals who specialize in primary care and geriatrics, on the one hand, and those who specialize in critical care, on the other hand, increasingly meet in the clinical arena. Relationships between them, however, have received little attention. One purpose of this chapter is to explore these relationships and how they may affeet the care elderly patients receive. The focus is on the setting in which most of this interaction occurs, i.e., the acute care hospital.

Federal policies and programs have important direct and indirect effects on the health professions. Federal manpower policies, for example, include explicit measures to influence the overall supply of health professionals as well as measures to change their specialty and geographic distribution. Other Federal policies and programs, including Medicare, influence the supply, specialty, and geographic distribution indirectly. Federal regulations regarding certification of hospitals and nursing homes by Medicare, for example, impose standards for the number and skill levels of caregivers that Medicare-certified institutions employ. Federal policies regarding reimbursement for patient care affect the demand for certain proce-

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dures and technologies; these factors in turn indirectly influence the specialty choices and career opportunities of health professionals (72,74). Some of these policies have favored the development of medical technologies and medical specialties over primary care. other Federal programs and policies have been specifically directed to improve primary care for elderly people and access to it.

Some important manpower and training questions, such as questions about how medical expertise and responsibilities are best organized, are only secondarily related to public policy. Whether or not geriatrics warrants status as a separate medical specialty, or whether nurses should provide respiratory therapy, for example, are questions for knowledgeable professionals to decide. A profession's decisions about what its members must know and what they may do, however, have important ramifications that fall squarely within the interest of both policymakers and patients. Furthermore, Federal policies that affect health professions training and health care reimbursement have an impact on the professions' ability to implement their intended policies.

CAREGIVERS' AND THEIR ROLES

The medical technologies considered in this report involve an enormous array of professions and individuals. This chapter focuses on the physicians, nurses, and allied health professionals who provide direct patient care, especially in hospitals. Essential behind-the-scenes professionals, including researchers and engineers, hospital administrators, and others, are beyond the scope of this discussion. Similarly, the importance of psychologists, clergy, lawyers, and other professionals who serve counseling and coordinating functions is recognized but not addressed.

In some settings, nonprofessional staff contribute to the care of seriously ill elderly persons who may be candidates for life-sustaining treatments, and, at times, they contribute to treatment decisions. In nursing homes, where aides constitute by far the largest proportion of caregivers (78), responsibility for decisions about transferring a resident to a hospital for the initiation of life-sustaining treatment belongs to professional nurses and physicians. However, professional staff are often unaware of changes in a resident's condition unless notified by an aide. So, while nonprofessional staff are not routinely or intentionally involved in treatment decisions, they sometimes play a role.

Another major category of caregivers, especially for patients in their own homes, consists of family members, friends, and patients themselves. These lay caregivers provide routine care and also

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'The term "caregivers" is used to refer collectively to professional personnel and other persons who provide patient care.

may make critical decisions about when to call professional help. OTA acknowledges the importance of family and other nonprofessional caregivers–and their increasing importance as more life-sustaining treatment moves outside the hospital. The availability, training, and supervision of lay caregivers and their need for social and financial support are discussed in chapters 5 through 9.

Physicians and, to a lesser extent, nurses most often play the key roles in making recommendations about implementing life-sustaining treatments. However, "physicians and nurses" includes a range of actors such as primary care physicians, specialists and subspecialists; the patient's long-time personal physician as well as consultants the patient may never meet; highly trained professional nurses as well as practical nurses; individuals with extensive experience and others still in training. In addition, many categories of allied health workers are involved in the delivery of life-sustaining technologies. Ensuring that the necessary combination of expertise (whether this is embodied in a single individual or a health care *team)* is available for all patients is a major concern.

Specialists in Primary Care and Geriatrics

Primary care practitioners are those health professionals who have initial contact with and ongoing responsibility to the patient, Most often, adult primary care is provided by a physician who

is a specialist in internal medicine or family practice. In some settings, especially long-term care institutions, professional nurses and nurse practitioners may provide primary care. The functions of primary care professionals include identifying and managing illness and-especially important in the case of patients with complex conditions and needs—referral of patients to other health professionals or services. Relative to other specialists who may be drawn into a case, whose expertise relates to one or another organ, system, or disease, primary care physicians and nurses have a more holistic perspective and often broader knowledge of the patient, sometimes through a relationship established over many years.

A geriatrician is a physician who possesses special knowledge of geriatrics or geriatric medicine, i.e., "the medical knowledge of physical disability in older persons—including the diagnosis, treatment, and prevention of disorders" (148). Although most geriatricians are trained as primary care practitioners, a geriatrician is seldom the "primary" physician to be consulted. *Gerontologic nurses* and *geriatric nurse practitioners* are the other major groups of health professionals that specialize in the care of the elderly.

Specialists in geriatrics and gerontology have a broad approach to the patient that includes psychosocial as well as biomedical characteristics, and interest in preventing illness and disability as well as restoring maximum functioning and health. In medicine, the breadth of geriatrics and the resulting overlap with better established medical specialties contributes to ambiguity about the proper disciplinary boundaries (138) and the optimal relationships between geriatricians and other physicians.2

2There has been considerable debate over whether geriatric medicine consists of a discrete body of knowledge and skills that warrants clinical or pedagogic organization as an independent specialty, whether it should be included in all adult medical specialties, or whether it should be a subspecialty of internal medicine, family practice, or both. This debate appears to be coming to a close with the recent decision by the American Board of Medical Specialties to authorize the American Board of Family Practice and the American Board of Internal Medicine to offer special geriatric certification within family practice and internal medicine. Geriatrics is not currently a formal (i.e., board-certifiable) specialty or subspecialty and OTA uses the terms "geriatrician" and "geriatric specialist" interchangeably (see "Credentials in Geriatric Medicine and Nursing,") below).

It is important to recognize that the vast majority of primary care practitioners involved in the care of elderly patients are not specialists in geriatrics or gerontology. Some physicians regard their work as "geriatric" simply because they have a great many elderly patients by virtue of their work setting, the number of years they have been in practice, the age distribution of patients requiring their expertise, or their geographic location (103). It was estimated over a decade ago that 40 percent of the average internist's patients were 65 or older and that they took up about 60 percent of the internist's time (33). A more recent prediction is that medical school graduates will, at the peak of their careers, spend 75 percent of their time with patients who are 65 or older (27). Clearly, however, caring for elderly persons does not qualify one as a specialist in geriatrics. (By the same token, age 65 alone does not necessarily mean that a patient requires a physician with special geriatric expertise. Most authorities cite 75 as a more accurate criterion for the "geriatric population.")

Specialists in Critical Care Medicine and Nursing

The widespread development and application of modern life-sustaining technologies has caused and, in turn, has been assisted by the development of new specialties-most notably critical care medicine and critical care nursing—in a new health care setting, the intensive care unit (ICU). In the intensive care setting, physicians, nurses, and other health professionals work together closely, ideally as members of the ICU team. A National Institutes of Health consensus development conference characterized critical care as:

> a multidisciplinary and multiprofessional medical/nursing field concerned with patients who have sustained or are at risk of sustaining acute life-threatening single or multiple organ system failure due to disease or injury (115).

The Society of Critical Care Medicine has approximately 2,900 members. Almost 90 percent are physicians; the rest are mainly nurses and respiratory therapists (135). The primary specialty of most critical care physicians (also referred to as "intensivists") is either internal medicine, anesthesiology, surgery, or pediatrics. However,

physicians from many other specialties (e.g., emergency medicine, neurology) and subspecialties (e.g., pulmonary medicine, cardiology, nephrology) are routinely involved in the care of critically ill elderly patients.

Nurses who specialize in critical care provide nursing diagnoses and interventions in life-threatening illness. According to the American Association of Critical-Care Nurses (AACN), critical care nurses are challenged to provide "humanistic care in the high-technology world today and in the future" (4). Membership in the association, one indicator of the number of nurses working in critical care, is currently about 53,000 (44).

Under the umbrella of critical or intensive care, another level of specialization is pertinent to the provision of life-sustaining technologies. For example, critical care nurses may specialize in respiratory care, parenteral and enteral nutrition, or intravenous therapy. A very small number of critical care nurses have had training in gerontological nursing (127). In other health professions, where the work is not exclusively with critically ill patients, the same pattern exists. For instance, there are dietitians who specialize in critical care and social workers who specialize in nephrology.

In large teaching hospitals, it is estimated that approximately 35 percent of all ICU patients are at least 65 years old (149). Thus, most health care professionals involved in the implementation of life-sustaining technologies have considerable experience with elderly patients. As suggested above, however, exposure to elderly patients does not guarantee the special knowledge, attitudes, and skills that good geriatric care requires. There appears to be no educational or training program within either critical care medicine or nursing that focuses attention on elderly patients (44,69). The position of AACN is that:

> ... the practice of critical care nursing is generic to any critically ill patient, regardless of the age of that patient and that knowledge of the lifespan processes affecting individuals is given in one's basic nursing education program (44).

Allied Health Professionals

In the provision of life-sustaining technologies, the roles of physicians and nurses are supplemented and complemented by allied health professionals who are responsible for specific, often highly technical tasks. The allied health professions most closely linked to resuscitation, mechanical ventilation, dialysis, and nutritional support are briefly described here. Life-sustaining antibiotic therapy is prescribed by a physician and administered by a registered nurse; in general, such therapy does not require personnel that are unique to this technology (see "Technology-Specific Credentials," below).

- In the hospital, resuscitation is usually performed by physicians or nurses who have been trained and certified in cardiopulmonary resuscitation (CPR). They maybe assisted by *respiratory therapists* or by *paramedics (see* below),
- In the community, *emergency medical technicians (EMPTs)* are usually the first health professionals to arrive at the scene of an accident or medical emergency. Both EMT-ambulance and the more highly trained EMT-paramedics provide basic life support to restore breathing, treat shock, control bleeding, etc. The EMT-paramedic may implement advanced life support technologies including administration of drugs and oxygen, insertion of an intravenous line, incubation of the lung, and operation of a defibrillator. All these and other treatments are performed under the supervision of a physician, with whom the EMT is in constant communication (76,81).
- *Respiratory therapists* and *respiratory therapy technicians* may administer mechanical ventilation, oxygen therapy, assist in CPR, and perform other less invasive treatments including chest physiotherapy. Other responsibilities include performing diagnostic tests and monitoring, as well as adjusting, sterilizing, and maintaining equipment.

  Respiratory therapists are more highly trained than respiratory therapy technicians and are

generally given more responsibility (including research, teaching, and supervision of respiratory therapy technicians), but their actual duties vary greatly from one hospital to another (76)106). Both types of personnel work under the supervision of the chief of the respiratory service (a physician or respiratory therapist).

Respiratory therapy assistants have limited patient contact; their roles include cleaning and maintaining equipment, processing inventory, and other clerical duties (2).

- *Dialysis technicians,* working under the supervision of either medical or nursing personnel, function in one or more of four areas: direct patient care, research, administration, and equipment maintenance and repair (5).

- *Dietitians* have roles that may be primarily clinical, administrative, research, or teaching; they may work as staff of an institution, as consultants, or in the community (106). Specialists referred to as *nutritional support dietitians* or *dietitians in critical care* are skilled in the use of enteral and parenteral solutions, modular nutrients and foods. They collaborate with physicians, nurses, and pharmacists to assess nutritional status, design dietary treatment, and monitor its effectiveness. Under the guidance of a registered dietitian, *dietetic technicians* and *dietetic assistants* may also be involved in the care of patients receiving enteral nutrition (6,14).

- *Nutritional support pharmacists* are specialists who participate in the assessment and care of patients who may require nutritional support, In collaboration with other health professionals, the pharmacist's role includes ongoing assessment and planning, provision of care, monitoring and evaluating the patient's response. It is also the role of the pharmacist to prevent problems related to the interactions between nutrients and drugs a patient is receiving (15).

- The role of *medical social workers is* to help prevent or resolve social, psychological, and economic crises that may arise from an illness, the proposed treatment, or the environment. They may contribute to decisions about the use of life-sustaining technologies by providing other caregivers a composite picture of the patient within the context of his or her family, life-style, and community. They educate and provide emotional support to patients and family members, to help them understand the situation and options. Preceding a patient's discharge from a hospital, or in the event of death, medical social workers identify community services and make logistical arrangements (105,106). Some social workers, e.g., *nephrology social workers,* specialize in the care of particular groups of patients.

THE HISTORICAL CONTEXT OF GERIATRIC PRACTICE

The establishment of Medicare in 1965 helped focus public attention on the health care needs of the elderly, but predated almost all opportunities for health professions education and training in geriatrics or gerontology. A 1969 survey found that fewer than half the medical schools in the country (48 of the 99 schools then in operation) included in their curricula even a single course with any identifiable content related to aging (62). The Division of Gerontological Nursing within the American Nurses' Association had been established in 1961; advanced nurse training leading to certification as a geriatric nurse practitioner, however, did not become available until the 1970s. Programs to prepare allied health professionals in geriatrics and gerontology are much more recent than programs in medicine or nursing.

Largely because of Federal support, major progress has been made in expanding the educational and training opportunities in geriatrics and gerontology. However, very serious deficits remain in the level of geriatric expertise among health care professionals generally and in the number of individuals who have chosen to specialize in the care of the elderly.

In 1978, a study conducted by the Institute of Medicine found serious deficits in geriatrics education and training in medical schools as well as postdoctoral and continuing medical education (77). Only a few schools offered geriatrics as a sep-

arate subject, and almost no schools required it. A 1983 survey of geriatric education in medical schools documented considerable expansion of geriatric course offerings, but found that in 28 percent of the responding medical schools, geriatrics was still either elective or unavailable (21).

While some gerontological content is now included in most basic professional nurse training programs, only about 14 percent of these programs offer full courses in gerontological nursing (148). Until 1981, the geriatric track was an option within programs that were based on the core curriculum for adult nurse practitioners (52). Now, among approximately 200 nurse practitioner programs, about 40 have a primary focus in geriatrics and approximately 31 others have a gerontological component (148). Many of these programs, however, have as few as three or four trainees (155).

In the allied health professions, the extent of training opportunities is difficult to assess, in part because '(allied health professions" includes so many different groups. Recognition of the need for attention to the elderly is evident in the American Dietetic Association's 1978 establishment of the Gerontological Nutrition Dietetic Practice Group and the American Society of Allied Health Professions' 1986 establishment of a National Task Force on Geriatric Care Education (134). Another indication of the developing interest in geriatrics among the allied health professions is that a Department of Health and Human Services (DHHS) forum on Personnel for Health Needs of the Elderly, held in October 1986, drew presentations by official representatives of respiratory care, social work, physicians assistants, occupational therapy, optometry, and others.

Federal Support for Geriatrics

Federal support of geriatric training began with early Veterans Administration (VA) programs and was greatly bolstered by the establishment of the National Institute on Aging (NIA) in 1974. Currently, geriatric education and training receives support from the VA and from several DHHS agencies (the Administration on Aging, National Institute on Mental Health, and the Health Resources and Services Administration) in addition to NIA.

There is considerable range in the scope, focus, and financial commitment of these various agencies to geriatrics. In addition to the Federal Government, a number of State governments and private foundations have also demonstrated their interest and commitment to strengthening geriatric manpower. Some programs are designed to increase geriatric knowledge and skills among health professionals generally; others are designed to prepare leaders in geriatric teaching, research, and practice.

The largest Federal programs in geriatrics are the VA's Geriatric Research, Education and Clinical Centers (GRECCs) and the Health Resources and Services Administration's Geriatric Education Centers (GECs). These multidisciplinary training centers are important resources for both students and practicing health professionals. GECs increase the "presence" of geriatrics within academic institutions and their communities, and increase access to training and to trained caregivers, including some of the professionals involved in the delivery of life-sustaining technologies. Some of the GRECCs are focused on problems relevant to life-sustaining technologies. The GRECC in Little Rock and the one in St. Louis, for example, have been designated as "nutrition GRECCs."

In contrast, the rapid development of the medical specialties that are associated with critical care (cardiology, pulmonology, nephrology, oncology, and others) was facilitated by extensive Federal support of biomedical research during the 1960s and 1970s and by Medicare's support of hospital-based clinical training. However, there have been no Federal programs specifically earmarked for support of training in critical care medicine or critical care nursing.[3]

It is recognized within the Federal Government that, despite the commitment of funds, the clear progress, and a projected surplus in the total physician supply (145), the supply of health professionals with expertise in geriatrics remains very

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[3]Training programs in critical care have had to compete for more general health professions education funds, for example, through Title VII (medical training) and VIII (nurse training) of the Public Health Service Act. Some observers believe that the recent designation of critical care medicine as a subspecialty will improve its ability to secure funding (69).

inadequate. In 1984, an NIA report cited continuing deficits in available education and training of physicians, nurses, and other professionals in geriatrics and gerontology (148), Specific steps to alleviate these deficits were recommended. A 1985 amendment (H.R. 2409) to the Public Health Service Act required the Secretary of Health and Human Services to conduct a study on the adequacy and availability of health personnel to care for America's elderly over the next four decades (143). The Secretary's report will be presented to Congress in mid-1987.

The shortage of qualified teachers is a serious problem, and it helps perpetuate the shortage of qualified practitioners. In nursing, "the inadequate preparation of faculty in gerontology" is cited as the "largest single problem in strengthening the gerontological content in basic schools of nursing" (148). The same was concluded about medicine in 1984 (148) and again in 1986 at an Institute of Medicine and NIA workshop, which concluded that the number of well-prepared medical faculty is far from adequate, and opportunities for would-be faculty to receive appropriate graduate training remain very limited. In 1985-86, there were 48 fellowship programs in geriatric medicine offering 176 positions (and 21 fellowship programs in geropsychiatry, offering 52 positions) (23).' In nursing and the allied health professions, training opportunities are even more limited.

Shortage of Geriatric Expertise

Caregivers who lack formal education and training in geriatrics are not necessarily unprepared to care for elderly patients. Nevertheless, there is ample evidence of a severe shortage of medical and nursing expertise relevant to the complex problems presented by many elderly patients. Disease and disability among the elderly are frequently misdiagnosed, mistreated, or simply written off as concomitants of normal aging. A condition that is aggressively treated in younger people

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'Experience suggests this would result in about 65 graduates per year (23).

may be mistakenly regarded as irreversible—or it may be perceived as a blessing.

Geriatric consultation units have reported finding many elderly hospitalized patients with potentially treatable conditions that had been either misdiagnosed or overlooked entirely (1,38)94). Some examples of inadequate knowledge and skills regarding elderly patients or ageist biases that are relevant to life-sustaining technologies are: caregivers' difficulty in assessing the decisionmaking capacity of some elderly patients; the assumption that elderly patients will not do well on dialysis or that elderly ventilator patients can never be cared for at home; or, alternatively, the belief that the same nutritional support formulas or drug dosages used for young adults are suitable for the old.

Because of geriatrics' late entry in academia there is a considerable need for continuing education programs in geriatrics. Such programs are the only way to reach the majority of health professionals whose formal education predated opportunities in geriatrics, In the last few years, medical schools, State and local medical societies, professional societies, and others have increasingly offered courses for practicing physicians and nurses. However, there are no mechanisms either to require participation in geriatric continuing education programs or to control the quality of the programs.

Advanced training in geriatrics seldom includes special attention to the care of the critically ill. Fellowship programs in geriatric medicine generally do not include training in ICUs, and certification in gerontological nursing does not require experience with the critically ill. As a result, some geriatric specialists might have unrealistic expectations about what critical care can accomplish and may seek admission to the ICU for elderly patients who cannot be helped there. Conversely, postgraduate medical and nursing training in critical care does not appear to include specific attention to aging (7). A certain amount of cross-training in geriatrics and critical care could improve communication among caregivers and, thus, lead to more appropriate treatment decisions on behalf of elderly patients.

Shortage of Geriatric Specialists

Physicians

In addition to the need for geriatric expertise among primary care physicians, there is also a need for a certain number of specialists to serve as teachers, researchers, medical directors in nursing homes, and as consultants in complex cases (35). In a landmark study commissioned by NIA, researchers at the Rand Corp. developed estimates of the need for these geriatric specialists. By 1990, Rand estimated, there will be a need for approximately 8,000 full-time-equivalent (FTE) geriatricians providing patient care and 900 FTE academic geriatricians (82). Rand's projections were conservative in that they were targeted to the population aged 75 and older, assumed only a small increment in the quality of care, and did not include the large and crucial component of geropsychiatrists. Moreover, one author of the Rand report now points out that, when newer demographic projections are taken into account, the need for geriatric specialists is much higher than originally estimated (22). In sharp contrast to the estimates of need, unpublished data from the 1983 Physician Masterfile of the American Medical Association included only 1,833 physicians who identified geriatrics among their specialty fields (104). In March 1986, American Medical Association data included only 922 active physicians who identified geriatrics as their primary specialty (12).

A 1982 survey of physicians found that the estimated number who designated geriatrics as one of their specialties more than doubled between 1977 and 1982, from 715 to 1,618 nationally (103); since 1982, further annual increases have been documented (104). However, physicians tend to enter geriatrics relatively late (mean age 39) and spend, on average, only half their work week in geriatrics, factors that effectively reduce their contribution to the manpower supply, In 1982, there were approximately 10 percent of the number of FTE geriatric clinicians and 13 percent of the number of FTE researchers/teachers that Rand said would be needed in 1990 (103).

Nurses

Similarly, there is a severe shortage of nurses specializing in gerontology or geriatrics. A 1983 report by the Institute of Medicine concluded that registered nurses with graduate education prepared to administer the increasingly complex care demanded in some settings (e.g., the ICU), as well as nurses willing and trained to work with the elderly, especially in nursing homes, remain in short supply (as do nurses in rural areas and inner cities), while the general nurse shortage of the 1960s and 1970s has dissipated (78). Consistent with this conclusion, a 1984 DHHS report to Congress (148) identified a severe shortage of nurses adequately trained to care for the elderly or to teach in nursing schools. Compared with the estimated need for 2,450 gerontological nursing faculty, a 1980 survey by the Health Resources and Services Administration identified only 420 nurses with master's or doctoral degrees whose primary focus was geriatrics or gerontology (148).

Allied Health Professionals

Information regarding geriatric specialization among allied health professionals is unavailable. In view of the limited opportunities for training, however, the numbers of allied health professionals with geriatric expertise are certainly inadequate.

Barriers to Recruitment in Geriatrics

Efforts to attract health professions students to academic experiences in geriatrics and/or to geriatric careers have historically faced a variety of barriers. Low enrollment in elective courses in geriatrics and the shortage of applicants for geriatric fellowships (with the result that some positions go unfilled) are indicators that interest is still limited. In New York, geriatrics has been exempted from a State policy that excludes foreign medical graduates from postgraduate medical training (121). The ability of unlicensed physicians to secure work in some nursing homes and the shortage of nurses for nursing home work (78) are further indications that competition for jobs in geriatrics remains low.

One reason is ageism, the general societal prejudice against the elderly (33,35). The irreversibility and deterioration associated with many chronic conditions and the poor prognosis of many elderly

patients with acute illness are powerful images, particularly when contrasted to the physician's self image as a healer. Working with elderly patients is said to evoke caregivers' fears of their own old age, their own mortality and their relationships with elderly family members as well as fears of their fallibility (45,96). Compared with care of the elderly in general, care focused on the critically and terminally ill elderly may intensify these fears. Furthermore, the negative attitudes and stereotypes frequently associated with old people appear also to adhere to the individuals who provide their health care (60). Geriatricians have been stereotyped as sympathetic but underskilled physicians who drifted into geriatrics as their patients (and they themselves) aged. Nurses who work in nursing homes have been widely regarded as inexperienced and undereducated (142).

Another reason for disinterest in geriatrics has been the relatively low remunerative potential. It is no secret that "older patients are somewhat of a losing proposition if they are considered simply in a business sense" (92). When first established, Medicare and Medicaid appeared to some health professionals to create a new market for their services. By providing reimbursement for the care of elderly (and other) patients, these programs drew attention to geriatrics and stimulated interest both in caring for elderly persons and in working in nursing homes. More recently, however, the limited reimbursement available under these programs has been cited as a disincentive to geriatric work (54,92,131). Although coverage and reimbursement levels under Medicare Part B provide financial incentives to physicians in hospital-based, procedure-oriented specialties, the relatively low reimbursement available for the more '(cognitive" specialties is an economic disincentive for primary care specialties in general and geriatrics in particular. There is, for example, no allowance in Medicare reimbursement for patients who require excessive amounts of a physician's time, whether for extended office visits, frequent phone consultations, or travel to a nursing home.

For registered nurses who complete advanced training in geriatrics or gerontology, Federal reimbursement policy may actually restrict employ-ment opportunities. The services of geriatric nurse practitioners are directly reimbursable by Medicare, but only when the geriatric nurse practitioner is supervised onsite by a licensed physician. In hospitals, this requirement is easily met. In most nursing homes, however, this requirement makes reimbursement difficult to obtain. As a result, highly trained geriatric nurse practitioners are too expensive for most nursing homes to hire. Similarly, Medicaid's restricted payments for skilled nursing personnel appear to leave most nursing homes with a choice of paying high salaries to a few highly trained nurses or paying low salaries to a large number of unskilled aides (78).

Another source of negativism regarding geriatrics—of particular relevance to this discussion—is the fascination of American medicine with technology and the view that geriatrics is a "low-tech" field, concerned primarily with the management of patients with chronic, irremediable problems. Nursing homes, where most geriatric work is assumed (wrongly) to occur, have been dubbed a '(no tech" environment (101). Under this view, the application of high-technology critical care medicine and geriatrics might seem antithetical. Persistence of the low-tech image contributes to the belief that geriatrics is an unexciting, unchallenging field.

Failure to see the relevance of medical technology in general and critical care technologies in particular to geriatric practice could be attributed to the attitude that the potential life-sustaining benefits of complex, expensive medical care are "wasted" on the old. Or, it could be attributed to the belief that geriatricians are exclusively concerned with chronic illness and that patients in their care escape the acute life-threatening episodes that occur in other age groups.

In comparing geriatrics with other medical specialties, the issue may not be how much or how "high" the technology, but qualitative differences in the technologies that are relevant. In geriatrics, tools for functional assessment and differential diagnosis, rather than technological hardware, are the mainstay. However, it is necessary that the geriatrician know enough about potential life-sustaining technologies and their efficacy to con-

tribute to decisions about their use for individual patients. This includes:

> . . . competent familiarity with the capabilities of the latest in medical technology, a discerning sense of judgment about when and when not to use such interventions, and the courage and energy to take seriously the social role of advocate for the patient (41).

EDUCATION AND TRAINING NEEDS: SELECTED CONTENT AREAS

The knowledge applicable to the care of elderly patients who are candidates for or already receiving life-sustaining technologies maybe considered in two very broad categories: general knowledge about caring for elderly patients who are critically ill, terminally ill, or severely debilitated and knowledge that is linked to the use of specific technologies. The following selective review identifies subjects that may have particular importance in the assessment and care of life-threatened elderly patients.

Technology-Independent Content

Some essential knowledge is not linked to any life-sustaining technology in particular but is basic to decisions about the use of all life-sustaining technologies for elderly persons. Knowledge of this sort includes clinical factors that distinguish elderly patients from younger ones and humanitarian and social perspectives that recognize the uniqueness and autonomy of each elderly patient.

Clinical Geriatrics

Health professionals caring for severely ill elderly patients must be knowledgeable about age-related physiological factors, and their interactions. To make correct diagnoses and treatment recommendations for elderly patients, caregivers must know that certain illnesses have unusual presentations or progressions in elderly patients. The presentation of some illnesses in elderly patients may be characterized by specific signs and symptoms that differ from the classic presentation of the same illness in younger adults, or frequently, by nonspecific signs and symptoms that do not clearly indicate the affected organ system. Elderly patients having heart attacks, for example, do not always experience chest pain. Instead, they may have other signs and symptoms such as sudden loss of consciousness, confusion, or sudden onset of heart failure. Pneumonia may be present without any of the classic signs (e.g., fever, elevated white blood cell count); instead, there may be only nonspecific manifestations such as confusion, lethargy, or weakness (16,129,130).

Caregivers must recognize that elderly patients are at higher risk than younger patients for developing complications of illness and complications of treatments. Because complications, especially those related to drug interactions, drug toxicity, nosocomial infections, and malnutrition, may be severe and potentially fatal, expertise in their prevention and treatment is important. Even while a patient is in the midst of an acute problem that is immediately life-threatening (e.g., respiratory insufficiency) and is treated with some sophisticated technology (e.g., mechanical ventilation), the patient's caregivers must also be concerned with prevention of iatrogenic complications (7).

Certain psychological problems that are more frequent with advanced age become particularly significant when a patient's physiological status is already compromised. Impaired mental functioning (whether due to cognitive or affective disorders) may have serious implications for a patient's ability to participate in treatment decisions and may diminish the efficacy of some life-sustaining treatments. This heightens the importance of caregivers' knowledge about prevention, diagnosis, and possible treatment of psychological problems.

It is essential that caregivers be able to fairly assess each patient's capacity to understand proposed treatment options and to participate in treatment decisions. They must be aware that a patient's mental state may be influenced by a number of factors such as drug toxicity or infection, that the condition may be reversible, and that cognitive impairment can never be dismissed as an aspect of "aging" or '(senility. "

Effective treatment of depression or confusion may facilitate an elderly patient's cooperation with life-sustaining treatments and thus improve their efficacy. It is far easier and safer to administer treatments such as dialysis or mechanical ventilation to a cooperative, lucid patient than to a disoriented, combative one who continually attempts to remove intravenous, nasogastric, or tracheostomy tubes. Also, patients with improved mental functioning are better able to communicate with caregivers about symptoms they may experience and, thereby, can assist in early detection of complications.

When critically ill or diagnosed as terminally ill, patients are at heightened risk for developing new cognitive and affective problems as well as exacerbations of existing conditions. Hospitalization, especially in an ICU, is itself a risk factor for developing certain types of cognitive dysfunction. Psychiatrists and others have described a phenomenon termed "ICU psychosis, " referring to a fairly common occurrence wherein the stress of being an ICU patient induces a temporary psychosis akin to "combat fatigue" in soldiers (70,83,85,136). Physicians must recognize that elderly persons may have less reserve to tolerate the stress engendered by illness and ICU admission and thus may be more likely to develop this iatrogenic condition.

For nurses and certain allied health personnel who typically spend more time with patients than do physicians, psychological expertise is also important. Such expertise can facilitate earlier detection of problems; it can also enable caregivers to exert more positive influence over the patient's subjective experience and to provide patients more help in coping with stress (61,140). Over the last decade, nurses have done much to define and systematize psychological expertise. They have developed nursing diagnostic categories to identify and classify many types of patient problems related to coping and stress, and they have developed nursing management techniques to assist patients with psychological problems (86,87).

Humanities and Human Values

It is increasingly recognized that many clinical problems cannot be understood solely in terms of the biomedical and technical aspects that were the foci of traditional medical education. The introduction of the social and behavioral sciences and, in general, broader concern for humanistic issues represents significant change both in medical education and in the education of other health professions that sometimes take their lead from medicine. Medical school admissions criteria (116), curricula, and teaching methods are being reevaluated (11,20) and, in some cases, revamped in reaction to such trends as ethical issues raised by improved technology, the aging of the population, more patients who wish to be active in treatment decisions, pressure to contain or reduce costs, and the threat of malpractice suits. The Standards for Accreditation of Medical Education Programs Leading to the M.D. Degree, as ratified by the American Medical Association's Liaison Committee on Medical Education in March 1985, state:

> The curriculum cannot be all-encompassing. However, . . . there should be presentation of material on medical ethics and human values. . . . All instruction should stress the need for students to be concerned with the total medical needs of their patients and the effect of social and cultural circumstances on their health. The students must be encouraged to develop and employ scrupulous ethical principles in caring for patients, in relating to patients' families, and to others involved in the care of the patients (13).[5]

A survey of medical schools conducted in 1980 to 1981 found that nearly all medical schools had introduced courses in "humanities" or "human values ." What this means in terms of either content or commitment varies greatly from institution to institution. The range is from a 2-year postdoctoral fellowship in Clinical Medical Ethics,' and full-length required courses, to elective minicourses and informal methods such as "ethics rounds." This instruction may goon in the preclinical years of medical school or during the clinical years and subsequent training (especially during primary care residencies). Formal courses in the humanities range in focus from philosophical ethics, clinical ethics, and death and dying; to his-

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[5]Similarly, the **National League for Nursing Standards of Accreditation for undergraduate and graduate programs in Schools of Nursing require evidence of ethics in the curriculum** (1 13).

[6]In 1986, the **University of Chicago's medical school instituted the first such program.**

tory, law, art, literature, interviewing techniques, and human sexuality (120).

The impact of such curricular innovations on clinical practice is difficult to evaluate. Some advocates of humanities education say that its timing within the full medical school program and the setting in which teaching occurs may have substantial effect on its value. Others are skeptical about any approach that simply adds formal instruction in humanities and ethics to a system in which professional selection and socialization patterns continue to reinforce the status quo. At a time when many believe the need for education in ethics and human values is greater than ever, unstable funding for these programs, much of which has come from the National Endowment for the Humanities and private foundations, threatens the survival of many (40).

Death and Dying

Another new content area in medical education important for caregivers to the critically and terminally ill elderly is "death education." Courses in "death and dying" or "caring for the terminally ill" (like broader humanities courses) have grown out of recognition of the need for a more humanized approach to caregiving. They aim to counterbalance the technical training of health professionals.

Death is viewed by many physicians not merely as the enemy of the patient, but as the "dragon" in their career-long "crusade to protect life" (98), and as a symbol of their own personal defeat. One physician's editorial about his habit of attending his patients' funerals, therefore, attracted national attention (79). More typical is the avoidance behavior depicted in the story in box 10-A.

It is hard to imagine that a physician who cannot accept the death of a patient could help patients and families consider a life-sustaining technology ordeal with the dying process. Physicians' personal and professional difficulty in dealing with the death of their patients underscores the need for education in death and dying.

A 1980 survey of all medical schools in the country found that 80 percent of responding schools offered some formal death education, but that

Box 10-A.—Not on My Shift

She was a 72-year-old woman who had been recently transferred by helicopter from a smaller hospital. She had started bleeding from a duodenal ulcer and was in serious condition. The attending surgeon and medical consultant both agreed to try aggressive medical management because of the risks of surgery. But she continued to bleed despite treatment and was taken to surgery that evening.

It was a Saturday night, and I was getting a report from the surgical resident who had been on call the previous shift. "We had quite a time with your patient last night," he said. "She survived the operation, but I think she'll probably die sometime today."

"Not on my shift," I blurted out without thinking.

As I went through my surgical rotation in medical school, and now in residency, this situation had come up many times. There was always one patient on a service who was close to death. The residents did everything possible not to let the patient die on their night on call. It was inevitable that the patient would die, but to let that person die on your shift was a sign of failure.

My night on call started as usual: an admission from the emergency room to rule out appendicitis, a traffic accident victim with only superficial wounds, a few calls to the floor. Then I was called to the intensive care unit. My patient's blood pressure was dropping, and her urine output was low. From that point, I was in and out of the ICU all night: increasing her fluids, transfusing blood, adding a dopamine drip, inserting a catheter and an arterial line, giving albumin, putting her on a ventilator; it went on and on.

Finally, it was 7 a.m., time for me to give the report to the next surgical resident. I described the evening's work with my patient and said that she was in serious condition, that I thought she would probably die during the day.

The oncoming surgical resident flashed back, "Not on my shift!"

SOURCE: Copyright 1985, American Medical Association. Reprinted by permission. L.A. Crosby, "Not on My Shift," *Journal of the American Medical Association* 253(10):1402, 1985.

very few of these courses existed before the early 1970s. Most schools offered only an occasional lecture or "mini" course; the number of full-term

courses was just 16. At most medical schools, at least half of all students take the death and dying offering (49). A sample medical school course (University of Washington) addresses the following topics: personal attitudes toward death, patient and family reactions to dying, role of the physician, role of the clergy, children and death, medical ethics in terminal illness, aging and death, grief and mourning, symptom management, and interdisciplinary care of terminal illness (65).

The important role nurses play in the care of life-threatened and dying patients has also been recognized, as seen by inclusion of death education in the nursing curriculum. "Nurses have the potential to enhance understanding of death with patients or to create even more problems for patients" (110). A survey of schools of nursing found that by the late 1970s, 45 percent of the responding schools offered some instruction related to death and dying (141). An elective course in '(dying and bereavement" at the University of Wisconsin-Milwaukee nursing school includes these issues: dealing with death, ethical and legal issues, postdeath activities, grief and survivorship, and community resources (139). Another example is a 2-day training program for nursing home nurses that aims to increase their knowledge about death and dying and stimulate empathetic responses (110).

A curriculum on death and dying has also been proposed for allied health (50). The relevance of such curriculum has been discussed for physical therapists, occupational therapists, and some other allied health professionals.

Almost no training is available now to help caregivers deal with *their own* feelings of loss, grief, and self doubt. They are left on their own to develop coping strategies (34), which at times are detrimental to their own well-being or may affect their professional performance. Physicians' responses to patients' deaths may bring physiological or psychological symptoms that can lead to such negative behaviors as minimizing contact with the patient or family, blaming others, and turning to alcohol or drugs (114). The ability of caregivers to resolve their personal feelings requires the kind of understanding that death education may help to provide.

Health Law

Courses in medical law and public policy also have been added recently to the health professions curricula. Topics such as informed consent and patient autonomy are often included. However, law courses for health professionals often direct little attention to the substance and analytical approach of the law and give scant attention to physicians' attitudes toward the law and toward legal risk. One result is that "physicians may unrealistically expect more certainty from the law than they do from medical science" (84).

For physicians currently in practice, the main source of information about the law is advice from hospital lawyers and risk managers. Other sources include articles in medical journals and legal advice columns, and "throw-away" journals that frequently contain articles highlighting concerns about malpractice. Although these are potentially valuable teachers, each has been found to contain occasional errors or biases that misinform and mislead (84). Other problems have resulted because "many lawyers advising . . . hospitals . . . lack experience and training in health law and have little familiarity with either medical practice or hospital procedures" (17).

A potentially important source of information about the law is continuing education; currently, however, few continuing education courses devote much attention to legal aspects of medicine. One exception is the American Heart Association's (AHA) course to recertify physicians in CPR. The handbook for this course includes advice concerning decisions to resuscitate and when resuscitation efforts should be terminated (84).

The lay press and media also provide health professionals information about legal and ethical matters. However, news coverage provides snapshots rather than a developmental view of events. For example, there was much publicity surrounding the murder indictment of two California physicians who discontinued a patient's life-sustaining

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7However, some observers believe that the AHA recommendations are overly consecrative and so based on concerns about litigation that they are at odds with actual clinical practice. Discrepancies between legal advice and clinical practice may intensify physician uncertainty and cynicism about the law (84).

treatment. But, the fact that the doctors were eventually exonerated received little attention. One result was a subsequent case involving physicians who refused to disconnect a ventilator from a braindead patient, even though this procedure was expressly permitted by California law (84).

Decision Analysis

The ability to synthesize and interpret the immense amount of information pertinent to complex clinical decisions and to select from among the many potential treatments is extremely difficult, and it is made ever more difficult as the knowledge base grows. New techniques collectively referred to as "decision analysis)" "medical decisionmaking)" or "clinical decisionmaking" are being developed to help systematize decisionmaking processes and, in particular, to treat objectively the persistent element of uncertainty (42,150). Most proponents of these methods do not claim that this kind of analysis can solve difficult clinical decisions, but rather that physicians who understand and appreciate statistical probability, uncertainty, risk, and error can learn to approach clinical decisions with greater clarity, objectivity, and prognostic accuracy.

Decision analysis methods are quantitative; they may use computers (as well as computerized databases) and sophisticated mathematics, but also accommodate issues of ethical values and cost.[8] The emphasis is on learning to structure complex decision problems, evaluate data, and develop strategies for reaching diagnostic or treatment decisions. "Learning to think scientifically often involves replacing common-sense views with more rigorous analysis" (55). Theoretically, at least, a physician applying decision analysis methods would be more careful than to think, "If I put this patient on a mechanical ventilator, he will probably die anyway." Rather, a specific statistical probability would be computed, and its meaning in relation to an individual patient understood. However, most proponents of these mathematical models insist they are not yet ready for direct clin-

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6ₐ survey of members of the Society for Medical Decision Making found consensus that the following topics were essential for inclusion in introductory decision analysis courses for physicians: Bayes' theorem, decision trees, 2 x 2 tables, sensitivity and specificity, utility, and ROC ("receiver operating characteristics") analysis (57).

ical application—and many believe they never will substitute for a physician's clinical judgment. The methods are not intended to be applied in cookbook fashion that could permit physicians to '(stumble into counter-intuitive traps" (109).

Since the late 1970s, research and training in decision analysis methods have all expanded rapidly. Courses have been introduced into the curricula of some medical schools, postgraduate training, and continuing medical education. At this early point, the extent and effect on patient care remain impossible to evaluate because what is taught in different institutions varies greatly and because much of this instruction is informal (56),

Technology-Specific Content

Much of the essential expertise associated with the delivery of life-sustaining technologies to the elderly is specific to the particular technology being used. Physicians must know the indications and contraindications for the available technologies so that they may offer appropriate treatment; they must also be able to recognize and treat complications. Nurses and other personnel must know how to apply the technology and assess patient response. Although the basic principles of technology-specific expertise are the same regardless of the patient's age, the application of these principles is often more difficult with elderly patients than with other adults because of their more complex patterns of illness. The presence of multiple diseases, including mental disorders, makes the delivery of effective overall treatment an elusive goal if personnel lack the knowledge that permits anticipation, recognition, and response to the special characteristics of many elderly patients.

For example, effective use of dialysis for elderly patients requires knowledge of how certain coexisting chronic diseases may affect this treatment. Vigorous hemodialysis, desirable because of increased efficiency and shorter treatment times, does not seem to be tolerated well by patients with impaired cardiovascular function, who require gentler treatments over longer periods of time. The use of large fluid volumes for peritoneal dialysis (desirable because of increased efficiency) is associated with further compromise of lung function in dialysis patients who also have chronic ob-

structive pulmonary disease (COPD). And dialysis patients with diabetes may need to have their insulin dosages adjusted; in fact, dosages of many common drugs must be modified for dialysis patients (46,100). Another example of technology-specific expertise is that needed to treat a COPD patient on a ventilator who requires nutritional support. To prevent a buildup of carbon dioxide in the bloodstream, which would exacerbate the patient's respiratory condition, the diet should avoid excess glucose (7).

Technology-specific information is very complex and in some fields technological development is very rapid (see app. C, "Future Developments in Life-Sustaining Technologies"). It cannot be assumed that all caregivers know what they should, especially when the technological intervention is for an elderly patient. Besides the limitations *of* some individual caregivers, there are serious limits to the current knowledge base. Dialysis works, but experts do not understand why (see ch. 7). Caregivers may know well how to perform cardio-pulmonary resuscitation and how to administer mechanical ventilation, but the knowledge base does not permit accurate prediction of the outcome in individual cases.

INTERDISCIPLINARY COLLABORATION

Competent clinical decisionmaking regarding the use of life-sustaining technologies frequently requires the collective expertise of many professions and specialties. Assuming that all the necessary subjects have been mastered, the remaining challenge is to bring this expertise together on behalf of a particular patient. The mechanism can be formal, as in the case of a "nutrition support team" or an "infection control team)" or informal, but it always requires combinations of resources (including time) and skills. Effective combinations are difficult to establish, but without them, interdisciplinary care may be disjointed and inefficient rather than coordinated and creative.

Conflicting Perspectives and Goals

Good clinical decisionmaking involves setting treatment goals that are appropriate, realistic, and acceptable to the key parties involved. Depending on their particular profession or specialty, caregivers may have divergent frames of reference and sometimes different treatment goals that can lead to different assessments of the patient and different evaluations of the treatment options (151). One component of decisionmaking skill, therefore, is the ability to understand and appreciate all pertinent perspectives and, sometimes, to resolve conflicts among the various participants in the decisionmaking process. An especially difficult type of conflict would be a conflict between a physician (or caregiving team) and a patient (or the patient surrogate). Other conflicts might arise

when a physician or other caregiver is given "orders" to administer a treatment he or she believes is inappropriate. This is frequently the case when, for example, a resident is expected to carry out decisions made by the attending physician (154). Traditionally, nurses carried out physicians' orders without being involved in the decision. Increasingly, nurses seek more responsibility and the role of patient advocate, arguing that they may know better than physicians what patients want or what is best for patients (112). Also, the changing legal climate in which nonphysicians are increasingly held accountable compels nurses and others to question orders with which they disagree (44). Disagreements among caregivers may indicate that the patient is at the mercy of a poorly reasoned decision. At best, such conflicts are bad for caregivers' morale.

Medical Perspective

.,. where the physician's work does not afford (at least in some symbolic sense) the possibility of saving a life or restoring health through skill-ful practice or losing them through ineptness, the physician lacks some of the essence of physician-hood (24).

Despite significant changes in medical schools and in the social environment since the quote above was published in 1961, the comment still reflects medical culture today. The medical model (which is the paradigm for most health education) sets up physician and patient as doer and receiver;

the physician has the responsibility to *do something* and the patient has the expectation that something will be done (137). The traits, habits, and mental sets characteristically nurtured by medical education perpetuate a perspective that tends to "medicalize" problems and view all problems, including death, as treatalde.

> . . . death is construed as a biosystem going awry. The fatal illness is out of the patient control and is operating as a tangible process, which becomes the target of treatment. In result, death becomes separate from the person who is dying. This human condition is inadvertently taken out of the realm of social meaning and put in a framework of normal versus pathological functioning. Here, death becomes viewed as a chronic resistance to life and is logically met with increased technological management (137).

In the case of patients who are critically or terminally ill, "physicians may adopt a hostile stance by retreating to technology" (114).

> I bent every effort to make sure that at the moment of death my patient had a normal white count, hemoglobin, sodium, potassium, chloride, carbon dioxide, and in fact to make sure that everything I could measure was normal. Only in that way could I convince myself that I had tried, that I had done enough. My patients, when they died, were the least sick dead patients one could imagine. This was really a refusal to face the death of a patient and a retreat to scientism, to technology, and was a means of convincing myself that I was performing important work in preventing death. It convinced me, against the facts, that I retained control (152).

Critical Care. -Critical and intensive care medicine exemplify the traditional goals of medicine, i.e., the cure of acute illness and the prolongation of life. The treatments of choice are generally treatments associated with the best case-fatality rates or other measure of longevity. Critical or intensive care personnel routinely use sophisticated technology and equipment to diagnose, monitor, and maintain function in a patient's acutely failing organ systems. They support organ function and maintain equilibrium during life-threatening events to give the patient's own recuperative abilities or definitive medical therapy an opportunity to act.

The exigencies and narrowly circumscribed goals of critical care medicine may distort the perspective of physicians during the decisionmaking process. Observers have alluded to the potential for ICU patients to be viewed as biological systems to which technologies may be applied. One intensivist has commented:

> Much of current medical practice operates tangentially to the goal of a happy and productive life. . . . Measurements and monitoring are frequently pursued as ends in themselves. Patients are transformed into physiological preparations as the norm of practice (128).

If the principal goal of critical care medicine is to maintain biological function, then the decisionmaking process may be reduced to a determination of whether technological intervention can improve or stabilize the parameters of organ function. The database selected for decisionmaking will consist of information related to this determination and may omit consideration of overall probability of survival, return of function, or quality of life. Technologies may be applied because they are available and not because they will improve outcome.

Typically, critical care is provided within an ICU, a stressful environment where time is always a factor, decisions are always important, many patients are too ill to participate in decisionmaking, and where nurses have a particularly important role. ICU physicians and staff treat the urgent, acute, and often complex problems of critically ill patients; this causes their patterns of practice to differ from those of their counterparts working on a general medical or surgical ward or in an outpatient facility. The NIH Consensus Report on Critical Care discussed this distinction with respect to nursing care:

> Nursing care in the ICU has an emphasis opposite from such care on general services; The effectiveness of the ICU nurse is his/her knowledge of all the details necessary to care for one or two patients while the effectiveness of the general service nurse rests upon his or her ability to direct care delivery by others to numerous patients (115).

The potential benefit from this type of specialization and division of labor is that caregivers may

be able to use life-sustaining technologies more skillfully and treat acute illnesses more effectively and efficiently. Physicians who spend a great deal of time in the ICU may have a better understanding of both patients' experience in the ICU and the potential outcomes of intensive care (26). The potential risk is that the narrow approach that underlies this style of practice may adversely affect the decisionmaking processes of ICU personnel by distorting their perspective on the patient, that is, by causing them to look primarily at the patient's acute illnesses in terms of potential reversibility and not at the patient's overall condition in terms of potential function and quality of life (7).

Geriatrics.–Because chronic illness and physiological decline cannot be cured and will remain when an acute situation is resolved, geriatricians have argued that traditional medical goals are not appropriate for their patients. Geriatricians stress that when the eradication of illness is not possible, improvement of function and quality of life (as perceived by the patient) should be the guiding principles (67,75,123,124,129).

Familiarity with chronic illness may make geriatricians particularly aware of the fact that life-sustaining technologies sometimes increase the average prevalence and duration of morbidity. Antibiotics, ventilators, dialysis, nutritional support, and other life-sustaining technologies permit many patients to survive acute episodes, but survival is not always accompanied by improved functioning and quality of life. A patient with previously asymptomatic atherosclerosis may, as a result of intensive resuscitative efforts, survive what otherwise would have been a fatal heart attack; but he or she may suffer from chronic sequelae such as congestive heart failure and may live long enough to develop other complications related to atherosclerosis, such as a stroke (7).

Although there are no systematic data regarding either how geriatricians make treatment decisions or the particular decisions they make, it is reasonable to expect that they (and primary care physicians in general) would tend to behave differently than physicians who specialize in critical care. In particular, one might expect that geriatricians would be more likely to make decisions aimed at improving outcome in terms of function and quality of life, as opposed to mere survival. Because acceptable levels of functioning and quality of life are highly personal and subjective judgments, decisions based on these goals require that physicians be especially sensitive to and respectful of patients' assessments of their current or expected future condition and their wishes regarding treatment.

Some people believe that, as primary care physicians, geriatricians might potentially improve decisionmaking about admission to the ICU; or, as consultants to other physicians, might improve care within the ICU. A geriatrician might be able to provide a more complete database for decisionmaking; a geriatrician might also be more skilled than other physicians at recognizing and interpreting unusual clinical presentations and more experienced in the evaluation and management of cognitive and affective changes frequently seen in elderly patients. As primary care physicians, geriatricians would probably be better acquainted with patient value systems and personal preferences than intensivists who see patients for the first time in the ICU (7).

Nursing Perspective

To a large extent, nurses use their skills to carry out medical treatment prescribed by physicians. However, nurses argue, there is a distinct '(nursing database" that informs nurses' perspective on a patient and that is essential to good care (66, 86,87). This database is comprised of information about the patient's physical signs and symptoms; physical, cognitive, and emotional functioning; and self-care abilities.

Functional assessment is a central component in many nursing diagnostic categories: among the nursing diagnoses approved by the National Conference on Classification of Nursing Diagnoses, for example, are activity intolerance, dysfunctional grieving, and impaired mobility (66,86,87,117). These diagnostic categories are used to identify problems that are amenable to nursing management. For example, nurses plan and implement interventions to alleviate certain types of psychological and physical discomfort and dysfunction and to prevent iatrogenic complications. In the

acute or intensive care setting, nurses may independently institute measures to help patients feed themselves or to alleviate confusion by regularly orienting them to time, place, and person.

In the critical care setting, nurses with geriatric experience and training may be better able than other nurses to fully address functional and psychological problems in elderly patients. Some geriatric assessment units that employ physicians and nurses with geriatric experience to treat patients in acute care hospital wards have been able to improve the functional status of certain patients at discharge; as a consequence, some of these patients have not had to be discharged to other institutional settings. Nurses with geriatric expertise might also be able to contribute to improved outcomes in the intensive care setting (7).

Patient Goals

In many cases, patients have the same goals as physicians and willingly consent to therapy designed to achieve these shared ends; some patients even prefer to defer to their physician and allow him or her to make decisions in their best interest. Occasionally, however, the patient and physician disagree as to what is in the patient's best interest. Under the informed consent doctrine (see ch. 3), the patient's opinion is definitive in such cases.

The integration of principles of patient autonomy into the clinical decisionmaking process has not been fully accepted by the medical profession. Some physician authors have argued against patient participation in clinical decisionmaking, claiming that patients lack the experience and professional knowledge needed for making informed treatment decisions, and that it is unethical for physicians to allow patients to make "irrational" choices (i.e., choices different from those obtained using solely medical criteria) (18,19,48, 95). Some studies have indicated that decisions about treatment often reflect physician authority rather than patient wishes, and that physicians do not always consider patient wishes when selecting treatment (18,25,95). Because emphasis on function and quality of life are basic elements of geriatric training, health professionals with this approach may be better able to promote patient

autonomy and patient satisfaction than physicians with other orientations (7).

Effective Teamwork

The various professionals who are involved in the care of a particular patient maybe an ad hoc assemblage of individuals or they may be organized into a true health care team striving for comprehensive, appropriate, and coordinated care. When teams function properly, they can have many beneficial effects on patient care. Treatment selection decisions can be based on a more comprehensive database than might otherwise be possible. Treatment plans of physicians, nurses, and allied health personnel may be coordinated to ensure that all necessary treatments are delivered and that caregivers do not duplicate each other's efforts or work at cross-purposes. A recent study of more than 5,000 patients in 13 hospitals found that interaction and communication between physicians and nurses in the ICU were related to significantly reduced mortality (88).

Health care teams have no uniform composition or structure. The numbers and mix of caregivers participating in the delivery of any technology varies from one setting to another and, to a considerable extent, within settings of the same type (74). Further, the specific roles, responsibilities, and relationships of various professionals is different in different institutions. In practice, "team care" has often been invoked in instances where "many hands" were necessary. There has been "a lot of lip service given to the interdisciplinary approach, " but the fact that physicians and nurses are working together does not necessarily mean that they constitute a real team (36).

Health care teams may have either a hierarchical or a "collegial" structure. Typically, a physician is the team leader. In part, this reflects the physician's traditional status within the health care system. Also, many physicians are reluctant to delegate and share responsibility because they ultimately bear major legal responsibility for the patient's care. Particularly in geriatrics, according to the Director of NIA, a collegial team is much preferred to a hierarchical one (153). The leader of a collegial team is "the first among equals."

Most health care teams, whether focused on geriatrics or critical care, make use of interdisciplinary assessments. When a new patient is referred to the team, each member examines and assesses the patient with respect to his or her particular field of expertise. Initial assessments are generally followed by treatment planning conferences at which the team attempts to reach a consensus regarding what treatments and interventions are most appropriate for the patient. The benefits of this approach for some patients have been demonstrated. In one study of elderly patients in a VA hospital, patients who were randomly assigned to the geriatric assessment unit subsequently had lower rates of mortality and of admission to nursing homes than the control group (132).

Each member of an interdisciplinary health care team can provide valuable information for determining what treatment will be offered to patients. Some of this information will be derived from the team member's technology-specific expertise. Other information will be derived from technology-independent expertise.

No systematic evaluations of the roles that nonphysicians play in treatment decisions have been conducted; narrative accounts of team conferences indicate that nonphysician professionals are present at decisionmaking conferences but do not describe the nature or extent of their contribution. Since physicians bear legal and professional responsibility for most of the decisions that are made, it is likely that they remain the controlling influence; however, other members of the team can participate in decisions regarding the selection and administration of life-sustaining technologies and even make certain types of decisions independently.

In addition to benefiting the patient, an effective team is valuable as an educational milieu for its members and is said to contribute to their morale (71). Critical care and geriatric specialists, psy-

chiatrists, neurologists, and pulmonary specialists, nurses, dietitians, social workers, and others can all share their expertise and experience and support each other through difficult intellectual and ethical questions. Interdisciplinary team conferences can also be used as a method for training professionals to work in a team.

The potential pitfall of team care is that teams can be inefficient. In medical emergencies, a team may provide care (e.g., crash team), but there is no time for team assessment or decisionmaking. More generally, if the contribution of each participant is not clear, team planning conferences may become bogged down with the presentation of redundant information, Teams that do not establish clear lines of decisionmaking authority and attempt to make decisions by consensus may have difficulty making decisions. Teams with a large number of members or poorly defined member roles are particularly susceptible to these problems (133).

It has become almost a watch word of GAUs [Geriatric Assessment Units] to talk about team care, but less has been said about the size and interdisciplinary composition of the core team. Teams may be very expensive and potentially inefficient. The solution appears to lie in using as small a core team as possible and mobilizing a variety of adjunctive specialists when appropriate (133).

Despite general agreement that teamwork is essential to good geriatric care (and claims that teamwork is one of the distinguishing features of geriatrics), training in team care has been inadequate. The importance of such training has been stressed by academic geriatricians who point out that acting as a collaborator (instead of "the boss") is not a role that comes easy for many physicians; it is something they must be taught to do (37). Lack of training in team care has had the result that the way teams frequently work is like "Who's in charge?" and "What's the mission?" (97).

THE IMPACT OF FEDERAL PAYMENT POLICIES ON THE EMPLOYMENT AND TRAINING OF HEALTH PROFESSIONALS

General efforts to contain health care costs and recent changes in Medicare's hospital payment policies were described in chapter 2. So far, there are only piecemeal data and anecdotes to describe how these changes have affected the use of life-sustaining technologies or the supply and training of health professionals.[9] The changes that are apparent suggest the powerful ability of the Federal Government to influence through reimbursement policy—intentionally or not–where and by whom life-sustaining technologies will be delivered as well as opportunities for related clinical training.

Employment Patterns and Personnel Needs

Hospitals

Data from the American Hospital Association's annual surveys document sharp reductions in total hospital employment from 1982 to 1985 (9) along with even sharper declines in hospital occupancy rates[10] (146). Overall, the number of full-time-equivalent health workers employed in hospitals (over 3.8 million in 1982) declined by 1 percent from December 1982 to December 1983, by over 2 percent in 1984, and again by over 2 percent in 1985 (9). Experiencing some of the sharpest drops in employment were licensed practical nurses and ancillary nursing personnel, dietitians, and dietetic technicians.

In general, changes in hospital staffing patterns reflect the increase in average "intensity of care" that has occurred over the past several years. Employment of less-trained hospital personnel has been reduced, while highly trained personnel have experienced substantial gains in employment nationwide. Registered nurses, pharmacists and pharmacy technicians, social workers, and, especially,

respiratory therapists are examples (146). There are, however, important variations across occupations, types of hospitals, and geographic areas.

As pressure mounts to release patients quickly (i.e., either to discharge them from the hospital or to transfer them to less intensive care), the patients who must remain in the hospital and in the ICU tend to be, on average, sicker. They require more nursing care, more physician services, and more technology (32). In community hospitals of all sizes, the staff-to-patient ratio increased between 1983 and 1984 (146).

Cost-containment pressures and demographic changes are creating a hospitalized elderly population that is not only sicker, but also, on average, older than before, Health Care Financing Administration (HCFA) data for 1981 and 1984 reveal higher proportions of patients in all age groups over 75 (39) and, among all hospitalized Medicare patients, an overall average increase in age of about 6 months (125). This finding highlights the need to upgrade geriatric expertise among hospital staff generally.

Changes in the relative numbers of different kinds of professionals within the hospital bring changes in roles and responsibilities. Because of overlap in the training of personnel at different levels, more highly trained personnel are frequently able to perform many of the tasks of lower level personnel. The reverse, however, is not true. Consequently, some lower level personnel may be seen as dispensable, and the more highly trained personnel who are retained may be required to assume new or additional roles within and/or outside their own specialty. When the ICU census is low, for example, it is common practice (and "can be a source of disillusionment, frustration, and increased stress") to "pull" critical care nurses from the ICU and reassign them to other units (29).

The extent to which changes in hospital staffing patterns have reduced cost and improved efficiency or, alternatively, reduced the quality or availability of care is not known; the potential exists, however, for all these effects. Also, shifts in

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[9] It takes about 3 years for the effects of changes in reimbursement policy to be documented in data because of variations in the start of hospitals' fiscal years (when they start to use the new system) and time needed for the Health Care Financing Administration (HCFA) or others to collect and analyze the data (73).

'['Labor costs constitute roughly two-thirds of all hospital costs (90).

roles and responsibilities from one profession to another are likely to necessitate new or additional in-service training. At the same time, reduction in the numbers of personnel and incentives for increased productivity leave less time and fewer resources to do this training. Unstable hospital staffing levels and patterns and changed responsibilities also create interdisciplinary competition" and fears of layoff or unemployment that may affect staff morale.

Nursing Homes

The growth of the elderly population, especially the population over age 85, and pressures for early hospital discharge have dramatically increased the need for beds in skilled nursing facilities (SNFs). It is projected that the total need for nursing home beds (in all kinds of facilities) will soon double, from 1.55 million to 3 million. This includes expected growth in SNF beds of 8 percent between 1986 and 1987 alone (30). Obviously, more occupied nursing home beds create the need for more nursing home personnel.

Another change with important implications for both personnel and training is that some nursing homes are beginning to provide a higher level of care than they provided in the past. The use of life-sustaining technologies that were already available in a few SNFs (e.g., total parenteral nutrition and dialysis) is expanding, and other technologies that are new within this setting (e.g., mechanical ventilation) are being introduced. At least one nationally known proprietary chain reports that it is increasing the size of its nursing home staff and training employees to provide higher levels of patient care (126).

Personnel and training needs in nursing homes are closely tied to Medicare decisions about which technologies to cover in the nursing home setting and the extent to which the level of reimbursement gives nursing homes sufficient financial incentives to make this care available. Some observers believe, for example, that Medicare payment for

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[11]Such **changes also fuel interprofessional rivalries when one profession is viewed as "encroaching" on the professional territory of another or where there exists "an environment of insecurity that has forced [some professions] to scurry around" in a frantic effort to justify their existence to hospital administrators** (51).

total parenteral nutrition (TPN) is too low (43). In general, Medicare criteria for payment of life-sustaining treatments outside the hospital are complex, restrictive, and subject to variation in interpretation by claims reviewers (91).

To the extent that Medicare fails to cover or provides inadequate coverage for nursing home patients requiring life-sustaining technologies, Medicaid policies will become increasingly important. Under Medicaid, States have considerable influence over what technologies will be covered and, thus, what personnel will be needed in nursing homes. To accommodate patients dependent on life-sustaining technologies, a few States have augmented skilled nursing care with a new category of "very skilled nursing care." For example, Illinois' public Aid Code has been amended to include coverage for "exceptional medical care, " defined as follows:

> . . . the level of medical care required by persons who are medically stable for discharge from a hospital but who require acute intensity hospital level care for physician, nurse and ancillary specialist services.
>
> —Illinois Public Aid Code, Sec. 5-I.1

It is generally acknowledged that many nursing homes are not adequately staffed to provide complex services. To care for greater numbers of patients who need complex services, nursing homes would require higher staff-to-resident ratios and staff training (3 I). Provision of more complex services in nursing homes also has implications for personnel who are not based in the nursing home (e.g., respiratory therapists and nephrology social workers) but who will increasingly be asked to care for patients in this setting, The extent to which hospital personnel may be moving into nursing homes is not known, but this may be an important factor as hospitals and nursing homes establish closer ties,

Home Health Care

The effects of cost-containment on changing employment patterns and requirements are perhaps nowhere more apparent than in home care. Industry experts predict the high-technology segment of home care will grow very rapidly and dramatically (58,91). As both investor-owned com-

panics and hospitals expand into the home care market, there will be a significant impact on the use of and need for highly skilled personnel in the home.

Historically, registered nurses, licensed practical nurses, and home health aides, through their participation in public health agencies and visiting nurse associations, were the central figures in home health care programs. Today, nurses are still crucial, but other professionals and specialists, including respiratory therapists and intravenous therapy nurses, have been added to the home health care team. Also, for those health professionals who are accustomed to working in home care, there are new responsibilities and training needs associated with caring for patients who are often more acutely ill and who require high-technology care.

Clinical knowledge generally transfers well from the hospital to other settings, but in the home some special problems arise which health professionals must be prepared to handle. For example, supplies and equipment may not be readily available in the home, or there may be problems maintaining sterile conditions. These are exigencies that should be addressed in professional training or for which some type of provision must be made in practice. otherwise, the quality of patient care is likely to suffer. The most important factors are probably lack of standards (102); lack of supervision; and lack of interaction with colleagues and advisors who would provide stimulation, informal peer review, and consultation.

Medicare coverage of life-sustaining technologies and the personnel who can provide them in the home is restricted and complex. To be eligible for any home health care benefits under Medicare, an individual must be homebound, must be under the care of a physician, and must require "intermittent" (and not full-time) skilled nursing, physical therapy, or speech therapy. For some technologies, Medicare regulations have not been issued; some regulations have been repeatedly modified to meet changes in technology; others are open to different interpretations by individual claims examiners.

Another problem is the uneven treatment by Medicare of different technologies in the home.

Allowed charges for dialysis and the personnel who provide it, for example, are at least 80 percent reimbursed by Medicare; mechanical ventilation is similarly covered, but respiratory therapists are not; and intravenous antibiotic therapy is specifically excluded from Medicare home health benefits. Nursing services associated with intravenous antibiotic treatment could be covered, but this technology often requires more than intermittent nursing care (74). TPN and enteral nutrition can be covered in the home under the Medicare Part B prosthetic device benefit, but not under the Part A home health benefit. Thus, an approved home health agency that offers these treatments ceases to function as a home health agency; rather, it is seen by HCFA as a prosthesis supplier and, therefore, can receive no additional reimbursement for personnel.

Medicare reimbursement levels for technologies in the home are related closely to charges for the devices and equipment and do not include allowances for the nonphysician personnel whose services are necessary components of the technology (80). This situation may affect the quality of care patients receive in the home because home health agencies and durable medical equipment companies are encouraged to reduce either the number of visits to the patient's home or the skill level of caregivers.

Clinical Training

All of the professions involved in the implementation of life-sustaining technologies require supervised clinical experience, ranging from informal on-the-job training for certain technicians to multiyear clinical residencies for physicians. Traditionally, in medicine, nursing, and the allied health professions, acute care hospitals have been the main site for clinical training.

Medicare, from its inception, has provided support for graduate education for physicians, diploma nursing schools operated by hospitals, and certain allied health programs operated by hospitals. Through payments for patient care and payments explicitly for education, Medicare is the single most important source of support for health professions education in hospitals. HCFA estimates that Medicare reimbursement for patient care alone

provides approximately one-third of all support for health professions education in hospitals (144). Thus, Medicare payment policies have important effects on what training is available now and what will be available in the future.

In 1974, Medicare established annual cost limits on reimbursement for certain routine hospital costs. Because of recognition that routine hospital costs were higher in teaching hospitals, an exception was made to exclude the extra (education-related) costs from Medicare's cost limits. Beginning in July 1979 and 1980, respectively, the direct and then the *indirect costs* of education 12 were allowed to "pass through" the cost limits.

Under Medicare's Part A prospective payment system for hospitals mandated by the Social Security Amendments of 1983 (Public Law 98-21), direct and indirect costs of education remain pass-through items. The President's fiscal year 1986 budget, however, included proposals: 1) to freeze Medicare payment for the direct costs of medical education at the level received in the reporting year ending in 1984, and end all new funding for Title VII and Title VIII programs; and 2) to cut Medicare payment for the indirect costs by 50 percent and change the basis on which costs are computed. A near-freeze (an increase for inflation plus 1 percent) was implemented through administrative authority and has been in effect since July 1985. The fiscal year 1986 budget reconciliation act (Public Law 99-272 or "COBRA") omitted the freeze on direct costs and reduced reimbursement for indirect costs by approximately one-third rather than by one-half. The President's original budget proposals for 1987 sought to end payment of all direct costs of training except the salaries of interns and residents; this would eliminate all Medicare support for training in nursing and in allied health, as well as all overhead costs associated with training of residents. In its final form,

the President's budget still sought to cut the indirect costs (108).

Unless alternative funding can be found, reductions in Medicare support will substantially reduce the ability of hospitals to maintain current levels, diversity, and quality of education and training. Although such reductions are one way to reduce the projected overall physician surplus, the specialties and professions in which there are present shortages will also be affected and, indeed, might be hit the hardest. Specialties and professions that generate relatively little in patient care fees (e.g., family practice and some allied health programs) would become much harder to subsidize out of reduced payments (144); and new programs, including geriatrics, are more likely than well-established ones to be targeted (108).

Public Law 99-272 exempts geriatric programs from the reimbursement limits placed on graduate medical education in other specialties. Generally, Medicare reimbursement to hospitals for direct costs of medical education is limited to a maximum of 5 years per trainee (the minimum number of years of formal training to satisfy specialty requirements for initial board eligibility, plus 1 year). Since fellows in geriatrics must complete a residency in a primary specialty (internal medicine, family practice, or psychiatry) before commencing geriatric training, it appeared that geriatric training was categorically disqualified for Medicare support. The exception for geriatrics extends the "initial residency period" that is eligible for Medicare funds for up to 2 years. While such special attention to geriatrics is noteworthy, the exemption does not actually change the reimbursement for geriatrics; it protects the reimbursement that was already available. "

Medicare's prospective payment system also affects in-hospital training of physicians, nurses, and

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12The direct *costs* of health professions education include salaries for faculty, support staff, and residents; conference and classroom space; additional equipment and supplies necessitated by teaching activities. The indirect *costs* of medical education (a proxy for the added complexity of care in teaching hospitals) include reduced productivity in patient service departments, more complex hospital management, and the higher utilization of services and tests performed in teaching hospitals (14-$).

13Hospital **administrators and others who control decisions about how many training positions are allotted to each** specialty have **strong incentives to** favor **those specialties for** which Medicare **reimbursement covers the actual costs of training, Inclusion in the** reimbursement **formula of a measure of hours worked in** the **hospital results in** relatively **poor reimbursement for geriatric trainees,** who **mav spend much** of **their time in other facilities. Thus, despite the exemption for geriatric** fellowships, **geriatric training slots are still** likely **to** be perceived **as financial liabilities in the total hospital training program,**

allied health personnel. Hospitals and departments that have a tradition of subsidizing training through payments for patient care, particularly nonprofit hospitals, may find this unfeasible under prospective payment and the changes occurring in Medicaid and private health insurance. Prospective payment provides hospitals incentives to reduce all costs, especially affecting those training programs in which educational costs cannot be separately identified for direct support. Thus, hospitals are now actively reviewing their training programs in relation to productivity and efficiency of operations (74).

The Bureau of Health Professions of the Health Resources and Services Administration conducted a pilot study to assess the impact of Medicare's prospective payment system on clinical education programs in medicine, nursing, and other health professions (64). Site visits to hospitals in four geographic locations revealed decreased patient census, shorter lengths of stay, sicker patient populations, and increased emphasis on staff productivity. One result is increased competition among the professions for clinical access in hospitals. Personnel employed by the hospitals visited were found to have less time to spend teaching or supervising students. Hospitals were beginning to require payment for staff time spent in teaching

activities, or were reducing their involvement in teaching programs. Clinical programs in all the professions reported problems in providing the appropriate number and mix of patients with which students can obtain the necessary experience to complete their training. Shortened lengths of stay may also preclude the kind of comprehensive workup and monitoring that is frequently important in training.

In a 1985 survey, 79 percent of the more than 2,500 responding allied health education programs said that Medicare's prospective payment system for hospitals had had a "strong" impact on their clinical education program. The majority of program directors said the effects of the payment system were mixed, but 14 percent said the effects were entirely negative. Seventeen percent of the program directors reported that their clinical education programs were inactive or closed (10).

Efforts are underway to expand education and training into alternate clinical sites. However, financing is problematic because third-party payers have not traditionally covered costs related to education in nonhospital sites. Also, increased competition has constrained the willingness of organized outpatient systems like health maintenance organizations and home care agencies to incur these costs.

EVOLVING CREDENTIALS

Virtually all commentators agree that licensure and certification are needed to set standards for health care and to protect the life and safety of patients. There are, however, continuing controversies over the desirable degree of regulation, what should be regulated, and the frequency of licensure, certification, and accreditation review, Licensing is governed by the States, certification and accreditation by the professional agencies. Public programs, including Medicare, often adopt these standards as a basis for reimbursement (74).

All 50 States license physicians, registered nurses, practical nurses, and physical therapists. Some States also license nurse practitioners, social workers, and occupational, speech, and respiratory therapists. Certification is granted by professional boards and associations and serves

to identify those practitioners who have met standards of special competence in a particular specialty area, Certification generally is not a requirement to practice; however, many hospitals use certification status as a standard in hiring or in granting staff privileges.

The objectives of credentialing health professionals extend beyond quality assurance. These objectives are diverse and may lead to disagreements about the need for certain credentials, including those now available to physicians in geriatrics, critical care, and some allied health occupations. Frequently, a profession seeks certification and licensure to "professionalize" itself and set entry barriers, to maintain and enhance income and prestige (74). Health care institutions, including hospitals, nursing homes, and home care

companies realize that hiring professionals with special credentials, besides presumably assuring or improving quality of care, may offer economic advantages in the increasingly competitive and litigious health care environment. Such economic advantages, however, must be weighed against the higher costs associated with employing people with special credentials. Information presented below on the current status of credentials for health professionals involved in the care of life-threatened elderly persons suggests how rapidly change is occurring.

Credentials in Geriatric Medicine and Nursing

There has been much debate about whether or not geriatrics constitutes a distinct body of knowledge; where geriatrics belongs (e.g., as its own specialty, within internal medicine, or within family practice); and whether or not a distinct credential should be created to recognize competence in this field. In the absence of a credentialing system for geriatrics, there has been no way to identify physicians who have had geriatric training, no assurance that the geriatric training obtained in different institutions meets comparable standards, and no way to reliably estimate the current supply of geriatricians. Also, without a geriatric credential, the developing body of geriatric knowledge can be rather easily dismissed by the uninitiated or, perhaps worse, claimed by the opportunist.

The Institute of Medicine's 1978 study of geriatric education (77) recommended against creation of specialty certification in geriatrics. Agreeing with the official position of the American Geriatrics Society, the Institute of Medicine concluded that geriatric education should be mainstreamed and that the care of the aged should be the responsibility of appropriately trained primary care physicians. The Institute further stated that creation of a new medical specialty in geriatrics could draw attention, energy, and resources from nursing and the other health professions involved in caring for the elderly, suggesting a "medical solution to a largely social problem." The Association of American Medical Colleges and the Federated Council for Internal Medicine (59) were among the other bodies that officially opposed certification in geriatrics.

Since 1978, the science base and clinical importance of geriatric medicine have grown substantially. Recognizing this, in 1985 the American Board of Medical Specialties authorized the American Board of Family Practice and the American Board of Internal Medicine to offer certificates of added qualifications in geriatrics. The two specialty boards are working together to develop a joint examination, with plans to offer it for the first time in spring 1988 (122). Both boards have emphasized that in offering this certification, they are not creating a new subspecialty of geriatrics in family practice or internal medicine, but are simply creating a mechanism for recognizing merit and achievement in geriatrics.

Applicants for the certificate in geriatrics must first be certified by the American Board of Family Practice or the American Board of Internal Medicine. In addition, internists must either have completed a geriatrics training program, an advanced general medicine training program with emphasis on geriatric medicine, or have 4 years of experience beyond their general medical training. (Internists already certified in a subspecialty will need only 1 additional year of training.) Specialists in family practice must also first complete approved geriatrics training. Geriatrics training programs will be evaluated and accredited by the residency review committees for internal medicine and family practice.

The American Nurses' Association offers certification in 17 areas, including a generalist certificate in gerontological nursing and a certificate for geriatric nurse practitioners. The generalist certificate in gerontological nursing, available since the mid-1970s, is offered to licensed registered nurses who have successfully completed a standardized test and 2 years of clinical experience with the elderly. The geriatric nurse practitioner certificate is offered only to licensed nurse practitioners who have a master's degree in nursing and who have completed at least 9 months or 1 academic year of clinical and didactic training in a program that meets American Nurses' Association guidelines.

Although certification in geriatrics has been available to nurses for a number of years, questions remain about the level of competence these credentials represent (53). For programs leading to the generalist certificate, no specific didactic or clinical training in geriatrics is required and there is no formal system for accrediting the institutions providing the geriatric clinical experience. The focus of the generalist certificate, both in the content of the exam questions and in the eligibility requirements to sit for the exam, is long-term care of the elderly; competence in the care of the acutely or critically ill elderly is not evaluated. Similarly, nurse practitioner training and testing does not emphasize critical care nursing.

Credentials in Critical Care Medicine and Nursing

In 1985, the American Board of Medical Specialties approved a subspecialty of critical care medicine within each of critical care's parent medical specialties. Physicians who are first certified by either the American Board of Internal Medicine, Anesthesiology, Surgery, Neurological Surgery, or Pediatrics may seek certification of special competence in critical care medicine, Each board will have its own training requirements and separate examinations (118). In addition, the American Board of Emergency Medicine has applied to the American Board of Medical Specialties for approval of certification of added qualifications in critical care for specialists in emergency medicine (111). In most medical specialties, certification in critical care will be valid for 10 years (68).

Certification in critical care nursing has been offered by the American Association of Critical-Care Nurses' Certification Corp. since 1975. Any registered professional nurse with current registered nurse licensure and at least 1 year (1,750 hours) of experience practicing as a registered nurse in the care of the critically ill is eligible to apply. More than 23,000 registered nurses have passed the written certification examination, earning the credential of critical care registered nurse (CCRN) (44). This certification is recognized for 3 years, after which recertification applicants must provide proof they have completed specified continuing education or repeat the written examina-

tion. The American Nurses' Association has not, to date, approved critical care as a specialty (69).

Technology-Specific Credentials

Dialysis

Nurses and technicians may be certified in hemodialysis through the Board of Nephrology Examiners. However, the American Nephrology Nurses Association does not endorse that examination and is preparing a new, more comprehensive examination in nephrology. This will be pilot tested in May 1987 and is expected to be offered later that year to registered nurses who are licensed in the United States and who have at least 2 years' experience in the field of nephrology (119).

Dialysis technicians receive extensive on-the-job training, but there are few formal training programs and no accrediting agency. Technicians are not required to be licensed, registered, or certified, although they may take the examination in hemodialysis offered by the Board of Nephrology Examiners.

Nutritional Support

Registered nurses may earn certification in parenteral and enteral nutrition through the National Board of Nutrition Support Certification, created in 1984. The first examination for certification in parenteral and enteral nutrition nursing was given in June 1985 to 100 applicants.

Dietitians who specialize in nutritional support must meet the American Dietetic Association's requirements for registration. These requirements include the completion of a 4-year university course in dietetics, nutrition, or food service management; clinical experience; and a passing score on a written examination. Every 5 years, dietitians who specialize in nutritional support must also complete 75 hours of continuing education. Registered dietitians may join the special practice group of the American Dietetic Association known as "critical care dietetics." It is expected that a process for dietitians to be certified in nutritional support will be set up very soon, and that the first examination may be offered in spring of 1988, As for nurses, this certification would be through the National Board of Nutrition Support Certification (63).

Pharmacists who specialize in nutritional support have completed either a 5-year baccalaureate program or postgraduate work for the doctoral degree (Pharm.D.). Nutritional support pharmacists are currently working with the American Pharmacy Association's Board of Pharmaceutical Specialties to establish a process for certification in parenteral and enteral nutrition. They hope to have this process in place by 1988 (28).

Resuscitation

The American Heart Association has developed medical standards for certification in both basic life support and advanced cardiac life support. Courses that meet these standards are offered to all health professionals (and to the lay public) by hospitals, other training centers, and by the American Red Cross. Individuals who complete the training are certified in basic or advanced life support. Certification and annual recertification is recommended for physicians and nurses; however, requirements vary widely from State to State, institution to institution, and for different health professionals. In most States, certification in resuscitation is not a condition for physician licensure (99). Some hospitals, however, make current certification in basic or advanced life support a condition for physician staff privileges; some require certification only for their ICU and emergency room staff (8).

The U.S. Department of Transportation developed and approves all basic training programs for emergency medical technicians (EMTs). This is a standardized, 81-hour course given by many police, fire, and health departments, and by some hospitals, medical schools, colleges, and universi- *ties.* Individuals who have been certified in the basic EMT program may go on to train as EMT-paramedics. This training includes didactic clinical instruction, in-hospital practice, and a supervised field internship totaling approximately 1,000 hours (76). A certificate and/or associate degree is awarded on completion of training, and graduates are then eligible to sit for the certification examination. Recertification is required every 2 to 3 years (2). Some States require EMT-paramedics to pass additional tests for certification or licen-

sure. A registration examination is administered by the National Registry of Emergency Medical Technicians. EMT-paramedic training is subject to approval by the American Medical Association's Joint Review Committee on Educational Programs for the Emergency Medical Technician-Paramedic (76).

Mechanical Ventilation

The respiratory therapist is usually a graduate of a 2-year associate degree program of a community college. Some hospitals offer 2-year certification programs, and some colleges and universities offer a baccalaureate degree in respiratory therapy. In addition to classroom work, a minimum of 1,000 hours training in a clinical setting is required (2). Registered nurses and others who have a baccalaureate degree in an appropriate science can complete training in 1 year (106). Individuals who complete a program approved by the Joint Review Committee for Respiratory Therapy and who pass the examination of the National Board for Respiratory Therapy receive the credential of registered respiratory therapist (RRT). Licensure provisions currently exist in approximately four States and are being sought in some others.

Respiratory technicians must complete a 10-to 12-month training program. Most of these are based in hospitals or technical-vocational schools (3). A graduate who passes the technician level examination of the National Board for Respiratory Therapy becomes a certified respiratory therapy technician (CRTT).

Life-Sustaining Antibiotic Therapy

In general, intravenous life-sustaining antibiotics may be administered by any registered nurse. There is a specialized credential in intravenous therapy, however, and some institutions—especially nursing homes and home care providers—require it. Since 1983, about 600 registered nurses have attained the credential of "certified registered nurse, intravenous" (CRNI) through the National Intravenous Therapy Association. The basic requirements beyond registration are 2 years of specialty practice and passing the certification examination (107).

FINDINGS AND IMPLICATIONS

Many issues related to the quality, availability, and cost of life-sustaining care, as well as issues that bear directly on treatment decisions, are directly linked to the supply of pertinent health professionals and to the content of their education and training. This chapter has focused on topics that concern both the primary care and critical care specialties. Federal policies have direct and indirect effects on a wide range of manpower and training issues, ranging from employment opportunities in professions that are "technology-dependent" to questions about the adequacy of education and training in geriatrics and the feasibility of providing complex care in nursing homes.

Several major conclusions can be drawn from this analysis. First, there is a severe shortage of physicians, nurses, and allied health professionals with expertise in geriatrics and gerontology. Despite direct Federal support for education and training in geriatrics, and increased public and professional awareness of its importance, the late start and persistent recruitment problems in geriatrics, together with the rapidly increasing elderly population, mean that the shortage of health professionals with expertise in geriatrics will probably persist. Reduced funding for health professions education would threaten what advances have been made and impede further progress.

Moreover, although a large number of geriatric patients receive care in an ICU, little or no crossover has occurred in the training of geriatrics and critical care personnel. There has been no formal initiative to integrate geriatrics and gerontology into the training of critical care physicians and nurses, and training focused on geriatrics seldom includes experience in critical care. The lack of integrated training in critical care and geriatrics may hinder communication among caregivers and may lead to inappropriate treatment.

The need for rapid expansion of the supply of geriatric specialists, expenditure of public funds and resources to accomplish this, and the recent dramatic changes in credentialing make research on geriatric manpower important. It would be useful, and potentially cost-effective, to have information for evaluating the response of students and practicing health professionals to the new educational and career opportunities in geriatrics and to any incentive programs that might be instituted to stimulate recruitment to geriatrics.

The curricula in medicine and nursing in general and, to a lesser extent, the allied health professions are beginning to change in response to the aging of the patient population, ethical problems posed by life-sustaining technologies, rapid development of new knowledge, and cost constraints. Newly introduced subjects including the humanities, death and dying, health law, and medical decisionmaking share problems of uneven institutional commitment, limited and undependable funding, inadequate faculty, and competition for curriculum time. The effects of curriculum change on patient care have, for the most part, been unevaluated.

Significant changes are occurring in staffing patterns within hospitals and other health care institutions. Some professions are experiencing layoffs; others have an increased workload and/or improved employment opportunities. Further staff reductions in certain categories are expected to be revealed as the effects of prospective payment are documented. Changes in staffing patterns have implications for the amount and quality of care it is feasible to provide. If personnel reductions occur on a large scale, unemployment problems must also be considered. With relative changes in personnel also come new or changed roles and responsibilities that may create the need for new or additional training.

Shifts in the settings in which life-sustaining technologies are provided also have important implications for employment patterns. For many categories of personnel, employment opportunities in hospitals are being reduced; other areas show strong growth. Nursing homes and home care agencies are beginning to provide more skilled care and, thus, will need additional highly trained personnel, Some health professions students and practitioners need special training to work in settings in which they are new and/or where acutely and terminally ill elderly patients are new. Such retraining could potentially assist displaced health professionals and improve patient care.

A patient population that is older and sicker, plus changes in the site of care and changes in staffing patterns, bring substantial changes in the care that is needed and the resources necessary to provide it. Such fundamental changes raise questions of quality assurance and create the need for continuing education of health professionals.

Interdisciplinary collaboration and effective teamwork cannot be assumed. Although there has been much talk about health care teams, and there is much evidence of their benefits, there is little training to make such teamwork a reality.

Finally, caregivers to severely ill elderly patients are under severe stress that can lead to dysfunctional behaviors, including diminished job performance. Health professions education poorly prepares caregivers to deal with death in a way that is most beneficial to patients and least harmful to themselves.

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