

# Geriatric Medicine

Volume II

Fundamentals of  
Geriatric Care

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Geriatric Care

Edited by  
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With 50 Figures



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*To our parents and grandparents*



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*Robert N. Butler, M.D.*

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# Foreword

With the appearance of a textbook as comprehensive as this one, it is clear that the field of geriatrics is coming of age. The broad scope of these volumes shapes a substantial answer to the question, "What is geriatrics and why should we be interested in it?" As I see it, there are at least five reasons.

First, the scientific or intellectual reason: gerontology is the study of aging from the biologic, psychological, and social perspectives. There is increasing interest in the fascinating insights into the biologic mechanisms of aging, errors in protein synthesis, DNA repair mechanisms, alterations of the neuroendocrine system, changes in the immune system, genetic controls, and somatic mutations.

Second, the demographic reason: this is the century of old age. There has been a 26-year gain in the average life expectancy. This gain compares with that acquired from 3,000 years B.C. (the Bronze Age) to the year 1900, which was about 29 years. Therefore, in one century, there has been a gain in the average life expectancy almost equal to 5,000 previous years of human history.

In 1830, one of three newborn infants survived beyond 60 years of age. Today 8 of 10 newborn babies are expected to live a full life. In 1870, only 44 of 100 women who did not die of scarlet fever, diphtheria, chicken pox, or other diseases, and who survived to 15 years of age, enjoyed what we take for granted as the natural course of human life today. In 1920, a 10-year-old person had about a 40% chance of having two of his or her four grandparents alive. At present, that probability is over 80%. From birth, women today will outlive men by nearly 8 years. This is a mixed blessing, because many of the problems of age are the special problems of women.

Third, the epidemiologic reason: the high incidence and prevalence of disease and disabilities with age is striking. Certain diseases pose "silent epidemics," which rise with the aging population. One, senile dementia of the Alzheimer's type, probably is the fourth leading cause of death; yet, it only has received significant attention recently. Another, osteoporosis, is unknown to 80% of the public according to one survey, but it is one of the main causes of disability. Along with senile dementia of the Alzheimer's type, osteoporosis is one of the true scourges of old age. These are only two examples of the kinds of medical disorders that affect great numbers of people of advanced age and that, nonetheless, have, until recently, attracted little research attention. These are frontiers of scientific knowledge that are now responding to inquiry and experimentation.

Fourth, the health costs: In 1982, about 10% of the gross national product, or \$320 billion, was spent on health care; \$83 billion was spent for Medicare and Medicaid, largely but not exclusively for elderly persons. Of all health costs, 30% are associated with persons over 65 years of age; 40% of all Medicaid funds go to nursing homes. There are about 20,000 nursing homes in the United States, in which about 1.5 million people reside; 1.4 million are over 65 years of age. On any given day, there are more patients in nursing homes than there are in hospitals. Attempts to contain costs often focus on the elderly population. Considerations of health care policy are a critical part of effective, prudent, and humane geriatric practice.

Fifth, attitude: negativism toward old age. In my medical school days, I was offended by the use of the word “crock” and other insensitive epithets. These attitudes are deep, widespread, and compel us to rethink our approach to the evident resistance to the development of geriatrics in our institutions of health care. Changing these negative attitudes requires more than exhortation. It requires developing a sense of competence in handling the clinical problems of elderly persons, a working knowledge of the social, economic, and institutional barriers to respectful treatment and how to change them, and the intellectual background to meet ethical issues with both analytic and humanistic skills.

Geriatrics clearly is a topic of great complexity and breadth. Some 40–50% of the time of most internists, family practitioners, gynecologists, neurologists, and others already is devoted to the diagnosis, treatment, and care of older persons. The field of geriatrics demands more than attention to one’s body. It requires a greater appreciation of the social and psychological forces that operate within us. In medical education, we emphasize the search for a single explanation in the diagnostic evaluation of a patient. We refer to a medieval philosopher, William Occam, and his “razor.” He is said to have propounded the principle of searching for a single explanation to any complex group of symptoms. This has been a cardinal principle of differential diagnosis. Yet, the multiplicity of illnesses, their complexity, associated polypharmacy, the disguise of one disease by another, and the effect of the age of the host in altering the presentation and the course of diseases all must change our reasoning. Multiple interacting disorders more likely explain the problems of elderly persons. The same factors also may change the character of treatment response.

The future of medicine is coupled with the “graying of America” and “the triumph of survivorship.” We will have 55 million people over 65 years of age in the range of the years 2020–2030. We see corporate medicine expanding rapidly. Some 20% of all voluntary hospitals are now owned or managed by private corporations. It is possible that physicians will take a distant third place to business and government in the conduct of health delivery. Thus, understanding the social, political, and economic realities of health care systems is essential to a geriatrician.

In geriatrics, we stress the team, the egalitarian collaboration of a nurse, social worker, and other professionals with physicians. We stress the importance of assessing function and, even more importantly, maintaining and improving function. We can no longer depend on brief, mechanistic, overly economical, and, therefore, superficial forms of assessment. Older patients in contemporary hospitals deteriorate because they



often are neglected after their acute episode has been taken care of. There frequently are no efforts toward continuing function, even ambulation. There should be signals that herald discharge planning at the very moment of admission. Hospitals and physicians should be prepared to respond on an urgent basis with rehabilitative and other restorative efforts when a high-risk older person is in a medical crisis.

Charcot, the great French physician, one century ago, said, "The importance of a special study of the diseases of old age would not be contested at the present time." However, it has taken time. An American physician, Ignatz Nascher, introduced the term "geriatrics" just after the turn of the century. In Great Britain in the late 1930s, a unique physician, Marjorie Warren, took leadership in the development of geriatrics. In 1976, the National Institute of Aging inaugurated a Geriatric Medicine Academic Award. It also sponsored the Institute of Medicine, of the National Academy of Sciences, special task force under the leadership of Paul B. Beeson to study "aging and medical education." This report concurs with most leaders in geriatrics in not promoting a primary care practice specialty to which patients would be referred at some arbitrary age. However, most leaders in geriatrics do favor the creation of an academic specialty to insure that there will be new ideas and innovations in diagnosis and treatment, as well as critical leadership in research and education. This specialty must represent a broad range of knowledge rather than a focused one, which is characteristic of other kinds of specialties.

Not long ago, there were those who objected that geriatrics did not possess a distinct body of knowledge. If ever a book demonstrates the falseness of that statement, it is this two-volume work concerning the fundamentals of geriatric care, biomedicine, and psychiatry. It highlights the fact that geriatrics is distinct in the breadth of its concern rather than being a more narrow definition of a specialty. The goal of this unique book is to integrate biomedical and psychosocial information with the perspectives of ethics and social policy. These volumes provide the basic information that most medical textbooks do not have, for example, on such topics as law and the role of the environment in health. All of these perspectives and data bases are necessary to achieve excellence in clinical practice and to foster the further evolution of this expanding field.

Robert N. Butler, M.D.

# Preface

*“Old age ain’t for sissies”\**

In the last decade, two developments have changed the practice of medicine: the aging of the population and the dominance of medical technology. Both medical education and medical practice have responded to these events. Aging, chronic illness, and long-term care now are frequently written about in medical journals. Advances in diagnostic and therapeutic technologies have out-stripped our ability to evaluate or to pay for the new services. The field of geriatric medicine is a response to the first development and a reaction to the second.

The medical response to the demographic imperative of aging has been to codify a field of medical specialization that is relevant and useful to the increasing numbers of elderly persons. The reaction is to emphasize a broadly comprehensive, humane, and personal approach to patient care. There no longer is any doubt that there exists a body of scientific knowledge, which characterizes the field of geriatrics. In addition to a distinct body of knowledge, most geriatricians also will describe a special approach and philosophy that characterizes the practice of geriatrics. There is a growing awareness in academic medicine that special knowledge, skills, and attitudes are needed to deal effectively with elderly patients, particularly very old or frail patients. However, many physicians in primary care specialties such as internal medicine, family practice, and general surgery claim (and accurately so) that they function as geriatricians because many of their patients are elderly. In fact, in many instances, clinical practices of these generalists predominantly consist of elderly patients. Even with the advent of full-time geriatricians, the proportion of elderly persons in general practice populations will increase within the next 2 decades.

Both viewpoints are correct. Geriatrics is a specialty and also an essential component of almost any clinical practice. It is true that many physicians, especially those in primary care settings, will have a large proportion of elderly patients in their practice and (to a certain extent) will be practicing geriatrics. Until recently, most graduate training programs in medicine, family practice, or psychiatry did not include special consider-

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\* Moore, H: Sayings, in Alvarez J, Oldham P (eds): *Old Age Ain't For Sissies*.

ation of geriatrics. Many physicians have learned some of the practical information of their own; however, the body of knowledge referred to in the recent Institute of Medicine report and the theoretic and scientific progress in this field has not been generally accessible.<sup>†</sup> It also is true that we have, in the last 5 years in the United States, codified a specialty of geriatrics that includes training programs in geriatric medicine at the fellowship level. Many of the graduates of these programs will assume academic roles and bring the content of geriatrics to all relevant areas of health care education.

In these volumes, we have tried to assemble the material in a way that is useful for both practicing clinicians and physicians-in-training, especially those who have selected training in geriatrics. In addition, this text is meant to be a comprehensive resource for a practitioner who needs information for the clinical demands of the moment. For a research scientist or physician in advanced training, there is an introduction to the theoretical basis of each subject and a substantial bibliography. We hope that, in this way, these volumes also will provide access to the new areas of research and the new understandings that are now emerging.

Because we attempt to bring together in one place the full content of geriatric medicine, this work is deliberately compendious. Geriatrics has a broad basis; it includes clinical medicine, humanities, and the social sciences. Also, *Geriatric Medicine* accordingly has several sections organized into two volumes. The division into two volumes is primarily in the interest of the reader's convenience and, thus, inevitably somewhat arbitrary. Nonetheless, our underlying concept is that the biological, the psychosocial, and the philosophical are essential parts of a single whole. We have called on a large number of contributors, in many different fields, to assure that the subject matter is treated authoritatively.

Aging is an important and exciting area of biomedical research, which is represented largely in Volume I. The diseases that are the greatest scourges of old age are principally the chronic and degenerative disorders such as osteoporosis, parkinsonism, stroke, Alzheimer's disease, osteoarthritis, and peripheral vascular disease. Until recently, the level of research activity into the causes and treatments of these disorders has been markedly inadequate when measured against the numbers of people who are afflicted and the costs—both financial and humanitarian—to our society. However, there are areas of knowledge and research outside of biomedicine that also are critical to progress in geriatrics. These include disciplines that are based in social sciences and humanities, rather than in biology and medicine. Health services research and bioethics are especially important to geriatrics. A geriatrician may need to emulate the Renaissance scholar. The body of knowledge is broad and its relevance is undeniable.

Geriatrics is unique as a medical specialty, because it is broader, rather than narrower, than the parent disciplines. An effective clinician must have some grasp of social gerontology, architectural design, law, psychology and psychiatry, spiritual counseling, health policy and health care economics, interprofessional sociology, epidemiology, and philosophical ethics to claim a firm competence in the care of elderly persons. For this reason, much of Volume II is devoted to chapters that are written by

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<sup>†</sup> Institute of Medicine: *Aging and Medical Education*. National Academy of Sciences, Washington, DC, 1978.

experts in these fields. These authors provide information that is both practical and relevant to clinicians, and that also may encourage a deeper exploration of this field.

The breadth of subjects covered in these two volumes is a demonstration of the need for interdisciplinary practice in geriatrics and gerontology. No one person can be an expert in each of these areas. Yet, each subject will be relevant to the needs of an elderly patient at one time or another. It is important for a geriatrician to be able to work effectively with other health care providers as well as with social scientists and policymakers, and to know where his or her own limits have been surpassed and where consultation is necessary. For appropriate and effective consultation, one must have a basic understanding of the sphere of knowledge of consultants.

The theoretical and clinical basis of geriatrics is a rich tapestry of different disciplines. In weaving this tapestry, it was inevitable that there would be overlappings and crossings of one discipline into another. The reader occasionally may find material that is apparently redundant from one chapter to another. We feel that such duplication is appropriate in a comprehensive resource text such as this. In most cases, the areas of overlap will provide a different perspective on the same topic and will enrich the understanding of the reader in the process. We hope that the indexing and cross-referencing will provide guidance to those who are specifically seeking these different perspectives.

For a project of this magnitude, it is impossible to adequately acknowledge all those who helped. It has been a project of many rewards, both in the content and meaning of the work itself and in the expanding community of scholarship and advocacy. From inception to completion, this project has taken 3 years. During this time, innumerable persons have contributed significant support. The staff of Springer-Verlag has given us stimulating concepts and good ideas, in addition to steadfast sensible guidance. The details of organizing, phone-calling, letter-writing, library research, and manuscript preparation cannot be overemphasized in a work of this size and complexity. Special acknowledgment in these areas is due to Pamela Beere Briggs and Carol Saatzer. We also acknowledge the generous support of the Henry J. Kaiser Family Foundation.

We are aware that we have joined the beginning of a very important process. The profession of medicine is at a turning point; it is caught between the successes of scientific and technologic progress and concerns about the rising costs of care and the depersonalization of its delivery. Patients—disaffected, frustrated, and often in real need—are caught in between these unresolved issues. The moral center of the profession is at risk in the policy debates. An understanding of geriatrics requires 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 a patient. The complexity, richness, and mystery of aging cannot be described better than it has been by T.S. Eliot in *East Coker*:

Home is where one starts from. As we grow older  
The world becomes stranger, the pattern more complicated  
Of dead and living. Not the intense moment  
Isolated, with no before and after,  
But a lifetime burning in every moment  
And not the lifetime of one man only  
But of old stones that cannot be deciphered.

We choose to view the challenge posed by the geriatric imperative not as a burden, but as an opportunity for medicine to restructure its priorities and to respond to the real needs of modern society. Geriatrics can be a vehicle for returning the values of compassion, moderation, and moral judgment to both medicine and scientific progress. These volumes, in themselves, will not create the complete clinician, but they can provide the groundwork for the excellence that is possible in geriatrics. That excellence not only is possible, but it is a duty we owe to our patients, our profession, our society, and—in the final analysis—to ourselves.

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# Geriatric Medicine

Volume II

Fundamentals of  
Geriatric Care

PART I

# Perspectives on Aging

## CHAPTER 1

# Demographic Perspectives

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In the United States during the Twentieth Century, the number and proportion of older persons have increased substantially (*see* Figure 1-1). In 1900, there were 3 million persons over 65 years of age, which represented 4% of the total population. Elderly persons totalled 9 million or 7% of the population in 1940, and 24 million or 11% of the population in 1980. The United States Census Bureau estimates that elderly persons will number 57 million or 17% of the total population by 2030. The aging of the American population has significance for every facet of our culture. Dr. Robert Butler has ranked population aging as second only to the prevention of nuclear war as the world's most pressing social issue.<sup>1</sup> The aging of our population has particular significance for the health care profession. Elderly persons have more illnesses, use more health and medical care services, and are more likely to die than other age groups. The implications of this demographic imperative for health policy,<sup>2,3</sup> medical practice,<sup>4,5</sup> medical education,<sup>6,7</sup> and research<sup>8,9</sup> are widely appreciated. Demography, which is the science of describing populations, informs social planning. It also informs a clinician's consideration of an individual patient.

An outstanding feature of the elderly population is its continual change in character. New individuals enter the population by reaching 65 years of age, while older individuals exit through death. Persons who reach 65 years of age have had different life experiences than the older individuals they replace. Specific historical circumstances have shaped their formative and adult years. Replenishment with new individuals transforms the elderly age group over

time. Uhlenberg estimates that this process produces a relatively rapid change, as over the course of a decade there is a 60% replacement of individuals 65 years of age and over.<sup>10</sup> A given birth cohort differs from the preceding cohort because of its historical experience and its different size and composition. The degree of dissimilarity between adjacent cohorts suggests the degree of difficulty that society will face in accommodating a particular new generation of elderly persons. This approach is based on the cohort life course concept.<sup>11</sup>

Somers has termed the social consequences of a changing elderly population the "geriatric imperative."<sup>12</sup> Demographic information provides insight into the processes of these changes and suggests appropriate improvements in social and health policy. In this chapter, we present the mechanisms that have produced the striking shift in the age structure of the United States, develop a profile of America's elderly persons, and highlight major demographic and socioeconomic trends. These facts specify the geriatric imperative.

The demographic characteristics of cohorts that are particularly relevant to health care are: size, mortality, income, education, race, residence, and living arrangements.

## A Society in Demographic Transition

The United States is changing from a society with few elderly persons to one with many. This process has been proceeding since the founding

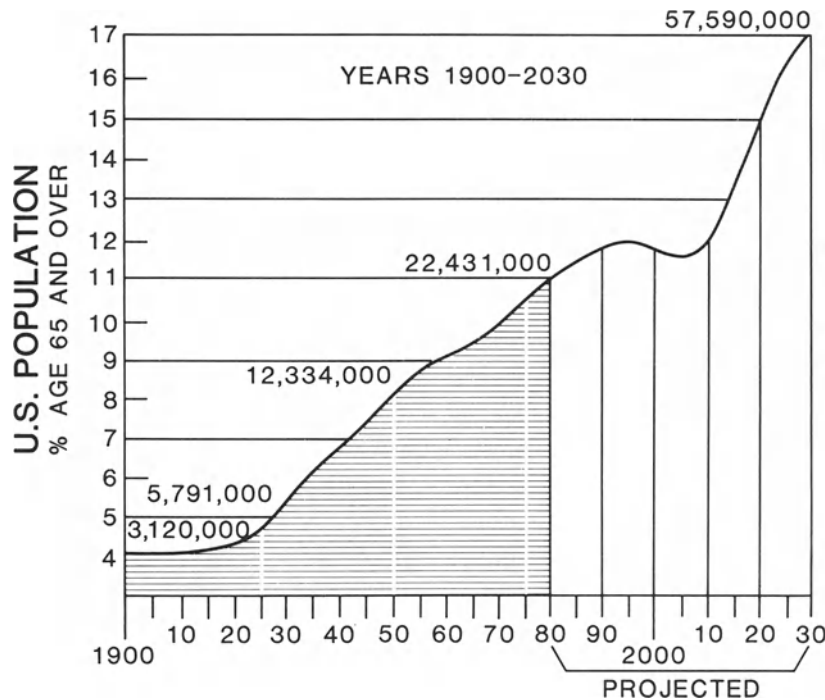


FIGURE 1-1 Number and proportion of United States population 65 years of age and over, 1900–2030. (From United States Census Bureau, Washington, DC.)

of this nation. However, the relative growth of the elderly age group was slow, from approximately 2% over 65 years of age in 1700 to just over 4% by 1900. The birth cohort (all people born in a given span of time) of 1900–1910 has seen in its lifetime the proportion of elderly persons increase 2.5 times to 11% in 1980. Persons born in the 1980s also may see the proportion of elderly persons double in their lifetimes. This represents an exceedingly rapid phase of growth of our elderly population. The model of demographic transition provides an explanation of this phenomenon.

Three factors determine the age structure of a society: 1) fertility (number of children per woman); 2) mortality (death rates at various ages); and 3) immigration. Current government limits allow us to neglect immigration as a factor in determining age structure within the United States. In 1970, only 4.7% of the total United States population was foreign-born; projections from the same census show that in 1980, 5.7% of those 60–64 years of age will have been immigrants. Declining fertility and mortality rates have set the stage for the current increase in the number and proportion of elderly persons. This phenomenon may be depicted by serial population pyramids for 1910–1980 as

seen in Figure 1-2. Each pyramid shows the number of people per 5-year age span in a given year. The 1910 pyramid shows the relatively large birth cohort for that period, reflecting a high fertility rate. The absolute size limit of a cohort is set by fertility. Following the 1900–1910 birth cohort through the series of diagrams, its size diminishes due to mortality. Thus, original fertility and subsequent mortality rates determine the size of a cohort in a particular year.

A declining fertility rate in the first half of this century is the principal explanation for the rising proportion of elderly persons. Women in the birth cohort of 1865–1875 had an average of four children each. Women born at the beginning of this century had fewer than three children, and the current figure is about 1.8 children per woman. Lowered fertility means proportionately fewer young people in the population; hence, the society “ages.” A temporary reversal of the trend toward lower fertility rates occurred with the postwar “baby boom,” and aging of the population was halted for a time. As that large birth cohort ages, the proportion of elderly persons will increase rapidly in the early part of the next century.

A declining mortality rate has meant that the

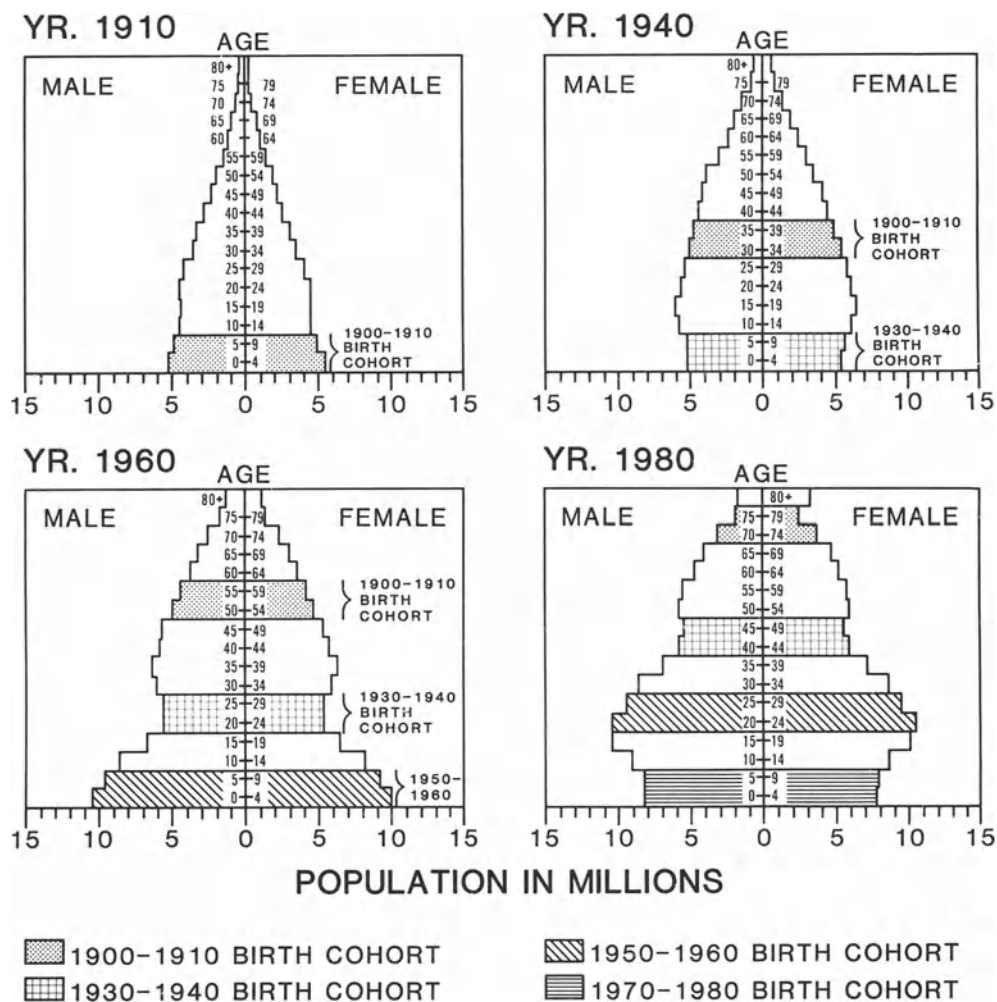


FIGURE 1-2 Age structure of the United States population: 1910, 1940, 1960, 1980. Four 10-year birth cohorts are depicted. (From Soldo BJ: America's elderly in the 1980's. *Pop Bull* vol 35, no 4 (Population Reference Bureau, Inc, Washington, DC, 1980, pp 8 and 9).

likelihood of survival to an advanced age has increased. In the early years of this century, improved sanitation, nutrition, and medical care reduced the mortality rate at younger ages. This tended to counteract the effect of a lowered fertility rate on the proportion of young people in the population. Since 1940, however, decreases in mortality have occurred throughout all age ranges. Age-adjusted death rates declined 25% for elderly men and 47% for elderly women between 1940-1978.<sup>13</sup> This decrease in mortality for elderly persons (38% overall) exceeded that of younger age groups and contributed to expansion of the elderly population. Old age, once achieved by a relatively few survi-

vors, has become a general expectation. Today, more than 7 of 10 newborn infants may expect to reach 65 years of age, compared with 4 of 10 in 1900. This phenomenal shift has been termed by Butler the "triumph of survivorship."<sup>14</sup>

The phase of demographic transition ultimately leads to low levels of both fertility and mortality, such as exist now in the United States and other developed countries. If these rates persist over a life span, with fertility near replacement levels, an equilibrium or "post-transitional" state exists. A demographically mature society would then have roughly equal-sized cohorts at all age ranges, with a decline in cohort numbers only as the limit of life span is

approached. With more people reaching the top of the pyramid, its shape would become more rectangular. The proportion of elderly persons in this steady-state population would be near 20%. Barring any significant change in life expectancy, the United States may reach this level by the latter half of the next century.<sup>15</sup>

## Demographic Profile of Elderly Persons

The aging of our society is a phenomenon of demographic transition. A passage through the transitional phase has resulted in a variety of changes for the elderly population. The dimensions of these changes may be outlined by considering the following variables: number, proportion, age composition, sex ratio, racial composition, and life expectancy.

### Number of Elderly Persons

The number of elderly persons will continue to increase. The Census Bureau data in Table 1-1 show the increasing number of elderly persons in this century, from barely 3 million in 1900 to nearly 25 million in 1980. The Census Bureau projects nearly 55 million elderly persons by 2030. This projection depends solely on mortality rates, since all persons who will be elderly in 2030 have already been born. The rate of growth of the elderly age group will vary due to

past fluctuations in fertility rates. The number of elderly persons will increase slowly after 1995 as small depression era cohorts reach 65 years of age; between 2010–2030, the elderly population will swell dramatically as postwar babies become senior citizens.

From the perspective of cohort size, stability cannot be reached until 2050; that is, in a stationary or post-transitional population, the ratio of the numbers of persons in adjacent cohorts is 1 : 0. The cohorts entering old age will not stabilize until sometime after the baby boom cohorts reach 65 years of age between 2010–2030, following which cohorts of decreasing size will enter old age. We may reasonably assume that fertility rates will remain low, that immigration into the United States will remain low, and that future mortality declines will be distributed across all ages and have little effect on the proportion of persons who reach 65 years of age. This means that the most rapid rate of growth of the over 65-year-old group already has occurred. For this reason, we may expect some reduction of the difficulty in accommodating our aging population in spite of a continued increase in the absolute numbers of elderly persons.

### Proportion of Elderly Persons

If immigration remains low, fertility rates will determine the proportion of elderly persons. Fertility predictions have been notably inaccur-

TABLE 1-1 Total United States Population and Population 65 Years of Age and Over with Decennial Increase, 1900–1980

Year	Total U.S. Population		Population 65 and Over	
	Number (in 1,000s)	Increase from Preceding Decade (%)	Number (in 1,000s)	Increase from Preceding Decade (%)
1900	75,994	20.7	3,099	—
1910	91,972	21.0	3,986	28.6
1920	105,711	14.9	4,929	23.7
1930	122,755	16.1	6,705	36.0
1940	131,669	7.2	9,031	34.7
1950	150,697	14.5	12,362	37.3
1970	203,235	13.3	20,156	20.4
1980	221,700	9.1	24,830	23.2

SOURCE: Soldo BJ: America's elderly in the 1980's. *Pop Bull* vol 35, no 4, p 7, Population Reference Bureau, Inc, Washington, DC, 1980.

rate in recent decades. The Census Bureau offers a range of population projections that depend on varying fertility assumptions, which are shown in Table 1-2. The most likely projection assumes a replacement level fertility rate of approximately 2.1 children per woman. Using this assumption, the proportion of elderly persons would reach 18.3% by 2030. The proportion of elderly persons in 2030 would increase to 22.1% of the total population if the fertility rate were below replacement levels.

The proportion of the population over 65 years of age varies markedly by race and ethnic origin: 11.8% for whites, 7.9% for blacks, and about 4% for Hispanic persons. A differing survivability is reflected in median age statistics for blacks and whites. In 1979, the median age for blacks was 24.6 years compared to 30.9 years for whites. The higher fertility rate of blacks

increases the relative proportion of young people. A higher infant mortality partly accounts for the lower proportion who survive into old age. Minorities as a group are poorer, have less education, and have more health problems. Their death rates generally are higher than those of whites at all age ranges.

### Age Composition of Elderly Persons

Elderly persons are not a homogeneous group. The 65th year of life has marked the entry into old age in the United States. The 65th year is a convenient demographic landmark, but it assumes a correlation between chronologic and physiologic or functional age. Although this may be a useful assumption when averaged for a population, it ignores wide individual differences. As Fries observes, "variation between healthy persons of the same age is far greater than the variation due to age."<sup>16</sup> The convention of age 65 is rooted in Social Security Old Age Assistance legislation and retirement policies. It also is a holdover from an earlier era when many fewer people reached 65 years of age. Neugarten has made an important and useful functional distinction between the "young-old," those 55–75 years of age, and the "old-old" who are over 75 years of age.<sup>17</sup> The health, affluence, education, and political activism of the young-old belies the traditional stereotypes of elderly persons. Persons who are 75 years of age and over may be more likely to evidence the impaired health and functional status that typically is associated with the old-old or frail elderly group.

Demographic descriptions obscure the diversity within groups and become the basis for stereotyping. There is good evidence that in their last decade elderly persons are likely to be healthier, better educated, more active, and satisfied than previously, and also less likely to be poor or isolated. We must be prepared to accept an elderly person as unique and likely to fit no stereotype.

The elderly population is getting older. A lower mortality rate late in life means that more people are surviving to extreme old age. The over 75-year age group and especially the over 85-year age group are growing proportionately

TABLE 1-2 Percentage of Population 65 Years of Age and Over with Median Age of United States Population, 1900–1980; Projections Under Varying Fertility Assumptions, 1990–2040

Year	% of Total Population Aged 65 and Over	Median Age of Total Population
Estimates		
1900	4.1	22.9
1910	4.3	24.1
1920	4.7	25.3
1930	5.5	26.5
1940	6.9	29.0
1950	8.2	30.2
1960	9.3	29.5
1970	9.9	28.1
1980	11.2	30.2
Projections*		
1990	12.1 (11.7–12.6)	32.8 (31.4–33.7)
2000	12.2 (11.3–12.9)	35.5 (32.5–37.3)
2010	12.7 (11.1–13.9)	36.6 (31.1–40.2)
2020	15.5 (12.7–17.8)	37.0 (31.4–41.7)
2030	18.3 (14.0–22.1)	38.0 (31.2–43.2)
2040	17.8 (12.5–22.8)	37.8 (30.7–43.9)

\* Base data of projections are for July 1, 1976. Main projection assumes replacement-level fertility (2.1 children per female). Range in parentheses is that implied by above replacement-level fertility (2.7 children per female) and below replacement-level fertility (1.7 children per female).

SOURCE: Soldo BJ: America's elderly in the 1980's. *Pop Bull* vol 35, no 4, p 9, Population Reference Bureau, Inc, Washington, DC, 1980.



faster than the elderly age group as a whole. Proportions of very old people (over 85 years of age) will increase through 2010, then will decrease for a time as baby boom cohorts enter the 65–75-year-old segment. As baby boom children advance to the extremes of life, the proportion of the very old will increase rapidly. The Census Bureau anticipates nearly 8 million people over 85 years of age by 2040, or 14.5% of all elderly persons, compared with 2.3 million or 9% in 1980.

### Sex Ratio

The deficit of older males will continue. At birth, there are 105 boys for every 100 girls, but male mortality is higher at all subsequent ages. As demonstrated in Table 1-3, in 1979 there were 68.4 men per 100 women over 65 years of age; among people over 85 years of age, there were only 44.7 men per 100 women. Projections through the year 2000 show the relative proportion of males as declining further. This reflects the fact that the mortality rate for females continues to fall faster than for males.

### Racial Composition

Non-whites are under-represented in the elderly population, which reflects their higher mortality in relation to whites. At present, life expectancy for blacks is approximately 5 years

shorter than that for whites. Life expectancy for blacks has been increasing more rapidly than that for whites in recent years, and differences in life expectancy at 65 years of age are minimal. This suggests that the natural life span is similar between the races. Life expectancy for Hispanics is shorter than for blacks, and for Native Americans it is shorter still. The differential life expectancy between races implies that diseases subject to control by available methods are more prevalent in non-whites. Deaths due to accidents and violence are more common for black persons; homicide is six times more common in black males than for whites of all ages and five times more common in black males over 65 years of age.<sup>18</sup>

### Life Expectancy and Death

The maximum length of a life span is fixed or nearly so (*see* Volume I, Chapters 1, 2). The average life span has increased greatly in this century, but the maximum life span probably has not changed. Improvements in sanitation and the control of infectious disease accounted for the increased life expectancy at birth, which has improved from 47–73 years since 1900. For people 75 years of age, however, life expectancy has barely changed at all (*see* Figure 1-3). Fries points out a paradox in these trends; by 2018, life expectancy at birth may exceed the average age of death projected from 75 years of

TABLE 1-3. Sex Ratio: Men per 100 Women 65 Years of Age and Over, by Age and Race, 1960–2000

Age (yrs) and Race	Projections			
	1960	1979	1990	2000
Total 65 and over	82.6	68.4	67.3	66.6
65–69	87.8	80.1	80.5	82.4
70–74	85.3	72.9	72.9	74.6
75–84	77.4	60.4	59.6	59.9
85 and over	63.8	44.7	40.9	39.4
White				
65 and over	82.1	67.8	67.7	64.6
75 and over	74.3	55.2	58.4	51.9
Black				
65 and over	90.1	71.0	68.2	67.8
75 and over	87.6	62.2	62.6	57.3

SOURCE: Soldo BJ: America's elderly in the 1980's. *Pop Bull* vol 35, no 4, p 12, Population Reference Bureau, Inc, Washington, DC, 1980.

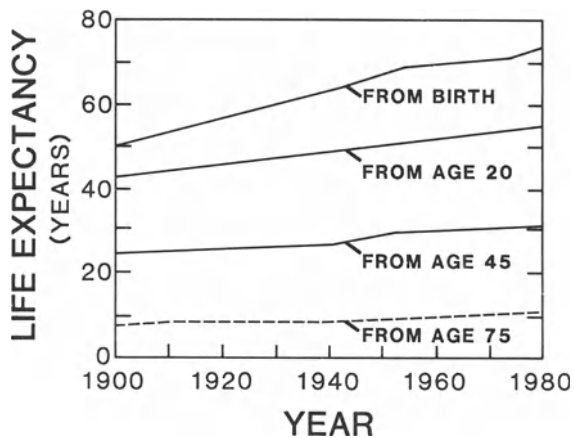


FIGURE 1-3 Change in life expectancy at different ages, 1900–1980. Persons 75 years of age today cannot expect to live much longer than persons 75 years of age in 1900, which suggests a fixed limit to the human life span. (From United States Bureau of Health Statistics, Washington, DC.)

age.<sup>16</sup> Serial survival curves in this century, shown in Figure 1-4, demonstrate that at any given age, the proportion of surviving people has increased. However, there remains a sharp fall-off in survivorship as the apparent limit to the life span is approached. The position of an ideal survival curve, with causes of premature death eliminated, shows a normal distribution around a mean age at death of 85 years. Leaf concludes that “there has been no extension of the limit of the lifespan; only the proportion of

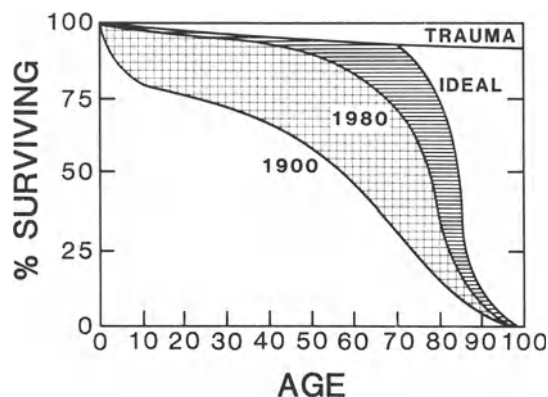


FIGURE 1-4 Survival curves for the United States population, 1900 and 1980, with a projected ideal survival curve. The success in eliminating premature death means that more people will reach the apparent limit of a natural life span. (From United States Bureau of Health Statistics, Washington, DC.)

the population reaching the apparent biologic limit of about  $85 \pm 10$  years is increasing.”<sup>19</sup>

Death will be increasingly an elderly event. At present, 16.8% of all deaths occur in people 85 years of age or older; but this group presently accounts for 1.01% of the population.<sup>20</sup> The very old segment of the population is growing faster than any other in relative terms. This will further concentrate deaths at the tail of the survival curve. Death that occurs at the end of a natural life span may have less of a sense of calamity.

### Socioeconomic Profile of Elderly Persons

The health and illness of individual persons are a physician’s primary concern. However, health, longevity, and quality of life are determined less by medical intervention than by genetic makeup, income, education, occupation, living arrangements, and social supports. As Sigmund Freud and many others have observed, love and work are central to well-being in human life.

The changing demographic characteristics of elderly persons have been outlined in the preceding sections. The increasing numbers and proportion of older persons and the growing numerical predominance of women are obvious changes in America’s elderly population. These phenomena derive from the process of gaining new individuals and losing others. An evolving socioeconomic profile also is implied by this process. Individuals who represent later birth cohorts have distinct and different social histories when they enter the elderly age group. The varying social history of three generational cohorts is depicted in a life experience diagram shown in Figure 1-5.

Elderly persons are changing with respect to economic status, education, residence, living arrangements, and health status. The persons in the birth cohort of 1900 were 15–20 years old during World War I and many served in the Army; their subsequent outlook was shaped by the Great Depression of their young adulthood. The birth cohort of 1925 went through a peaceful childhood and witnessed deprivation in the Great Depression years. Many served in World War II and, subsequently, played a part in pro-

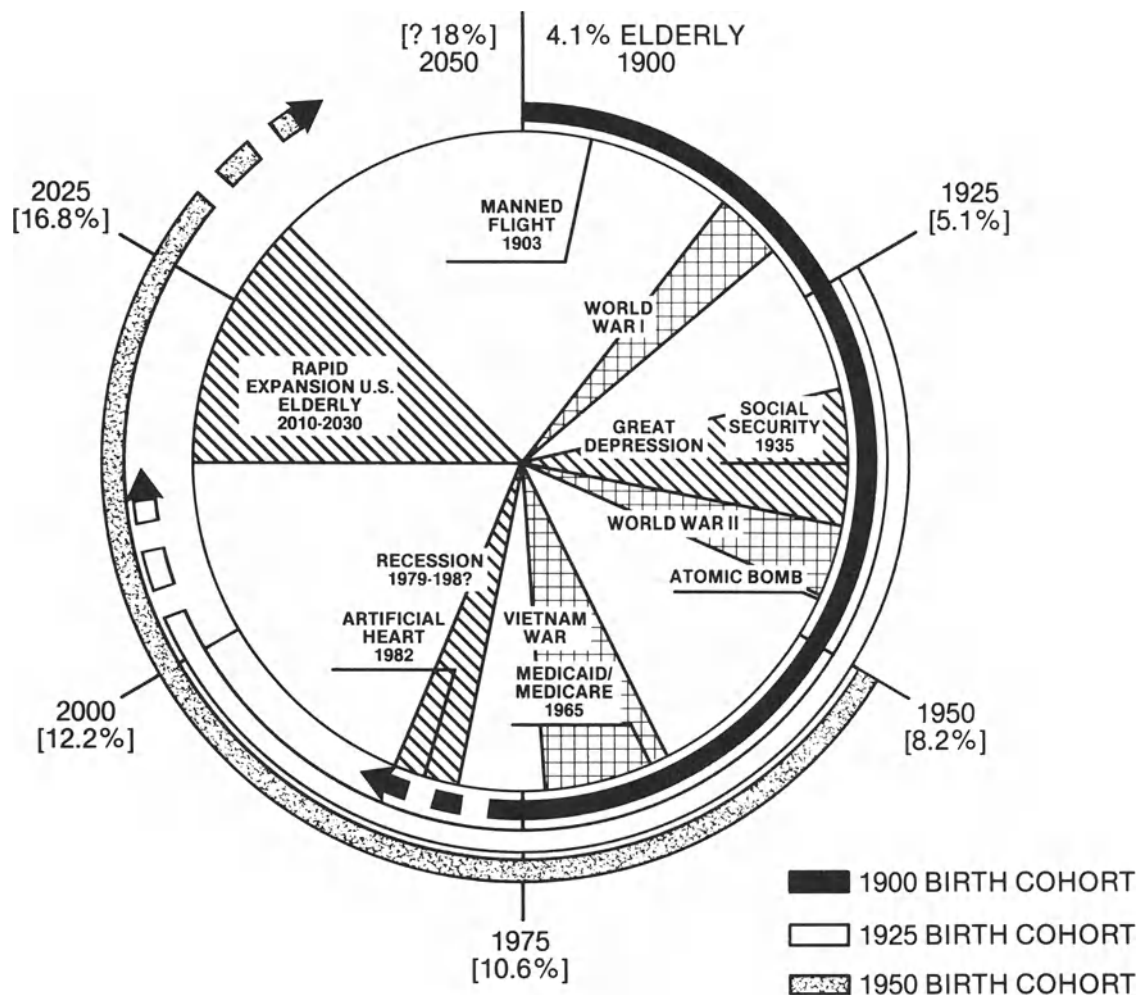


FIGURE 1-5 Life experience diagram, birth cohorts: 1900, 1925, 1950. The social, political, or scientific events affect individuals differently, depending on the phase of life in which they occur. The adaptation of the 1950 birth cohort to old age is likely to be different than that of the 1925 or 1900 birth cohorts, due to differing social histories.

ducing the baby boom during the calm of the 1950s. The 1950 birth cohort enjoyed advantages of education and prosperity during youth; their large numbers crowded schools, colleges, and careers. The Vietnam War affected the lives of many, whether they were soldiers abroad or activists at home. This generation will become elderly in 2010–2030.

### Economic Status

The economic disadvantage of elderly persons has decreased. The percentage of elderly people with annual incomes below the official pov-

erty level, termed the poverty rate, fell from 35.2% in 1959 to 14.6% in 1974, and since then the rate has stabilized. In 1981, poverty rates for elderly persons were comparable to those for the population as a whole: 15.3% versus 14%.<sup>21</sup> Social Security and other entitlement programs seem to be the principal reason for the improved economic status of elderly persons. The risk of poverty remains high for elderly blacks, whose poverty rate was 39% in 1981, for women (18.6% in 1981), and for people living alone (30.6% in 1980). In 1977, 27% of all elderly persons living alone were poor, compared to 8% of elderly persons living in fami-

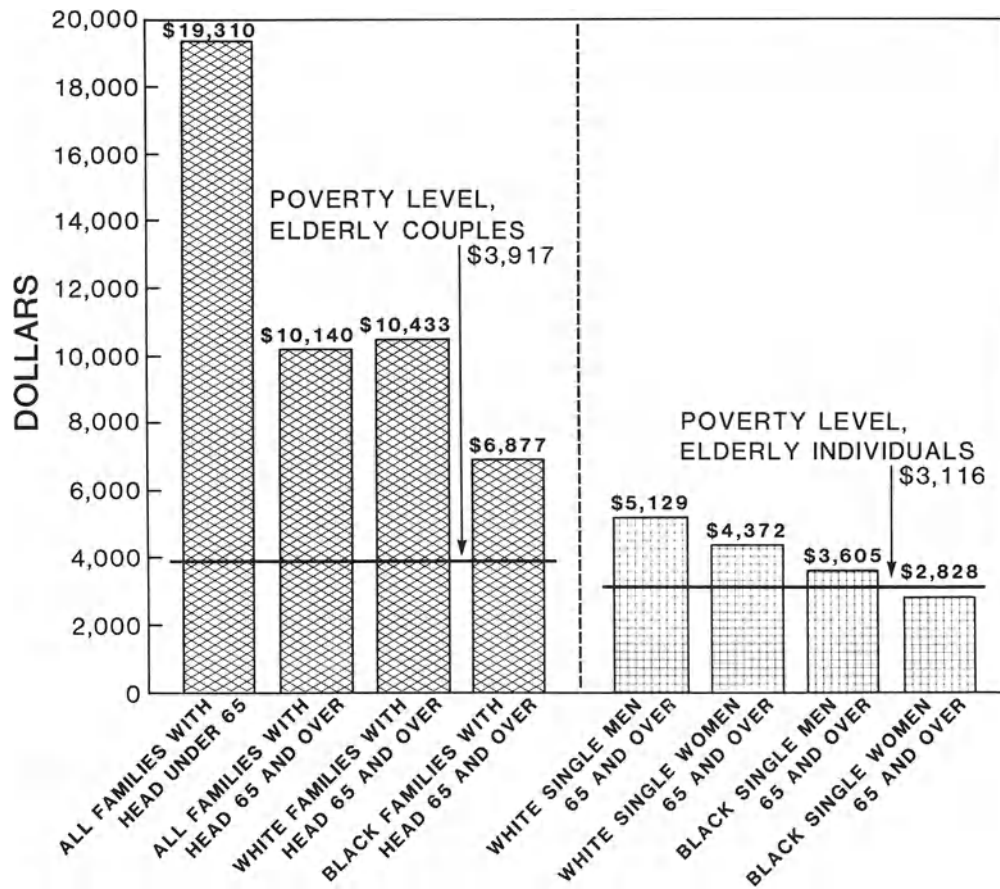


FIGURE 1-6 Median income for elderly families and individuals compared with younger families, 1978. (From Soldo BJ: America's elderly in the 1980s. *Pop Bull* vol 35, no 4, p 22, Population Reference Bureau, Inc, Washington, DC, 1980.)

lies.<sup>22</sup> For black elderly women who live alone, 1978 median income was below the poverty level (see Figure 1-6). The data presented in Figure 1-6 are not numerically complete. They do not include in-kind benefit programs, such as Medicare, food stamps, or subsidized housing; nor do they reflect the large out-of-pocket medical expenses of elderly persons. In 1977, these were \$1,745 per elderly individual, which is nearly four times that of people under 65 years of age.

The aged-dependency ratio will increase. The dependency ratio compares the number of working people to non-working, or "dependent," elderly persons. For demographic purposes, this is the population over 65 years of age versus the population 18-64 years of age.

This ratio doubled between 1920-1960, thus reflecting the increased relative number of elderly persons. Aged-dependency projections that assume replacement fertility rates show little change through 2000; then a rapid increase after 2010, which reflects the appearance of the post-war baby boom cohort. An increased aged-dependency ratio generates particular concern for the Social Security system. The number of beneficiaries per 100 covered workers is projected with fertility at replacement to increase from 30 in 1979, to 40 in 2015, and to 52 in 2030. This trend will be sensitive in the long-term to fluctuations in fertility.<sup>23</sup> The historic proposal to raise the age of retirement to 67 is a response to the increase in the aged-dependency ratio that is projected in the next century.

## Education

The educational disadvantage of older persons will decrease. Over 40% of today's elderly population went no farther than elementary school, compared to 20% of this figure among the 25–64-year-old age group. Successively better-educated cohorts are entering the elderly population, thus shrinking the education advantage held by the young. Educational disadvantages may handicap people in dealing with the bureaucracy of service and benefit programs.<sup>24</sup> This may partially explain why many elderly persons do not participate in programs for which they are eligible. This problem is likely to diminish as well-educated baby boom cohorts enter the elderly population after 2010.

## Residential Distribution

Elderly persons are over-represented in central cities and small towns and under-represented in suburban and farm areas. Farm areas have one of the lowest proportions of elderly persons, while small towns with populations of 1,000–2,500 have the highest, 13.6%. It appears that elderly persons may move from farms to nearby towns to retire, while young people have migrated to larger urban areas seeking work. Elderly persons also are disproportionately over-represented in central cities, because young people have migrated to the suburbs. Siegel points out factors that lead to high concentrations of elderly persons in certain places, such as the outward migration of young persons, inward migration of elderly persons, and a low fertility rate. Low concentrations of elderly persons result from a reversal of these patterns.<sup>25</sup>

Geographic mobility decreases with age. The vast majority of elderly persons do not move to the Sunbelt on retirement. Instead, they tend to stay in places they have lived, such as small towns in rural areas or central cities. Of those persons 65–74 years of age, 18%, along with 16% of those over 75 years of age, have changed residence between 1975–1979; this compares with 40% for the population as a whole. Of those persons over 65 years of age who changed residence, only 3% moved to a distant state.<sup>24</sup>

The migration of elderly persons favors certain geographic climates. Although relatively few

retired elderly persons move to a different part of the country, their migration is selective. Florida, California, and Arizona attracted more than 50% of the elderly persons who moved to distant states between 1965–1970. Sunbelt migrants are younger and more affluent than elderly persons as a whole. As they age in their new locale, their dependence on local health and social services will increase.

## Living Arrangements

Most elderly persons live in families and maintain intergenerational ties. The typical elderly family consists of a husband and wife sharing a household. Elderly parents, as well as their adult children, prefer autonomy and independence. Families of impaired and functionally dependent elderly persons provide most of the care, perhaps as much as 80%. A spouse is the most likely care-giver. For unmarried elderly persons, care is most often provided by an adult daughter.<sup>24</sup> Institutionalization usually is a last resort when the needs of an elderly person exceed resources of the family. Somers has expressed concern that the decreasing family size may cause an increased “family aged-dependency ratio,” which can lead to a greater need for institutional supportive care.<sup>26</sup>

Elderly women are likely to become widows. The higher male mortality rate, and the fact that women marry men older than themselves, means that many more women than men will be left alone after their spouse dies. Remarriage rates for widowed elderly women are low. For women, there are few available partners; unattached women outnumber men 3:1 after 65 years of age. Figure 1-7, though, makes it clear that the proportion of widowers among elderly men also is substantial.

Advanced age and isolation increase the risk of institutionalization. Overall, only about 5% of elderly persons reside in nursing homes at any one time. This figure rises to 22% for those over 85 years of age. The lack of a spouse to provide care often leads to institutionalization. Only 12% of all elderly persons in institutions are married, compared with 54% of the elderly population as a whole. The tendencies toward widowhood and longevity among white females accounts for their over-representation in nursing homes. Other factors that increase an el-

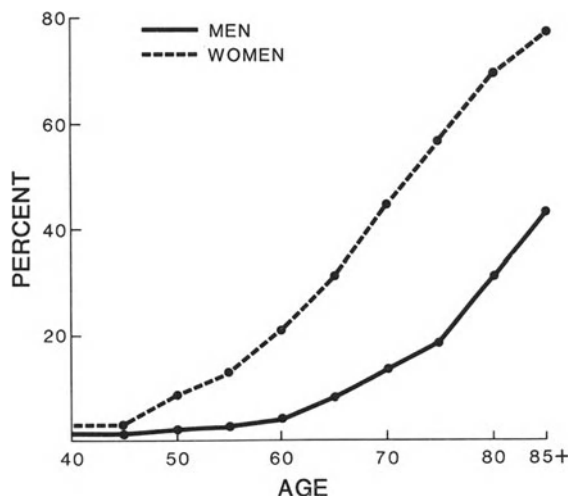


FIGURE 1-7 Widowed persons as a percentage of the population by age and sex, 1970. (From United States Bureau of the Census, Washington, DC, 1970.)

derly person's risk of institutionalization are a recent hospital discharge, incontinence, and confusion or dementia.<sup>27,28</sup>

### Health Status

James Fries offers the encouraging prospect of increasingly healthy lives with a diminishing period of morbidity in old age.<sup>16</sup> He suggests that much chronic illness may be postponed by changes in life style, and that the need for medical intervention late in life may be expected to decrease. Currently, elderly persons account for a disproportionate share of health care expenditures. Health care utilization by future elderly persons is a matter of intense concern and discussion. Siegel anticipates great increases in the total demand for health care due to larger numbers of elderly persons and suggests that per capita utilization of health care services by elderly persons also may increase due to higher educational and income levels.<sup>25</sup> Brody also doubts whether very old people in the future will be "less frail and less vulnerable" than today.<sup>20</sup> Very old people have the highest rate of health care utilization, and their numbers are increasing rapidly.

Chronic illness and disability has superseded acute illness as the major threat to good health. A reduction in the premature death rate means that more people attain old age and, hence, are likely to experience a chronic illness. Over 80% of all elderly persons report one or more chronic conditions. Major morbidities are arthritis, heart disease, hypertension, and diabetes. Our knowledge of the basic biologic mechanisms and the prevention of chronic disease is limited. Although it may be premature to predict major improvements in the health status of elderly persons for the near future, Lewis Thomas optimistically writes, "in the end, when all the basic facts are in, I think it will turn out that all forms of cancer . . . are a single disease caused by a single central controlling mechanism gone wrong . . . I look for the end of cancer before this century is over."<sup>29</sup> Would those saved from cancer then suffer other chronic diseases?

The most serious concomitant of chronic illness for an elderly person is functional disability and dependency. As the result of chronic illness, 50% of all elderly persons are somewhat limited in an activity of daily living, 18% cannot carry on their major activity, 5% of those living in the community, (i.e., non-institutionalized) are confined to home.<sup>30</sup> Elderly persons typically experience major psychosocial stresses, such as retirement, financial crises, death of a spouse or friend, and illness. One half of all psychiatric inpatient admissions and outpatient visits in 1977 were by elderly persons.<sup>30</sup> The consequence of chronic illness for elderly persons is a high level of functional dependency. Meeting the dependency needs of older persons is perhaps the most difficult social problem posed by our aging population.

### A Geriatric Imperative

There is little question that a patient with an acute medical illness will receive expert technical care in the United States today. One has less confidence, however, in the capacity of our society to handle the dependency needs of an elderly, infirm patient. The needs of such persons often are more social than medical. When care is approached medically, emphasis is placed on diagnosis and treatment. Scant attention may be paid to the interests of an individual. Depen-

dent elderly persons have been described as the “boat people” of our health care system—they do not seem to fit any level of care.<sup>31,32</sup> Institutional placement often is the medical response to a social dilemma.<sup>33</sup>

Demographic data predict an older and larger aged population with a greater prevalence of chronic disease. Medical science is being challenged to develop more effective approaches for dealing with chronic illness. Our system of social welfare is being challenged to develop more satisfactory ways of caring for dependent elderly persons. Successful integration of these medical and social efforts is needed to meet the broad challenge of the geriatric imperative.

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## CHAPTER 2

# Social Perspectives

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A fundamental understanding of the variety and complexity of the problems that are associated with aging requires multiple perspectives. This is particularly true in the area of health, where one might expect a medical model to dominate. In gerontology, it has long been a tradition to study social and psychological, in addition to biologic or physical, determinants of health status.

The purpose of this chapter is to provide the reader with an overview of the social aspects of aging. The first and second sections provide an historical view of elderly persons in the United States, as well as a perspective on current attitudes toward them. Familial relationships of an older person are discussed in the third section. This is followed by a review of current knowledge regarding retirement and leisure, widowhood, and aging viewed from a cultural perspective. The remainder of this chapter is focused on the one central concern of social-psychological researchers on aging; namely, the search for the determinants of well-being among elderly persons.

### Elderly Persons in the United States: An Historical Perspective

Aging as a biologic process has changed little in the last 300 years. We age neither faster nor slower than we did in Colonial America; nor has our maximum life span increased or decreased substantially. However, aging as a social process has changed profoundly.

The percent of the population 65 years of age and older was substantially lower in Colonial America (approximately 2%) than it is today; but, even more important than the difference in numbers is the difference in the social status of an older person then and now. In Eighteenth Century America, those few who attained old age were venerated and revered. They controlled the land in a predominantly agrarian society. They were the keepers of the culture, served as social models, and (perhaps most important) they were thought to be closest to God in a society where religion was central to most peoples' lives. As Keith Thomas<sup>1</sup> put it, "the prevailing ideal was gerontocratic: the young were to serve and the old were to rule. Justification for so obvious a truth was found in the law of nature, the fifth commandment, and the proverbial wisdom of ages." Like good red wine, the soul was thought to improve with age, reaching its earthly perfection in old age. Indeed, instead of disguising old age, it was exaggerated through dress and self-report.

The bias in favor of old age began to shift toward the young early in the Nineteenth Century. Just as the number of older persons was increasing, their social status was diminishing. Forced retirement became more common, poverty among elderly persons was more prevalent, and attitudes toward older persons shifted more toward the negative. The reason for these changes is still debated among historians. David Hackett Fisher,<sup>1</sup> for example, argues that this change was brought about by a widespread social revolution that occurred late in the Eigh-

teenth Century. Both the American and French Revolution were part of this great upheaval that had a profound impact on the economics, politics, and ideology of the Western World. The centerpiece of the new order was an egalitarianism that precluded status differences based on age.

An alternative view is presented by the historian W. Andrew Achenbaum,<sup>2</sup> who suggests that a major shift toward the devaluation of elderly persons began late in the Nineteenth Century; it was the result of the perceived obsolescence of elderly persons. After 1914, with the increased urbanization, industrialization, and bureaucratization of the United States, this process was accelerated. Attitudes toward, and treatment of, elderly persons reached their lowest point in the period between 1914–1940.

Achenbaum's analysis is consistent with the perspectives that are advocated by several cross-cultural researchers such as Leo Simmons, Conrad Arensberg, and Solon Kimball, who propose that the welfare of elderly persons varies directly with the extent to which they control valued resources. Thus, old people are better off to the extent that they: (1) Control resources on which younger people are dependent, (2) Command vital knowledge of their culture; and (3) Are links to the past, particularly to powerful gods. Old persons also fare better when an extended family, as opposed to a nuclear family, is an important component of a society's social structure, where the population is clearly age-graded and definite roles are attached to individuals of different ages; also, where the population clusters are small and there is a great deal of personal contact and mutual interdependence among members. Finally, elderly persons do better the greater the overall poverty; while each individual's contribution to the total productivity of a group may be small, it nevertheless is valued.

Applying these criteria to the present-day United States, Rosow<sup>3</sup> argues that "old people are relatively better off and accepted when they own family farm land, live in small communities, are members of racial or ethnic minorities with extended kinship obligations, or belong to unskilled, working-class groups where interdependence and mutual aid are standard conditions of survival."

Given the accelerated rates of urbanization

and industrialization in the United States since 1940, one might expect the plight of elderly persons to be sorrier than ever; but, this obviously is not the case. With respect to mortality, morbidity, income, family relationships, and cultural attitudes, the status of elderly persons has, if anything, improved in the last 4 decades. This is accounted for, in part, by the significant growth in social programs that are serving the elderly age group, as well as the increased sensitivity among persons of all ages (particularly in the last 2 decades) to the problems confronting our rapidly increasing elderly population.

## Current Views of the Aged

The study of aging processes from maturity into old age, as well as the study of elderly persons as a special population, did not begin to flourish until the early 1950s. One of the staples of scientific gerontology since its inception has been the study of attitudes toward elderly persons. As a result, we have available to us a large number of studies that document our views of this nation's elderly population.

What do these studies tell us? The underlying assumption among gerontologic attitude researchers and theorists has been that the general public's view of elderly persons is fundamentally negative. Paradoxically, the empiric literature offers little support of this assumption. Lutsky<sup>4</sup> points out that "reviews of scores of studies on attitudes toward elderly persons—studies involving diverse designs, measures, and participants—have not found consistent and strong evidence of negative reactions to elderly persons." There are some studies that show negative attitudes toward elderly persons, and many individuals—young and old alike—are misinformed about the demographic and economic circumstances of elderly persons; but, as a whole, the existing findings indicate that elderly persons are not victims of a general or singular attitudinal prejudice. The kernels of truth in the "ageist"<sup>5</sup> descriptions of our society are that we tend to overestimate the percentage of elderly persons who are residing in institutions, and the percentage who are living below poverty status; we also tend to underestimate their health status.

## The Family

The fact that more people are living to an older age has several consequences for the family life of older persons. First, it means that more people will be spending a longer period during their old age as a member of a couple. Second, married individuals can expect a relatively long period together after the children have been launched. And third, the existence of multi-generation families that span three and four generations will become more commonplace.

Research on the family life of older persons frequently has been focused on the relationships between the older population and their adult children. Approximately 81% of older Americans have living children, and about 10% have adult children who are 65 years of age or over.<sup>6</sup>

One popular notion suggests that older persons are neglected by their children or (even worse) they are dumped into nursing homes; but, in fact, there is little data to support this. In three different western populations (American, British, and Danish), over 80% of the respondents had seen at least one of their adult children in the preceding week.<sup>7</sup> Another study shows a similar pattern: 55% of their older sample group had seen one of their children within the last 24 hours and 81% within the previous 1 or 2 weeks.<sup>8</sup> In spite of the fact that we live in a highly mobile society, most elderly persons (approximately 75% of those with children) live near at least one of their children and visit them once a week, and frequently every day.

What is the quality of the relationships that underlies these interactions? Most older parents and their adult children report positive feelings for each other. Researchers have consistently found high levels of regard reported by both parents and their middle-aged children.<sup>6</sup> In fact, a sizable proportion of older parents feel close enough to their children to talk to them about "things that really bothered them."<sup>8</sup> The relationship between older parents and their children appears to be motivated by both affection and a sense of duty.

One of the common characteristics of intergenerational interaction is the provision of mutual aid. The aid that is provided may take the form of housework or baby-sitting, money or gifts, information, advice, and moral sup-

port. With respect to economic aid, the balance between family generations is relatively even, although children tend to receive more than they give. Child care also favors the younger generation, but with other kinds of aid the exchanges are fairly even. All in all, it appears that parents continue to give to their children what they can for as long as they can, and this process reverses itself when the health and financial condition of the parents deteriorate.

## Retirement and Leisure

The proportion of older people who retire has increased dramatically since the turn of the century. In 1900, approximately 60% of the men over 65 years of age continued to work, compared to 18% in 1975. Industrialization, increased longevity, economic conditions, the availability of Social Security and other pension plan benefits, and mandatory retirement policies, all have contributed to the increasing rates of retirement.

Contrary to what is generally believed, most people retire voluntarily. Also, many choose early retirement, primarily because they feel they have adequate incomes, have poor health, and/or because they desire more leisure time. Those people who retire involuntarily do so because of poor health, mandatory retirement policies, or because their jobs are eliminated.

There are many stories about the previously healthy and vigorous man who unexpectedly dies within weeks or sometimes even days of his retirement date. Equally prevalent are anecdotes about retired individuals who come to feel so useless and depressed that they require psychiatric care. However, a causal relationship has not been proven. Longitudinal studies show the same pattern of health changes in both retired and non-retired people of the same cohort. As pointed out earlier, people in poor health are more likely both to retire and retire early; but, after they retire, their health is just as likely to improve as it is to get worse. In general, retirement does not result in increased mental health problems or increased feelings of uselessness; nor does it necessarily result in a decrease in self-esteem or decreased levels of social interaction. Retirement becomes a difficult adjustment problem when it is associated with a se-

vere reduction in income and/or a precipitous decline in health.

Research on the effect of retirement on marriage shows, if anything, that the relationship between husband and wife improves rather than deteriorates. Middle- and upper-middle-class women, in particular, welcome and view positively the retirement of their husbands. Conversely, working-class women sometimes feel sorry that their husbands have retired. In general, wives who do not welcome retirement tend to have husbands who are in poor health or unhappy marriages.

There are many definitions of leisure activity. Some define leisure in terms of what is done with free time, others with what you do without pay. Some equate leisure with play or with activities that give you pleasure. However, there is consensus among researchers that the opportunity for leisure activities increases after retirement. Among current cohorts of older persons are those who view leisure activities as frivolous or as a waste of time; others see them in a much more positive light—as a time to be creative, develop new skills, and enjoy social participation. In general, there is a close association between occupational and retirement leisure styles. Persons who have been active, creative, and energetic before retirement are likely to be active, creative, and energetic in retirement. Those older persons who have been dissatisfied with work also may be unhappy with retirement. Finally, the pursuit of leisure activities is strongly related to one's income. It frequently is assumed that old people choose to pursue quiet home-bound activities when they simply may be unable to afford more diverse activities.

## Widowhood

The loss of a spouse is one of the major traumas that are encountered by many older persons. Women, by far, are more likely to experience widowhood than men; both because they live longer and because they tend to marry men older than themselves.

The adaptational demands placed on an individual who is dealing with the loss of a spouse are severe. Not only must the individual cope with grief and related feelings such as anger,

fear, guilt, and depression, he or she often must acquire (in addition) a new repertoire of practical skills such as shopping, cleaning, doing laundry, or handling finances. Friendships with other couples may be difficult to maintain, because the basis of these friendships has changed; also, persons without spouses may feel out of place at social gatherings with married couples. Also, women frequently suffer financially, because income from Social Security and private pension plans is reduced. These multiple sources of stress have been identified as major contributors to the increased death rates (which include death from suicide) and increased rates of psychiatric treatment among the widowed when compared to comparable married individuals.

It has been popular in both the lay and scientific literature to speculate about the existence of a series of well-defined emotional stages that bereaved individuals experience. The process of adapting to the death of a spouse is said to begin with denial and to end with acceptance and recovery. However, data that supports this notion consists primarily of anecdotal reports and case studies. Systematic studies of large samples of widows and widowers have failed to verify the existence of stages among the bereaved.<sup>9</sup>

## Aging in Cross-Cultural Context

Much of the information presented above is based on data collected from populations that are roughly representative of the United States population as a whole. These data tell us much about the typical elderly person, often (albeit wrongly) defined as a white middle-class male. However, they tell us little about the health and social aspects of aging of specific cultural groups.

Mounting evidence of the relevance of culture to both the health and well-being of elderly persons and to an understanding of their particular life experiences has led to careful and detailed inquiries. Those areas of concern that are especially pertinent in this chapter include questions about 1) Cultural variability among elderly persons in terms of mortality and morbidity; 2) The perception and manifestation of

disease; 3) Attitudes influencing service utilization as well as treatment compliance; and 4) The resources—both instrumental and affective—that enable one to cope with illness and, conversely, to maintain good health and a sense of well-being.

Although mediated by socioeconomic factors, death rates and disease prevalence among living persons vary widely across different cultural groups in the United States. For example, the death rates of Mexican Americans,<sup>10</sup> blacks,<sup>11</sup> Native American Indians,<sup>12</sup> and Alaska Natives<sup>13</sup> are significantly higher than the rate of death among whites; also, they increase in the order just presented. Morbidity patterns within these special populations provide some indication of the forces at work.

The highest prevalence rates of diabetes mellitus, biliary dysfunction, rheumatoid arthritis, tuberculosis, and otitis media in this nation are found among American Indians and Alaska Natives.<sup>14</sup> Tuberculosis and diabetes mellitus also are common to Mexican Americans,<sup>10</sup> whereas sickle-cell anemia, heart disease, and hypertension occur with the highest frequencies among blacks.<sup>11</sup> Bacterial and parasitic diseases are common in all three cultural populations. The high prevalence of diseases of this nature implies that chronically poor health and increasing disability often accompany advancing age among these populations.

Many of these diseases are associated with conditions of poverty (e.g., overcrowding, inadequate housing, lack of pure water, and poor nutrition). Other factors, some of which are firmly rooted in cultural traditions (e.g., dietary preferences and activity patterns), also contribute to being at a high risk for such diseases. These etiologic components require special consideration for the delivery of health services to elderly persons from diverse cultural backgrounds.

Psychiatric morbidity appears to vary as well among cultural groups in the United States. The most dramatic difference involves an age-related “cross-over” in suicide rates. During early adulthood, blacks, American Indians and Alaska Natives, and Mexican Americans commit suicide much more frequently than whites. The reverse is true over 60 years of age.<sup>10,14,15</sup> Culture-specific epidemiologic data are relatively scarce, particularly with respect to el-

derly persons, and they shed little light on this trend. Some studies indicate that certain psychiatric disorders are more prevalent among older Blacks,<sup>16</sup> American Indians and Alaska Natives,<sup>17</sup> Southeast Asian refugees,<sup>18</sup> and Mexican Americans,<sup>19</sup> than among older whites. Other studies report no significant differences among elderly persons in these groups.<sup>20</sup> Despite this inconsistency, a frequent misdiagnosis (e.g., of major affective disorders as senile dementia, *see* Volume I, Chapters 35, 36) is a common finding and has provided a greater impetus to look more closely at cultural variability in the perception and manifestation of illness.

A considerable body of research has developed on the views of illness that are held by various cultural groups in the United States.<sup>21</sup> The differences are enormous and include concepts of bodily function, widely divergent assumptions about etiologic agents, and marked variations in the nature and form of phenomena that are thought to be symptomatic of illness. Given that acculturational pressures are less likely to have affected the older members of these groups, such cultural differences are especially pronounced among elderly persons. Recently emerging work<sup>21-23</sup> offers practical diagnostic strategies for a health care professional that emphasize the psychosomatic and ecological elements of the worlds in which people live.

The use of health services by elderly persons also varies with cultural background.<sup>21,24-26</sup> Contributing factors include the perceived relevance of the kinds of care offered, the cultural background of the providers, staff sensitivity to cultural differences in interactional styles, and cognitive discrepancies in explanatory models. Treatment compliance is affected by similar circumstances. The behavioral health literature is fairly clear with respect to the role of psychological dispositions (i.e., beliefs about a threat to health or efficacy of the prescribed action), social context (support and primary group stability), situational demands, and personal sources of care in ensuring adherence to a prescribed regimen.<sup>27</sup>

Without exception, studies among different cultural groups in the United States indicate that social networks (family, friends, neighbors, and mutual association groups) are among the most potent mechanisms for marshalling instru-

mental and affective resources to enable their older members to cope effectively with health-related problems.<sup>28-32</sup> Certain sectors of their networks appear to operate differentially in this regard. For example, immediate family members are most likely to assist elderly American Indians with problems that involve illness or physical disability; neighbors and church members assume much more prominent roles in helping elderly blacks and Hispanics to cope with the same kind of difficulties. Elderly whites seem to respond in yet a different fashion; they rely largely on formal sources of support and services.

These are some of the social and psychological aspects of aging that acquire special significance in a cross-cultural context, particularly with respect to health-related questions. The well-being of elderly persons ultimately represents the central concern of these lines of inquiry.

### Well-Being Among Elderly Persons: A Social-Psychological View

The dominant research theme within social gerontology for the last 3 decades has been the identification of those factors that improve or aggravate the subjective and objective well-being of elderly persons. Research on stereotyping, morale, personal networks, disengagement, and so on, all fall within this category. The early sociologic research is characterized by an Aristotelian approach to the problem; that is, the identification and classification of the relevant independent and dependent variables. The major research device has been the survey instrument. Occasionally, these descriptive and correlational approaches have been supplemented and guided by theories that were borrowed from other disciplines, especially sociology and psychology. In the discussion that follows, both the major theories and data that describe and explain well-being among elderly persons will be examined.

#### Disengagement and Activity Theories

Disengagement and activity theories have been the dominant theoretic influence in social gerontology for the last 2 decades, although their

sovereignty has significantly waned in recent years.

The disengagement theory evolved in the late 1950s and was formally presented by Cumming and Henry in 1961.<sup>33</sup> It posits a functional relationship between an aging individual and society, asserting that there is a process of mutual withdrawal or disengagement of an individual from society and society from the individual. An individual withdraws because of his or her awareness of diminished capacities and the growing imminence of death. Society withdraws because it needs to fit younger persons into the slots that were once occupied by older individuals. These processes are said to be universal and inevitable and to promote system equilibrium. Operationally, the disengagement process is manifested by a decrease in the number and diversity of contacts between an older person and society. The fact that disengagement is thought to be a mutually satisfying process is, in part, reflected by data that shows high morale among elderly persons who withdraw from society both psychologically and behaviorally.

The disengagement theory fired a controversy that persisted for over 10 years. The major opposition came from proponents of the activity theory who argued that the social role participation or activity among elderly persons, while generally decreasing with age, correlated positively with life satisfaction.<sup>34</sup> Thus, both theories assume that aging is characterized by a general decrease in social interaction, but, they differ with respect to the predicted correlates of this process. The disengagement theory predicts a positive relationship between life satisfaction and decreased social interaction; the activity theory predicts the reverse.

Choosing between these diametrically opposed theories would appear to be an easy task, but in fact it is not. Depending on which side of the fence one wants to be on, a large source of available literature can be found to support either perspective.<sup>35</sup> The fact that empiric support for either view is readily available or, even more problematic, that the same data can be interpreted as verifying either theory, suggests major shortcomings within these theories.<sup>36</sup>

The fundamental problem with both theories is that they are not stated with enough specificity, either in the original or revised versions, to

make them falsifiable. Hochschild<sup>36</sup> terms this the “escape clause” problem. For example, disengagement states that withdrawal is universal, inevitable, and intrinsic; however, there will be variations in the “form” and “timing” of disengagement. Without specifying exactly the nature of the variation in form or timing, the door is left open for a post-hoc reinterpretation of a myriad of disconfirming instances.

Other investigators<sup>34</sup> have criticized these theories as being based too much on linear models; they fail to capture the complex interplay between an individual and his or her social system. A related problem is that they are focused too much on the static relationship among the elements rather than on the processes of adapting to aging. Finally, there is the problem of meaning. Both disengagement and activity theories ascribe meaning to the behavior of aging individuals that is based on assumptions about the motives and desires of the individual and society. In summary, after more than 2 decades of existence, it seems appropriate to conclude that neither the disengagement theory nor the activity theory have proven to be as useful a predictive tool as we would have liked.

### Social Breakdown Model

In response to the need for a more dynamic model of normal aging, Kuypers and Bengtson<sup>37</sup> proposed the social breakdown model. A systems approach with feedback loops and cyclic processes is emphasized in this model. The cycle is initiated when an elderly individual becomes vulnerable to external evaluation and labelling because of the loss of historically familiar sources of feedback, such as roles, norms, and reference groups. The feedback or labels that are provided for an elderly individual primarily are negative, since they are derived from socioeconomic use models. The eventual consequence of the social labelling process is the acceptance of negative self-labels (e.g., incompetent, useless) and the eventual atrophy of psychological and behavioral coping skills.

The model is replete with assumptions, but relatively little data exist to support them. For example, the assumption that aging is associated with a loss of roles, norms, and reference groups is supported by Rosow<sup>38</sup>; however, it is

opposed (at least in principle) by advocates of age status or age stratification<sup>39</sup> perspectives, as well as by those who argue that elderly persons represent a unique subculture with its own group consciousness.<sup>40</sup>

Even if we accept the assumption of normlessness, we must then show that elderly persons look to the values and attitudes of persons in their middle years and that these values are predominantly negative. There is, however, little evidence showing that elderly persons view middle-aged persons as their relevant reference group. Finally, one must ask whether this indeed is a model of normal aging, since the majority of elderly persons do not perceive themselves as incompetent or as atrophied as this model would suggest.

### Exchange Theory

The exchange theory<sup>41</sup> is a more recent entry into the social gerontology theory pool. It attempts to explain the decreased social interaction of elderly persons in terms of economic exchanges. The basic assumption of the theory is that interactions between individuals occur and are sustained because the rewards that an individual receives (e.g., esteem, compliance, and entertainment) are greater than the costs he or she incurs (e.g., time, boredom, and anxiety). An interaction is imbalanced when one of the partners of a social exchange is unable to reciprocate the rewarding behavior of the other. Thus, elderly persons become increasingly unable to enter into balanced exchange relationships with other groups because of the decline in power resources that is associated with age. The imbalanced exchange ratio ultimately forces elderly persons to exchange compliance (they conform to the expectations and demands of younger cohorts) for their continued sustenance. Disengagement occurs when the costs of compliance and the loss of self-respect reach a point where an older person would rather withdraw from social interaction than comply any more.

There are several conceptual problems that are inherent in the exchange approach. For example, the calculation of costs and benefits may not be straightforward. A younger individual who perceives no clear extrinsic rewards for interacting with older persons may justify his or

her spending time interacting with an older person by generating intrinsic reasons (e.g., genuine interest in older persons). Alternatively, one can argue that virtue has its own reward; interacting with an elderly person in a positive manner can be viewed as a credit to a younger person, especially if extrinsic rewards are absent. The point is that the calculus for adding up costs and benefits is considerably more complex than the formula suggested by Dowd.

Another conceptual problem concerns the absence of expectancies in the exchange model. How satisfied we are with social interactions is not so much a function of the absolute rewards and costs that are associated with that interaction, but rather the level of rewards and costs relative to our expectations.

### Learned Helplessness and Aging

Seligman<sup>42</sup> first proposed the learned helplessness theory as a model to explain depression in humans. According to this theory, when individuals are exposed to uncontrollable outcomes, they develop expectations that future outcomes also will be uncontrollable. This, in turn, leads to the motivational, cognitive, and emotional deficits that are associated with helplessness and depression.

The degree of helplessness will vary as a function of the type of attribution that the individual makes about the cause of his or her inability to control important outcomes. In general, the most damaging effects are expected when an individual blames him- or herself for a negative outcome and when an individual feels that it was the result of a permanent and far-reaching character flaw. For example, consider a man whose spouse dies, blames himself for her death, and believes that it was largely due to his uncaring and negligent nature. Compared to another person who is convinced that his wife died because of a once-in-a-lifetime random event that he could neither predict nor avoid, the former should suffer greater, more generalized, and longer-lasting damage to his self-esteem.

Although this model has not been rigorously tested with an elderly population, it has stimulated considerable research on aging (in general) and on the impact on elderly individuals of institutionalization (in particular). Several re-

searchers<sup>43,44</sup> have suggested that aging is a process that is characterized by large decreases in an individual's ability to control important outcomes due to shrinking financial resources, decreased physical ability, a loss of the work role, and so on. According to this view of aging, the withdrawal and high rates of depression that are observed among elderly persons are attributable to the shrinkage in the sphere of environmental control. Several studies have been carried out experimentally that test derivations from this model. Data are now available that demonstrate the positive impact of control-enhancing interventions on institutionalized elderly persons,<sup>43</sup> the long-term effects of these interventions,<sup>45</sup> the relationship between these interventions and individual differences,<sup>46</sup> and the relationship between competence and control in promoting health-related outcomes among institutionalized elderly persons.<sup>46</sup>

As with the exchange theory, the central idea of the learned helplessness theory concerns the issue of power. In both theories, the declining power resources of elderly persons are identified as the precipitating cause of their withdrawal. Beyond this similarity, however, the theories are vastly different. Learned helplessness, because of its emphasis on one's perception of the world, delves deeply into the phenomenology of the individual; the exchange theory does not.

### Social Comparison Theory

Over 2 decades ago, Festinger<sup>47</sup> proposed his theory of social comparison processes. The underlying assumption of the theory is that there exists in humans a basic drive to evaluate their opinions and abilities. In the absence of objective evidence (e.g., physical reality), persons will compare themselves with others to assess the validity of their views or the quality of their skills.

The relevance of social comparison processes to an understanding of the adjustment to later life is evident once we recognize that there is no physical reality that readily provides answers to questions such as: How should I feel about my life? or How happy am I? With the possible exception of extreme cases, how we respond to, or feel about, a wide array of circumstances and outcomes depends on the opin-



ions and beliefs of relevant other persons. Who are these relevant others for elderly persons? There are several possible answers to this question. One option is to identify similar other persons in one's environment and use them as reference persons. Another option is to make an historical or temporal comparison. This is an intraindividual comparison in which present circumstances, outcomes, abilities, and so on, are compared with past circumstances, outcomes, abilities, and so on.<sup>48</sup>

To the extent that any comparison yields negative discrepancies, individuals are likely to feel badly about themselves or their situation. Thus, for example, an old person who perceives relevant others to be considerably better off than him- or herself, or who dwells on the fact that his or her past was far better than the present, may experience negative affect. Positive affect should result when comparisons yield positive discrepancies.

Which of the two processes dominate should have important consequences for adjusting to later life. Given the many real declines that are associated with reaching old age, comparisons based on the past are likely to yield negative discrepancies and, hence, negative affective states. Alternatively, an elderly individual who uses his or her contemporaries as a basis of comparison should be less likely to experience negative discrepancies and, hence, a negative affect.

As an example, consider an institutionalized older person and the types of events that he or she is likely to encounter. Clearly, if such an individual compares past housing conditions, leisure activities, physical mobility and daily events with present conditions, he or she is likely to experience a negative affect. However, if the same individual uses as a basis for comparison the circumstances and outcomes of similar individuals in the immediate environment, there is less likelihood of experiencing negative discrepancies and, hence, a negative affect.

The type of comparison processes that older persons engage in can be inferred from a recent study in which residents of old age homes reported no more symptoms of depression than either a group of waiting-list control subjects or a non-institutionalized young group.<sup>49</sup> This would be expected if individuals engaged in contemporary, rather than temporal, compar-

ison processes. A similar inference can be derived from the large number of reported studies on morale and well-being in elderly persons. Despite large differences in objective conditions of young, middle-aged, and elderly individuals, few studies report any age-related differences in well-being and morale. Apparently, individuals in different age groups adjust their expectancies to bring them in line with the prevailing conditions for that group. In societies where there are large differences in the allocation of resources based on age, such a mechanism is adaptive both for the society and the individual.

### Stage Theories

There are several "stage" theories of adult development that have come to popular attention within the last decade. This includes the work of Erik Erikson,<sup>50</sup> Levinson,<sup>51</sup> and Sheehy.<sup>52</sup>

Erikson's life span stage theory was one of the earliest and best-known models of adult development. He divided life into eight stages. For each stage, an individual is called on to make choices between two opposites. Only after making the correct choice within a particular stage can an individual progress to the next higher stage of development. For example, for a young adult, the choices are between industry and inferiority. The successful completion of this stage involves striving for skill and mastery, carrying through on projects, and having pride in production. Failure is defined as being passive, leaving things undone, and feeling inadequate about one's productivity.

All eight of Erikson's stages are described in Table 2-1. A quick reading of the conflicts and tasks that are identified for each stage shows they have a great deal of intuitive appeal. Each of us has confronted, at one time or another, one or several of the identified conflicts. The stages undoubtedly are useful in helping us to gain a broad perspective on our lives. But whether or not they are universally applicable to all persons, as stage theorists would claim, or whether or not they have a great deal of diagnostic or therapeutic value remains to be demonstrated. As pointed out earlier, there is a great diversity in the life paths and values of different cultural groups within the United States; yet, Erikson's theory appears to be

TABLE 2-1 Erikson's Eight Stages

Stage	Positive Resolution	Negative Resolution
1 Basic trust versus basic mistrust	Person likes or trusts work associates, friends, relatives; feels essentially optimistic about people and their motives; has confidence in self and the world in general.	Person distrusts people; prefers to be alone because friends "get you into trouble"; dislikes confiding in anyone; distrusts self and the world in general.
2 Autonomy versus shame and doubt	Has own attitudes and ways of doing things, not because others expect them; is not afraid to hold own opinions or do what he or she wants.	Is self-conscious about own ideas and ways of doing things and prefers to stay with tried and trusted ways; avoids asserting self in group; emphasizes how much like others he or she acts and feels.
3 Initiative versus guilt	Takes pleasure in planning and initiating action; plans ahead and designs own schedule.	Lets others initiate action; plays down success or accomplishment.
4 Industry versus inferiority	Likes to make things and carry them to completion; strives for skill mastery; has pride in production.	Is passive; leaves things undone; feels inadequate about ability to do things or produce work.
5 Ego identity versus role diffusion	Has strongly defined social roles; feels at home in work, family, affiliations, sex role; enjoys carrying out role behavior, has sense of belonging; takes comfort in style of life and daily activities; is definite about self and who he or she is; feels continuity with past and present.	Is ill at ease in roles, lost in groups and affiliations; does not enter into required role behavior with much conviction; may make radical switches in work or residence without meaning or purpose.
6 Intimacy versus isolation	Has close, intimate relationship with spouse, children, and friends, sharing thoughts, spending time with them, expressing warm feelings for them.	Lives relatively isolated from friends, spouse, children; avoids contact with others on an intimate basis; is either absorbed in self or indiscriminately sociable; relations with people are stereotyped or formal.
7 Generativity versus stagnation	Has plans for future that require sustained application and utilization of skills and abilities; invests energy and ideas into something new; has sense of continuity with future generations.	Seems to be vegetating; does nothing more than routines of work and necessary daily activities; is preoccupied with self.
8 Integrity versus despair	Feels satisfied and happy with life work accomplishments; accepts responsibility for life; maximizes successes.	Feels depressed and unhappy about life, emphasizing failures; would change life or career if had another chance; does not accept present age and mode of life; emphasizing past, fears getting older, fears death.

SOURCE: Adapted from Troll L: *Continuities: Adult Development and Aging* © 1982 by Wadsworth, Inc. Reprinted by permission of Brooks/Cole Publishing Co., Monterey, CA.

modelled almost exclusively after the middle-class male. Virtually all of the adult developmental stage theories lack the specificity required for empirical testing. They are perhaps best viewed as useful conceptual systems that allow us to define and focus in on some of life's major transitions.

### Well-Being Among Elderly Persons: A Summary View

A good theory in the social sciences has to be plausible enough to avoid immediate rejection, yet implausible enough to arouse interest; specific enough to permit empiric testing, yet vague enough to escape easy refutation. This description obviously applies to the several theories that we have just reviewed concerning the determinants of well-being late in life. Although we might be tempted to throw out this bathwater of theories, it would be difficult to do so without throwing out the baby at the same time.

In fact, there is a kernel of truth to all the perspectives that have been presented. Elderly people as a group do decrease their level of activity, become more reflective about their lives, transact exchanges in their interpersonal relationships, lose control over important outcomes in their lives (and are saddened by this), and adjust their expectations for old age to roughly bring them in line with objective reality. However, most of these statements would accurately describe individuals of any age; as with individuals of any age, elderly people are happy to the extent that they have sufficient financial resources and are healthy.

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## CHAPTER 3

# A Philosophical Perspective

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The growing concern for the elderly manifest in the emergence of specialty training and research in geriatric medicine is of profound importance, both in erasing the social stigma and in easing the personal strains of aging. The premise of geriatric medicine is that aging is a clinical phenomenon in its own right, and is worthy of a practitioner's or a researcher's full attention. Indeed, for these clinicians, elderly persons are a biologic elite.<sup>1</sup> As an elite, they present special strengths as well as special problems that other patients do not manifest. They challenge, intrigue, and reward a clinician in ways that younger patients do not.

It does not follow, however, that a physician or a society that is concerned about elderly persons holds an unequivocally positive view of aging. By analogy, pediatricians can hold widely differing views of childhood, which range from the view that childhood is a time of intrinsic value and completeness to the opposite view that it is of merely instrumental value—a preparation for adulthood; thus, its meaning as an experience is strictly relative to the attainment of adulthood. Similarly, a special interest in elderly persons can reflect any of the views of aging along the spectrum ranging from negative to positive. Because it is doubtful that elderly persons can be helped in a meaningful way by clinicians with an underlying negative appraisal of the experience of aging, it becomes crucial to identify the prevalent view that may consciously or unconsciously inform the practice of geriatric medicine.

## Views of Aging

At one extreme, which can be designated the negative end of the spectrum, is the view that aging is a stage of dying; an inevitable physical, if not also psychological, acquiescence of individuals to their mortality. The negativity of this view derives, in part, from the general disfavor with which mortality is viewed, particularly by health professionals. If death was anticipated as the pinnacle of human experience, aging—as the period of preparation for death—might acquire a different character.

In addition to the general negativity that is associated with death and, thus, with aging as a process of dying, aging is unique among the stages of life; it is increasingly regarded as the natural time to die. The implication of this perspective for medicine is clear. Death is to be resisted less strenuously (if at all) in older persons, while the death of a young person is a tragic violation of the natural order. Chekhov's Iona mourns, "here my son's dead and I am alive. . . . It's a strange thing, death has come in at the wrong door."<sup>2</sup> The consequences of such a view for both clinical and policy decisions are obvious. If medicine is defined essentially as the prevention of death (i.e., early death), younger persons merit more care than the older ones. Elderly persons must not only bear the burden of the general negativity that is associated with death (as must any person diagnosed as dying), they also must endure the unique discrimination of being the only group for whom death is culturally accepted.

The view of death as a normal occurrence in aging can be traced to either of two perspectives: the statistical or the naturalistic (teleological). The modern decline in mortality for every age group except the elderly group means that death now is reserved largely for elderly persons. Statistically, death was once normal (because not unlikely) at any age; indeed, it was more normal in childhood than adulthood; now, it is unlikely in early life, while numerically the norm for elderly persons. Now, “we place dying in what we take to be its logical position, which is at the close of a long life, whereas our ancestors accepted the futility of placing it in any position at all.”<sup>3</sup>

The statistical “logic” of death in aging is reinforced by the teleological view. This perspective appeals to natural phenomena as the interpretive analogy for human experience.

Death for an older person should be a beautiful event. . . . What is more beautiful than the spring budding of small leaves; then the fully-leaved tree in summer; and then the beautiful brightly colored autumn leaves gliding gracefully to the ground?<sup>4</sup>

In the naturalistic view, death is the goal (*telos*) of the aged plant, animal, or person; both for ecological reasons (to allow room for the new) and because the organism has fulfilled its appointed tasks and achieved its purpose in existence. Death is not an interruption, but an affirmation that the life already has reached completion and its continuation would be pointless. Only a premature death is unnatural, because it interrupts an incomplete life.

For the naturalist, a death late in life is acceptable from the perspective of the overall order in which an individual exists. Since this is a view in which the meaning of death derives not from an individual but from the requirements of the general social or natural context, the acceptance of death by an individual is not necessary. As part of a larger purpose (i.e., the preservation and harmony of the whole), an individual is not irreplaceable or supremely valued, but is a contributing and replaceable part of the whole. In short, because the naturalistic view is not based on an empiric claim that individuals regard their own death as the logical outcome of aging, the view is not affected by the number of elderly persons who may not welcome death.

A clinician who regards aging as the natural

time for death will find incomprehensible an elderly patient with the opposite view, who regards death as a radically individual (not ecological) event; moreover, it is regarded as absurd and inexplicable, void of *telos*. The fact that older persons may acknowledge the likelihood of death more than younger persons does not mean that they find it acceptable, nor even that they realize its nearness (implying its remoteness in youth). An individual does not become increasingly mortal with age, nor more able to realize the fact of mortality; for that fact, as with old age itself, belongs to Sartre’s category of the “unrealizables.”

I shall be dead for others, not for myself: it is the Other who is mortal in my being. I know that I am mortal, just as I know that I am old, by adopting the outsider’s view of me. . . . My “mortality” is in no way the object of any close, inward experience.<sup>5</sup>

If the necessity of death remains an abstraction that cannot be inwardly realized, the statistical probability that death is near is equally unrealizable.

The idea of death’s coming closer is mistaken. Death is neither near nor far: it *is* not. . . . The old man knows that he will die “soon”. . . . and the word “soon” remains as vague at 80 as it was at 70.<sup>6</sup>

The inability to relate directly to the necessity of one’s death does not prevent encounters with the possibility of one’s death. However, possible death is realizable precisely because it is a contingency, not a necessity. One does not experience mortality, but the contingency of human life; not the fact that one must die, but the possibility that one might die—and that possibility, as with any other danger, is something to be braved and survived.

Perhaps the real deep feeling is of joy, even triumph, that one has survived the night. . . . Of course you could die during the day, but it’s not likely, not even possible, is it? This year, next year, sometime, again becomes never.<sup>7</sup>

Death is unrealizable in its radical negation of an individual. Without a meaning that transcends personal existence, death is a purposeless closure and mortality is absurd. Death as a contingency is not absurd; the body is not expected to withstand an overwhelming assault. However, death as a necessity is meaningless. It is in this respect that death can seem more

absurd in old age than in youth, where it is by definition only a contingency. An infant does not die because it is mortal and must die, but because of an unnatural chain of events that, in principle, could have been prevented. However, an elderly person must die even if no particular lethal pathology is present; death cannot be indefinitely prevented. The greater absurdity of death in an elderly person is precisely that it is natural, inevitable, and non-contingent. The naturalistic view then, if not accepted by an elderly person, only reinforces the unrealizable; it cannot redeem it. "Death cannot be both natural and radical" when "natural" connotes acceptance of the unacceptable.<sup>8</sup>

Is there another sense in which death can be viewed as natural for an older person—for any person—without negating its radicalness? On an individual level, death can be determined by oneself to be natural if it can be informed with a meaning and be accomplished in a form that is congruent with a person's unique being. Thus, it may become natural when it is most artificial; that is, when it is a conscious creation, an attempt "not to perish simply as a perishable part of the natural order. . . . as the unconscious things, the frozen sparrow under the hedge, the dead leaf whirled away before the night wind."<sup>9</sup> Death that is natural is not a universal death—the mortality that affects all alike—but the "well-crafted death," the "death of one's own" of which Rilke writes.<sup>10</sup> This type of death is the unique creation of an individual, and only that person can fashion it in such a way that its radicalness is transcended and rendered personally natural. Without the intention of an individual in the creation of the meaning and aesthetic form<sup>11</sup> that the death is to have, it cannot be natural in the radical sense. There is no external criterion by which one could judge for another that his or her death is natural in that sense. Nor can one person provide for another a natural death, since the only relevant meanings of natural are the meanings that individuals determine for themselves. There can be no general definitions at this level. The absence of machines, the freedom from pain, and the demonstration of serenity are not criteria for a natural death, just as the use of a particular medium or the choice of a certain content are not criteria for a work of art. The criterion in the creation of one's own death, as in the crea-

tion of art, is personal and individual "it has sprung from necessity. In this nature of its origin lies the judgment of it: there is no other."<sup>12</sup>

There are repeated opportunities during aging to reflect on death because of an older person's more frequent experience of the deaths of others. "It's uncanny when you are old, the space and the silence which are left by all the people who used to be in your life."<sup>13</sup> In addition, elderly persons often are more practiced in shaping their own lives and, consequently, may be more able than younger persons to create a death that is natural for themselves. However, this is only analogous to the possibility that an experienced artist will be able to create works of art with fewer impediments than a beginning artist. It does not mean that older persons have fashioned, solely as a function of aging, a view and a meaning of death wherein it is natural for them. It simply means that older persons are likely to be more able than younger ones to re-create an experience or event so that it is congruent with their individual character. It offers no grounds for a clinician's expectations that elderly patients will have faced and resolved all of their concerns about death. Perhaps, though, it offers one reason for the special interest that elderly persons hold for many clinicians; that is, the possibility that older patients will be more emphatically individual and self-determining than other patients in addressing both life and death.

In a society and a profession that is seriously concerned with the correction of abnormalities, the negativity that is associated with death is rivaled only by that associated with disease. This connection is the basis for the second negative view that aging, even if not intrinsically a terminal condition, is nonetheless a disease. This view sometimes rests only on a confusion of the normal physiology of aging with the pathologies that often accompany it. But, even when that distinction is clarified, the physiology of aging itself sometimes is regarded as pathologic. That concept finds expression in the designation of clinical changes in aging as deterioration or decline. To an objective observer, however, there is nothing a priori degenerative about those changes, unless one uncritically accepts as the only standard of health the condition that younger individuals manifest. Using that standard, of course, aging by definition is a

marked deviation; therefore, the only appropriate response will be to “cure” it.<sup>14</sup>

A slightly more positive view can coexist with the view of aging as a disease, and it often underlies the political support for geriatric medicine, (i.e., the view in which elderly persons are elevated from the role of outcasts to that of underprivileged citizens. They are brought “out of the closet” to become recipients of a popular benevolence toward the oppressed. The special services that this view has generated have notably improved the quality of life of many elderly persons. However, the risk to elderly persons of this view is significant. It is the danger in any targeting of disadvantaged individuals as special groups that need services; the beneficiary necessarily remains subordinate to the benefactor. Inherent in that subordination is an inevitable dependence and a powerlessness to determine the policies of the benefactor. As a result, “in the consciousness of many old people and in the eyes of society, they have become another species. Ironically, an intensive caring and concern for their welfare is frequently more likely to suggest this relegation than indifference and neglect.”<sup>15</sup>

A corollary of this view is the treatment of elderly persons as objects of science, not of public or private largesse. On this view, aging is of interest as a specific class of phenomena, which bears little relation to the features of experiences shared by persons of all ages. The danger of examining one category of persons as distinct objects of interest is that the examiner defines the parameters of the study, and so imposes on the persons studied a version of reality that may not be theirs. Thus, they are estranged from their own reality as well as from those whose object they are. One outcome of addressing elderly persons as a separate species is precisely described by Berger:

The fact that they can observe us has lost all significance. They are the objects of our ever-extending knowledge. What we know about them is an index of our power, and thus an index of what separates us from them. The more we know, the further away they are.<sup>16</sup>

Berger is referring to animals as objects of study; the fact that his remarks apply cogently to the study of elderly persons is a striking commentary on the species approach.

The opposite view of the species approach is that there is nothing of importance that distinguishes aging from other experiences. Aside from a few extra maladies, nothing alters. Theoretically, one can maintain the same scope and intensity of social and professional involvement. If elderly persons were not identifiable by their physical markers, neither they nor those observing them could differentiate their experience from that of younger persons. Because this view seeks to avoid the stigma of the species approach, it seems to represent the positive end on the viewpoint spectrum. In fact, however, it is a “false-positive”; at best, a neutralizing of the negative value of aging based on the assumption that if aging were to be accorded a special place in human experience, that place could only be negative. Thus, it assumes that “the only way of making aging human is to make it as nearly like youth or mid-life as possible.”<sup>17</sup>

The view that most closely approaches a positive valuing of aging is the regard for elderly persons as a cultural treasure, an historical elite. According to this view, the value of aging is the possession of spiritual wisdom or historical information. The positive direction of this view cannot be denied; it identifies elderly persons as a crucial resource in the endeavor to make sense of the human condition. However, the view entails assumptions about the value of time and the relation to one’s body that may ultimately undermine the positivity of regarding elderly persons as historical and spiritual resources. Most simply expressed, that view denies the possibility that aging may be a time of intense involvement with the present or future rather than the past, or the possibility that the primary value for an individual may be sensuous rather than spiritual experience. Because of the importance of these possibilities, the remaining sections of this chapter explore the meanings of time and of the body in relation to aging.

## Views of Time

The way in which aging is regarded and experienced is inseparably connected with the way in which time is understood. Two concepts of time can be identified as informing human experi-



ence; both contribute, in particular, to the conflicts that surround decisions about the medical treatment of elderly persons. These are the views of time as linear and as generational. It should be emphasized that the conflict between the two views becomes destructive only when one of them is regarded as the correct view and when persons holding the other view are devalued. As long as neither view becomes a means of evaluating the worth of individuals, the dialectic between these opposing concepts of time can be seen as enriching the life of a society.

Linear time is represented by the succession of identical units or points in a series. The line of points "moves" only in one direction, forward. Its movement, moreover, is inexorable; linearity is continuous, with each point followed instantly by the next. Because linear time moves relentlessly forward, it is progressive: all events lead to the future. When that concept of time is the accepted form of social/historical time, the movement of a society is an inexorable ascent into the future.

The progressive direction of social time has marked implications for individuals. It orients personal experience toward the future; it prohibits facing backward, dwelling in the past, or attempting to bring the past forward. More importantly, linear time as a socially enforced construct is inimical to a positive valuing of elderly persons. Whereas the future of a society is theoretically infinite, and (thus) capable of endless progression, individual lives are finite. They reach a point of little future. Using the linear model, this is the point at which their ascent peaks and decline begins; when an elderly individual no longer is regarded as participating in society's progress. The old fall behind, become marginal, are outside of time because they are out of time:

We old people are not in modern life. Our impressions of it are at second or third hand. It is something we cannot know. We do know its effect on us, and the impact is so great that it can alienate us from our past, making it seem unlikely and irrelevant. We live in a limbo of our own.<sup>18</sup>

Worse than being marginal, elderly persons in linear time are a weight that holds back those still in the stream of progress. This is due to the needs of the marginal competing with those in the mainstream; allowing older persons to ab-

sorb resources creates a clot in the flow of time.

It should be noted that there exists a generational distance between many elderly patients and their physicians. Medicine faces forward, and with its progressive linear concept of time, it tends to allocate both treatment and resources according to the amount of time that the treatment will purchase for a patient. With this purely quantitative view of time, it is possible to assume that 20 years of benefit is greater than 2 years, or that the death of a young person is tragic while that of an older person is timely. By definition, elderly persons lose with this criterion; they have less time than anyone else in which to benefit from even the most successful treatment.

Elderly persons often retire from linear time by choice, feeling keenly its antagonism to individual life and to their lives in particular. Blythe describes persons who retire to the countryside deliberately seeking a sense of abidingness, realizing that perhaps "it is better to live where progress does not exist," where one can feel "sane and strong and part of the everlasting."<sup>19</sup> Elderly persons often realize that linear time, with its forced march into the future, has no room for a futureless life. The linear view, in effect, forces them either to despair or to cultivate a different view of time.

The latter point is not difficult, since quantified time is not the original experience of time; in that respect, it is as external and alien to a person at 8 years of age as it is to a person 80 years old. The alternative view of time is not mathematical, but experiential; it is subjective, uneven, and idiosyncratic. It is "nature time," seasonal, and generational. An individual's life is a round of experiences in which all of the possible themes are continuously present; not a series of stages in which the prescribed movement is forward. In generational time, there is no necessary progression toward an external endpoint, because any place in the round is potentially complete, an end, or a fulfilment. In this view, old age is not a terminus and youth is not a mere preparation. Each generation has a validity, an intrinsic value that is not relative to its past or its future. No one is marginal, no one a threat to the whole. In this view, the quantity of time lived or time remaining is not a measure of personal worth.

## The Body in Aging: The Phenomenon of Frailty

The most important dimension of aging that is significantly influenced by different views of time is the experience of the body. In linear time, the body's changes with aging can be interpreted only as deterioration, which is consistent with the overall evaluation of the elderly age group as a declining element in a forward-moving society. With the same instrumentalism that devalues elderly persons as their social use diminishes, the frail body is devalued as its usefulness to an individual diminishes. Indeed, so significant is the body's performance within a progressive view of experience that altered physical function with aging has resulted in a general characterization of aging as an experience of frailty, weakness, even lifelessness—despite the evidence of elders such as Scott-Maxwell who insist that aging is “a place of fierce energy,” of “wild life that is almost incommunicable,” and “a place I had no idea existed until I had arrived here.”<sup>20</sup>

An alternative to the linear perspective is the view of aging as a crystal through which experiences that are common to all persons are the most clearly understood, thus becoming (as do colors in a prism) purified and intensified. In this light, the frailty of older persons is not a feature that sets them apart from younger persons, but an opportunity for both to understand the frailty that each experiences. Whether old or young, there exists as a given the possibility of injury and destruction; the quality of frailty. “To be as embodied existence, as flesh, is to be fragile.”<sup>21</sup> The phenomena of fatigue, pain, and illness are intrinsic to human existence.

The meaning that frailty has is not given, however, although the phenomenon itself is given in human experience. To appreciate this, one needs only to contrast the prevalent meanings of frailty at the opposite ends of the age spectrum. The exquisite vulnerability of even the healthiest infant calls forth tender concern and devotion, while the same degree of dependence in an elderly person often is found to be burdensome, if not revolting. These opposite meanings meet in the middle, in the ambivalence that typically is felt by midlife adults when they encounter their own frailty: They cherish the physical expressions of concern that

are permitted in the form of sick care; conversely, they are terrified of being found disgusting.

The meaning that is given to frailty reflects the overall approach employed in interpreting human experience in general. The two approaches with the clearest (and most opposed) interpretations of frailty are the rationalist and the existentialist. Of the two, the existentialist view offers the greater freedom to experience dignity and integrity through frailty.

In the rationalist perspective, the human condition is, in its essence, intelligible; that which cannot be understood rationally is not essential, but contingent or accidental. In metaphysical terms, the essential is pure and enduring, while the contingent is corruptible, and decaying. Thus, in rationalist metaphysics, flesh and spirit divide; the spirit is essence (indestructible, while the flesh is frail (irrational and transient). The experience of frailty is the testimony to finitude, imperfection, and eventual death. “When a new disability arrives,” writes Scott-Maxwell, “I look about to see if death has come, and I call quietly, ‘Death, is that you?’”<sup>22</sup>

As long as frailty does not disrupt an otherwise rational and seemingly infinite life, the finitude of the flesh can be ignored. However, when the body thwarts one's projects and, thus, erupts into conscious experience with the brute objectness of physical reality, then frailty becomes thematic. More important, the very dignity of the person as a self-defining subject is destroyed if the body's concrete limitations overwhelm one's sense of self. Frailty, then, no longer is a background, a horizontal boundary that marks the remote limits of human endeavor; it has overtaken the self at its very center.

Regarded strictly as an object, a part of the material world of decay, the aging body only can destroy the dignity that consists of the sense of self that remains at the center of one's experience; that freely determines the nature of one's relation with the body. When experience is dominated by the body's dysfunction and disfigurement, then dignity seems salvageable only through a sharp distinction between body and self to prevent a person from being defined in toto as disabled; one's sense of self repudiates the body to escape being contaminated by its

deterioration. The body becomes a mere shell, a disguise:

A body like this is a dragon, all scales and folds . . . the dragon ate the white swan. I haven't seen her for years. I can't even remember what she looks like. I *feel* her, though. She's safe inside, still alive; the essential swan hasn't changed a feather.<sup>23</sup>

The swan-dragon dichotomy symbolically expresses what deBeauvoir mourns as "the insoluble contradiction between the inward feeling that guarantees our unchanging quality and the objective certainty of our transformation."<sup>24</sup> The contradiction between subject and object (self and body) is not a logical—as much as a lived—contradiction that is cultivated by the "self" to avoid becoming one with a frail and failing body. The indignity of being swallowed by a dragon is at least alleviated if the swan is indigestible and survives to denounce its host as its enemy.

However, the dignity that is purchased by disowning a frail body ultimately is self-defeating, because the sense of self thereby surrenders its most essential freedom; that of deciding how it shall regard itself. In fearing that it will be defined (as is the body) as an object in the world of finite objects, the sense of self gives up the very essence of its not being an object, i.e., the essence of a subject as self-defining, capable of transcending external definition. The contradiction is no longer between self and body, but is the contradiction within oneself; a subject that regards itself as an object.

The indignity of frailty is insoluble in the rationalist view, because the integrity of the self-body relation is destroyed. More importantly, one's self—in fleeing the body's failure as an object—makes of itself an object.

The view of the body and its inherent frailty as the imperfect and irrational element of existence precludes a self-body unity in aging by forcing the sense of self to renounce the body. This rationalist view also undermines the relation between one's sense of self and the rest of the world. As a physical and social object, the body (in good health or ill) belongs to the world as well as to oneself. It is the fact of the self toward the world, but it is also the world's closest face to oneself. Thus, the body is the most intimate connection that exists between one's sense of self and the world. Repudiating the

body as a failed object or (worse) an enemy jeopardizes that connection of persons and their world, e.g., an individual who refuses to eat in the company of others because of disgust with his or her lack of coordination, or fear of others' disgust. But to withdraw from the body when its limitations become pronounced is no more alienating than the other alternative; to deny its limitations to prevent alienation. In the latter situation, a true relation between oneself and world is not achieved; only a facsimile that is based on a denial of an individual's reality. "Real pain is there, and if we have to be falsely cheerful, it is part of our isolation."<sup>25</sup>

The combined isolation from both one's body and the world that is generated by the rationalist view would seem to be grounds for the most profound despair in aging. Yet, Blythe observes:

The old often have amused eyes and are not necessarily desperate. Serviced with dentures, lenses, tiny loudspeakers, sticks and hip pins, the flesh has become absurd and can no longer be taken seriously. The body has become a boneshaker which might just about get you there, if you are lucky.<sup>16</sup>

The "amused eyes" are not those of the rationalist but of the existentialist. There are, however, two types of existentialists, who need to be clearly distinguished: 1) The grim unsmiling ones in whom the lack of rationality eliminates all black-and-white distinctions, only to replace them with a grey and aimless ambiguity (Sisyphus' stone, Sartre's freedom that sits like a stone at the heart of being, deBeauvoir's dirge of insoluble contradictions); and 2) The dancing, laughing existentialist who can say:

My formula for greatness is *amor fati*: that one wants nothing to be different, not forward, not backward, not in all eternity . . . this ultimate, most joyous, most wantonly extravagant Yes to life represents the highest insight that . . . nothing in existence may be subtracted, nothing is dispensable . . . a Yes-saying without reservation, even to suffering.

The above passage is from Nietzsche, after 10 years of unrelieved ill health, excruciating pain, and professional failure.<sup>27</sup> Frailty here is not a reason for despair. Despair is the No-saying spirit of rationalism and other forms of idealism; "the degenerating instinct that turns against life." Decay and weakness are manifested not in the body's decline, but in the lack

of vitality in oneself to embrace one's life—including the life of the body—with its unceasing tides of strength and frailty. The boneshaker is absurd, but not a negation of life or an irreconcilable opponent of oneself. On the contrary, it is the opportunity—greater in aging than at any other time—to cultivate a conscious integrity of oneself and one's body; to cherish and not renounce the body, and to care for it as one would a beloved other with whom one has laughed, danced, and from whom one will soon be parted.

In the existential view, frailty is not a cause for despair, but neither is it to be celebrated in a "cult of suffering." Nietzsche, who urged more emphatically than any philosopher before him that one becomes a "free spirit" through embracing the body in all its finitude, also held in utmost contempt the cultivation of suffering. The danger in infirmity is that it may be experienced as tragic and, therefore, as entitlement. Nietzsche's well-known abhorrence of privilege as the reward of the weak is based not on a contempt for weakness, but on a regard for suffering as dialectical and as containing within it the possibility for still greater strength, energy, and vitality. The cult of suffering is the view of weakness as the impossibility of strength; thus, it is as much a closure to a part of existence as is the worship of strength. It is that closure, the No-saying spirit, that amounts to true weakness. Physical frailty is simply one of the colors that an existence will have; an especially strong color that is neither black nor white and certainly not grey. "Perfect brightness. . . . even exuberance of the spirit, is compatible in my case," insisted Nietzsche, "not only with the most profound physiological weakness, but even with an excess of pain." In his last writing, only weeks before his collapse, he could affirm the "sweetening and spiritualization which is almost inseparably connected with an extreme poverty of blood and muscle."<sup>28</sup>

If frailty is dialectical, which contains within it its apparent opposite (i.e., new life and strength), that potential should be even more vivid in aging than in the experience of illness. This is exactly the claim that Scott-Maxwell makes in elucidating both the negative level of dialectic (the level of contradiction) and the positive level of synthesis. At the negative level, frailty and energy are experienced in their

sharp antagonism to one another. "Inside we flame with a wild life that is almost incommunicable. . . . the sad fact is this vivid life cannot be used. If I try to transpose it into action I am soon spent."<sup>29</sup> Frailty and energy, in this sense are so antithetical that the subjective dimension of frailty is clearly its primary meaning. That meaning is distinct from the objective medical concept of vulnerability as the statistical probability of a new or increasing dysfunction that occurs at a particular age. At the personal level of free subjective aim, where probabilities do not reach, frailty is not defined in relation to other statistical entities; but, it is defined as an individual imbalance (i.e., the degree to which one's own unique intensity cannot be lived).

In this light, frailty destroys the immediacy in which a person's energy and passion find complete expression, with none left over to enter consciousness. When the intensity surpasses the capacity to communicate it, it becomes conscious as the contradiction between oneself and one's body; between life and aging:

It is a place of fierce energy. . . . It has to be accepted as passionate life, perhaps the life I never lived, never guessed I had it in me to live. It feels other and more than that. It feels like the far side of precept and aim. It is just life, the natural intensity of life, and when old we have it for our reward and undoing.<sup>30</sup>

The loss of immediacy is the "undoing," the intrusion into consciousness of purpose and frailty at its opposite poles. What then is the reward?

The energy and frailty are, in themselves, the reward; however, only when seen at another level of dialectic where they no longer merely limit and define one another negatively, but also are mutually affirming (i.e., where the positivity, as well as the limit, of each one derives from the other). At this level, the consciousness of "fierce energy," of the "natural intensity of life" become possible through frailty. "It may be a degree of consciousness which lies outside activity, and which when young we are too busy to experience."<sup>31</sup> When physical strength is sufficient for one's aims and vitality is fully actualized without using the remainder, there is no conscious access to that intensity. The body expresses it and the world absorbs it before it can become conscious. It is (of course) always present in consciousness in specific forms as

the projects and tasks that it fuels and that convey the sense of activity, and of busy engagement with the world. However, only when those forms are absent can the pure intensity, the life-force per se, appear in all its strength.

At this point, the very frailty that made possible this encounter with intensity is itself suffused with new life and is rendered intense; it becomes the new form for one's life and is experienced with the passion that once was directed into other forms. To the extent that it is the focus of energy, frailty becomes (in turn) the source of still more life. Scott-Maxwell repeatedly observes that pain brings new energy. Is there an explanation? "It is the possibility that all intense experience is an increase of energy."<sup>32</sup> Frailty is not just the antithesis of energy, it is itself an intense experience that brings with it new life.

Frailty and vitality are now so fused that the contradiction between them is overcome. Frailty becomes a positive rather than a negative limit; a needed boundary against dissolution that indeed is "one of the most subtle pleasures of the very old, . . . the utilization of one's frailty and slightness, the knowing how short a distance one can go—and then going it. The knowing that one need not do more because it is impossible to do more."<sup>33</sup> Frailty is, at once, both a limit and a freedom—the freedom to lavish all of one's intensity on the creation of a new self-body relationship in which the body is not a mere object, but a subject; a beloved whose so-called imperfections are an essential part of the whole.

Scott-Maxwell crystallizes the difference between rationalist and existentialist views of frailty: "It may not make sense but it makes me!"<sup>34</sup> For the rationalist, one cannot make sense of frailty. For the somber existentialist, one can make neither sense nor self out of the ebb of energy. However, for the Yes-saying individual, frailty is essential to the making of oneself and—far from being an indignity in aging—it is a source of intensity and life without which no self is whole.

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PART II

# Caring for the Geriatric Patient

## CHAPTER 4

# Epidemiology of Illness

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Epidemiology is the study of the occurrence of disease and disability in human populations. Groups of persons in communities or nations are studied rather than individuals. Epidemiologists describe disease events to determine their cause and to effect their treatment and prevention.<sup>1,2</sup> Their work is applied in both patient care and health policy. This chapter presents the epidemiologic study of disease and illness in older persons. The epidemiology of aging is a related topic that deals with the causes and effects of normal aging and its occurrence in a given population.<sup>3</sup>

Epidemiology has made significant contributions to promoting our understanding of the major causes of death: heart disease, cancer, and stroke. The concept of risk factors emerges from these studies. But the study of many common problems of old age has been neglected. A large proportion of the suffering of older persons is caused by incontinence, confusion, wandering, falls, vision and hearing impairments, and iatrogenic illnesses. Accidental hypothermia is a good example of a relatively common and easily prevented problem that has a high mortality rate for older persons. The condition was relatively unrecognized until a good, descriptive epidemiological study was performed that confirmed the clinical observations of a British practitioner and established which persons were at risk, the cause, treatment, and prevention of this condition.<sup>4,5</sup> A clinical epidemiology of common problems in elderly persons is beginning to develop.<sup>6</sup>

Epidemiologic information is the basis of treatment and prevention. To begin a differen-

tial diagnosis or to select the components of a health screening program, a clinician must know what types of illness are prevalent in a patient's population. For example, the American Cancer Society has recently concluded that a Papanicolou smear (Pap test) is not indicated in previously screened older women (over 60–65 years of age) because of the low prevalence of cervical cancer in this group.<sup>7</sup> Epidemiologic techniques are used to evaluate the quality and effectiveness of health practices and programs. Scientifically adequate controlled trials have not been done to verify many clinical practices.<sup>8</sup> In a critical review of over 1,000 published reports of research that evaluated geriatric programs or services, only seven were considered to be scientifically adequate.<sup>9</sup> Finally, epidemiologic studies can help to evaluate health care systems. Large studies of long-term care insurance and prepaid health care for elderly persons are being undertaken, but they are extremely complex to design and relatively expensive to carry out.<sup>10</sup> The questions they pose are critical, however, to shaping health care institutions that are responsive to the real needs of the geriatric population.

Three types of measures are commonly used to describe the health of a population: 1) Morbidity and mortality; 2) Health status; and 3) The use of health services. It is important to note that all three of these indexes reflect certain underlying values. Mortality rates seem to be an obvious measure of health; but, by selecting the avoidance of death as our goal, we commit the health care enterprise to focus on cures for life-threatening diseases. Older persons, in



fact, may value absolute longevity less than the quality of their remaining years. Cancer patients who are candidates for a laryngectomy may elect to have a potentially shorter survival with their natural voice than the possibility of a longer survival without it.<sup>11</sup> We do not have well-developed methods for evaluating outcomes such as improved quality of life. Instruments to measure functional improvement have been developed, however, and are becoming standardized (*see* Volume II, Chapter 10). A patient's perceived health status, conversely, is a valuable measure that relates closely in many studies to both objective measures of health and to the use of health services.

The basic methods of study in epidemiology, as in any science, are observation and experimentation. In experiments, a scientist manipulates one variable to see what will happen to another. True experimental designs, particularly randomized controlled trials, have not been used widely in geriatrics research. The need for such studies is well recognized.<sup>12</sup> Research in aging commonly uses prevalence or cross-sectional studies that examine the relationship between age and a disease or characteristic at one point in time. In such studies, a cohort effect may introduce a significant bias. A sample of elderly persons studied at any one time are, in fact, the survivors of a larger birth cohort who have been selected by factors that favor survival. The knowledge that glucose tolerance and renal function, for example, decline with age has been established by studies in which cohorts of persons were followed with measures over time. Longitudinal studies are an important requirement of research in aging.<sup>13</sup>

## Health Status of Elderly Persons

Health is an integration of physical, mental, and social well-being. The absence of disease is a more important index of the health of a child than of an elderly person, because older persons are likely to perceive themselves as well in spite of having one or more chronic illnesses. The conventional concept of health status as the presence or absence of one or more specific diseases is less useful in elderly persons than the concept of illness. Illness includes not only the disease diagnosis, but also a patient's per-

ceptions and behaviors; it is a more appropriate concept when considering the health of an elderly person.<sup>6</sup> Our efforts to uniquely define health for the elderly age group and to develop elder-specific health indexes may be unnecessary.<sup>14</sup> The same general indicators of health status are appropriate for all ages. It is their meaning that may change with the age of the persons measured.

One difficulty in describing the health of an older person is the need to distinguish disease from normal aging. It seems possible to separate biologic or normal aging from the effects of stress, trauma, and disease. Busse distinguishes "biological" and "secondary" aging.<sup>16</sup> There now is a substantial body of information that describes changes in biologic function with age.<sup>17</sup> It is important to recognize that although age-related changes occur in the functioning of nearly every organ system, such common findings as abnormal lab tests, anemia, confusion, depression, and weakness (for example), cannot be dismissed as old age.

A common stereotype that is shared by many, including elderly persons, is that old persons generally are frail, sick, and dependent. While 85% have at least one chronic illness and 47% have some functional disability, 68% of all non-institutionalized elderly persons report their health as excellent or good.<sup>15,18</sup> In a study of the health beliefs of older residents of San Francisco, 60% markedly overestimate the proportion of elderly persons in nursing homes and estimate their own health to be better than others in their age group.<sup>19</sup>

## Measures of Health Status

The common indicators of health status include: 1) General and specific mortality rates; 2) Life expectancy or survivorship; 3) Rates of disease; 4) Specific morbidity; 5) Levels of functional impairment of sight, hearing, strength, and cognition; and 6) Indices of disability as days of disability or bed days. The problems with each of these measurements have been discussed in a recent review.<sup>20</sup>

To measure the health of a person or population, it is necessary to specify a dimension and a valid measure. It is common to distinguish health status from health behavior. The former includes acute and chronic illnesses, functional

abilities, and self-perceptions of health; the latter includes contacts with health professionals, the use of health care services, and the use of medications. Although health is a concern to persons at any age, it is particularly important to elderly persons. Studies of morale or the subjective well-being of elderly Americans that were conducted between 1948–1978 found health to be more directly related to morale and subjective well-being than to any other variable considered.<sup>21</sup>

### Self-Rated Health of Elderly Persons

A number of survey studies show that elderly persons believe themselves to be in good health despite the simultaneous presence of a disability and chronic illness.<sup>22–26</sup> Of persons over 65 years of age, 60% or more in these studies judged themselves to be in good or excellent health, with 80% fair, good, or excellent. Age, sex, and setting appeared to influence the elderly group's assessments of their state of health. "Old-old" (over 75 years of age) persons report more health-related problems than "young-old" persons (65–75 years of age), but are more positive in rating their own health.<sup>25</sup> Elderly males expressed a poorer health status than females, even though males report less disabilities and fewer illnesses. A subjective health status is determined, in part, by the values of family and environment (i.e., the norms of one's community).<sup>26</sup> Self-ratings of health are related to an objective health status. Self-assessments correlate with physician assessments and other objective measures, which include a number of diagnosed illnesses, disabilities, and the numbers of medications being taken.<sup>22–24</sup> Self-ratings appear to be stable over time and correlate well with survival.<sup>22–23</sup> They provide useful information, particularly where objective health status measurements are not feasible or available; therefore, self-ratings may be helpful in certain kinds of research.

### Functional Impairments and the Capacity for Self-Care

In a 1972 study, the National Center for Health Statistics reported that 17% of all non-institutionalized elderly persons had some limitations of their mobility due to a chronic condition. Of

this group, 30% (or about 5% of all elderly persons) were home-bound by the severity of these limitations.<sup>15</sup> The functional status is a central dimension of the health of an older person. The fear of a loss of functioning is common. A loss of function creates a dependency and need for service. Systems to assess functional status are crucially important for classifying the problems and setting goals for individual patients, for coordinating care in different settings, and for managing programs and developing policies. Research in long-term care is dependent on valid and reliable assessment. A variety of methods and instruments for assessment have been developed over the last 20 years, and their uses are discussed in Vol. II, Chap 10.<sup>27,28</sup>

For example, Shanas has developed an index of the capacity for self-care that is based on answers to six questions: 1) Can you go out of doors? 2) Can you get up and down stairs? 3) Can you get about the house? 4) Can you wash and bathe yourself? 5) Can you dress and put on shoes? and 6) Can you cut your own toenails? The score estimates the ability of an older person to perform tasks that make him independent of others for personal care.<sup>29</sup> The capacity for self-care as measured by this scale decreases with age. Of all persons 65–69 years of age, only 1 in 14 had three or more disabilities; but, in those over 80 years of age, 1 person in 2 had three or more. Two tasks statistically emerge as sensitive indexes of disability: walking stairs and cutting toenails. These may not be critical for survival, but they probably reflect the functional level of a number of important physiologic systems such as vision, coordination, and mobility.

### Disease and Disability

Disease, disability, and death increase with age. Older persons are more likely than younger persons to have a chronic rather than an acute or self-limited illness, to have more than one illness, and to have some functional disability as a result of their illness. The burden of disease and disabling conditions can be appreciated by considering national data sets. Figure 4-1 summarizes four results of illness that is due to heart disease, cancer, stroke, and arthritis. These conditions account for 75% of all deaths, 20% of

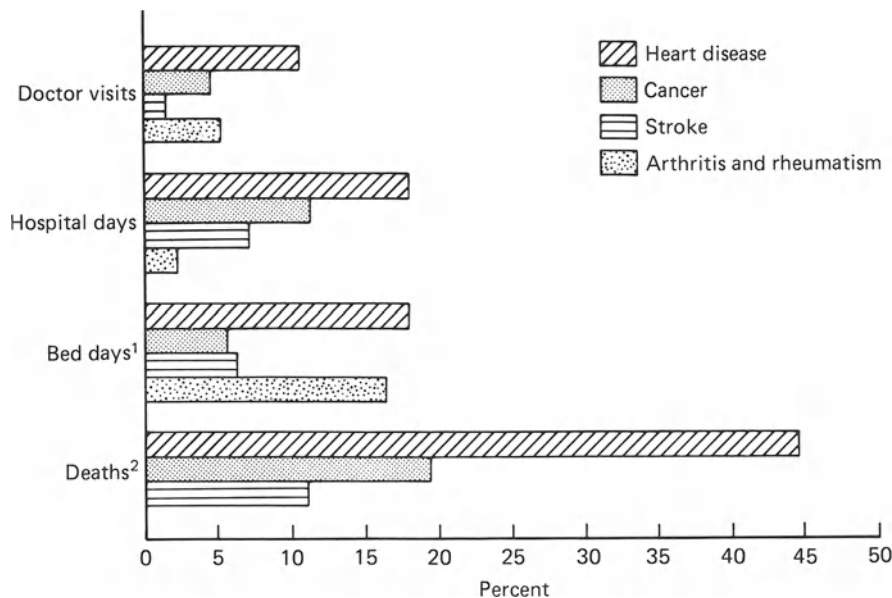


FIGURE 4-1 Burden of illness for persons 65 years of age and over, according to selected conditions: United States, 1980. <sup>1</sup> Average for 1979 and 1980. <sup>2</sup> Provisional data. (From: National Center for Health Statistics, in *Health in United States*, U.S. Department of Health and Human Services. DHHS publ no (PHS) 83-1232, 1982, p 122.)

doctor visits, 40% of hospital days, and about 50% of the days spent in bed. Heart disease is the largest portion of the burden, while arthritis accounts for few deaths, but also for 16% of the days spent in bed.

### Mortality

Information on mortality rates and life expectancy have been presented in Volume I, Chapter 2 and Volume II, Chapter 1. Table 4-1 shows 1974 data on the causes of death in elderly persons.<sup>6</sup> Heart disease, cancer, and stroke remain the leading causes of death as they have been for the last 4 decades.

Information that describes the cause of death must be interpreted carefully. Older persons, particularly those 85 years of age and older, usually die with a variety of diseases. It may not be clear either clinically or at autopsy as to which disease process was the proximate cause of death. The inaccuracies in the cause of death stated in death certificates have long been recognized.<sup>30</sup> In 30% of all autopsied cases of persons over 85 years of age, no cause of death is obvious, and it has been suggested that senescence be viewed as a disease and accepted as a cause of death.<sup>31</sup>

It is clear from Table 4-1 that chronic diseases have replaced acute illnesses as the major health threat to elderly persons. The recent increases in the average life expectancy are due to declines in arteriosclerosis and cerebrovascular diseases.<sup>32</sup> Although the proportion of deaths with an underlying cause that is assigned to a cardiovascular condition increases with age, mortality rates due to diseases of the heart and cerebrovascular diseases have declined strikingly (25–35%, respectively) over the decade from 1966–1977.<sup>33</sup> This decline is attributed to life style changes in diet, cigarette smoking and exercise, better treatment of hypertension, and improvements in emergency and acute care.<sup>34</sup> Potentially preventable accidents account for 4–5% of all deaths of elderly persons. Injuries from automobile and other accidents account for 2%, emphysema and bronchitis for 1.5%, and suicide for 0.5%.

### Disease

A specification of the diseases and conditions that older persons suffer depends on the setting of the survey. Differing distributions of disorders are found in surveys of non-institutionalized elderly persons at home, at a visit to a

TABLE 4-1 Causes of Death in the United States Population Over 65 Years of Age

	Rate per 100,000 Persons		
	Women	Men	Both Sexes
All causes	4,788	6,958	5,680
	Percentage of Total Deaths		
Specific Cause	Women	Men	Both Sexes
Diseases of the heart	45.1	44.3	44.7
Malignant neoplasms	15.1	18.6	16.8
Cerebrovascular diseases	16.5	11.7	14.1
Influenza and pneumonia	3.2	3.4	3.3
Arteriosclerosis	3.0	1.9	2.5
Diabetes mellitus	2.7	1.6	2.2
Injuries	1.9	2.1	2.0
Motor vehicle injuries	0.3	0.6	0.5
All other injuries	1.6	1.5	1.5
Bronchitis, emphysema, asthma	0.7	2.4	1.5
Cirrhosis of the liver	0.5	0.9	0.7
Suicide	—	0.5	—
All other	11.3	12.7	12.3

SOURCE: From unpublished data from the Division of Vital Statistics, National Center for Health Statistics, 1974, as presented in Reference 15.

physician, at a hospital discharge, or in a nursing home. The five most prevalent, chronic conditions that were identified by a survey of non-institutionalized persons over 65 years of age are arthritis (38%), hearing impairments (29%), impairments of vision (20%), high blood pressure (20%), and heart conditions (20%).<sup>35</sup> Many elderly persons have unrecognized or unreported health problems. Williamson, et al reported in 1964 from Edinburgh, Scotland that in 200 persons studied who were over 65 years of age, women had 3.42 disabilities or diseases, with 2.03 unknown to the family physician; men had 3.26 disabilities, with 1.87 unknown.<sup>36</sup> Unmet medical needs included hypertension, anemia, diabetes, and depression. These findings led to the development of the health visitor program in the British National Health Service.

In contrast to patient self-reports of illness and disability that were obtained by a survey, outpatient and hospital discharge records use medical diagnoses. Table 4-2 presents the prevalence of specific diseases and disease categories in non-institutionalized persons over 65 years of age at the time of discharge from short-term hospital stays and at the time of a visit to an office-based physician. These listings use

primary medical diagnoses and do not precisely reveal why a patient made the visit to a physician's office or was admitted to a hospital; but, diseases of the circulatory, nervous, musculoskeletal, and digestive systems account for the majority of these contacts. For example, the prevalence of arthritis is 38% in elderly persons who were interviewed at home, but it represents only 7% of all office-visit diagnoses and 2.5% of all hospital discharges.

A variety of common health problems of non-institutionalized elderly persons are not revealed in Table 4-2, which presents primary medical diagnoses. The common health problems of elderly persons and their prevalence in the community are reflected in the contents of these volumes. These problems include malnutrition, sleep disorders, elder abuse, medication problems, alcohol and drug abuse, chronic pain, dental problems, hearing and vision impairments, and accidental hypothermia. These common problems are potentially serious health hazards for elderly persons and are detected only by surveillance and a high index of suspicion.

The prevalence of selected mental health measures in the community and in nursing

TABLE 4-2 Primary Diagnoses of Patients Over 65 Years of Age at Hospital Discharge and at Visits to Office-Based Physicians

Diagnosis*	By Discharge from Short Stay in Hospitals (%)†	By Office-Based Physicians (%)‡
Diseases of the circulatory system	30.2	26.5
Hypertension	1.3	8.8
Acute myocardial infarction	2.7	—
Chronic ischemic heart disease	9.6	8.5
Cerebrovascular disease	6.2	—
Diseases of the nervous system and sense organs	5.5	10.4
Diseases of the central nervous system	0.8	—
Conditions of the eye	—	6.6
Cataract	3.0	—
Diseases of the musculoskeletal system	5.0	9.4
Arthritis	2.5	6.7
Diseases of the respiratory system	8.5	8.7
Acute upper respiratory infections (except influenza)	0.8	2.8
Pneumonia, all forms	2.9	—
Diseases of the digestive system	13.1	5.1
Ulcer	1.5	—
Inguinal hernia	1.4	—
Cholelithiasis	1.4	—
Endocrine, nutritional, and metabolic	3.5	4.9
Diabetes mellitus	2.4	3.9
Diseases of the genitourinary system	7.5	4.7
Hyperplasia of prostate	2.3	—
Accidents, poisoning, violence	8.7	4.5
Fractures, all sites	4.9	1.3
Neoplasms	10.5	4.0
Malignant	9.4	—
Benign or unspecified	1.2	—
Diseases of the skin	1.2	3.5
Mental disorders	2.1	3.5
Infective and parasitic diseases	1.3	1.7
Diseases of the blood and blood-forming organs	1.2	—
Symptoms and ill-defined conditions	0.9	3.3
Special conditions and examinations without illness	0.3	8.5
Other diagnoses	—	1.5

\* Diagnostic groupings based on *Internal Classification of Diseases*, ed 8.

† Based on percentage of discharges per 10,000 persons. Reference 15.

‡ SOURCE: National Ambulatory Medical Care Survey 1973–1974, see Reference 15.

homes is presented in Table 4-3. Mental health epidemiology is complicated by a lack of diagnostic precision.<sup>37</sup> Although agreed-on definitions and instruments are lacking, there is a general agreement that dementia and depression are the most important mental health problems of elderly persons.<sup>38</sup> Present estimates are that 10% of the elderly population could be diagnosed as depressed and that 5% have a significant cognitive impairment, including Alzheimer's disease.<sup>39</sup> One analysis suggests that of any 100 cases of significant intellectual dys-

functioning or dementia, 20% are reversible if properly diagnosed and treated, 50% would have senile dementia of the Alzheimer's type (SDAT), and 20% would have multi-infarct dementia.<sup>40</sup>

Institutionalized elderly persons are likely to have either severe functional impairments, a cognitive disability, or both. Nearly two thirds of all nursing home residents are cognitively impaired; one-third are confined to bed or chair and one-third are incontinent.<sup>15</sup> The rates of chronic conditions or impairments in nursing

TABLE 4-3 Mental Health Problems of Institutionalized and Non-Institutionalized Elderly Persons

	Percentage*
Elderly persons in the community	
Symptoms of mental illness	25
Clinically diagnosed depression	10
Senile dementia	5
Elderly persons in nursing homes	
Primary diagnosis of mental disorder or senility	16
Chronic mental condition or senility	56

\* Maximum estimates.

SOURCE: *A Chartbook of the Federal Council on Aging, 1981*. DHHS publ no (OHDS) 81-20704, page 33.

home residents over 65 years of age is given in Table 4-4. Almost 50% of all nursing home residents cannot see well enough to read an ordinary newspaper, even with correction; one-third cannot hear an ordinary telephone conversation and 25% have impaired speech. Many have multiple conditions.<sup>34</sup>

Falls and incontinence are risk factors for hospitalization and long-term care. They are especially common in institutionalized persons, although 60% of all non-fatal injuries to elderly persons occur at home; the majority are related to falls. The high incidence of falls in elderly persons can be attributed to a loss of muscle strength and coordination, unsteady gait, and a slowed reaction time. They may be preventable to the degree that they relate to hazards in the physical environment or to medication side effects. Falls also may be the first manifestation of the onset of an acute disease.<sup>41</sup> Incontinence may be present in 25–50% of all nursing home patients<sup>42</sup> and is commonly a reason for nursing home placement. Poorly managed incontinence can lead to medical complications, particularly decubitus ulcer and infection.

#### Disability and Functional Dependency

Functional dependency results from the inability to attend to one or more of one's own needs, which include eating, walking, personal

TABLE 4-4 Conditions that are Common in Nursing Home Residents

Diagnosis	Rate per 1,000 Residents		
	Ages 65–74	Ages 75–84	Ages 85 and Older
Mental disorders	185.1	72.0	32.7
Hardening of the arteries	151.7	237.2	315.8
Stroke	138.0	120.6	87.5
Senility, old age, other symptoms, and ill-defined conditions	85.2	140.9	198.4
Diseases of the nervous system and sense organs	78.4	49.3	38.0
Endocrine, nutritional, and metabolic diseases	59.5	46.9	39.8
Diseases of the musculoskeletal system and connective tissue	58.5	70.7	80.0
Heart attack	41.1	55.3	68.9
Accidents, poisonings, violence	35.8	45.8	55.3
Diseases of the respiratory system	33.2	22.9	14.7
Diseases of the circulatory system other than hardening of the arteries, heart attack, and stroke	31.4	39.9	43.4
Neoplasms	29.4	23.6	22.3
Diseases of the digestive system	18.6	17.9	21.6
Diseases of the genitourinary system	—*	16.7	16.2
Diseases of the blood and blood-forming organs	—	7.6	9.5
Diseases of the skin	—	6.1	—
Infective and parasitic diseases	—	—	—
Other diagnoses	15.9	15.0	13.5
Unknown diagnoses	—	9.3	10.5

\* Dashes signify that figures are not reliable.

SOURCE: Unpublished data from the *National Nursing Home Survey*. National Center for Health Statistics 1973–1974, as in Reference 15.

TABLE 4-5 The Prevalence of Disabilities and Functional Dependency

	Percentage with Limitation or Need				
	Ages Under 64	Age 65-74	Ages 75-84	Ages 85 and Older	Total Over Age 65
Activity limitation					
Unable to carry on major activity	7	14	20	31	17
Limited in amount and kind of major activity	15	21	24	21	22
Limited, but not in major activity	8	6	7	8	7
Need for assistance in ADL*					
Dressing	—	2	6	18	4
Bathing	—	2	4	11	3
Eating	—	0.6	1	4	1
Toileting	—	1	2	7	2

\* Activity of daily living.

SOURCE: *A Chartbook of the Federal Council on Aging, 1981*. DHHS publ no (OHDS) 81-20704, pp 29, 31.

hygiene, dressing, shopping, cooking, and finances.<sup>18</sup> Such a dependency can result from a variety of mental or physical disabilities. The National Center for Health Statistics estimates that in the United States about 15% of all elderly persons are functionally disabled; that is, unable to carry out one or more major activities. Other estimates are that 40-50% of all community-living elderly persons are limited in some activity; 18% with a limited mobility, and 5% who are home-bound (*see* Table 4-5).<sup>43</sup>

## Prevention

The role of prevention in health care seems to be clear in concept, but often problematic in practice. We accept the common sense proposition that it is good medicine and good economics to prevent disease. Multiphasic screening went through a period of promotion as a technique for the early detection of preventable diseases. Controlled trials have demonstrated that broad screening programs have a relatively high cost and low yield. Prevention remains one of the clear goals of geriatric practice, but programs must be based on a careful consideration of benefits and costs.

One might think that preventive services are not appropriate for older persons, not realizing that the benefits of preventive practices accrue in the short-term, as well as over longer periods. If our goal is to maximize both the quantity

and quality of life, then a case can be made that older age groups are well suited for preventive practices. One of the principles of preventive medicine is that the prevalence of a disease in a population must be high enough to warrant the expense of its detection and intervention. The high prevalence of chronic illnesses in older persons and the potential for effective intervention justifies preventive practices in geriatric medicine.<sup>44</sup> It is an accepted premise that without intervention a chronic illness that is predictably associated with aging will progress to a loss of function, disability, and dependency. In addition, it has been suggested that certain elderly persons are at a high risk for such a decline; those persons over 75 years of age who live alone, have recently lost a spouse, have recently been hospitalized, or are demented, immobile, or incontinent—all are at risk for illness, institutionalization, and death. It is unknown whether or not intervention in this high-risk group can conserve resources, but it clearly can contribute to their quality of life.

The goal of geriatric medicine has been defined as the maintenance of the maximum quality and quantity of life; for example, to forego mutilating but life-extending surgery when a patient feels that the quality of the additional life to be gained is inadequate.<sup>45</sup> The justification of screening and early detection requires that interventions must do more good than harm in terms of a conceptual product of quality and quantity of life.

### Detection of Disease

Prevention requires a consideration of the conditions to be prevented, detection strategies, and interventions. The criteria for evaluating detection strategies are: 1) Risk and benefit; 2) Specificity, predictive value, safety, simplicity, and cost; and 3) Acceptability to a patient. The effectiveness of interventions can be best evaluated by randomized, controlled, clinical trials. Useful evidence can be obtained from well-designed cohort or case-control studies, as well as from natural experiments and clinical experience.

A disease or its consequences can be detected in three ways: screening, periodic health examinations, and case findings. All have their role in geriatric practice. Screening involves the testing of groups or populations to identify subgroups that have, or are at a high risk for, given diseases. For example, a periodic health examination is done as part of personal health care by scheduling, at preset intervals, office visits for disease detection procedures. Case findings refer to the addition of detection procedures to office visits for other illnesses and the follow-up of high-risk findings. An example might be the investigation of the accident potential in the home of a patient who is at risk for falling, and intervention by instructing his or her family in a prevention strategy such as placing the bed on the first floor of the house.

Six criteria must be satisfied to justify screening for a given disease (*see* Table 4-6).<sup>46</sup> By this criteria, the value of screening in populations of persons over 75 years of age is not clearly established. In one major review, Frame and Carlson abandoned the consideration of screening persons over 70 years of age without discussion. It would seem that the value of screening, especially in "frail" and high-risk elderly persons or over-75-year age groups, needs to be explored (e.g., an annual history and physical examination with counseling has been suggested instead of screening tests for chronic conditions).<sup>48</sup>

### Recommended Practice

Four major studies have made recommendations for preventive care practices.<sup>46-49</sup> Sackett recently has written a short note on preventive

TABLE 4-6 Criteria to Justify Screening for a Given Disease

Number	Justification
1.	The disease must have a significant effect on the quality and quantity of life.
2.	Acceptable methods of treatment must be available.
3.	The disease must have an asymptomatic period during which intervention is effective.
4.	Intervention in the asymptomatic phase must yield outcomes superior to outcomes after the appearance of symptoms.
5.	Detection procedures must be available at reasonable cost.
6.	The incidence or prevalence must be sufficient to justify the cost of detection.

SOURCE: Frame PS, Carlson SJ: A critical review of periodic health screening using specific screening criterias. *J Fam Pract* 2:29, 123, 189, 283, 1975.

geriatric care.<sup>45</sup> Using the rigorous criteria of The Canadian Task Force, he recommends a geriatric, periodic health examination in two parts: 1) Those components whose benefit has been established by proper randomized clinical trials; and 2) Those components that seem reasonable, but must for the moment be accepted on faith that they will do less harm than good (*see* Table 4-7).

The recommendations of four studies are summarized in Table 4-8. This table is modified from a chart that was prepared by the American College of Physicians.<sup>50</sup> The presence of a number in a cell indicates that the practice is recommended by the indicated authority for that given age. The four authorities do not agree in their recommendations; a clinician must use his or her judgment to decide what is appropriate for his or her practice.

It is now generally accepted that the annual history and physical examination is a non-specific screening procedure that is not justified because of its high cost and low yield. It is not supported by Frame and Carlson's six criteria, and none of the four authorities recommends a routine annual examination. Breslow and Somers recommend that every 2 years persons 60-74 years of age have a professional visit that includes tests for chronic conditions and professional counseling with regard to retirement, nutrition, bereavement, income, and physical re-



TABLE 4-7 Short List of Recommended Components of a Geriatric Periodic Health Examination

Validated Components	Frequency	Accepted on Faith
Blood pressure measurement (Consider treatment in all patients with (fifth phase) diastolic blood pressure greater than 90 mm Hg. Treatment of isolated systolic hypertension is not validated. Use clinical judgment)	Annual	Hearing-vision Psychosocial function Hypothyroidism Stool for occult blood Dental status Skin cancer
Immunization Influenza Pneumococcal pneumonia (In both, use clinical judgment, including health status, comorbidity, and age and prevalence of disease)	Annual Not less than 5 yrs	Anemia Nutritional status

SOURCE: Sackett DL: Preventive geriatric medicine. *Primary Care* 9:3-5, 1982.

sources. For persons over 75 years of age, they recommend an annual physical examination and a behavioral history and counseling.

All four reports recommend at least a biannual blood pressure check. Hypertension is a risk factor for cardiovascular and cerebrovascular mortality rates that increase with age. The evidence of the efficacy and safety of therapy for hypertension in elderly persons is convincing, but the effectiveness of treatment of systolic hypertension in elderly persons is yet to be firmly established. The systolic hypertension in the elderly project (SHEP) and the European Working Party Study on High Blood Pressure in the Elderly are in progress (see Volume I, Chapter 12).

An annual breast examination by a physician is recommended by all four authorities for women who are 50-60 years of age, and by all authorities except the Canadian Task Force for women who are 60-70 years of age. The American Cancer Society recommendation for breast cancer is that all women over 50 years of age have a physical breast examination and a mammogram every year. The evidence for the benefit of an early detection of breast cancer is from a single-site, randomized, and controlled trial that was initiated by the Health Insurance Plan of Greater New York, which found an improvement in the survival of screened women over 50 years of age.<sup>47</sup> Technologic improvements in mammography with the detection of small lesions with low-radiation doses and evidence

that 60-70% of the total benefit of screening procedures is due to physical examinations alone; this has led to the recommendation for an annual breast examination and mammograms. The Canadian Task Force feels that the evidence for a benefit of screening for breast cancer in women over 60 years of age is not established. Frame and Carlson's 1975 recommendation of a mammogram only for women with heavy breasts does not reflect the recent technical advances and cost reductions of this procedure.

There appears to be no consensus on screening procedures for cervical or endometrial cancer via a pelvic examination and Pap test in women over 60 years of age. The American Cancer Society position is that a Pap test is indicated every 3 years, but not beyond 65 years of age because of the low number of cases detected in women in that age group who have been previously screened.<sup>7</sup> A pelvic examination should be done annually after 40 years of age; at menopause, the examination should include a Pap test and an endometrial tissue sample. Women over 60 years of age who are at a high risk for endometrial cancer because of a history of infertility, abnormal bleeding, estrogen therapy, and a failure of ovulation of obesity should be screened more frequently. The Canadian Task Force similarly recommends no Pap test on a routine pelvic examination in women over 60 years of age.

Screening procedures for cancer of the colon

and rectum may include a digital examination of the rectum, an examination of stool samples for occult blood, and a sigmoidoscopy. A consensus of all four authorities is to perform an annual examination of stool samples for occult blood by using Hemoccult (R) or a comparable test of two separate stool samples on each of 3 consecutive days. There are no controlled studies, at present, that demonstrate the value of screening via a stool guaiac slide test. However, good demonstrations that guaiac screening can detect cancer at earlier stages plus the evidence that treated early stage tumors have reduced mortality rates both support this recommendation.<sup>47</sup> The American Cancer Society recommends an annual digital and 3–5-year sigmoidoscopic examination of persons over 60 years of age, which is based on a significant reduction in colon cancer mortality rates in patients who were screened with these two procedures.

There is no clear evidence for a benefit of early detection of defects of vision or hearing by screening. It is important to note again that screening is for population studies and is not the same as the case findings of individual patients. It is essential, for example, in a depressed or withdrawing older person to test for defects of vision and hearing. Screening has been recommended at 5-year intervals.<sup>48</sup> The Canadian Task Force suggests that such screening be done during physician visits for other reasons. Routine screening for glaucoma via tonometry and fundoscopy is not presently recommended. Frame and Carlson suggest such screening be done every 4th year, but more recent evidence questions both the reliability of the screening procedures and the value of treatment before the onset of visual field loss.<sup>49</sup> However, visual field defects may not come to the attention of either the patient or physician until they are quite large. Clinicians obviously should use judgment in how they apply these large population studies to the practice of medicine as it affects individual elderly patients. One must keep in mind that these studies have not specifically examined the elderly population, and such studies are critically needed.

Screening via a periodic laboratory examination is not recommended for geriatric populations by these four authorities with a few exceptions (*see* Table 4-8). Breslow and Somers

suggest screening procedures every 5 years with cholesterol, triglycerides and an electrocardiogram (ECG) for coronary artery disease, hematocrit tests for anemia, and a fasting and 1-hour postprandial blood sugar test for diabetes. A skin test for tuberculosis (purified protein derivative, PPD) and a serologic test for syphilis (STS) should be added to the 5-year screening in high-risk groups. The Canadian Task Force similarly recommends routine PPD and STS tests in high-risk groups only.

The recommendations for the routine immunization of elderly persons appear to be straightforward: a diphtheria-pertussis-tetanus (DPT) booster every 10 years and an annual influenza vaccination. A polyvalent polysaccharide vaccine against 14 pneumococcus serotypes was licensed in the United States in 1977, but there is not sufficient data to recommend its routine use for persons.<sup>51</sup> The American College of Physicians recommends that the vaccine, which is given at intervals of greater than 5 years, be offered to healthy older persons who, in a physician's judgment, might benefit from this vaccination.<sup>52</sup> Lacking the evidence of a benefit and with few known risks, the best judgment appears to be to limit the use of pneumococcal vaccine except in patients with conditions that place them at high risk for pneumococcal pneumonia (asplenia, alcoholism, chronic obstructive pulmonary disease (COPD), congestive heart failure, cirrhosis, diabetes, nephrotic syndrome, and renal failure).

Finally, an oral examination and dental prophylaxis are recommended annually for the detection of oral cancer and the maintenance of dentition.<sup>48,49</sup> Other investigators feel that in the absence of studies showing an increased survival rate of patients screened for oropharyngeal cancer plus the low prevalence of such lesions, a self-examination is preferable to physician screening.<sup>46</sup>

## Utilization

The cost of health services used by elderly persons has been a topic of study and research for 2 decades. In the early 1960s, the research demonstrated that elderly persons who were at risk for illness were high utilizers of services, and that they were being priced out of experience-



Sigmoidoscopy	4	4	4	4	4	4	4	4
Hearing/vision assessment	2	2	2	2	2	2	2	2
Tonometry	1	1	1	1	1	1	1	1
Cholesterol	1	2	2	2	2	2	2	2
VDRL	2	2	2	2	2	2	2	2
PPD	1	2	2	2	2	2	2	2
DPT booster	2	2	2	2	2	2	2	2
	3	3	3	3	3	3	3	3
Influenza vaccine	2	2	2	2	2	2	2	2
Pneumonia vaccine	2	2	2	2	2	2	2	2
Dental prophylaxis	3	3	3	3	3	3	3	3

1. Frame and Carlson, *J Fam Pract* 2(3):29-36, 123-129, 190-194, 283-289, 1975.

2. Breslow and Somers: *N Engl J Med* 296(11):601-608, 1977.

3. Canadian Task Force: *Canad Med Assoc J* 126(3):1193-1254, 1979.

4. American Cancer Society: *Cancer* 30(4):194, 1980.

\* Numbers in table correspond to studies cited here. See reference list for the full citation.  
SOURCE: American College of Physicians: *Ann Int Med* 95:729-732, 1981.

rated commercial health insurance. Utilization data was collected for the design of Medicare. In the last decade, the primary concern has been to document and control the costs of the Medicare program.<sup>53</sup> The growth in the number of elderly persons, the increased demand for service that is supported by Medicare reimbursement, the need to contain costs (particularly of extended care), and the goal of dealing more effectively with the health care and social service needs to functionally disabled elderly persons, all have led to the development of new delivery systems. This section reviews the national information on health care utilization by elderly persons in the private fee-for-service sector. The fee-for-service data has been compared to the available description of services that are provided to elderly persons in health maintenance organizations and long-term care demonstrations.<sup>10</sup> Information is presented for four types of utilization: ambulatory care, nursing home care, home care, and hospitalization.

The Medicare experience has demonstrated that our systems of delivering health services to elderly persons have serious problems. Strong incentives favor acute care and institutional services. It often is difficult for patients to gain access to the appropriate type and level of service; the quality of service often is poor. Reimbursement is connected to the provision of service regardless of the outcome. Costs are almost uncontrolled. Third-party payers, providers, and patients all have an interest in the development of alternative financing and delivery systems that might offer some remedy to these problems. Many solutions have been considered, including block grants to states, long-term care insurance, and home care programs. Channeling programs and demonstration projects, such as the Triage program in Connecticut, have attempted to effect cost containment via appropriate use with a limited success.<sup>54</sup>

Prepaid health plans (such as HMO or health maintenance organizations) have been shown to be effective in controlling the costs of care of the general population, primarily by reducing hospital utilization.<sup>55</sup> Health plans have no particular incentive to enroll elderly persons as they are "high risk, high utilizers." However, available evidence suggests that HMOs can provide comprehensive service to elderly persons at costs that are less than expected from

Medicare reimbursement.<sup>56,57</sup> The federal government, through the Health Care Financing Administration (the agency which operates Medicare and Medicaid) recently has sponsored demonstrations of prepaid health care plans for elderly persons. The social health maintenance organization, which is the best known of these models, was developed at the Levinson Policy Institute at Brandeis University, and a national demonstration of the concept is being conducted at four sites.<sup>10</sup>

A Social HMO (SHMO) is a prepaid health plan that provides medical and long-term care services to voluntarily enrolled Medicare recipients. Its objectives are to provide enrollees with medical and social services that are within the limit of Medicare reimbursement, while reducing the bias towards hospital and nursing home care by encouraging the appropriate use of alternative service. As in the HMO concept, the provider organization shares in the risk. All services that are available under Parts A and B of Medicare are covered, including acute hospital care, skilled nursing care, intermediate care, ambulatory services, and physician services. In addition, some SHMOs propose health and social services that include transportation and benefits, such as routine podiatry, preventive dentistry, adult day care, and home services. The SHMO pools funds from existing sources such as Medicare, Medicaid, disability payments, private insurance, and patient-paid premiums.

### Ambulatory Care

Physician office visits are the most commonly used measure of the use of ambulatory service. The most common point of entry of persons into the health care delivery system is through a private physician's office or group practice clinic. A hospital outpatient department is increasingly used for all forms of ambulatory care by all age, race, and income groups. From 1972–1975, elderly persons increased their hospital outpatient use by 11%. Elderly and very young persons are more likely to use the telephone for contact with health care personnel, although black elderly persons use the telephone 60% less frequently than whites.<sup>58</sup>

Ambulatory care visits are made by elderly persons for the same illnesses and complaints

that were described above. The National Ambulatory Medical Care Survey estimated in 1977 that the reasons for a physician visit were for symptoms (58%), prevention (20%), and disease (10%). In 1977, the most common, principal diagnoses during ambulatory visits were for heart disease, hypertension, eye disease (except refractions), diabetes, and surgical after-care. Heart disease and hypertension accounts for nearly 25% of all visits by elderly persons.<sup>58</sup> The majority of visits to office-based physicians were made by previously treated patients. Initial visits comprised only 8.5% of the total visits by elderly persons. In 73% of all visits, a return is scheduled, thus reflecting return visits for chronic conditions. In 41% of all visits, the time spent by a physician in a direct encounter with a patient is 10 minutes or less.<sup>58</sup>

The National Health Interview Survey is a source of information about ambulatory care services from the patients' perspective. Data from these household interviews are presented in Table 4-9.<sup>59</sup> Elderly persons use more health services of all types than other age groups. It is not clear to what degree this level of utilization reflects the health care need or is a provider-created demand. Dental care, which generally is not covered by Medicare, is less used by older persons.

In a number of studies, there is a strong inverse relationship between the level of health and physician use that is irrespective of race or income.<sup>60</sup> In the opinion of a physician, older persons who are seeking office-based ambulatory care are more ill than younger ones. The

principal problem is judged to be not serious in 59% of all persons 14–44 years of age, but in only 32% of all persons over 65 years of age.<sup>61</sup> The disposition of a visit reflects a physician's intent to provide ongoing care; a continuity of care is especially important for older and chronically ill patients.

### Hospitalization

In each year, about 20% of all elderly persons are admitted to an acute care hospital. In a 2-year survey of all health services that were provided in the province of Manitoba, Canada, 10% of all elderly persons used 78% of all the hospital days used by elderly persons in general.<sup>62</sup> This study, which is among the few longitudinal studies of health service utilization suggests that individuals have very stable patterns of ambulatory visits and hospital use.<sup>62</sup>

Hospital use is directly related to age. The percentage of hospital non-users falls and the mean number of hospital days increases steadily with age. However, a small proportion of elderly persons use a large amount of health care services and account for a disproportionately large share of service usage. High users of ambulatory services are more likely to be hospitalized and to remain hospitalized for more days than those who make few or no visits to a doctor. Of all older persons, 68% were never admitted to a hospital in a 2-year period, while 3% of the sample in the Roos studies accounted for 31% of all admissions.<sup>62</sup>

TABLE 4-9 Health Service Use by Various Age Groups

Health Service Use	Age Group (Yrs)		
	45–64	65–74	75+
Mean number of physician contacts per year	5.7	6.9	6.8
Mean number of dental visits per year	1.8	1.3	0.8
Percent seeing a physician in past year	76.0*	80.0	81.0
Percent seeing a dentist in past year	58.8	34.7	22.7
Nursing home residents per 1,000 persons	3.7	12.0	97.3†
Non-federal hospital days per non-institutionalized person	1.75	3.28	5.86
Operations per 1,000 persons	124.60	165.90‡	

\* Rate for ages 50–64.

† Rate for ages 75–84 = 58.9, and for 85+ = 236.6.

‡ Rate for ages 65+.

SOURCES: Composite data from the Health Interview Survey, United States Department of Health, Education, and Welfare, National Center for Health Statistics, series 10; and special analyses of NHIS data by Rand Corp.

Not all elderly persons are high users of health care services. As with other age groups, a few consistently high users of health care account for most utilization. Very old persons (over 75 years of age), are at a greater risk for hospitalization, but they use somewhat fewer physician visits than young-old persons. This is contrary to the belief that very old persons use more of all types of care, and it suggests that more or better physician interaction or social support functions might protect very old persons from hospitalizations. Advanced age, low self-reported health status, and a high number of health problems indicate an increased risk of hospitalization. Intervention should be targeted towards these high-risk groups.

### Surgery

Surgical rates are increasing for persons of all ages. The number of inpatient surgical procedures per 1,000 population was 78.4 in 1966, and it increased to 94.5 in 1976. In the same period, surgical utilization increased more for persons over 65 years of age than for any other age group; 38% for women over 65 years of age and 42% for men. Several common surgical procedures showed substantial increases. Prostatectomies increased 41% for men 45–69 years of age and 17% for men over 65 years of age; cataract surgery increased 38% in men and 54% in women, and cardiac catheterization increased 10-fold in men 45–64 years of age.<sup>62</sup>

Part of the increase in both hospital admissions and discharges can be explained by a striking rise in the number of surgical procedures that were performed on older persons. There were approximately 105 procedures per 1,000 persons over 65 years of age in 1965, which was the last year before Medicare. The surgical rate rose to 123 in 1970 and to 155 in 1975. These rates grew faster for elderly persons (3.4%/year) than for non-elderly persons (0.5%/year). Factors that may contribute are an increased number of surgeons, improved surgical technology, and virtually unregulated reimbursements. In the absence of any evidence of an increase in the prevalence of conditions that require surgical intervention, there is a growing concern that surgery is being used excessively, particularly in elderly patients.<sup>63</sup>

### Long-Term Care

Nursing homes have become a major part of the health care system. In 1971, the numbers of beds in long-term care institutions became greater than the number of acute-hospital beds. Elderly persons, especially those over 75 years of age, are the major users of nursing home beds; they use these beds at 20 times the rate of persons under 65 years of age. Long-term care, thus, is a major focus of concern regarding cost-effective utilization (see Volume II, Chapter 27).

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# Development of Geriatrics in the United States

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## The History of a New Specialty

The evolution of geriatrics began in the United States in the late 1800s and early 1900s. The first American textbook on the subject was published in 1914 by Nascher,<sup>1</sup> who also is credited with having coined the term "geriatrics." Interest waned during World War I and resurfaced only briefly in the late 1920s and early 1930s. It has been suggested that physicians were reluctant to enter geriatrics because it was considered to be less interesting than other fields and because of the difficulty in developing an economically viable practice. Elderly persons were perceived as having less money and more illnesses than the rest of the population.

In the early 1940s, there was an upsurge of public interest in the status of elderly persons and the diseases of old age. This led to the formation of the American Geriatrics Society (1942) and the Gerontological Society (1945); the former is composed of physicians, while the latter was designed to serve a broader constituency. The founding of these societies was coincidental with the recognition that, at that time, almost 7% of the population was over 65 years of age, and with the realization that the care of elderly persons was a multidisciplinary process involving many fields. However, the flurry of activity was short-lived; not until the 1960s was there a reawakening of concern for elderly persons. In 1965, the amendments to the Social Security Act that are known as Medicare were passed. Curiously, the fact that a massive infu-

sion of funds now was available for medical care of elderly persons stimulated neither a medical professional nor an academic response. Nor has it resulted in adequate care, as evidenced by the following: 1) The most readily available information concerns the 5% of the elderly population who are institutionalized. Reports from federal and academic sources indicate that these patients often receive superficial and indifferent care.<sup>2-4</sup> Data on medical and other services for the 95% of the elderly population who are non-institutionalized is less direct, but it can be extrapolated from a number of sources; 2) Although elderly patients present more problems than younger patients and need more time to give and receive information, there is evidence that the average encounter time between a physician and patient declines with age.<sup>5</sup> This trend holds for both general practitioners and subspecialists and was noticeable in almost all types of encounters (hospital, non-hospital, first visits, repeat visits, and so on), regardless of the severity or complexity of the illness. This probably reflects a conscious decision on the part of a physician to allot less time to elderly patients; and 3) Further indirect evidence about the relatively poor quality of geriatric care comes from geriatric units that recently were established to assess the status of elderly persons in an effort to avoid nursing home placement or to provide more beneficial management. In one such unit, a careful and comprehensive assessment of patients who were discharged from acute teaching wards uncovered an average of 3.4 new and treatable problems.<sup>6</sup> Similar data from prehospital or am-

bulatory assessment programs<sup>7-11</sup> underscore the need for greater attention to the care of elderly persons. This record of substandard care for elderly persons has been compiled during a time when few physicians identify with the care of older patients.<sup>4</sup>

Data about the number and characteristics of physicians with an interest in geriatrics comes from a 1977 American Medical Association (AMA) survey. Only 0.2% of all responding physicians listed geriatric care as one of three possible areas of emphasis in their practice. Geriatrics as a specialization was listed by 629 respondents: as the primary specialty by 371, as secondary by 187, and as tertiary by 71. Considering the 88% response rate reported by the AMA, this is equivalent to 715 of 363,619 physicians. Physicians who listed geriatrics as their primary specialty most commonly considered their secondary specialty to be general or family practice, internal medicine, psychiatry, general surgery, or orthopedic surgery. The 125 physicians who indicated that geriatrics was their sole specialty interest were older than the other responding physicians, and they were less likely to have a specialty certification or to be members of professional societies.

From national data, it is clear that the bulk of medical care for the elderly age group in the United States is provided by primary care physicians. Data from the University of Southern California's Division of Research in Medical Education (USC/DRME) study of practicing physicians<sup>12,13</sup> indicate that approximately 80% of all visits to physicians by persons 65 years of age and older are made to primary care physicians (i.e., internists and family and general practitioners). Conversely, elderly persons comprise 30-40% of these physicians' practices. Family and general practitioners provide the largest proportion of non-hospital care; general internists provide the largest fraction of hospital visits. Because there are few geriatricians, the United States will have to depend on these primary care physicians for some time to come, regardless of what other policy options might be selected.

Although the foregoing information suggests that all is not well in terms of medical care for the elderly population, there is evidence that this state of affairs is undergoing substantial changes: 1) There is a growing acceptance of

geriatrics as a discrete area within medicine that requires special knowledge and skills; 2) There has been increasing financial support for faculty, program development, and research from both the public and private sectors; and 3) There is evidence<sup>14</sup> of a widespread interest in geriatric educational programs, although the quantity and quality of training (especially at the undergraduate and graduate levels) still are considerably substandard.

Despite an increased concern for geriatric training, there remains considerable room for improvement. Well-conceived, high-quality clinical work should be required of medical students; more geriatric faculty members are needed. Also, the number of graduates of geriatric fellowship programs still is substantially below the projected manpower needs, even for those who are planning careers in research and teaching. Moreover, the competence of graduates in this area has not been routinely assessed.

## The Emergence of Geriatrics as a Special Area

### Defining the Parameters of the Field

Geriatrics is defined as a branch of medicine concerned with the health and welfare of elderly persons that addresses itself to the clinical, social, preventive, and remedial aspects of illness in old age. The Institute of Medicine's 1978 landmark report, *Aging and Medical Education*, outlined the knowledge areas of geriatrics-gerontology.<sup>15</sup> It emphasized that geriatricians must be versed in both the changes that are associated with aging and the ranges of normal and abnormal responses that are attributable to these changes.

The variety of clinicians who currently are providing medical care to the elderly age group need to be made aware of ways in which diagnostic and therapeutic procedures that were designed for younger age groups should be modified to conform to the epidemiological and physiological differences of an older population. Physicians must recognize the many ways in which clinical problems may present in an elderly person and must learn to formulate problems and responses somewhat differently

than in dealing with younger patients. There must be more concern for social and environmental etiologies, as well as a greater sensitivity to the wide variety of physiologic deficits that can lead to an elderly patient's inability to cope. For example, it is not enough to identify confusion, incontinence, instability and falls, and a loss of mobility as common problems of old age. A physician also must identify the processes that underlie these problems to appreciate how these dysfunctions can affect the lives of patients and to assist them in developing compensatory mechanisms.<sup>15</sup>

Helping an elderly individual who has a restricted capacity in dealing with a variety of stresses to compensate is a central theme of geriatrics. It is up to a physician to find ways of reducing sources of stress and of enhancing defenses. This is a pursuit that may range from restructuring an overly restrictive institutional environment to identifying those areas of preventive activity where early intervention can reduce the extent of future incapacity. A geriatrician specialist often is called on to assume responsibility for an elderly patient at the point when the constellation of health and related problems endanger that individual's ability to cope. Whether prompted by an acute event (e.g., a fall, a social circumstance, or the loss of a spouse), a final common pathway is decompensation (*see* Volume II, Chapter 6). A geriatric practice reflects this situation by crossing the geographic boundaries of care to include assessment, rehabilitation, continuing care in the community, and long-term care in institutions. Pfeiffer echoes the sentiments of many in noting that, "the most important clinical service offered . . . is not a specific therapeutic intervention but rather the coordination effort of all services required by an individual while continuing contact is maintained with the individual."<sup>16</sup>

Geriatrician specialists, as well as other interested physicians, often will find themselves at the head of an interdisciplinary team that is composed of a variety of health workers who are needed to respond to the physical, social, and mental problems of elderly persons (*see* Volume II, Chapter 30). Thus, the skills that are required to coordinate care in a variety of settings (the home to acute hospital, nursing home to day hospital, and clinic to day center) are paramount. A physician must be able to pre-

scribe drugs as well as services and to be aware of the dangers of both overtreatment and underdiagnosis. In addition, a physician, perhaps, is the most effective person in the geriatric multidisciplinary team to interact with medical and surgical subspecialists (e.g., urologists, psychiatrists, orthopedists, or cardiologists) to insure that medical, psychiatric, and surgical strategies are based on combined expertise.

In summary, a motivated physician who is seeking to become more expert at treating elderly persons, or a young physician wishing to become a geriatrics specialist, may have to unlearn a number of ways of doing things. The hospital-trained, acute care, technology-oriented, and contemporary medical graduate may find it difficult to make the transition to the more personalized, environmentally sensitive mode of practice that is needed in caring for older individuals.

Some medical educators and health policy makers believe that adequate change will be brought about by incorporating nursing home training into the educational system of health professionals and, particularly, physicians. However, a nursing home represents only one subset within a much larger system of health and welfare services that must be mobilized and coordinated to bring about improved health for elderly persons in the United States. The two extreme boundaries of this system are the acute tertiary care hospital and the home. Between these extremes lie skilled nursing facilities and nursing homes, physicians' offices and ambulatory care clinics, day hospitals, other partial hospitalization arrangements and day care centers, geriatric evaluation units (ambulatory or institutionally based), geriatric rehabilitation facilities, a variety of congregate housing arrangements that are integrated with health care provisions, and other alternatives yet to be developed.

Discussions about care for elderly persons typically lead to a dichotomy of views. The social model argues that aging is a social problem with primarily social solutions, such as improved housing, income, and social services; the medical model stresses that accurate diagnoses and treatment will lead to an improvement in functional status and a lessened dependency. According to the social model, the care of elderly persons should not rest solely with

physicians, but rather should be directed by more socially oriented professionals who could call in physicians as technical participants to address strictly medical problems. There is a real danger that this type of strategy may be attractive to physicians for perverse reasons. A physician's indifference to elderly persons is part of our present problem; the solution is not likely to be found in excluding a physician or in permitting physicians to exclude themselves. The distinction between the social and medical models is conceptually useful in highlighting the complex interaction of the multiple problems that beset some elderly individuals; but, the dichotomy ultimately breaks down and is destructive. Both approaches must be melded if a productive solution of the problems of aging is to be achieved.

### Differences Between Primary Care Medicine and Geriatric Medicine

Some practitioners believe that there are no differences between primary care deliverers (general internists, family physicians, and general practitioners) and geriatrician specialists. This attitude reflects a lack of knowledge about the content of an optimal geriatric practice. Some aspects of this content are presented in Table 5-1), which highlights those characteristics that distinguish primary care and geriatric medicine.

### Geriatric Medicine as an Academic Discipline

A more precise definition of the geriatric domain, together with an influx of research and development funds, has led to a rapid proliferation of programs in academic settings. In 1982, the evidence that geriatric medicine is recognized as an area of expertise includes: 1) A small group of physicians who identify themselves as geriatric specialists and an emerging faculty; 2) An increasing number of educational programs in geriatric medicine at various stages of development, at least four endowed chairs, and one department of geriatric medicine; 3) Increased funding for biomedical research on the special problems of elderly persons, al-

though funding for health services research that is relevant to the elderly population remains insufficient; 4) Discussions that are underway concerning the development of stronger professional organizations in geriatric medicine and nursing (perhaps comparable to the Association of University Professors); and 5) Some financial support, albeit inadequate, for the training of a cadre of physicians and other health professionals with special knowledge of the problems of elderly persons.

### Manpower Needs

There is a growing recognition that better-trained physicians will be needed in the near future to care for the elderly population. There is less agreement as to how this need should be met.

One school of thought, which is represented in the Institute of Medicine report,<sup>15</sup> supports a continuation of the current heavy reliance on existing physician types—especially primary care providers in internal medicine and general and family practice. The preparation for the growing demands of elderly patients would include more intensive training during medical school and graduate medical education (for those who are yet to graduate) and remedial education through continuing medical education for those who already are in practice. Meeting these training needs would require a cadre of academic geriatricians whose sphere of practice would be confined to the teaching medical centers. The training of academic geriatricians would, in fact, also produce a core of practicing geriatricians, because experience from other fellowship training efforts suggests a “spillover” rate of 40–50% into private practice.<sup>18</sup>

An alternative plan calls for the development of trained geriatricians who are intended to perform in both the academic and the practice roles.<sup>19</sup> Physicians who are trained in this manner would serve as consultant specialists in the management of complex geriatric problems and would, in all probability, also maintain an ongoing responsibility for some subset of geriatric patients.

A third approach to the problem has been to attempt an estimate of the need for geriatric

TABLE 5-1 Differences Between Primary Care Medicine and Geriatric Medicine (Scaled 1–5)\*

	Primary Care	Geriatric Medicine
Knowledge—Special (problems) diseases of elderly persons	2	5
Knowledge—Atypical presentation of disease in elderly persons	2	5
Multiple pathologies—Primarily chronic	3	5
Interaction of physical and mental illnesses	3	5
Estimation of functional capacity	2	4
Knowledge—Problems in the use of drugs in elderly persons	2	5
Recognition of unreported illnesses†	3	5
Knowledge of home conditions††	1	5
Health education of elderly persons (significant others)	2	5
Long-term care	1	5
Continuity of care	3	5
Accessibility—physical convenience; personally reachable (e.g., speaks patient's language)	3	5
Comprehensive patient care and teamwork	1	5
Advocacy for elderly persons§	0	5
Special ethical issues in the elderly age group	0	5

\* “1” represents a global assessment of present primary physician performance; “5” represents the ultimate performance of a geriatric physician.

† Williamson (*see* reference 17) first described the phenomenon of the “iceberg” of unreported illness and demonstrated that, in Scotland, many older people attributed symptoms of illness to aging. This attitude is not confined to Scotland; it clearly is much more universal. The need for some form of health surveillance seems to be evident. In a recent review of periodic health examinations, a Canadian Task Force reported that while surveillance procedures were not economically worthwhile for most age ranges, it was their recommendation that presumed healthy older persons be examined at appropriate ambulatory clinics (either annually or at longer intervals, depending on the parameters required).

†† Knowledge of home conditions is an invaluable part of comprehensive patient care. An environmental assessment contributes important information about a patient's physical dwelling, the presence or absence of caring relatives and/or significant others, the social network, and so on.

§ A geriatric physician in the United States also must recognize the importance of his or her role as an advocate for better and more humane systems of care for elderly persons.

|| There are a series of unsolved ethical problems that surround the delivery of health and welfare services to elderly persons. Resources are not unlimited; therefore, it becomes necessary to set financial boundaries to the services that are to be supplied, as well as to make decisions that concern the distribution of services (an even more difficult task). How funds are apportioned reflects the belief systems of individuals, of small and large groups, and of our society as a whole. A geriatrician specialist must be aware of these issues and must make a contribution to their eventual solution.

physicians by identifying areas in which their activities would be focused.<sup>20</sup> A strong emphasis is placed on nursing homes and teaching hospitals for such estimates.

All three approaches point to the need for better-trained physicians who are capable of coping with the problems of elderly patients.

Whether such training can be appended to the training that is now being offered to primary care physicians, or whether a new entity (the geriatrician) is needed, continues to be debated. However, two critical elements should be kept in mind. The Graduate Medical Educational National Advisory Committee (GMENAC) has

predicted a surfeit of physicians in virtually all areas involving primary care by the year 1990.<sup>21</sup> In the field of geriatrics, however, some degree of additional manpower will continue to be needed. It is therefore appropriate to consider a redirection of physician manpower into the care of the elderly.

### The Present Situation

The USC/DRME estimated that in the year 1977 approximately 187 million physician visits were made by individuals 65 years of age and older, which includes 84 million visits by those over 75 years of age. By the year 2030, these numbers will be projected to increase by demographic pressure alone to 443 million and 220 million visits, respectively.<sup>12,13</sup>

Data from these studies of physician encounters with elderly patients on a typical day are given in Table 5-2. As shown, primary care providers accounted for most of the care. Family and general practitioners provided the largest segment of non-hospital care; general internists provided the largest fraction of hospital visits. Among medical subspecialists, cardiologists saw the largest number of both ambulatory and hospitalized elderly patients; dermatologists saw the next largest number of ambulatory patients, while neurologists, chest physicians, and gastroenterologists saw the next largest number of hospitalized patients.

Conversely, as a percentage of total encounters, patients who are 65 years of age and older accounted for 35% of all visits to internists, 35% of all visits to family physicians (including general practitioners), and 6% of all visits to psychiatrists. These proportions are approximated closely in data from the National Ambulatory Medical Care Survey for ambulatory visits only.

#### *Geriatricians*

A Rand Corporation study of geriatric physician manpower<sup>19</sup> uses data derived from two sources: 1) the USC/DRME data reported by physicians; and 2) The data based on various governmental reports, which include the National Health Interview Survey and hospital discharge data from the National Center for Health Statistics. Because the provider-based and consumer-based data sources were closely reconci-

liable, the former was used for subsequent calculations. These data are adjusted on the basis of productivity information to develop estimates of full-time equivalents (FTEs). The steps that are involved in this process are summarized in Table 5-3. The yield in total physician visits for each time period is then distributed over three different physician manpower models that proportionately distribute non-hospital and hospital-based care separately across three classes of physicians: geriatric specialists, medical subspecialists, and primary care physicians (*see* Table 5-4). To further explore possible alternatives, it was assumed that some of the workload of the primary care physicians and the geriatric specialists would be delegated in varying proportions to non-physician providers (i.e., physician assistants/gerontologic nurse practitioners and social workers). Three different patterns of delegation were used as examples (*see* Table 5-5).

These projections, when applied to population estimates for 1977 and to representative years in the future, produce data as shown in Table 5-6. If a geriatrician operates as a consultant, the burden of manpower that is required continues to rest with the primary care physician. As a geriatrician takes on increasing primary care responsibilities, the burden of care is shared. The differences between the relative proportion of manpower shown in Tables 5-5 and 5-6 are attributed to lower productivity estimates for a geriatric specialist.

Some investigators maintain that a more appropriate target for geriatric care should be the population over the 75 years of age, as opposed to the conventional practice of using 65 years of age as the onset of old age. Similar manpower projections for this group for the year 2010 (to permit comparison with Table 5-6) are shown in Table 5-7. The proportion of FTEs remains similar to the previous table, but the number of physicians that are required is somewhat less. Because persons over 75 years of age need substantially more care than those over 65 years of age, the figures remain impressive.

Sources of related manpower are the gerontologic nurse practitioner/physician assistant and the social worker. Table 5-8 shows the effects of redistributing this care for the same year (2010) under two patterns of delegation. Neither pattern produces a commensurate re-

TABLE 5-2\* National Estimates of Physician-Patient Encounters per Day, by Physician Specialty, Setting, and Patient Age

Physician Specialty	Non-Hospital Encounters per Day			Hospital Encounters per Day				
	Number Age 65-74	Per- centage	Number Age 75+	Per- centage	Number Age 65-74	Per- centage	Number Age 75+	Per- centage
Internal medicine	56,114	32	36,522	30	46,740	48	46,076	48
General practice	75,692	43	57,048	47	22,723	23	26,869	28
Family practice	17,547	10	13,492	11	6,096	6	7,450	8
Cardiology	9,823	6	5,271	4	9,442	10	7,393	8
Dermatology	7,786	4	4,192	3	451	—	320	—
Pulmonology	1,886	1	1,043	1	2,839	3	1,520	2
Gastroenterology	1,711	1	921	1	2,415	2	1,714	2
Hematology	943	—	508	—	1,316	1	933	1
Oncology	624	—	227	—	796	1	365	1
Allergy	1,484	1	799	1	223	—	159	—
Rheumatology	971	—	523	—	498	—	354	—
Neurology	1,336	1	720	1	3,035	3	2,153	2
Endocrinology	442	—	238	—	497	—	352	—
Infectious disease	146	—	78	—	306	—	217	—
Nephrology	635	—	342	—	753	1	534	—

\* The data on manpower projections was prepared in collaboration with Robert L. Kane, Rosalie A. Kane, Emmett Keeler, David H. Solomon and Robert Mendenhall.

SOURCE: Practice Study Reports (USC/DRME data), Table 2.2.1, Board Certified and Non-board Certified. Kane RL, Solomon DH, Beck JC: *Geriatrics in the United States: Manpower Projections and Training Considerations*. Lexington, Mass, DC Heath & Co, 1981.

NOTE: Unpublished data were available for the two age intervals in internal medicine, general practice, family practice, cardiology, pulmonology, and oncology. The remaining categories were estimated by applying the average proportions of those age 75+ (35% non-hospital, 50% hospital) of the three medical specialties: cardiology, pulmonology, and oncology for the figures available for age 65+. There was no basis from which to estimate the age distribution of encounters for obstetrics-gynecology or otorhinolaryngology.



TABLE 5-3 Estimates of Manpower Needs for Geriatric Care (Recipient-Based Data)

Number of geriatricians needed is a function of:

1. Number of persons in pertinent age groups (65+ or 75+) at selected dates (1977, 1990, 2010, 2030);
2. Average annual rate of use of services of health care providers (visits per year per person);
3. Productivity of health care providers (visits per year per provider FTE\*); and
4. Factor for improved care:

$$\text{Number needed (in FTE)} = \frac{1 \times 2}{3} \times 4$$

This equation is applied to each postulated partition of effort among types of physicians and of surrogate health care providers.

\* FTE = full time equivalents.

duction in the level of physician manpower, because the productivity levels of the non-physician providers are estimated to be only about 60% of the levels of the physicians.

These projections are not intended to produce an exact number of physician equivalents, but rather to estimate the approximate quantitative implications of alternative solutions. Given this information, several conclusions emerge: 1) There is going to be a need for substantial numbers of physicians with the requisite skills to provide care for elderly persons; 2) If a significant proportion of these physicians are to be geriatricians, training must begin at once; 3) Considering that current geriatric training programs graduate fewer than 100 physicians per year, even the most conservative estimates sug-

TABLE 5-4 Partition (Percentage) of Effort of Health-Care Personnel in the Care of Elderly Persons: Effect of Training Programs Aimed at Different Geriatrician Roles

Type of Training	Non-Hospital Care*			Hospital Care		
	GS	MSS	PCP	GS	MSS	PCP
1. Status quo	1	14	85	1	19	80
2. Training geriatricians for academic positions only	—	—	—	—	—	—
3. Training geriatricians for academic positions and as consultants in practice	25	10	65	20	15	65
4. Training geriatricians for academic positions, as consultants, and as primary care physicians	40	10	50	30	15	55

\* Includes ambulatory care, nursing home care, and common alternatives to nursing home care.

SOURCE: Kane RL, Solomon DH, Beck JC: *Geriatrics in the United States: Manpower Projections and Training Considerations*. The Rand Corporation #R-2543-HJK, 1980, p 37.

NOTE: GS = geriatric specialist; MSS = medical subspecialist (cardiologist, gastroenterologist, and so on); PCP = primary care physician (internist, family physician, general practitioner).

TABLE 5-5 Partition (Percentage) of Effort of Health-Care Personnel in the Care of Elderly Persons: Delegation of Physician Functions to Non-physicians

Level of Delegation	Non-Hospital Care*			Hospital Care		
	MD†	PA/GNP	SW	MD	PA/GNP	SW
Minimal (status quo)	95	3	2	100	0	0
Moderate	65	25	10	90	10	0
Maximal	40	40	20	80	20	0

\* Includes ambulatory care, outpatient, hospital, nursing home care, and common alternatives to nursing home care.

† Only GS and PCP are assumed to delegate. MD refers only to non-surgical physicians.

SOURCE: Kane RL, Solomon DH, Beck JC: *Geriatrics in the United States: Manpower Projections and Training Considerations*. The Rand Corporation #R-2543-HJK, 1980, p 38.

NOTE: PA/GNP = physician assistant or geriatric nurse practitioner; SW = social worker.

TABLE 5-6 Number of Physician Personnel (in FTEs\*) Needed in 1977 and 2010 to Care for Persons 65 Years of Age and Older at Current Use Levels

Mode of Geriatric Practice	Number of Physician Personnel Required					
	1977			2010		
	GS	MSS	PCP	GS	MSS	PCP
Status quo	432	730	22,772	655	1,109	34,453
Consultative	9,915	5,484	17,808	15,000	8,330	26,953
Primary care	15,509	5,484	14,214	23,452	8,330	21,527

\* FTE = full time equivalent.

SOURCE: Kane RL, Solomon DH, Beck JC: *Geriatrics in the United States: Manpower Projections and Training Considerations*. The Rand Corporation #R-2543-HJK, 1980, p 39.

NOTE: GS = geriatric specialist; MSS = medical subspecialist; PCP = primary care physician (general internist, family physician, general practitioner).

gest a deficit in manpower; 4) Even in the most extreme model, which calls for a geriatrician to deliver primary care, a substantial burden will remain with primary care physicians and medical subspecialists who must be adequately trained; and 5) If we are to rely on non-physician providers for any proportion of geriatric care, they also must be trained.

In light of the predicted physician surfeit (even in primary care disciplines) by 1990,<sup>21</sup> it must be emphasized that the projections for geriatric manpower needs do not imply training an increased number of physicians. The choice of using FTEs was deliberate, because it suggests the possibility of redirecting present and future physicians away from overcrowded specialties into geriatrics. As shown in Table 5-9, GMENAC forecasts a surplus of more than 6,500 primary care physicians in general internal medicine and family practice and almost 18,000 internal medicine subspecialists. If a proportion of physicians who are training for

these specialties were redirected into geriatrics, much of the projected deficit could be met.

All of the above manpower projections assume that care would be offered at current levels of use. The estimates discussed elsewhere, however, suggest that elderly persons receive approximately 25% less ambulatory care than other age groups. The shorter encounter time between physicians and older patients is primarily responsible for this disparity. Therefore, the estimate for improved medical care-projected manpower figures could be raised by 25%.

#### *Academic Geriatrics and Geropsychiatry*

Regardless of the final model that is chosen, there is an immediate need for a substantial cohort of academically based geriatricians. They would serve as educators for future physician and non-physician providers. One study of the need for this group of faculty<sup>19</sup> produces an upper-bound estimate of 1,600 and a lower-bound

TABLE 5-7 Number of Physicians (in FTEs\*) Needed in 2010 to Care for Persons 75 Years of Age and Older at Current Use Levels

Mode of Geriatric Practice	Number of Physicians Required		
	Geriatric Specialist	Medical Subspecialist	Primary Care Physician
Status quo	335	577	17,441
Consultative	7,587	4,357	13,688
Primary care	11,823	4 357	10,987

\* FTE = full time equivalent.

SOURCE: Kane RL, Solomon DH, Beck JC: *Geriatrics in the United States: Manpower Projections and Training Considerations*. The Rand Corporation #R-2543-HJK, 1980, p 39.

TABLE 5-8 Number of Physician and Non-Physician Personnel (in FTEs) Needed in 2010 to Care for Persons 65 Years of Age and Older at Current Use Levels Under Two Levels of Delegation

Mode of Geriatric Practice	Number of Physician and Non-Physician Personnel Required										
	Moderate Delegation						Maximal Delegation				
	GS	MS	PCP	GNP/PA	SW	GS	MS	PCP	GNP/PA	SW	
Status quo	520	1,109	26,914	11,622	3,766	391	1,109	19,852	19,479	7,532	
Consultative	11,702	8,330	21,156	12,169	3,941	8,618	8,330	15,692	20,398	7,882	
Primary care	18,205	8,330	17,026	12,169	3,941	13,329	8,330	12,739	20,398	7,882	

\* FTE = full time equivalent.

SOURCE: Kane RL, Solomon DH, Beck JC: *Geriatrics in the United States: Manpower Projections and Training Considerations*. The Rand Corporation #R-2543-HJK, 1980, p 40.

NOTE: GS = geriatric specialist; MSS = medical subspecialist; PCP = primary care physician (general internist, family physician, general physician); GNP/PA = geriatric nurse practitioner or physician's assistant; SW = social worker.

TABLE 5-9 Selected Projections of Physician Supply Compared to Estimated Requirements in 1990

Specialty	Estimated Surplus
Primary care	
General internal medicine	3,550
Family practice	3,100
Internal medicine subspecialties	
Hematology/Oncology	700*
Gastroenterology	400
Infectious Diseases	1,000
Allergy/Immunology	1,000
Nephrology	2,100
Rheumatology	1,300
Cardiology	7,150
Endocrinology	1,800
Pulmonary	3,350

\* Projected deficit.

SOURCE: GMENAC, 1979(21) Graduate Medical Education National Advisory Committee: *Interim Report to the Secretary*. DHEW Publ No HRA 79-633, Washington, DC, Government Printing Office, 1979.

estimate of 900 (see Table 5-10). Thus it seems that at least 900 faculty persons are needed to provide a minimal staff for medical schools and to train other health professionals, as well as internal medicine and family practice residents.

The National Institute of Health (NIH) records suggest that it is unlikely that more than 60% of all geriatrician graduates will remain in academic medicine. Thus, at least 1,500 must be trained to yield 900 academic physicians, which produces a spillover of 600 practicing geriatricians. Even with a goal of producing only academic geriatricians, the spillover effect would result in two practitioners for every three academicians.

At the present utilization rate, there is an estimated need for over 1,100 practicing geropsychiatrists. The Rand Corporation's projections call for a minimum of 450 faculty, which means training 900 academic geropsychiatrists to allow for a 50% loss to community practice; but, this would supply nearly 50% of the minimum number of geropsychiatrist practitioners that are needed today.

#### *Geriatric Research*

The faculty in geriatric medicine and geropsychiatry who have been previously discussed would participate in the full range of academic

pursuits. It is estimated that approximately 25% of their time would be spent in clinical activities that would proportionately offset the need for practicing geriatricians. In addition, it is estimated that a further 25% of their time would be spent in research that is pertinent to geriatrics. Table 5-11 shows the estimated geriatric research manpower needs. For the estimates of 900-1,600 FTEs of academic geriatrician manpower, approximately 450 academic geropsychiatrists are added to provide a minimum staffing for psychiatric training programs; this brings the total to approximately 1,400 FTEs. However, 25% of their time will not be sufficient to undertake productive research in an area that is just beginning to emerge.

One compromise is to anticipate that a heavy use will be made of doctoral-level researchers in related fields—both basic and applied. At a minimum, one would foresee the need for at least one doctorally prepared researcher to work with each academic geriatrician. Such dyads imply a total research FTE complement of 1,700-2,500 persons who are capable of doing research in geriatrics. The estimated need for some 2,000 doctoral-level researchers in aging can be contrasted to the 453 graduates who were supported by the National Institute on Aging (NIA) or its predecessor, National Institute of Child and Human Development—Adult Development and Aging Branch (NICHD-ADAB), between 1965-1975. Of these, approximately two-thirds have remained in academic work that is related to aging.

This type of compromise will not suffice to establish geriatrics as an academic peer with the traditional disciplines. The lessons of other recently accepted fields in academic medicine, such as family practice and general internal medicine, should be appreciated. The task of developing clinical and teaching programs extract an enormous price from the first generation of academic practitioners. Unless active efforts are undertaken to prevent it, research and other scholarly activity is relegated to a lower priority in the quest to mount new programs.

In the case of geriatrics, which cannot draw on the wisdom of many practitioners, the loss is doubly severe. Not only must one be concerned with the nurturing of academic geriatricians, but one also must be sensitive to the great need for new and better information about the

TABLE 5-10 Estimated Need for Academic Geriatricians

	FTEs*
Upper-bound estimate	
Residency training	
2.0 faculty, internal medicine residence × 328 programs	656
1.5 faculty, family practice residency × 230 programs	345
2.5 faculty if both in one hospital × 128 hospitals	320
	Subtotal
	1321
Medical student training	
3 FTE* per medical school × 124 school	372
Less economies of scale where residency programs are located in primary university hospitals	(90)
	Subtotal
	282
	Upper-bound total
	1603
Lower-bound estimate	
Residency training	
Internal medicine	
0–9 FT faculty and 0–29 residents at 0 FTE × 190 programs	
10–19 FT faculty and/or 30–49 residents at 1 FTE × 85 programs	
20+ FT faculty and 0–29 residents at 1 FTE × 23 programs	
0–9 FT faculty and 50+ residents at 1 FTE × 2 programs	
20+ FT faculty and 30+ residents at 2 FTE × 4 programs	
10+ FT faculty and 50+ residents at 2 FTE × 5 programs	
20+ FT faculty and 50+ residents at 2 FTE × 147 programs	
	Internal medicine subtotal (456 programs)
	422
Family practice	
0–3 FT faculty and 0–17 residents at 0 FTE × 126 programs	
4–6 FT faculty and/or 18–29 residents at 0.75 FTE × 134 programs	
7+ FT faculty and 0–17 residents at 0.75 FTE × 4 programs	
0–3 FT faculty and 30+ residents at 0.75 FTE × 8 programs	
7+ FT faculty and/or 30+ residents at 1.5 FTE × 44 programs	
4+ FT faculty and 30+ residents at 1.5 FTE × 19 programs	
7+ FT faculty and 30+ residents at 1.5 FTE × 23 programs	
	Family practice subtotal (358 programs)
	238
Less economies of scale due to coexisting programs	(12)
	Residency training subtotal
	648
Medical student training (as above)	372
Less economies of scale where residency programs are located in primary university hospital	(131)
	Subtotal
	241
	Lower-bound total
	889

\* FTE = full time equivalent; FT = full time.

clinical problems that are faced by the growing number of elderly persons in the United States.

In addition to the doctoral-level researchers who already have been accounted for, physician researchers who are trained in the techniques of biomedical research are necessary to provide a working bridge between the laboratory and geriatric clinical activities. Minimally, an average of two such academic geriatrician

biomedical faculty are presently needed per institution to make progress in geriatrics possible. We recognize that these 250 physicians may not be equally distributed across all institutions, but the total number will likely fall into this range. Mechanisms must be developed to recruit, train, and reward such persons if we are to find new answers to geriatric problems and to re-examine the answers that currently have been promulgated.

TABLE 5-11 Estimated Geriatric Research Manpower Needs

	FTEs*
Academic geriatricians	889–1,603
Academic geropsychiatrists	450
Total	1,339–2,053
Research geriatrician FTE* at 25%	335–513
+ 1 Doctoral-level researcher per geriatrician	1,339–2,053
Total research FTE	1,674–2,566

\* FTE = full time equivalent.

## Specialty Recognition

The development of geriatrics into a distinct field of medicine, with its own special training and research, raises the question of what should be done about specialty recognition. Stevens<sup>22</sup> has described the steps that eventually led to the inclusion of a specialty into the undergraduate and graduate medical curricula. These steps involve appropriate identified faculty, distinctive residency and fellowship programs, and some form of specialty recognition. The process usually begins with the informal socializing of individuals who are interested in sharing scientific and intellectual activities in the common field. This is followed by the development of formal organizations, the emergence of practitioners who limit their practice to this field, and concern about the standards of knowledge in the field; next may come the establishment of limited numbers of faculty positions (including endowed chairs) and demands that elements of the field be added to the continuum of medical education. The steps leading to formal specialty recognition include: 1) As advances in a field lead to the development of a new technology or a new system of health care delivery, a group develops special expertise in the area; 2) An organization or society is formed to encourage the exchange of ideas and techniques; 3) Membership in the organization becomes a mark of distinction in the field and (to externalize that recognition) a certification of excellence in the field becomes established; and 4) Responsible health care institutions come to accept certification as evidence of competence and limit care within the field to those who are certified.<sup>23,24</sup>

## Options for Specialty Recognition of Geriatric Medicine

The development of special requirements and guidelines depends, in part, on the type of specialty recognition that eventually will be selected. For example, the process that is involved and the residency review mechanisms in specialty recognition of the primary- or conjoint-board type are quite different from those involving established specialty boards that offer a Certificate of Special Competence. Thus, to develop a doctrinaire Special Requirements and Guidelines, it is necessary to delineate the characteristics of the emerging geriatric training programs, as well as the options that are available for specialty recognition. The growing number of training programs in geriatric medicine under the auspices of family practice, internal medicine, and psychiatry is a compelling reason for consistent special requirements to be established.

A brief description of the advantages and disadvantages of each option for specialty recognition will permit arranging the options in an order of priority. Options 1. Primary Board and 2. Conjoint Board, will be discussed together, since both envisage a separate and free-standing Residency Review Committee and separate Special Requirements. Their advantages are:

- First, the development of a clearly defined identity that confers status on the specialty and, thus, facilitates the recruitment of excellent individuals into geriatrics.
- Second, increasing concern with the quality of care (including the question of licensure for specialty practice) could effectively be dealt with by either of these routes, as could the financial forces that favor specialty recognition.
- Third, since geriatrics involves interdisciplinary and multidisciplinary activities, these two options might help to broaden the accreditation and certification process to involve other professional health groups (e.g., as has been done in radiotherapy).

The disadvantages of options 1 and 2 include:

- They would further fragment medicine with a new specialty that encroaches on other do-

mains; as a result, the cost of health services might rise.

Both options would lead to the removal of geriatrics (a specialty, in part, based on new systems of health care delivery) from the mainstream of family practice, internal medicine, and psychiatry. This could lead to major disruptive changes in the latter fields as the demographic changes evolve in the United States.

The third option is a Certificate of Special Competence that is offered by already established specialty boards, such as the American Board of Family Practice, the American Board of Internal Medicine, and the American Board of Psychiatry and Neurology (now separated into two distinct specialty boards). The advantage of this option is that it identifies geriatrics as an area of special expertise, while still keeping it in the mainstream of the "parent" specialties. This lessens the threat of fragmentation. A disadvantage of this option is the possible divergence (on an individual specialty basis) of the Special Requirements and Guidelines and the accreditation and evaluation processes.

Option number four is a Certificate of Special Competence that is jointly sponsored by all or various combinations of the established medical specialty boards with a major concern for geriatrics. This option represents a new approach to specialty recognition that has been encouraged by the American Board of Medical Specialties (ABMS), which uses as a template the emerging specialty area of critical care medicine. Its advantages are comparable to those of option 3, in that it identifies geriatrics as an area of special expertise, yet maintains it in the mainstream of the "parent" specialties. However, option 4 also insures uniformity in the development of Special Requirements and Guidelines as well as the accreditation and evaluation processes. Still, another advantage is the easier financial viability of this option as compared with option 3, which adds a substantial monetary burden to each of the specialty boards.

The mechanisms for accreditation of fellowship programs within the established specialties is under active development by the Accreditation Council on Graduate Medical Education. It would appear that the development of Special Requirements and Guidelines and the accredita-

tion mechanism will reside within the purview of the established residency review committees within established specialties such as internal medicine and family practice. Options 3 and 4 pose hard philosophical and practical issues within the American Board of Family Practice, which considers itself an all-inclusive generalist specialty. The recognition of geriatric medicine as a separate specialty would open the door to a similar recognition for other areas, such as obstetrics, emergency medicine, and so on.

A fifth option, the Modification of Present Primary Board Certificates, consists of having appropriate specialty boards (internal medicine, family practice, and psychiatry) modify their General Certificates to include a statement recognizing special training in geriatric medicine. This would allow time to assess the evolution of geriatric medicine as a specialty, while simultaneously giving recognition to physicians with a special interest in that field. It represents a strategy that is also being considered by physician assistants and nurse practitioners.

A sixth option, a Certification by Specialty Society(s), would set a precedent in terms of professional organization structure. It would pose a threat to the established specialty boards; in a climate such as prevailed in the late 1970s and early 1980s, it would focus further Federal Trade Commission attention on specialty societies and specialty boards. In the American system, they are clearly separate, but inter-related, systems of professional activities. For instance, the American Geriatrics Society has approved prerequisites for Society Fellowship status. These included board certification in either internal medicine, family practice, neurology, psychiatry, physical medicine and rehabilitation, or surgery—together with evidence of special training or experience in geriatrics that is endorsed by two members of the Society.

A seventh option is the recognition of a specialty board that is unrelated to ABMS, which consists of professionals such as gerontologic nurse practitioners, gerontologic nurse specialists, pharmacists, social workers, and so on. Although this would not be a precedent as described in option 6, its disadvantages are similar in that it would be damaging to the present organizational patterns of American medicine. It represents an option that has been selected by

the various health professional groups in genetics.

A final option, of course, is that there be no specialty recognition. The obvious advantage is that it removes a potential economic struggle for turf from a group of established specialties. Its critical disadvantages are that it would retard the development of improvements in geriatric education, research, and delivery programs that are destined to improve the health status of elderly Americans.

### The Debate Over Recognizing New Specialties

The recognition of new specialties is controversial for a number of reasons. For example, some form of specialty recognition confers status, which plays a part in recruiting highly qualified individuals into the specialty. Moreover, the advent of some form of cost control of hospital and physician services—whether initiated publicly, privately, or through some combination of the two—will create new financial forces and situations that favor specialty recognition. Increasing concern with the quality of care, witnessed by discussions of licensure for specialty practice, also serves as a force that favors specialty recognition. Stevens<sup>22</sup> identified two other cogent arguments in favor of specialization: 1) Allowing that some specialization of activity contributes additional knowledge in a field; and 2) Concentrating interest in a particular area often leads to improved services. Conversely, the disadvantages of specialty recognition are grounded in the observation that medicine has become increasingly fragmented to the point where some specialties may be encroaching on the domains of others. As a result, the cost of health services may have increased, and there may be confusion among patients as to the appropriate type of care they need.

In spite of the disadvantages, there are at least three additional reasons to proceed with some type of recognition: 1) The GMENAC report gives only passing mention to geriatric medicine. This oversight in terms of future manpower planning would not have occurred if some form of specialty recognition had been achieved; 2) The Joint Commission on Hospital Accreditation (JCHA) is giving more attention to the criteria that institutions use to grant at-

tending staff privileges. One criterion that has emerged (despite the protests of specialty boards) is specialty-board certification (either a certificate by a primary board or a Certificate of Special Competence); and 3) The 1980 pay scales for Veterans Administration and Department of Defense personnel, as enacted by Congress, use recognition via a specialty board as a criterion for the level of remuneration. Thus, there is a bonus for certification by a primary specialty board, plus an additional bonus for additional certifications—whether via another primary specialty board or via a Certificate of Special Competence.

The American Geriatrics Society has re-examined an earlier position in a new statement entitled: *Geriatric Medical Education: Development Since the American Geriatrics Society Conferences on Geriatric Education, 1976–77*.<sup>25,26</sup> This report supports the need to identify and recognize persons who have special expertise in the area, and it proposes that the American Geriatrics Society play a major role in this process.

In *Report of a Study—Aging and Medical Education*,<sup>15</sup> the Institute of Medicine also took the position that “a formal practice specialty in geriatrics not be established but that gerontology and geriatrics be recognized as academic disciplines within the relevant medical specialties.” It expressed its belief that the care of the elderly population should be the responsibility of appropriately trained primary care physicians. It voiced a concern that if geriatrics were recognized as a practice specialty it would draw attention, energy, and resources away from needed improvements in the training of nurses, nurse practitioners, and the other health personnel who are so essential to the day-to-day care of elderly persons. The committee felt that training a cadre of geriatric specialists would suggest a medical solution to what it saw as a largely social problem.

In summary, the Institute of Medicine committee recognized that although the development and recognition of geriatrics within various disciplines was necessary to advance research and education in geriatrics-gerontology and to train leaders in this field, there were strong precedents against making it a formal specialty.

While the Institute of Medicine was complet-



ing its report, the Association of Professors of Medicine (APM) drafted a policy statement in 1978 which encouraged: 1) The organization of geriatric teaching programs within departments of internal medicine; 2) The introduction of gerontology into the undergraduate medical curriculum; and 3) The development of electives in geriatric medicine for undergraduate medical students. It requested that a consideration be given to an affiliation with chronic care facilities for the purpose of teaching the natural history of complex chronic illnesses. The APM statement did not seek to develop specially trained faculty to lead the proposed programs in geriatric medicine. It opposed a separate specialty or department of geriatric medicine; it considered geriatrics to be within the scope of general internal medicine.

One year later, the Federated Council on Internal Medicine (FCIM) (which represented the American Board of Internal Medicine, the American College of Physicians, the American Society of Internal Medicine, the Association of Professors of Medicine (APM) and the Association of Program Directors in Internal Medicine) formulated a policy statement on geriatric medicine that attempted to take into consideration the many changes that had occurred during the 1978–1979 academic year.\*

Their 1981 statement<sup>27</sup> differs from the 1978 APM statement in that the FCIM would want geriatric medicine to be incorporated into the core curriculum of residencies in internal medicine, as well as the development of a faculty that is trained especially for careers in geriatric medicine. Accordingly, it encouraged the organization of fellowship programs for advanced training in geriatrics. Furthermore, it recognized certain needs for geriatric medical specialties in community sites (i.e., outside of academic medical centers). On several points, the

FCIM draft statement goes beyond the Institute of Medicine report as well as the APM statement in recommending steps to foster the development of geriatric medicine within internal medicine.

The American Board of Internal Medicine (ABIM) announced its intent to develop some form of specialty recognition at the 1981 meeting of the American Board of Medical Specialties (ABMS). The statement included the recognition that geriatrics is an integral part of internal medicine and that internal medicine has a major responsibility for the orderly growth of this special area. The ABIM also emphasized that it had taken steps toward a greater emphasis on geriatrics within internal medicine. These included:

1. In the ABIM publication, *Attributes of the General Internist and Recommendations for Training*,<sup>28</sup> the ABIM stated that competence in geriatric medicine is an essential skill in general internal medicine.
2. It emphasized that since 1979, ABIM consultants had been included on each certifying examination committee so that more and better questions on geriatric medicine were being incorporated into ABIM certifying examinations.
3. The Board emphasized that it fully supported the activity of the residency review committee in internal medicine's Special Requirements for better training in geriatrics during rotations on general internal medicine services.
4. It announced that, at its next recertification cycle, the ABIM planned to place more emphasis on issues in geriatrics.
5. In introducing its new computer-based examination, the ABIM will include in that portfolio a series of cases that emphasize important issues in geriatric medicine.
6. The ABIM said it believed that geriatric medicine should remain a large and essential component of internal medicine and most other specialties, rather than a separate discipline or new practice specialty.

These issues also have been examined by the American Academy of Family Physicians and by the American Board of Family Practice.

\* These changes included: 1) The maturation of the eight Veterans Administration (VA) Geriatric Research, Education, and Clinical Centers (GRECCs); 2) The initiation of the VA's Fellowship Program in Geriatric Medicine; 3) The development of several non-VA fellowship programs; 4) A rapid expansion in federal funding to support such aspects of programs in geriatric medicine as curriculum development; 5) The entry of several large foundations into this area; and 6) Visible developments in gerontology and geriatric medicine in some of this nation's medical schools.

Both have been against any specialty certificate in geriatrics. They point to the official definition of family practice as "comprehensive medical care with particular emphasis on the family unit, in which the physician's continuing responsibility for health care is not limited by the patient's age, or sex, nor by a particular organ system or disease entity."<sup>29</sup> The American Board of Family Practice recently has stressed the importance of required training in geriatrics and gerontology through new "Essentials" (special requirements for residency training in geriatrics).<sup>30</sup> The American Board of Family Practice's written certification and recertification examinations are divided into seven major subdisciplinary areas, one of which is geriatrics-gerontology. It, thus, would seem that the specialty of family practice, through its board and specialty society, consider geriatrics-gerontology to be a vital part of their specialty. The ABIM and the American Board of Family Practice met in the summer of 1982 to address mutual areas of interest in the development of educational programs in geriatrics-gerontology, in improving the quality of the examination questions in their respective specialty-board examinations, and in planning joint areas of interest in recognition of special graduate medical education in the field of geriatrics.

The academic and practice specialty of psychiatry also has begun to address the issues of geriatric content in its training programs and the production of geropsychiatrists for both academic and practice roles. Two manpower reports before 1980<sup>19,31</sup> estimated the number of geropsychiatrists in the United States to be between 20–30. In 1982, over 400 persons have joined the newly formed American Association for Geriatric Psychiatry; but, not all have come from the medical profession. There are, as of this writing, seven advanced geropsychiatric education programs in the country. Only four offer fellowship training; in most instances, their contribution consists of 3–6 months during the core residency in psychiatry followed by 1 year of fellowship. The issue of specialty recognition and accreditation of training programs in geropsychiatry has been discussed by the American Board of Neurology and Psychiatry (now to be separated into two distinct specialty boards).

## Integration of Graduate Medical Education, Clinical Care, and Research\*

The establishment of new programs in geriatric medicine, as in any clinical program, has required "classrooms" and "laboratories." The former are, in large part, the clinical services that are developed at the academic medical center; the latter are bench laboratories in proximity to the patients whose disorders often form an important part of the research agenda. For a complete program, however, it also is necessary to have access to the "comprehensive classroom" (e.g., senior citizens centers, board and care facilities, nursing homes, and so on) or "laboratory without walls" component that is found in the community, which permits the study of interlocking health and social problems of independent elderly persons. Thus, the integration of the continuum of medical education, clinical care, and research has striking differences from other disciplines.

### Education and Training

There has been a substantial increase over the past several years in opportunities in geriatric education for medical students, postgraduate students, and practicing physicians in the United States. A 1981 study identified 135 programs at the undergraduate level, 44 in graduate medical education, and 37 geriatric fellowships.<sup>14</sup> There has been a similar increase in the amount of educational materials that are being made available. Thus, although (as we have seen) the question of specialization in geriatrics still is the subject of much debate, it is imperative that an attempt is made to define the field's educational objectives and to develop guidelines for training programs for physicians. Such guidelines, while allowing for flexibility and innovation, must be comprehensive enough to insure a high standard of professionalism. This section explores recommendations concerning

\* The collaboration of Alan S. Robbins in preparing this section is acknowledged.

geriatric educational programs that are based on judgments made by experts in the field.<sup>32</sup>

A recently formulated set of educational program development objectives includes the knowledge, skills, and attitudes that are essential for geriatric training at all levels; they serve as a rationale for the program guidelines that follow.<sup>33</sup> There also is a discussion of recommendations for geriatric educational components during core training in internal medicine, family practice, neurology, or psychiatry residency programs.

The major aim of an advanced residency or fellowship program in geriatrics should be to train academic leaders and educators. It should extend for at least 2 years, of which a minimum of 1 year should be devoted to clinical care. The balance of the training period should be focused on scholarly activity or research in geriatrics or gerontology. Eligible candidates must have completed their residency training in internal medicine, family practice, neurology, or psychiatry. Specialty-board certification is recommended. In neurology or psychiatry, some experience with internal medicine is a necessity. Residency and fellowship programs in geriatric medicine are to be implemented only in programs that already are approved by the respective residency review committees in internal medicine, family practice, neurology, and psychiatry.

#### *Program Administration*

The sponsoring institution must demonstrate a major commitment to geriatrics. Only in this way can it accomplish the educational objectives and give the program director enough flexibility and authority to supervise the program. The sponsoring institution should have an academic affiliation and be involved in geriatric research activities.

It is strongly recommended that this program director devote full time to the program responsibilities. Directors must: 1) Be board-certified (or its equivalent) in internal medicine, family practice, neurology, or psychiatry; 2) Have an academic appointment; and 3) Be experienced in teaching, clinical care, or research as it applies to geriatrics. To provide a meaningful educational experience, a minimum of three to four faculty members is recommended, with a ratio

of faculty to trainees of 1 : 3 or 1 : 4. All clinical research activities must be directly supervised by faculty.

Future faculty members should have special training in geriatrics. To serve as exemplary role models, faculty members should have experience both in teaching and clinical care. Expertise in research and administration also are recommended. The following activities are appropriate for faculty role models in geriatrics: 1) Clinical and didactic teaching for health professionals; 2) Clinical care; 3) Research and scientific presentations; 4) Continuing medical education for physicians and allied health personnel; and 5) National and local professional society participation.

The curriculum should provide clinical exposure to inpatient and ambulatory care settings, primary care, and consultative roles. Training should offer experience with both well and ill elderly persons and with patients who have medical, psychosocial, and economic problems. Experience must include interaction with the array of disciplines that are concerned with the care of elderly persons, both individually and as part of a health care team. There should be an emphasis both on refining clinical skills in dealing with the multiple and complex problems of the elderly population and in making clinical decisions that are based on functional assessments. Residents must receive training in predicting the outcomes of chronic diseases and in devising therapeutic plans that coordinate and mobilize medical and social support services. Core training should be provided in the basic biologic, psychological, and social aspects of aging (i.e., in gerontology as it relates to geriatrics), and in the relevant diseases and disorders that are most frequently seen in elderly persons.

Clinical training must encompass enough patient contact and a wide enough spectrum of problems to accomplish the above goals. Therefore, trainees should work with both sexes—especially with men and women over 75 years of age, since these individuals have needs that clearly are different from the younger population.

The following sites and functions are essential to geriatric training: 1) Primary care (*see* Chap. 64) on a specialized, inpatient geriatric

evaluation or assessment unit or on a general medical ward specifically oriented to the care of elderly persons (i.e., including the presence of a health care team); 2) Primary care on a geropsychiatry unit or on a psychiatry ward, as well as a neurology ward that emphasizes geriatric care; 3) Ambulatory primary care in a specialized geriatric evaluation or assessment unit or in a setting that is geared to care for elderly persons; 4) Primary care in a nursing home; 5) Geriatric consultative care to medical or surgical specialty services. Some primary care experiences must be provided in the health care team setting (preferably in a community site), and in a periodic as well as a longitudinal fashion. Participation in clinical work in one or more of the following sites is recommended: 1) Rehabilitation inpatient or ambulatory services; 2) Hospice, retirement home, or senior citizens center; 3) Home care program or patient's home; 4) Day care center or neighborhood health clinic; and 5) Service center.

#### *Core Content*

Content areas that should be included in geriatric training are discussed in detail elsewhere.<sup>32,33</sup> The following are the most highly rated objectives that cross the traditional systems of codification. Trainees will:

1. Interview and take an accurate medical history of an elderly patient that includes such functional history as a patient's ability to perform daily activities, and such psychosocial history as motivation, morale, family and social interaction, household composition, and productivity.
2. Conduct and record a complete physical examination of an elderly patient with specific attention to normal physical signs of aging; functional assessments such as mental status testing and the ability to perform daily activities.
3. Distinguish "normal" from pathologic aging (e.g., with respect to cognitive function, psychomotor performance, human sexuality, personality adjustment, and illness behavior).
4. Demonstrate clinical decision-making skills, taking into account an altered clinical

presentation of disease, multiple illness complexes, a patient's life style, cost-benefit factors, and prognosis prediction.

5. Apply knowledge of clinical pharmacology in elderly patients (the use, interactions, and side effects of specific drugs and patient drug use behavior).
6. Apply knowledge of rehabilitation medicine in managing the problems of elderly patients (underlying principles, facilities and programs, developing rehabilitation plans, and predicting outcomes).
7. Identify available social resources and programs in planning the care of an elderly patient (financial, health, and social supports, including natural support systems).
8. Coordinate and provide for a continuum of care (delivery of integrated care to elderly persons at differing levels of health and social services, such as hospitals, nursing homes, day care centers, and a patient's home).
9. Provide personalized and empathetic care to patients and their families.
10. Coordinate assessment and management as part of an interdisciplinary health care team.

#### *Research*

Continuing scholarly activity is critical to furthering and refining a geriatrician's knowledge base. Biomedical, psychosocial, educational, and health services research are appropriate for geriatric trainees. The trainee should be allowed sufficient time to become well grounded in research. Trainees who opt for an academic career that involves research and teaching should contemplate additional time for advanced research training in geriatrics-gerontology. Faculty supervision and adequate facilities should be provided. Programs that are geared to training academic geriatricians should provide an opportunity for candidates to confer with authorities in their fields when this seems appropriate.

#### *Evaluation of Candidates*

Each program should periodically evaluate its candidates throughout the training period. There should be written documentation of per-

formance. The evaluation should not only assess clinical knowledge, but also those areas that are defined by the program objectives. The assessment of special skills should include (for example): 1) Carrying out functional assessments; 2) Functioning as a member of the health care team; 3) Developing a therapeutic plan that is based on accurate prognostic predictions; and 4) Coordinating multiple health and social resources or interacting with a patient and family in an effective and empathetic manner.

All programs should require written evaluations of clinical knowledge and an assessment of clinical skills by faculty supervisors. Attitudes, research, and administration and teaching skills all should be evaluated. Measurement techniques may include a clinical bedside or written examination, a chart or record review, the use of attitudinal skills, and ratings by students, house staff, and faculty.

An evaluation should be used to improve performance. Therefore, an assessment should begin early and continue throughout the training period so that feedback can improve future performance. Some particularly effective techniques included videotape feedback, patient interaction, allied health staff rating of performance, and attitudinal measures.

*Training in Internal Medicine,  
Family Practice,  
Neurology, and Psychiatry*

The curriculum recommendations that are described here do not distinguish among the type of residencies, since certain knowledge, skills, and attitudes may be considered essential to any physician's education in the care of elderly persons. Indeed, it is the amount of experience and the degree to which a trainee has mastered the key objectives that distinguishes a specialist in geriatrics from a resident in internal medicine, family practice, neurology, and/or psychiatry. The list of objectives that have been previously enumerated for the fellowship applies as well to residency level training.

Geriatric training should be required of all residents. Any attempt to effectively teach residents must involve dealing with house staff biases (ageism or age discrimination) in a frank manner. When the program director and faculty

insist on geriatric training as an integral part of a residency, it indicates to residents that the care of elderly persons is important and involves a unique body of knowledge and skills. The core content that is outlined above for geriatric fellows is applicable in most areas for residency training in geriatrics.

Geriatrics ideally should be integrated into an overall residency program through lectures, teaching rounds, and clinical conferences. During a 3-year training program, at least a 2-month block of experience in geriatrics should be provided by using the patient population, training sites, and clinical interactions that are recommended for geriatric fellowships. A longitudinal clinical experience is highly desirable, since it provides an opportunity to both gain insight into the course of a chronic disease as it affects an older individual and appreciate the multiple factors that affect health care in elderly persons.

Because demands for time in residency training programs are substantial, the quality of the educational experience in geriatrics must be maximized. Experience should be provided with both well and ill elderly males and females and patients should represent a spectrum of common geriatric disorders. While training in a primary care inpatient or ambulatory care setting is preferred, a consultation and liaison experience also is acceptable if a discreet geriatric consultation service exists.

Residents should be evaluated during their geriatric experience the same as they would during other clinical rotations in their training period. An evaluation by patients and allied health professionals, especially with regard to interpersonal skills, is a particularly relevant type of assessment for a geriatric service.

The goal of geriatric training for a non-specialist is to provide the candidate with the knowledge, skills, and attitudes that are necessary to deliver competent, cost-effective, and empathetic care to elderly persons. Candidates should be able to understand a patient from a medical, psychological, and socioeconomic standpoint, and to provide either multidisciplinary integrated care or refer patients to other providers who can deliver this type of care.

The guidelines that are dealt with in this section are a basic attempt to set out specific edu-

cational objectives for graduate geriatric training. Many of the principles and specifics of a curriculum should be viewed, however, as a preliminary guide for faculty and educators who are concerned with the many emerging training efforts that are currently found in geriatric medicine.

### Models of Practice

Training programs for geriatricians and geriatrically oriented physicians will require appropriate training sites. The growing number of elderly persons assures an adequate patient pool, and the projected surfeit of physicians assures an adequate supply of health care providers. However, the availability of good models of care is much more constrained; as already noted, the present and future problems of geriatrics lie in the quality of services that are provided rather than the quantity. A basic goal of geriatric training programs is to bond to model programs. However, in many instances, it may be necessary to create the models where they do not exist.

We are highly critical of most long-term care and are quick to believe that a closer affiliation with the academic world must improve the quality. Students at all levels enter long-term care training with negative attitudes about the field of geriatrics and its elderly clients. Therefore, it is essential that they participate in a positive experience. The environment must permit students to work at a pace that maximizes their chances of being effective. Given the current level of uncertainty about the best way to provide long-term care, it may be unwise to lay the double burden of cost containment and training on existing long-term care institutions.

There are compelling reasons to consider renovating current programs over constructing new ones; but, working with established programs can present serious problems. The prototype that first comes to mind is a teaching hospital. This model offers a cause for concern. The problems that are created when ambulatory programs are established in teaching hospitals already have been witnessed; at best, it is expensive and cumbersome. It is not clear that

long-term care services could withstand the burden of becoming teaching services. Most long-term facilities lack the necessary resources and funds.

The question of how to allocate trainee costs and services is likely to be even more complex in a nursing home than a hospital, because nursing homes are smaller, less well staffed, and reimbursed at a lower rate. Without special provisions, few can absorb the administrative overhead that is associated with an office of medical education. Some form of affiliation or consortium may be possible, considering the prevalence of nursing home chain operations. However, most chains, as with the large majority of independent nursing homes, are operated for profit, while a traditional teaching hospital is non-profit. It is not clear whether proprietary long-term care institutions should be used as teaching sites. Arguments in their favor are that they provide a model setting for institutional long-term care, and that anecdotal experience indicates the feasibility of cooperative and beneficial linkages between universities and hospitals. Nonetheless, there remains some question as to the possibility of conflicting goals and philosophy—especially when the presence of a teaching program may threaten operating efficiency and reduce profits.

Training for long-term care requires a long-term investment. As long-term care institutions are transformed into teaching sites, the funds must be found to support educational activities without drawing on payment for care. It probably is appropriate, particularly at the outset, to consider additional compensation to a facility to offset disruption costs.

Teaching sites in long-term care institutions should not be designed to help students adapt to the existing constraints of long-term care. Instead, they should provide opportunities to reconceptualize roles and approaches to clients. The goal of a university-institution collaboration is to develop a means of treating long-term care clients that is consistent with real world resources. However, it is not necessary to start with these constraints foremost in mind. The success of collaborative efforts between academic medical centers and community hospitals, which has transformed the hospital system in the United States, is especially encouraging.

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# Patterns of Disease: The Challenge of Multiple Illness

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Much of the illness that is seen in elderly patients is predictable and may be preventable. Indeed, common patterns of disease recur often enough to provide clinicians with the opportunity to prevent major disabilities. Unfortunately, there is a common feeling that the care of elderly persons is more frustrating than it is rewarding; many professionals, when overwhelmed by a hopeless stance, fail to appreciate how small interventions can make a major impact on the quality of life. Physicians in training often see elderly patients with one disorder after another as part of an inexorable downhill course, which leads them to believe there is little that can be done for these patients. Most major illnesses, however, do not occur by accident, but partially result from pre-existent conditions that contribute to a greater risk of further disease. By minimizing or eliminating antecedent conditions, clinicians can prevent subsequent diseases. Therefore, contrary to common attitudes, a major goal of geriatric medicine is the anticipation and accordingly, prevention of illness.

## Basic Clinical Principles of Geriatric Medicine

To achieve a better understanding of the role that multiple illnesses play in the health of elderly persons, it is important to emphasize some of the characteristics that differentiate geriatric medicine from adult medicine.

## Multiple Disease is the Rule

The care of elderly persons forces clinicians to coordinate the complexities of multiple active problems. A unifying hypothesis rarely links signs and symptoms together in a single pathophysiologic process. The “one diagnosis” rule that often explains several multisystem problems in adults generally does not apply.<sup>1</sup> Illnesses in older patients often involve multiple organ systems that inter-relate by symptom, physical findings, functional capacity, and treatment. The emotional and social consequences of the physical conditions also inter-relate.

## Diseases are Different

Certain medical problems are clearly segregated into the older population. Adenocarcinoma of the prostate, temporal arteritis, polymyalgia rheumatica, and osteoarthritis are just a few representative examples.<sup>2</sup> Furthermore, in very old persons, functional disturbances in mobility, intellectual function, urinary and fecal incontinence, and internal homeostasis all become much more common.<sup>3</sup> Likewise, iatrogenic disorders are increasingly prominent.<sup>4</sup> Most conditions that occur in young persons also occur in old persons, thus broadening the differential diagnosis and placing more importance on the relative risk of certain diseases and on the development of a rational approach to clinical problem solving.

### Presentation of Diseases

The non-specific presentation of illness is very common in advanced age; classic symptoms frequently are absent. The body's response to illness frequently is tempered by age per se, or by other physiologic dysfunctions. Weight loss, failure to thrive, confusion, falls, and incontinence are just a few of the symptoms that commonly herald serious disorders, although they may bear little relationship to the underlying diseased organ.<sup>5</sup> Sepsis without fever is not uncommon.<sup>6</sup> Up to 40% of all older people with myocardial infarction may experience no chest pain, pneumonias may occur without a cough, and an acute abdominal condition may present with confusion or anorexia.<sup>6,7</sup> Clinicians must be aware of such subtleties and suspect more global problems.

### Aging, Disease, or Both

Differentiating the normal aging process from treatable diseases is a common dilemma. Traditionally, older patients, their families, and health care professionals alike have been quick to implicate "aging" as the cause of many maladies. Some physicians remain biased, thus unfortunately missing treatable diseases. Because of excess organ reserve beyond what is necessary for ordinary functional needs, it is unlikely that aging per se causes symptoms in the absence of disease except in very old individuals. The physiology of the aging process, although very different between both organ systems and individuals, generally portends about a 1% decrement in function per year after 35 years of age. Realizing that the functional capacity in youth is often 4–10-fold in excess of average needs, one can readily appreciate that functioning is compromised only with very advanced age or with the additive effects of disease.<sup>8</sup>

### Under-reporting of Illness

There is a stereotype that older patients are chronic complainers; "everything is always wrong." In fact, they probably complain no more, on the average, than patients in other age

groups when considering the number of problems they have to report. Williamson found that older people, in fact, complained less often than they should about their health problems.<sup>9</sup> This concept of unreported disease is recognized in Great Britain as the "iceberg of illness" in elderly persons. It may be due to a variety of factors. One possible explanation is that older people themselves confuse disease with normal aging. They assume there is nothing that can be done for a problem that is "normal for their age," and they fail to report symptoms. In the practice of modern medicine, it no longer is acceptable to tell a patient, "it's just old age." Older patients will not even ask about the problem the next time that they see their physician.

### Goals of Care are Different

Whereas, in younger patients, health care providers concentrate primarily on curing a disease, among elderly patients the efforts need to be shifted toward preventing premature death and maximizing functional independence.<sup>10</sup> This means that the approach toward older patients often is different and, in a sense, more complex. In advanced age, "competing risks" of diseases that cause death become a reality.<sup>11</sup> Difficult decisions regarding the prolongation of life versus the quality of life versus the cost of providing care enter into the equation. What constitutes premature death often is difficult to agree on. The most common challenge is maximizing an older patient's ability to function.<sup>12</sup> Adding life to years requires meticulous attention to functional aspects of medical care.

These concepts regarding the care of elderly persons add to the complexity of decision making—a greater complexity than is present for most younger patients. This multiplicity of inter-related elements is best approached by using a team of professionals. The team approach enables expert health care team members of varying disciplines to dissect out the elements of disease more carefully; when orchestrated properly, they put the pieces of the puzzle together in a manner that effectively integrates the social, psychological, and physical aspects of each individual patient.

## Factors That Underlie the Complexities of Illness in Elderly Persons

To understand the nature of illness in elderly persons, a clinician must appreciate dimensions that are beyond physical disease. Figure 6-1 illustrates that aging is just one process in every individual on which chronic illness and acute illness are superimposed. To fully assess an individual's health status, a physician must consider factors in the medical, psychological, and social domains. The overall health status of every individual, to some degree, represents a synthesis of three variables: aging, chronic disease, and acute illness. In a young individual, aging plays a minor role; yet, as one approaches the maximal life span, aging becomes a force of greater and greater importance. Figure 6-2 illustrates how physical, psychological, and social changes tend to blend together with advancing age. Again, younger individuals show more independence among these three domains, whereas older persons commonly develop a strong interdependence. The major influence of these variables again points out that a physician alone cannot meet all the needs of truly geriatric patients, and that an integrated team approach is imperative for true comprehensive care.

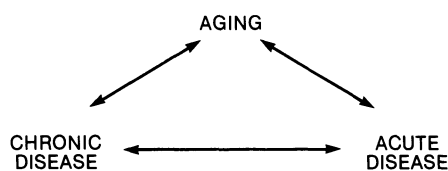


FIGURE 6-1 The aging process influences and is influenced by chronic and acute illness. All three determine a person's state of health.

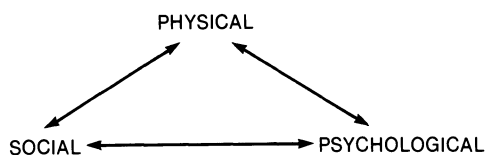


FIGURE 6-2 The triad of social, psychological, and physical domains become more interdependent with advancing age.

## Inter-Relationships of Illnesses

With advancing age, several chronic diseases often coexist in the same individual; when several diseases are present, one disease often alters the clinical expression of another. The following discussions describe how diseases inter-relate in their pathogenesis, clinical expression, and treatment (*see* Table 6-1).

### Masked Expression

Masking occurs when one disease prevents the detection of a second coexistent disease. A good example is rheumatoid arthritis that is coexistent with coronary artery disease and angina pectoris. Since a patient is not able to perform major exercises that would normally lead to increased myocardial oxygen demand and produce anginal pain, symptomatic angina may not occur until very late in the disease course despite the presence of major coronary artery disease. The first symptom might be a myocardial infarction or angina at rest. Similarly, masking may occur in patients who have coexistent chronic obstructive pulmonary disease (COPD) and peripheral arterial vascular disease. Claudication may not be experienced in this clinical situation, because an individual's exercise tolerance is limited by pulmonary disease. When masking occurs, physicians and older patients may have little warning before the development of advanced disease states or complications of these conditions.

TABLE 6-1 Inter-relationships of Disease

Masked expression: Disease X prevents expression of Disease Y

Altered presentation: Disease X presents unusually secondary to Disease Y

Altered therapy: Treatment of Disease X modified secondary to Disease Y

Enhanced pathology: Disease X exacerbates Disease Y

Simulation of diseases: Disease X appears to be exactly like Disease Y

Cascades of diseases: Disease X leads to Disease Y, which leads to Disease Z, and so on.

Cycles of diseases: Disease X leads to Disease Y, which leads to Disease X, and so on.

### Altered Presentation

One disease may present in a specific manner due to the presence of an underlying second disease process. For example, in an individual with minor cardiac conduction disease and thyrotoxicosis, the presentation of thyroid disease may be that of supraventricular tachyarrhythmia.<sup>13</sup> In this circumstance, the cardiac conduction system represents the “weakest link” among organ systems influenced by thyrotoxicosis, and it demonstrates pathologic effects due to its lower threshold to symptomatic expression. Likewise, in an individual with senile dementia of Alzheimer’s Type and a urinary tract infection, a complaint of dysuria may be absent while the deterioration in cognitive functioning may be the clinical clue. Just as the presentation of illness is a function of host factors, such as the unique physiology of elderly persons and the ability to report disease, clinical expression also is a function of which diseases coexist.

### Altered Therapy

Often, physicians are wise to modify the treatment of one condition when it coexists with a second condition. This common clinical dilemma is illustrated by the treatment of hypertension in the face of COPD. Whereas a beta-inhibiting agent such as propranolol would be a good choice for a second-step antihypertensive in the absence of COPD, it is a poor choice when considering the presence of the second disease. Similarly, timoptic (an ophthalmic beta-inhibiting agent) would be a poor choice of treatment for that same patient’s glaucoma.<sup>14</sup> Treatment incompatibilities are not unusual to physicians; but, in elderly patients with greater numbers of coexistent chronic illnesses and an increased use of medications, there is a much greater potential for error.

### Enhancement of Pathology

One disease often exacerbates a second disease. For example, when an individual with pre-existent osteoarthritis of the left hip and knee suffers a sprained right ankle, greater stress will be placed on the arthritic hip and

knee. Even with proper rehabilitative techniques, a physician should not be surprised when this patient returns 1 or 2 weeks later with a chief complaint of increased arthritic pain in the uninjured extremity. Also, consider an individual with a symptomatic coronary artery disease and hypothyroidism. Unless thyroid replacement is initiated in extremely small doses and is advanced very carefully, life-threatening ischemia or dysrhythmias may occur.

### Simulation of Diseases

Diseases commonly simulate other diseases. A differential diagnosis of common clinical constellations brings this point out well. The symptoms of acid-peptic disease often simulate those of coronary artery disease. Intermittent claudication may sound historically exactly like bursitis or osteoarthritis, particularly when the history is unclear. A depression may be easily confused with dementia or coexist with dementia in an older patient.<sup>15</sup> Differential diagnosis, therefore, becomes a major challenge as history, physical examination, and laboratory data are influenced by the presence of other chronic illnesses.

### A Cascade of Problems

In this clinical circumstance, the initial problem leads to a second complication or problem that contributes to the development of a third problem, and so on. This “cascade” develops when the step-wise effects of several interdependent problems progressively lead to the development of other difficulties. Whereas cascades may be simple, they also may be complex and involve multiple organ systems and several complications. A simple example (*see* Figure 6-3) points out how the innocent administration of a sleeping pill can lead to hip fractures or nursing home placement, which are only two of several other ramifications. If the hypnotic agent is one that accumulates in an elderly person due to reduced metabolism (e.g., flurazepam) the pill will lead to progressively severe morning lethargy.<sup>16</sup> This confusion or lethargy may give a false impression of senile dementia. If not evaluated, that patient may find him- or herself being placed in a nursing home for intellectual

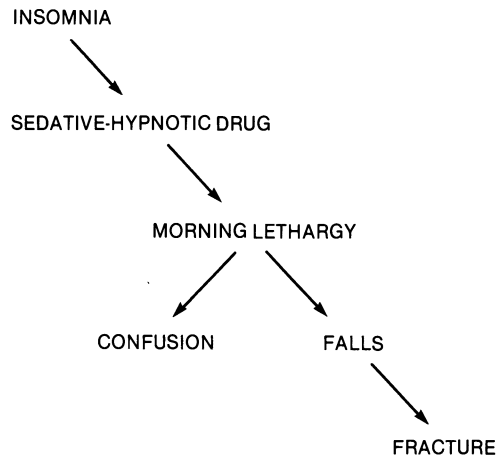


FIGURE 6-3 The cascade of drug-induced illness: hypnotic—lethargy—fall.

dysfunctioning because of this gradual decline. If the sleeping pill had never been prescribed, morning lethargy, confusion, and nursing home placement might not have resulted. Would a physician ever relate nursing home placement to the initiation of a sedative-hypnotic medication? Consider a second example (*see* Figure 6-4), whereby an older person develops seizures for the first time. After an evaluation for etiology, phenytoin is prescribed in a dose that is appropriate as monitored by “normal” steady-state serum levels. However, because of age-related pharmacodynamics, phenytoin produces a mild balance disturbance. Although an individual might not demonstrate a balance impairment on testing, he or she may fall in a situation that requires optimum balance, such as a trip or slip. The fall, which results in a fractured hip, might really be considered the end-product

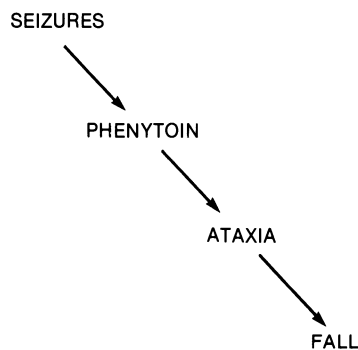


FIGURE 6-4 The cascade of drug-induced illness: phenytoin—ataxia—fall.

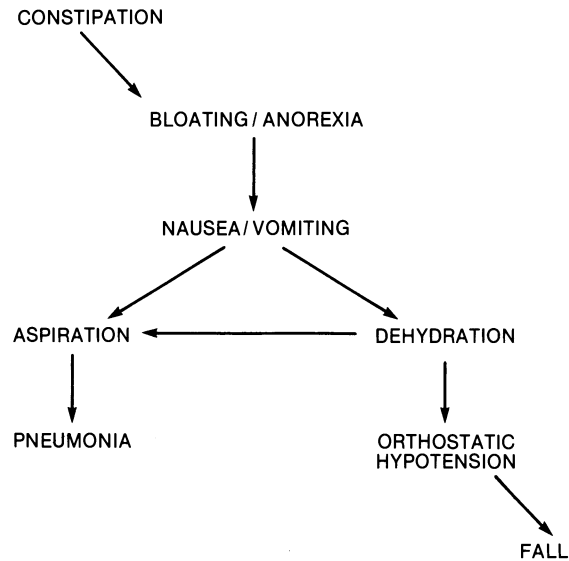


FIGURE 6-5 The cascade of constipation-induced illness.

of a cascade of subtle events that began with the onset of seizures. As a third example (*see* Figure 6-5), consider an older individual who has become constipated through inactivity. This results in bloating, anorexia, and vomiting. Adequate food and fluids are no longer ingested and mild dehydration ensues. This dehydration may lead to significant orthostatic hypotension, which could contribute to a skull-fracturing fall. Through this cascade, “benign” constipation may lead to serious disorders. It is important to be aware of cascade effects because of their preventable nature.

### Cycling of Problems

When several inter-related problems become self-nurturing, a cycle or “vicious circle” may result.<sup>17</sup> Cycles rarely stand alone; they usually inter-relate with cascade effects. Figure 6-6 demonstrates how delirium and dehydration often inter-relate in a cyclic manner. In this case, the initial stages of delirium and dehydration may be entirely subclinical. Similarly, the attempts of aged kidneys to conserve salt and water probably will be only mildly impaired when compared with younger individuals.<sup>18</sup> The relative degree of dehydration, however, may enhance the stress that is placed on these compromised homeostatic mechanisms; a progressive cycle that leads to clinical dehydration and de-

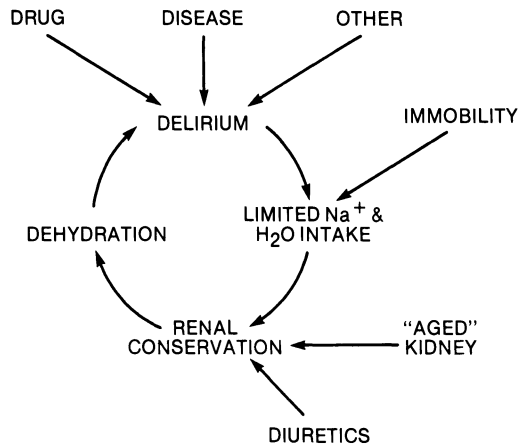


FIGURE 6-6 The delirium-dehydration cycle.

lirium may result. The development of these conditions would be even more likely if other disease processes and/or treatment of chronic illnesses coexist. For example, the continued use of diuretic therapy for hypertension would intensify the loss of salt and water. Likewise, the presence of immobility that is caused by arthritis or stroke also would enhance the limitation of fluids.

In a second example (*see* Figure 6-7), an older person who is suffering from a febrile illness may enter a self-perpetuating cycle. The ensuing dehydration produces delirium and a drying of secretions. These conditions promote

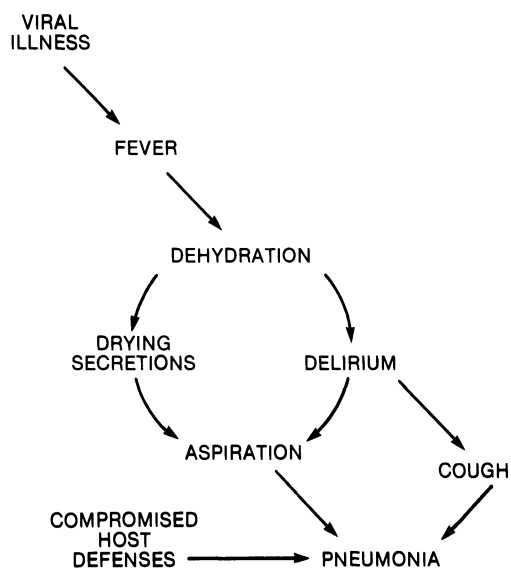


FIGURE 6-7 The dehydration-aspiration pneumonia cycle hypothesis.

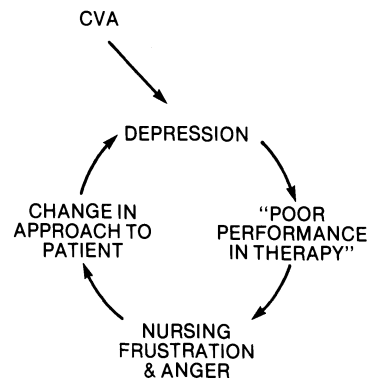


FIGURE 6-8 The depression-staff reaction cycle.

increased microaspiration, decreased cough reflex and cough force, and immobility. All of these factors contribute to the development of clinical pneumonia.<sup>19</sup> The initiating cycle in this example included dehydration and delirium, which again points out the importance of preventing dehydration in acute illnesses.

As a third example, consider an older patient who suffers a stroke and becomes depressed (*see* Figure 6-8). One manifestation of the illness—poor performance in self-care activities on a hospital ward—is noted by the professional staff and efforts to quicken self-care activities are undertaken. Perhaps through failure, the nursing staff becomes frustrated and angry; this causes counterproductive patient frustration, anger, and further depression. This cycle illustrates how members of the health care team play key roles in clinical care. One bad word about a patient in a clinical nursing conference may be passed on from shift to shift and even amplified if the health care team is not interactive, introspective, and questioning. Members of the health care team play roles in these cycles. In some cases, the role is productive and helpful; in other cases, however, it is detrimental and actually contributes to the deterioration of patient care.

Despite the presence of so many coexistent diseases in geriatric patients, most new difficulties have their origins in past problems, in presently active problems, or in the treatment thereof. Clinicians always need to look carefully at logical extensions of known problems, and then consider newly developed diseases and their impact on coexistent processes. In planning diagnostic evaluations and other treat-

ment approaches, one must always consider the preventive measures that may never allow disastrous cascades or cycles to develop.

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## CHAPTER 7

# Guidelines for Selected Geriatric Problems

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Among the most distinctive and important parts of the body of knowledge that makes up geriatrics are the overlapping areas of “atypical presentations of common disease” and the functional disability differential diagnosis. Many of the most common presenting complaints of elderly patients are protean problems, such as falling, urinary incontinence or dizziness. These are not a “diagnosis”; they are, instead, problems that require evaluation. The chances are that they will be due to many contributing factors; perhaps, some that are physiologic and others that are social or psychological. Likewise, more traditional, common medical problems such as anemia can be multifactorial and atypical in presentation in elderly persons. It is misleading to look for the answer to a problem, such as syncope only in the chapter on cardi-

ology; likewise, weight loss may be caused by problems that are more likely to be helped by a social worker than an oncologist.

Thus, in this chapter, we offer diagrammatic representations of the approach to many of these common geriatric problems, which include weakness, dizziness, syncope, anemia, falling, urinary incontinence, constipation, impotence, weight loss, pressure sores, and mental confusion. This is not intended to be an exhaustive treatment of each subject. The reader will find more detailed discussions of every area under the appropriate diagnostic entity. Instead, these guidelines are intended to help with assimilating all of the multidisciplinary factors that can result in a common problem and otherwise may be quite difficult to unravel.



## Pressure Sores (Decubitus Ulcers)

Over 70% occur in patients over 70 years of age.

Occur in 5–10% of hospitalized patients, and 5–30% of patients in nursing homes.

Candidates for decubiti are bedridden and wheelchair patients.

Elderly persons have thin skin, a loss of elasticity, and subcutaneous fat.

Malnourishment, dementia, incontinence (soiling), and immobility are high-risk factors.

Pressure over bony prominences such as the sacrum, ischial tuberosities, heels, scapula, greater trochanter, lateral malleoli and occiput, all produce ischemia. A normal capillary pressure of 32 mm Hg is exceeded under the buttocks of a person sitting in a wheelchair. A pressure greater than 44 grams/cm<sup>2</sup> applied for 2 hours

can lead to an ischemia, edema, and cell death.

Shearing forces on the skin over the sacral area produced by a partial sitting position in a cranked-up bed predisposes one to pressure sores.

“Sheet burns” from transferring a neurologically impaired person may start a pressure sore.

Prevention is the most effective approach.

Repositioning patients, or padding, is the most effective measure of prevention.

Use of eggcrate or ripple mattresses, foam rubber pads, sheepskin lining, and water mattresses ease pressure.

Polyurethane boots protect the heel.

A reddening of the skin over a bony prominence is a signal of an impending pressure sore. Reposition the patient.

Perianal care, especially for incontinent patients.

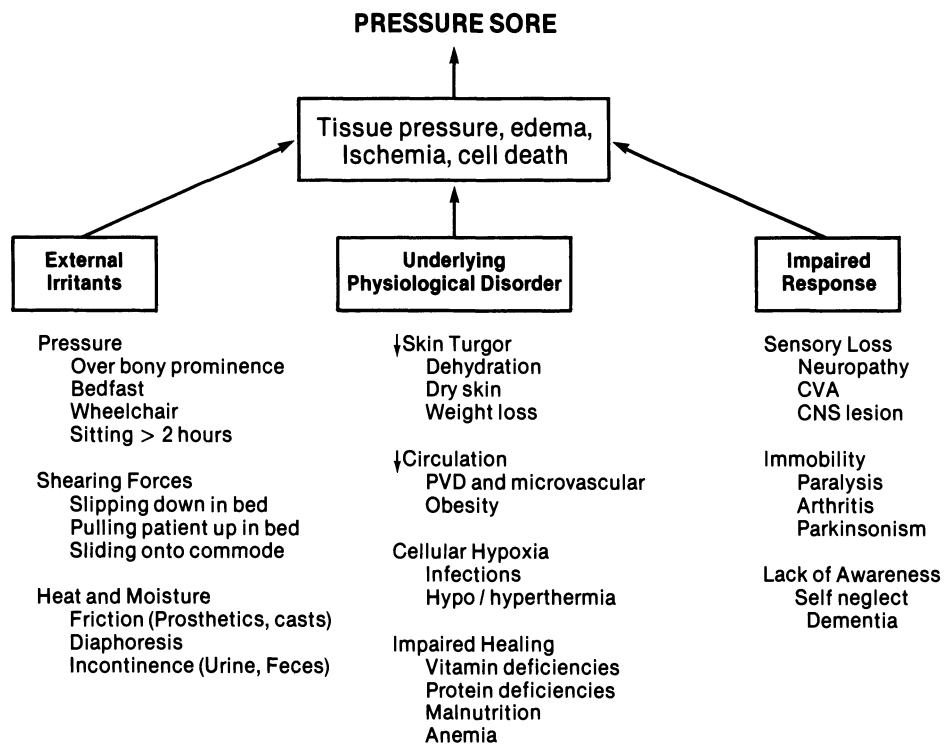


FIGURE 7-1

## Weight Loss

Weight is one of the vital signs that always should be measured in as reproducible a fashion as possible.

Weight loss may be the only clinical evidence of hyperthyroidism in an old person.

Anorexia, rather than frank nausea, may ensue in drug toxicity or as a side effect without toxic levels.

Nutritional status and food intake are strikingly multifactorial. In the investigation of unexplained weight loss, consider all possibilities even if one already has been found. For example, a person may not eat well because of glossitis due to pellagra, but the vitamin deficiency itself may have been caused by depression, confusion, poverty, self-medication, or an underlying malignancy.

In a depressed person who is living alone, al-

ways consider the possibility of late-onset alcoholism.

The most common iatrogenic causes of weight loss in elderly persons are drug effects and unpalatable diets (i.e., low sodium).

Consider an occult malignancy when a patient presents with unexplained weight loss, but an extensive radiologic work-up is not always necessary. A careful history, physical examination, and a few carefully chosen laboratory studies usually will unearth the cause of the weight loss—malignant or otherwise. **Caveat**—depression may be a prodrome of an underlying malignancy.

In severe chronic heart failure, stable weight in the presence of edema may suggest a loss of muscle mass. This weight loss usually is related to organ hypoperfusion. The patient is likely to be quite weak and sick. **Caveat**—A similar picture may ensue with the overvigorous use of digitalis and diuretics.

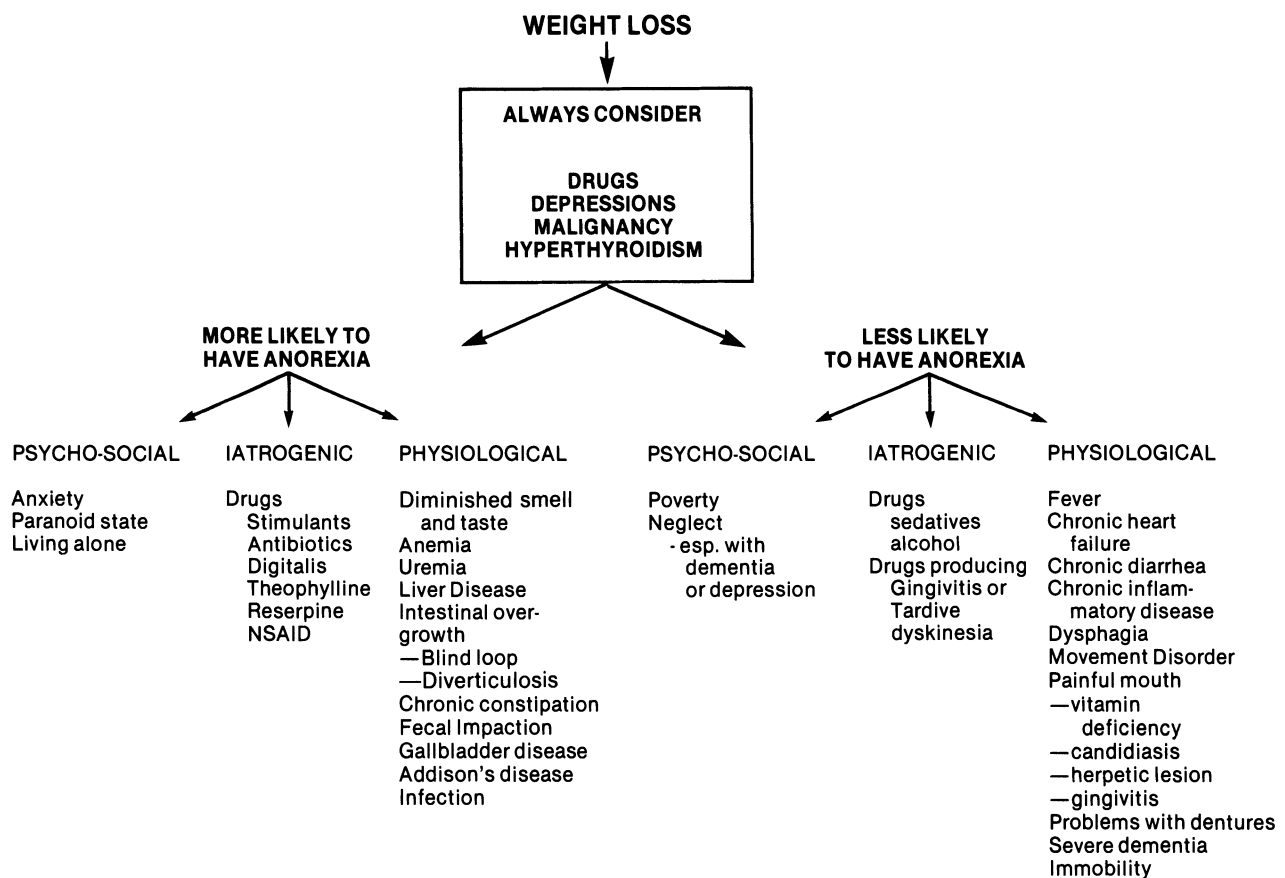


FIGURE 7-2

## Confusion

To differentiate delirium from dementia, remember:

	Delirium	Dementia
Onset	Usually acute	Tends to be gradual
Consciousness	Cloudy—incapable of focusing or responding to environment	Global cognitive impairment in presence of clear consciousness
Course	Fluctuating, typically reversible	Prolonged and progressively downhill, although sometimes reversible
Duration	Usually brief (less than 4 weeks)	Indefinite and terminal
Orientation	Disoriented	Oriented until late in course
Psychomotor changes	Prominent with perceptual and communicative problems	Usually absent until later stage
Somatic complaints	Not prominent	Frequently very prominent
Etiology	Often multifactorial	Usually able to ascribe to one major etiology, although other problems often overlay

### Caveats

History, physical, and laboratory examination generally will distinguish delirium from dementia.

In all cases of confusion, it is important to discontinue all non-essential medications.

Underlying reversible causes should be initially managed.

Other causes of confusion can be superimposed on an underlying Alzheimer's or multi-infarct dementia, which considerably worsens the functional status.

Maximize a patient's orientation and avoid restraints.

# CONFUSION

## DELIRIUM

## DEMENTIA

### Toxins and Drugs

- Benzodiazepines
- Barbiturates
- Narcotics
- Digoxin
- Analgesic (including NSAIDs)
- Steroids
- Antidepressants
- Bromides
- Antihypertensives (including aldomet and B-blockers)
- Phenytoin
- \*Alcoholism-acute/chronic
- \*Heavy metals (including arsenic and bromide)

### Central Nervous System

- \*Subdural Hematoma
- \*Stroke
- \*Seizure
- \*Hypertensive encephalopathy
- \*CNS Infection - abscess, meningitis
- \*Chronic Degenerative Diseases

### Cardiopulmonary Diseases

- Congestive Heart Failure
- Myocardial Infarction
- Chronic or Acute Lung Disease ( $\uparrow pCO_2$   $\downarrow pO_2$ )
- Arrhythmia

### General or Systemic Disease

- Malnutrition and Deficiency States (B<sub>1</sub>, B<sub>12</sub>, Pellegra)
- Anemia
- Fecal Impaction
- Urinary Retention
- Remote Effects of Tumors
- Infections

### Fluid and Electrolytes

- Sodium Excess
- Dehydration, Water Intoxication
- Acid Base Disturbance
- Hypercalcemia

### Metabolic-Endocrine

- Hypothyroidism
- \*Hyperthyroidism
- \*Hyper- and Hypoglycemia
- Hyperosmolar State
- Azotemia
- Hepatic Encephalopathy
- Addisons and Cushings Diseases

### Physical and Environmental

- Sleep Disturbance
- Immobilization
- Relocation / Adjustment Reactions
- Affective Disorders
- Hypo- and Hyperthermia
- Trauma
- Severe Pain
- Surgery, Anesthesia

### Degenerative

- Alzheimers
- Picks
- Parkinsons
- Huntingtons
- Halverdorn Spaltz
- Shy Drager
- Spinocerebellar Degeneration
- Progressive Dementia Complex of Guam

### Vascular

- Multi Infarct Dementia
- Vasculidites (SLE, Temporal Arteritis)
- Lacunar Strokes
- Binswangers

### Infectious

- Jacob Cruetzfeld
- Kuru
- Subacute Sclerosing Panencephalitis
- Sequelae of Meningitis (bacterial, fungal and viral)
- Tertiary Syphillis

### Toxins

- Bromides
- Arsenic
- Chronic Alcoholism

### Deficiency States

- B<sub>12</sub> Deficiency
- Niacin Deficiency

### Trauma or Anatomic Disruption

- Chronic Subdural Hematoma
- Normal Pressure Hydrocephalus
- Intracranial Mass

### Other

- Hypothyroidism
- Post-hypoglycemic states
- Post Anoxic Damage
- Chronic Seizure Disorder
- Sensory Deprivation (blindness, deafness)

\*Conditions can result in or lead to dementia.

FIGURE 7-3

## Anemia

Anemia itself is not a diagnosis, but rather a sign of a disease.

Dehydration may decrease the plasma volume and produce a rise in hemoglobin or hematocrit values, thereby obscuring an anemia. Congestive heart failure has the opposite effect.

An examination of the blood smear by a physician is important to correlate abnormal findings with the clinical manifestations.

A normal reticulocyte index of 2–3 assesses bone marrow functioning. Values less than 2 occur with a decreased marrow production, and values greater than 3 indicate that the predominant mechanism is either hemolysis or acute bleeding.

Anemia results from a decreased formation of red cells, excessive loss (bleeding) or increased destruction (hemolysis), or sometimes a combination of these.

An MCV >100 fl suggests alcoholism, liver

disease, hypothyroidism, and vitamin B-12 or folic acid deficiency. But an MCV >115 fl almost always is due to a folic acid or vitamin B-12 deficiency.

A mild hemolytic disease typically will cause an increase in bone marrow activity, thereby preventing an anemia. A reticulocytosis and sometimes, an increased serum bilirubin are helpful clues.

Remember that azotemia predominantly causes a bone marrow production defect that often results in anemia in elderly men. Simply obtaining a BUN or serum creatinine level may obviate an extensive study for another cause of anemia.

Inquire about dietary intake, alcohol consumption, medication, and blood loss.

Always search for treatable anemias.

Always look for a bleeding lesion in an elderly patient with an iron-deficiency anemia (IDA).

Be skeptical about a diagnosis of anemia of senescence in an elderly person.

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\* MCV = mean corpuscular volume.

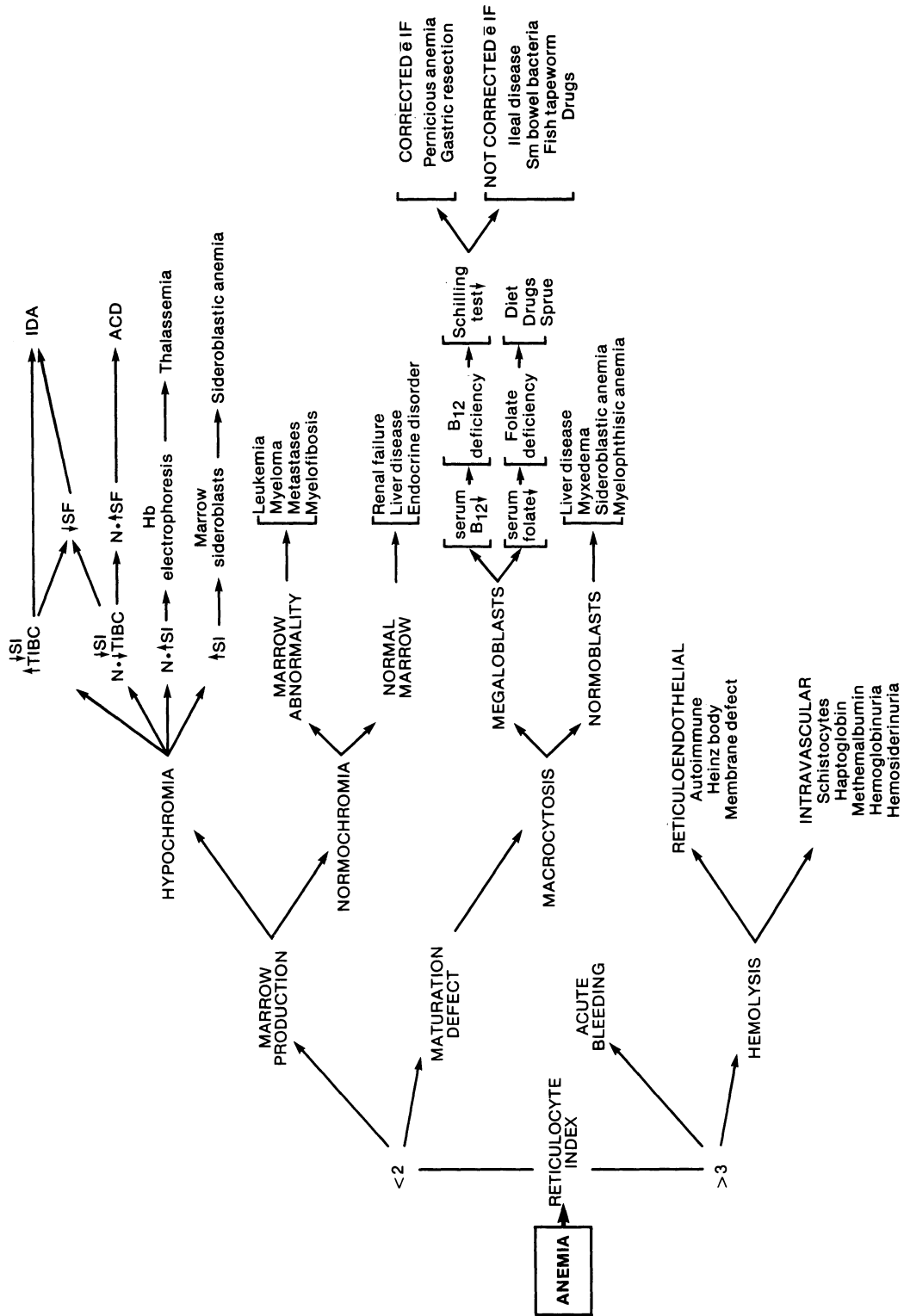


FIGURE 7-4 SI = serum iron; TIBC = serum ferritin; IDA = iron deficiency anemia; ACD = anemia of chronic disease; Hb = hemoglobin; IF = intrinsic factor.

## Syncope

A sudden temporary loss of consciousness and loss of postural tone.

An elderly patient may have a combination of factors that cause syncope (e.g., a patient with compromised cerebral circulation develops a rapid cardiac arrhythmia which together causes syncope).

A good history and physical examination frequently will uncover the cause in older people.

The most common cardiovascular abnormalities that cause syncope in elderly persons are cardiac arrhythmias, postural hypotension, and carotid hypersensitivity.

Postural hypotension:

A fall of 25 mm Hg in systolic pressure sometimes is observed in older people who are asymptomatic.

A critical diagnostic feature is the presence of symptoms with a drop in blood pressure.

Remember:

An older patient confined to bed may become hypotensive on standing.

Anticipate symptoms in older patients whose systolic blood pressure is around 100 mm Hg, and, especially, if they are to receive drugs such as tricyclic antidepressants or vasodilators or become volume depleted with diuretics.

Syncope on exertion in a patient with a systolic aortic murmur is most likely due to aortic stenosis.

Ambulatory 24-hour ECG monitoring detects significant numbers of arrhythmias, even in patients who have had no arrhythmia discovered with a standard ECG.

Carotid sinus hypersensitivity

About one third of all older men with arteriosclerotic and hypertensive heart disease have hyperactive carotid sinus.

It most often is asymptomatic.

In patients with syncope and falls, look for other causes even in the presence of a hyperactive carotid sinus.

Typically, syncope occurs when hyperextending the neck when shaving or looking upward, turning the head when backing a motor vehicle, or pressure from a collar.

Bradycardia is the most frequent cause of symptoms; less frequently, hypotension, or a combination of the two occurs.

An older patient may develop symptoms from a carotid sinus hypersensitivity after receiving digitalis preparations.

Carotid massage, in rare instances, causes transient or permanent neurologic deficits; therefore, reserve this maneuver for patients in whom other diagnostic measures fail.

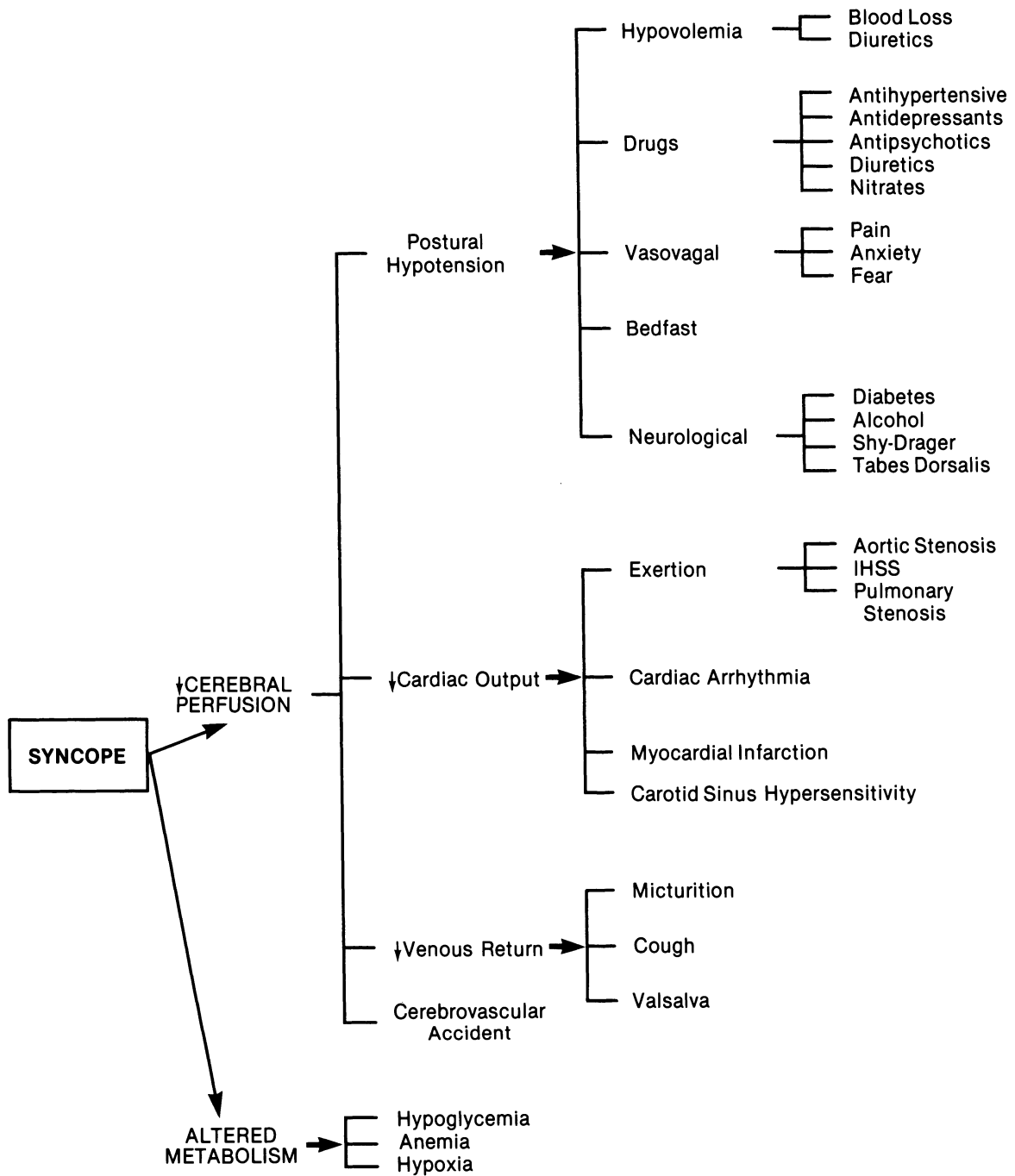


FIGURE 7-5



## Dizziness

Dizziness is a general, non-specific complaint that describes a disturbed sense of orientation to space. A patient may use the term dizziness to indicate vertigo or a feeling of light-headedness, faintness, giddiness, or unsteadiness.

Vertigo is an abnormal perception of motion or an illusion of altered posture or motion. Some physicians consider "true vertigo" to be a sensation of rotary movement, whirling, or turning, which signifies a vestibular disturbance.

Normally, the vestibular system interacts with visual and proprioceptive signals to provide information about the position of the head and body in space. Damage to any of these systems or any alteration that produces an imbalance of sensory information will lead to a complaint of dizziness. The combination of a visual impairment due to cataracts, diminished position sense due to a peripheral neuropathy, and vestibular impairment due to ototoxic drugs all can convert an active older person to a bedridden patient.

### Steps in Evaluation

Establish whether a patient's complaint is vertigo, another form of imbalance, or other non-vertiginous disorders.

If the presence of vertigo has predictive value, its absence is less clearly predictive.

Eyes—altered visual perception may cause dizziness. Visual clues may be lost when making turns while walking, descending stairs, following cataract surgery, or changing to bifocals.

### Associated hearing fluctuation:

Vertigo with Hearing Changes	Vertigo without Hearing Changes
Meniere's disease	Labyrinthitis
Head trauma	Vestibular neuronitis
Middle ear or mastoid infection	Benign positional labyrinthitis
Perilymphatic fistula	Cervical vertigo
	Motion sickness
	Vascular disease

Ototoxic drugs may cause dizziness with or without a hearing loss.

Is vertigo peripheral or central?—Peripheral characteristically is severe, intermittent, whirling, associated with nausea and vomiting, aggravated by position, present less than 3 weeks, or accompanied by nystagmus (usually horizontal or rotary).

Orthostatic blood pressures.

Cardiovascular examination.

Neurologic examination.

Special maneuvers: hyperventilation, valsalva, cautious carotid stimulation.

Initial laboratory tests:

CBC, electrolytes, fasting blood sugar, BUN, thyroid tests, FTA-ABS.\*

Special tests where indicated:

Audiometric tests, electronystagmography, x-ray film study of the internal auditory meatus, computed tomography (CT scan), or spinal fluid.

Older people should not be exposed to risk of a cerebral angiogram if dizziness is the only complaint.

\* CBC = complete blood count, BUN = blood urea nitrogen, FTA-ABS = fluorescent treponemal antibody absorption.

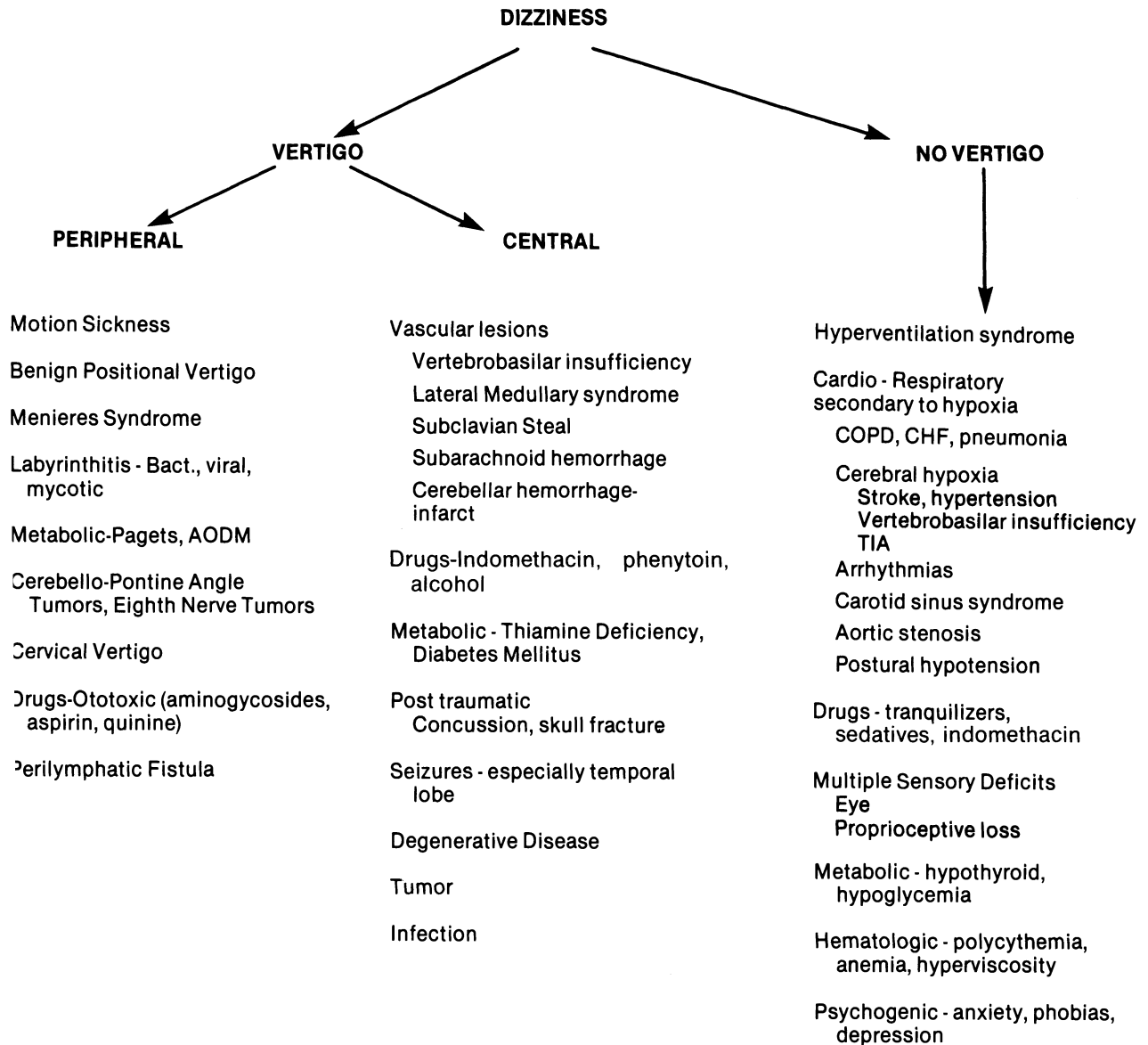


FIGURE 7-6

## Urinary Incontinence

Incontinence is a symptom, not a disease.

It affects nearly 3 million elderly persons in the United States—prevalence is higher in nursing homes (25–35%).

Types of incontinence:

**Uninhibited (urge) incontinence:** Involuntary urination with an urgent desire to urinate that cannot be suppressed. The removal of cerebral inhibition of urination in dementia is common. The patient gets an urge to urinate, but is unable to get to the bathroom quickly. The combination of uninhibited bladder contractions and an impaired mobility (stroke, arthritis) frequently are responsible for incontinence.

Cystitis causes bladder irritability (detrusor muscle irritation), which triggers involuntary contractions.

Uninhibited bladder (detrusor hyper-reflexia) is the most common bladder abnormality found in elderly persons.

**Stress incontinence:** Leakage of small amounts of urine with increase of intra-abdominal pressure (i.e., coughing, sneezing, laughing). Found primarily in women.

**Overflow incontinence:** Leakage of small amounts of urine in a patient with urinary retention due to a prostatic obstruction or a urethral stricture. A large hypotonic bladder results when the pressure in a full bladder exceeds that exerted by the obstruction, and small amounts of urine may be lost.

Causes are multiple—frequently, there is more than one cause for incontinence. For example:

A demented elderly person with an uninhibited bladder may develop incontinence when:

Receiving a sedative that dulls the perception of bladder cues.

Placed in an unfamiliar environment and cannot find the bathroom quickly enough.

Takes excessive fluids before bedtime or a diuretic in the evening.

An older male with frequency and nocturia due to a bladder outlet obstruction from prostatic hypertrophy may develop incontinence following the administration of anticholinergic drugs, thereby causing overflow incontinence in an already distended bladder.

Detrusor instability often is present in patients who have stress incontinence.

## Management

**Clinical clues to explore:** Drugs, genitourinary symptoms, previous surgery, urinary tract infection, locomotor dysfunction, amount of urine leakage, time of day, perception of bladder fullness, ability to voluntarily postpone the act of urination.

Before seeking urologic consultation, correct or modify precipitating factors, treat any systemic infection, examine for a distended bladder, remove fecal impaction, perform a complete neurologic examination, treat a urinary tract infection, and measure residual urine.

If incontinent at night, discontinue the sedative. These drugs often dull perception of bladder cues.

Accessibility of toilet or urinal.

Incontinence chart to record incidence and pattern of incontinence and to evaluate the effects of bladder training and medication. In patients with neurologic causes of incontinence, institute bladder training at regular intervals to avoid episodes of incontinence.

Anticholinergic drugs are helpful for urge incontinence by reducing uninhibited contractions and increasing the bladder capacity. In addition to probanthine, oxybutynin, and other atropine-like drugs, imipramine (25–50 mg TID) has been successful. Imipramine also has an alpha-adrenergic effect that stimulates urethral sphincter resistance.

Urecholine for a flaccid bladder if no outlet obstruction exists.

Do not use catheters simply for convenience of the medical staff or family.

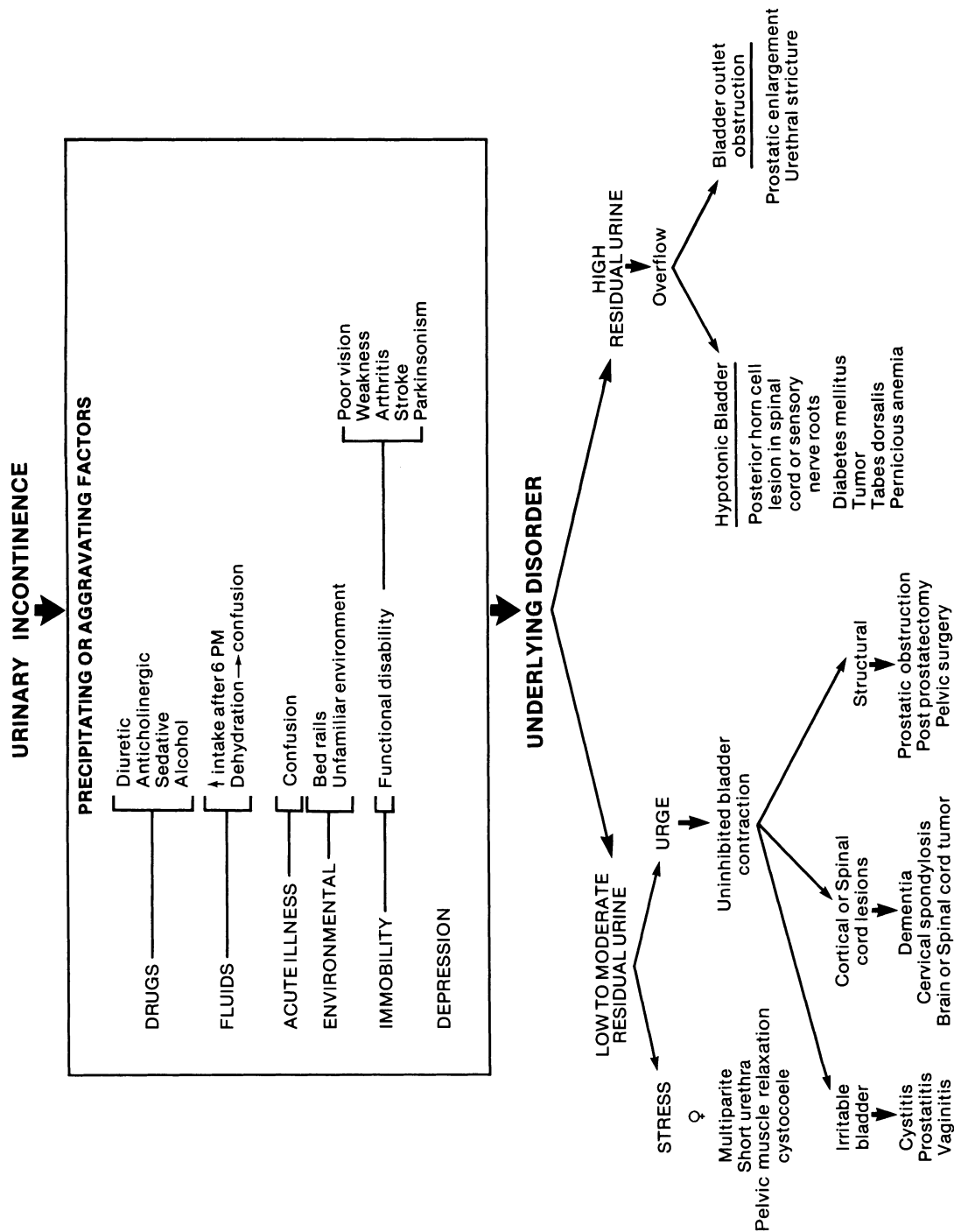


FIGURE 7-7

## Fecal Incontinence

Less frequent than urinary incontinence.

It often is the deciding factor for nursing home placement.

May occur in about 20% of all residents in nursing homes.

Major causes:

Fecal impaction:

Diagnosis—Rectal examination and x-ray of abdomen.

Disease of colon, rectum, or anal sphincter.

Diarrheal disorder.

Neurologic disorder.

Always look for correctible cause:

Fecal impaction is a common, easy to diagnose, and treatable condition. Feces above impaction become liquefied by bacterial action and fluid feces bypass the obstruction (overflow fecal incontinence). To prevent fecal impaction, treat constipation.

Immobility → Constipation →  
Impaction → Incontinence

Remember—Evacuate barium from bowel promptly after barium gastrointestinal study.

Discontinue all laxatives, antibiotics, and antacids that cause diarrhea.

Remove all drugs that decrease awareness of need for bowel movement.

Check diet for milk and fruit, stop alcohol intake.

Do not label an old person as senile or demented if feces are found in bed—check for the cause.

With dementia, bowel cues are ignored or the patient is unable to respond quickly enough. Formed stool are passed often at predictable times, so that a patient can be placed on a toilet before an anticipated bowel movement.

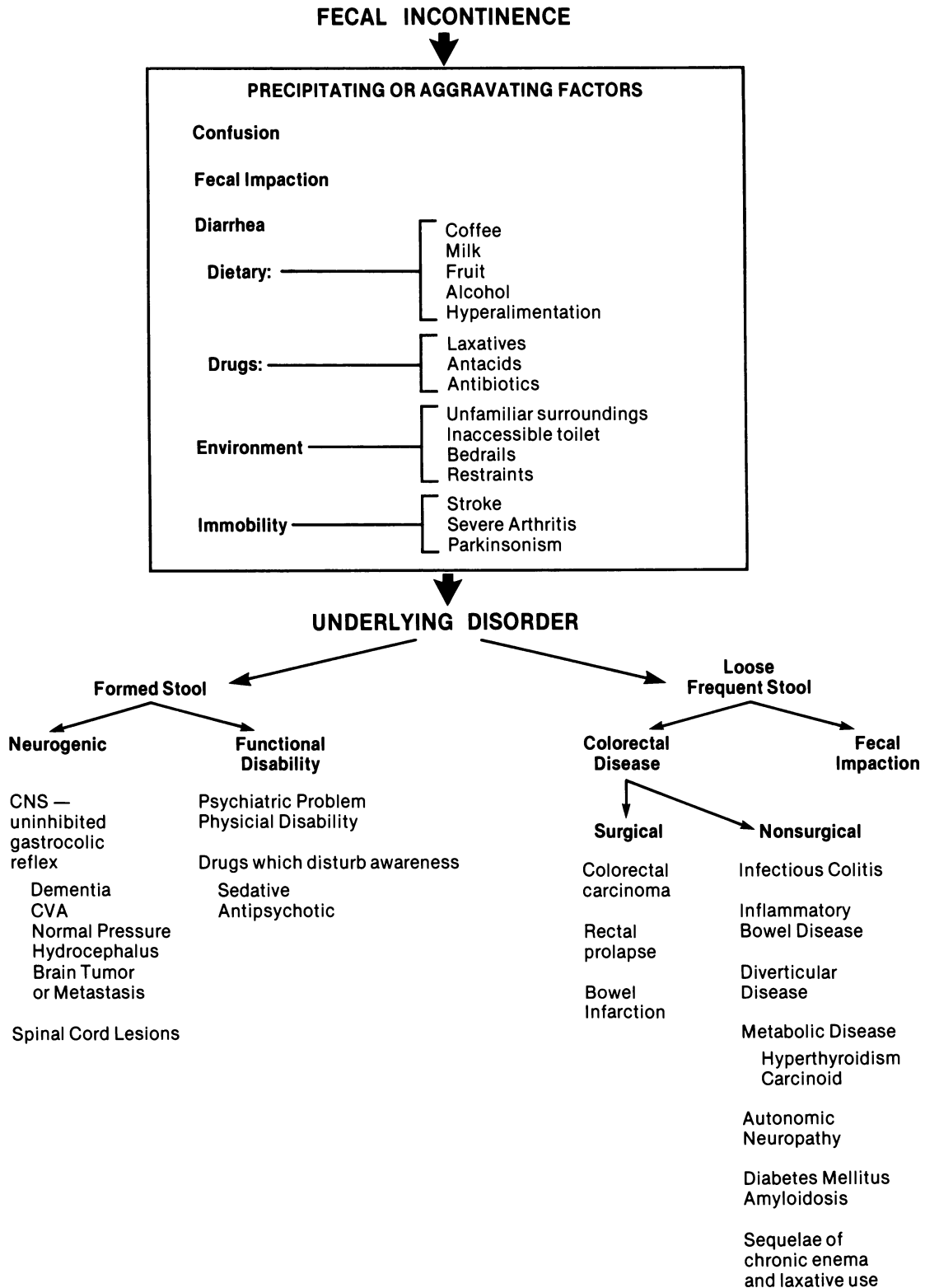


FIGURE 7-8

## Constipation

A frequent anxiety-provoking complaint of old age.

Older people have been conditioned to believe that a daily bowel movement is consistent with good health.

Many older people take laxatives prophylactically.

Habitual laxative users need increasing amounts to obtain expected results, which often eventually produces a thin flabby colon from a loss of intrinsic innervation and atrophy of smooth muscle.

Old people are more sedentary, which predisposes them to constipation. In physically active people, an increase in intraluminal colonic pressure occurs after eating.

Drinking water rapidly distends the stomach and, in turn, stimulates intestinal activity. Stool consistency is related to the state of hydration. Therefore, encouraging fluid intake helps to prevent or overcome constipation.

Poor dietary habits with an insufficient intake of bulk-forming foods leads to constipation.

Adequate fiber increases stool bulk, stool water, and the transit time of fecal material.

Bran is a good source of dietary fiber, and its judicious use often circumvents the need for laxatives or enemas.

The effect of drugs on producing constipation should especially be considered in older people.

Even a mild procedure such as a barium enema may have devastating consequences in an old person.

Constipation causes abdominal fullness (bloating), loss of appetite, irritability, a sense of depression, nausea, or vomiting (a consequence of which may be dehydration or aspiration pneumonia). Weight loss and behavioral changes may suggest systemic disease.

Fecal impaction is a serious problem in elderly persons. A rectal examination discovers most impactions, although a flat x-ray film of the abdomen may be necessary to diagnose an impaction that is higher in the colon.

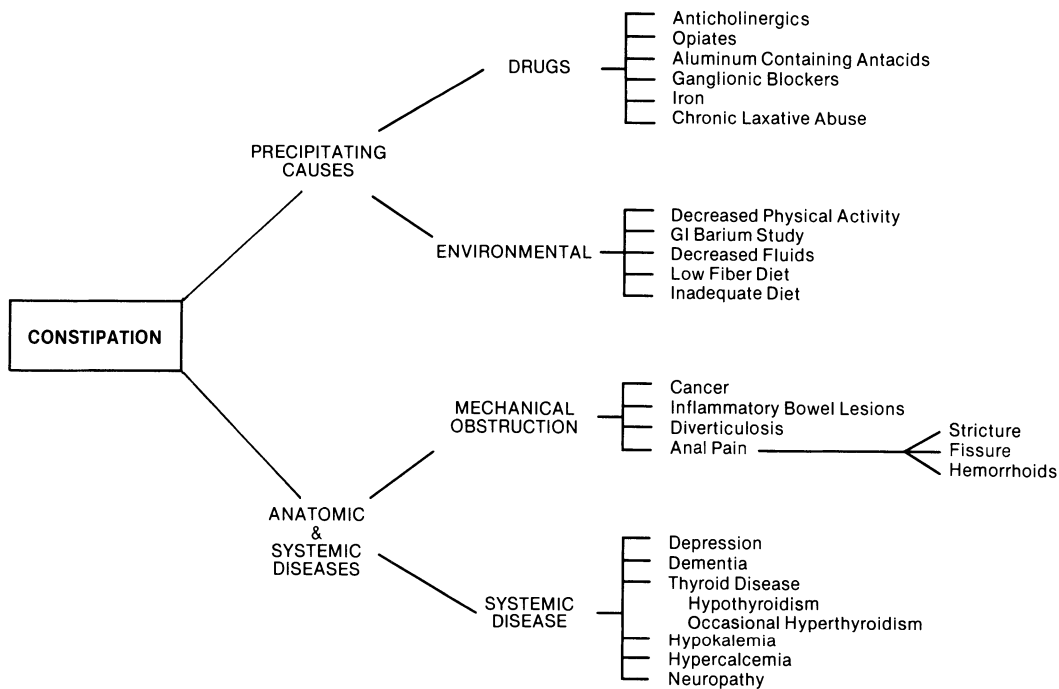


FIGURE 7-9

## Falls

Too frequently, the consequences of falls are treated, but attention is not given to establishing the cause.

Falls are common in frail elderly persons; the risk of falling increases with age. There is a higher prevalence in elderly women.

Most falls are accidental and consequences are trivial. But, with the high incidence of falls (18% being severe), it points to a problem of great magnitude.

About 50% of the deaths that are due to injury in elderly persons are caused by falls.

The incidence is high in nursing homes; patients are older, have greater disability, take more medicines, and use assistive devices.

Falls often result from a combination of factors such as the aging process, (decreased proprioceptive responses with a lessened ability to integrate these responses in the central nervous system), diseases (especially impaired vision, cardiovascular, and neurologic disorders), drugs, alcohol, and environmental hazards. (Always look for associated causative factors, even if one cause is prominent).

Those persons who live alone are at greatest risk from the consequences of falling.

Thirteen percent have been drinking alcoholic beverages before falling.

A cardiac arrhythmia that causes dizziness or syncope is common. The electrocardiogram (ECG) may be normal, but prolonged, ambulatory cardiographic monitoring usually documents the arrhythmia.

Falls often occur at night when one is going from a bed to the bathroom. A night-light and removal of obstacles prevent accidents.

Repeated falls lead to a loss of confidence, withdrawal from activity, confinement to home or a room, and despondency.

Of all falls, 40% in women and 27% in men over 75 years of age lead to fractures.

Remember—A subdural hematoma can be easily missed in an elderly individual.

Hypothermia may occur after a fall in an elderly person who is living alone.

If an elderly patient has a significant drop in blood pressure (>20 mm Hg) on standing up, even if asymptomatic, avoid administering drugs that will cause a further reduction.

Management involves elimination of the cause (if possible), rehabilitative measures such as strengthening muscles, improving balance and gait, removal of environmental hazards (inadequate lighting, scatter rugs, and so on), and establishing communication warning systems for those who live alone.

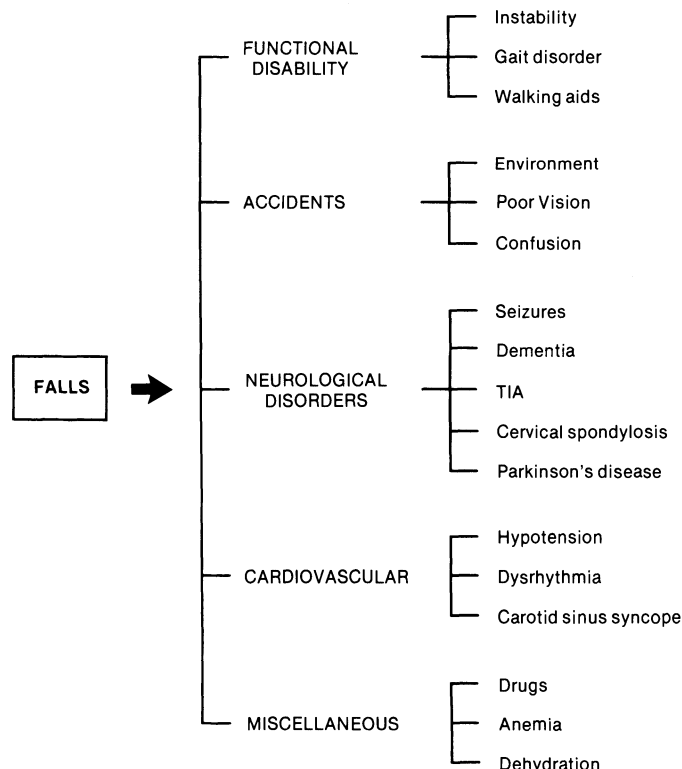


FIGURE 7-10



## Impotence

An inability to attain or maintain a penile erection until completion of the sexual act.

**Organic:** Insidious onset, libido preserved, patient on multiple medications, and no erections in AM or nocturnal.

**Psychogenic:** Acute onset, well remembered, selective impairment, concomitant loss of libido, and marital discord.

The history usually will direct a clinician to the cause.

In older healthy men, the capacity for an erection is normal, but the response time is slower.

There usually is no single etiology in older individuals for impotence.

Older people are more susceptible to medications, especially with respect to sexual functions.

Although psychogenic causes of impotence predominate, the older the male, the more likely he is to have an organic etiology.

Chronicity does not rule out a treatable cause for impotence.

Remember the requirements for a normal erection:

Normal penile anatomy and blood flow.

Normal genital sensory input.

Intact parasympathetic (S2-S4) and sympathetic input (T12-L4).

Good cerebral and limbic system function.

A well-regulated endocrine system.

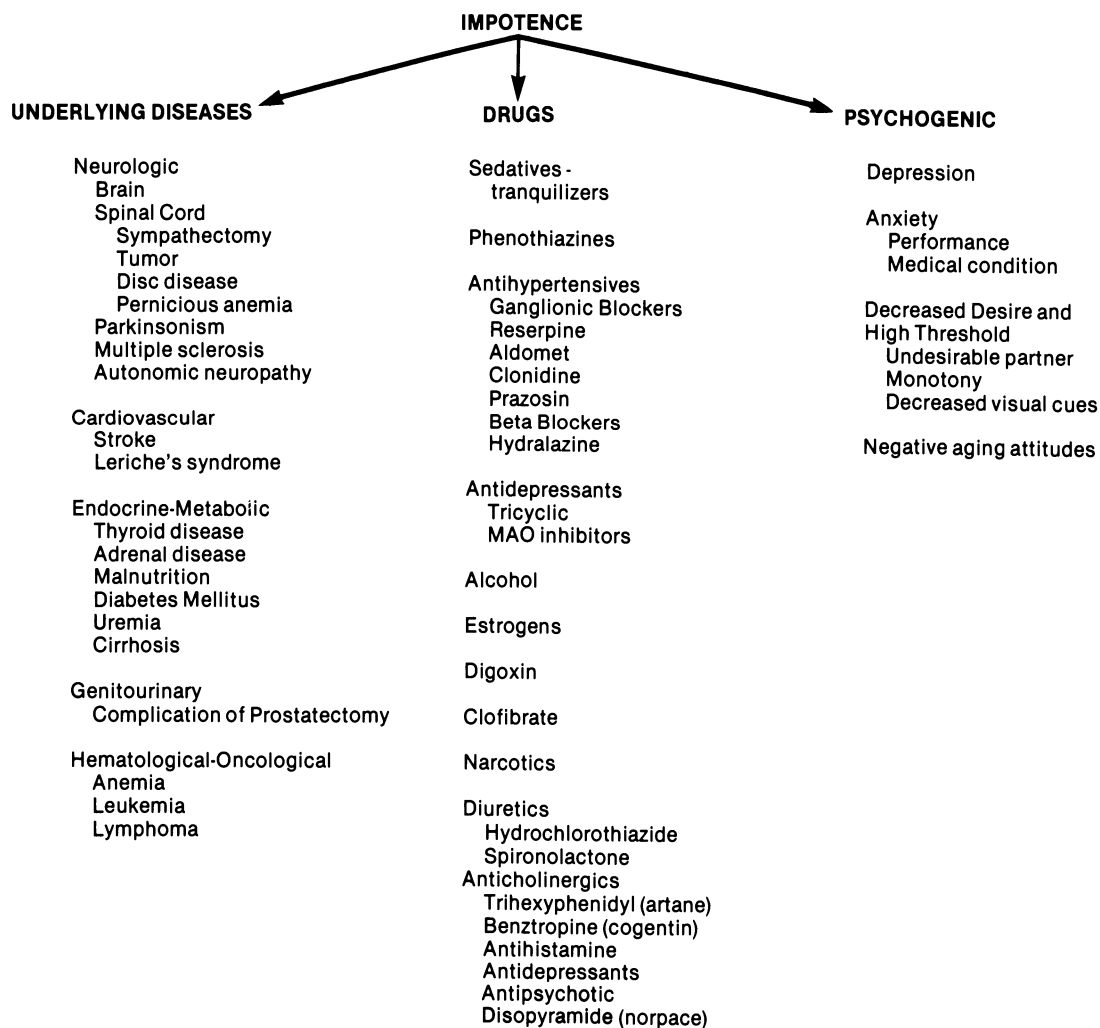


FIGURE 7-11

## CHAPTER 8

# Clinical Evaluation of the Patient

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Health professionals who care for elderly persons are in a unique position to contribute importantly to a major segment of society. Clinician involvement often occurs at critical life junctures, such as the time of nursing home placement, loss of independence due to a stroke, loss of family support due to the death of a spouse, or during the throes of a terminal illness. Maintaining a patient's vigor and independence is an important function of a clinician in relationship to the majority of elderly persons who are active members of their communities. In either setting, information gathering and problem management require considerable skill, time, and effort to achieve an optimal outcome for the patient.

Important differences between old and young persons need to be appreciated by clinicians for effective information gathering. This chapter will discuss the general aspects of an interview and physical examination that are peculiar to the older population, while more detailed descriptions of specialized areas will be found in other chapters.

An attitude contaminated with untrue biases interferes with an appropriate assessment of elderly persons. Therapeutic nihilism (a feeling that any intervention is likely to be unsuccessful) predictably leads to a superficial evaluation. Similarly, in situations that are dominated by psychiatric or psychosocial problems, a thorough medical examination should not be neglected. Thoroughness is the guiding principle that produces useful data that will contribute to appropriate diagnostic and therapeutic decision making. However, a clinician should pace the

evaluation according to the urgency of the clinical presentation and a patient's stamina. A typical thorough internist's history taking and physical examination may be too tiring to complete in a single session. If the concern is not emergent, it is far better and more likely to yield accurate information by breaking the initial complete assessment up over several days or several clinic visits.

### Special Considerations

Physiological, psychological, economic, social, and environmental factors influence the health of older people and must be included in the assessment of health status. The following are major areas to consider.

### Evaluation of Common Disorders

Volume II, Chapter 6 described the prevalence of interacting chronic disorders in elderly persons and the regrettable phenomenon of underreporting and underinvestigation. An example of a condition that is more commonly found in the older population, but is frequently underinvestigated and untreated, is falling. A history of falling may not be volunteered by an older person. The interviewer must specifically inquire about falls. A patient is either embarrassed or assumes that it is a "normal" part of aging. The incidence of falls is higher in those persons over 75 years of age; a time of increased risk of intellectual, neurologic, sensory, and physical impairments. A chronologic history may be diffi-

cult to obtain, but a physician should ascertain what the person was doing at the time of the fall, whether there was a loss of consciousness, whether it occurred spontaneously or as a result of tripping, and how rapidly a recovery occurred. Other episodes of faintness or dizziness should be elicited. Witnesses to the event should be questioned. Faintness on assuming an upright posture may point to postural hypotension. Light-headedness that is reproduced by looking at or turning the head may alert a physician to a possible vertebrobasilar artery transient ischemic attack (TIA), labyrinthitis, or carotid sinus sensitivity. Arrhythmias only may rarely have a prodromal palpitation. Faintness on exertion may indicate a hemodynamically significant aortic stenosis. Muscular weakness that is due to steroid therapy, hypokalemia, disuse atrophy, thyroid disease, or other diseases may be responsible. An unsteady gait due to neurologic disorders such as a stroke, Parkinson's disease, or limited mobility from arthritis also may lead to falls. The evaluation of falling may be time consuming, but it can prevent serious morbidity.

#### *Atypical Presentation of Disease*

Disease presentation is not always straightforward in an elderly person for a variety of reasons. Persons with impaired cognitive abilities are unable to relate symptoms and may manifest illness through behavior changes that are noted by attentive care-givers. Pneumonia, sepsis, pyelonephritis, stroke, and congestive heart failure may present with minimal symptoms other than cognitive or behavioral changes.

#### *Barriers to Communication*

Many elderly persons suffer from auditory and visual impairments. An examiner should optimize a patient's sight and hearing to maximize information gathering. If a patient has eyeglasses and a hearing aid, then they should be used. For a hearing impairment, an examiner should sit directly in front of a patient at eye level in a well-lighted room, speak slowly and distinctly, and refrain from putting one's hands over one's mouth when speaking. Not only does this decrease the volume of the voice, but many people compensate for a hearing loss by lip reading.

#### *Functional Assessment*

Unlike younger individuals whose functional limitations are resolved completely during hospitalization (e.g., a broken femur after a skiing accident), an older person is at greater risk for a long-term impairment. Hence, a functional assessment is necessary to determine the effect of physical and mental impairment on his or her ability to perform activities of daily living. An accurate sense of the range of possible functional outcomes will improve the effectiveness of the health care team in planning and working with a patient. The assessment is used to prescribe the appropriate rehabilitative measures. Repeat assessment monitors progress so that a realistic recommendation of the therapeutic goals can contribute to a successful long-term discharge planning.

Figure 8-1 is an abbreviated format to aid in appropriate placement and to prescribe rehabilitative measures.

#### *Home Living Assessment*

It is not always practical for an older individual to visit a physician every time his or her condition changes. Some system for home evaluation is useful, particularly for patients with major functional limitations that compromise one's mobility. The evaluation of any person with a functional impairment is not complete without a home visit by a physician, visiting nurse, social worker, or rehabilitation team. An objective of this visit is to evaluate the adequacy of the living arrangements to meet an elderly person's functional needs. Particular importance is placed on safety, hygiene, physical comfort, social supports, nutrition, and medication compliance.

#### *Social Network*

Social networks are invaluable sources of help for the activities of daily living and at times of crises. These people may be neighbors, family, friends, or church members. It is good planning to record names and telephone numbers in the event that an urgent need arises.

#### *Financial Assessment*

Physicians should be aware of a patient's financial situation and may need to tailor the evaluation and management more carefully for a per-

**Mobility**—the ability to ambulate independently

Walks Inside \_\_\_\_\_ Outside \_\_\_\_\_ (distance)  
 Without assistance \_\_\_\_\_ With assistance \_\_\_\_\_  
 Balance problems \_\_\_\_\_  
 Falls \_\_\_\_\_

**Aids to ambulation:**

Cane \_\_\_\_\_ Walker \_\_\_\_\_  
 Wheelchair \_\_\_\_\_  
 Ability to transfer: Bed \_\_\_\_\_  
 Chair \_\_\_\_\_  
 Toilet \_\_\_\_\_

Travel Drives \_\_\_\_\_  
 Public transportation \_\_\_\_\_  
 without assistance \_\_\_\_\_  
 with assistance \_\_\_\_\_

**Activities of daily living:**

Feeds self \_\_\_\_\_ Needs assistance (type) \_\_\_\_\_  
 Dentition \_\_\_\_\_  
 Swallowing (solids) \_\_\_\_\_ Liquids \_\_\_\_\_  
 Prepares own meals \_\_\_\_\_ If not, who does \_\_\_\_\_  
 Shopping \_\_\_\_\_ If not, who does \_\_\_\_\_  
 Sources of help: Friends, Relatives, Neighbors  
 Grooms and dresses self \_\_\_\_\_  
 Needs assistance (type) \_\_\_\_\_  
 Needs reminder \_\_\_\_\_  
 Bathing and showering \_\_\_\_\_ Needs help (type) \_\_\_\_\_  
 Using toilet \_\_\_\_\_ Needs help \_\_\_\_\_

**Social activities:**

Involved in activities with:  
 A. Family B. Neighbors C. Church D. Fraternal/social/political organizations  
 How often \_\_\_\_\_  
 Personal activities (hobbies, reading, TV, bars, and so on)

**Describe a typical day's activities:**

FIGURE 8-1 Abbreviated functional assessment.

son with limited financial resources. This does not mean, however, that needed tests or procedures should be foregone because of their costs. Social work assistance is crucial to sort through and uncover sources of reimbursement and special programs. Insurance policies may have been forgotten and should be scrutinized for benefits that Medicare excludes. In addition, special community programs may provide assistance.

**Nutritional Assessment**

Multiple factors contribute to the nutritional state of an older person, and a thorough nutritional assessment may suggest modifications that could improve well-being (*see* Volume II, Chapter 12). Nutritional deficiencies stem from various sources. Some may be medical, others may involve inadequate funds to purchase food, an inability to shop, or an omission of meals due to forgetfulness. Some people on fixed incomes

feed their pets rather than themselves. A disinterest in food may be a manifestation of depression or may be due to cancer, congestive heart failure, infection, or gastrointestinal disease. Visual and/or hearing impairments may produce difficulty in negotiating the market place. Physical problems, such as residual paralysis due to a stroke or a severe Parkinsonian tremor, may interfere with cooking and getting food from the plate or to the mouth. Food may offer little interest as the sense of taste diminishes with age. Medication may interfere (e.g., anticholinergic drugs produce dry mouth and may make food less palatable).

#### *Preventive Measures*

Health maintenance and preventive medicine are legitimate areas of interest in elderly age groups as in younger age groups. Evaluating and advising an elderly person on good nutrition is just one of many areas. The cessation of smoking should be advocated. Women should be encouraged to learn breast self-examination. Patients should be asked about pneumococcal, influenza, and tetanus immunizations, and the dates should be recorded in the problem list or in a conspicuous place in a patient's record. The prevention of falls, removal of causes of incontinence, and avoidance of iatrogenesis with drugs and procedures are preventive components of geriatrics.

#### *Medication*

A notorious cause of illness and disability in an elderly person is medication side effects. Any medication (but, particularly those that are recently added or changed in dosage) should be suspect with an onset of new symptoms. Elderly persons not only take multiple medications, but they are subject to more errors because of poor vision, memory impairment, and limited dexterity. A review of all medications taken, including over-the-counter medications and medications found in one's medicine chest at home, is indicated. An inquiry may reveal that a patient is taking medicine that has been prescribed for a spouse or a neighbor. It often is helpful to ask a patient or spouse to bring all medicines, including over-the-counter medications, on a subsequent clinic visit. If there are suspected problems of drug compliance, a visit by a physician or home health care nurse may help to evaluate the cause.

## Special Aspects of Data Collection

### Source and Reliability

Unless he or she is unable to give an adequate history because of obtundation or severe dementia, a patient should be interviewed alone. Patients with diminished cognitive function often can provide useful information, and a clinician may even be unaware of the cognitive defect until a mental status examination is done. Subsequent discussions with friends and family may expose behavioral problems, incontinence, apathy, weight loss, sleep disturbances, and other problems that have not been mentioned by a patient. Initially, it is best for a physician to interview the person privately to allow him or her to discuss concerns, fears, and symptoms that he or she may be reluctant to share with a spouse, children, or friends. Each case must be individualized, however, and some patients may prefer to be interviewed with a care-giver in attendance.

Old medical records are an invaluable source of information to provide the details of past illnesses and surgeries. Even mentally intact individuals often have gross misunderstandings about their past medical history and treatments.

### Chief Complaint(s)

Multiple problems are typical of older persons and, accordingly, a clinician should seek multiple complaints rather than a single chief complaint. One must be patient in eliciting problems—the major distressing problem may be hidden in a rambling story. Occasionally, while ascertaining the reason for a visit to a physician, other problems with more significant health consequences than the one(s) of concern to a patient may be uncovered. Thus, incontinence, falls, loss of weight, and anorexia may be elicited only by direct questioning. A patient may consider them to be a consequence of aging or is fearful because he or she perceives them as very serious. The major problem may not be a concern of a patient, but rather a problem that is observed by the care-givers (spouse, family, friends, or neighbors). A patient and physician each may be concerned with different problems. A physician must address both and should never ignore a patient's complaint.

### Present Illness

This provides the opportunity to explore the chief complaints that may be various combinations of physical, mental, or social problems. The possibility that changes in the environment may intensify confusion or even bring on incontinence in a minimally demented individual should be explored. Similarly, a patient with a well-compensated heart failure may have an exacerbation after moving to a new living situation, if inadequate attention is given to the amount of salt used in meal preparation.

### Past Medical History

#### *Surgical*

A list of surgeries, the subsequent course, and complications is useful in predicting the future risk of anesthesia and surgery. Facts about a tumor type, extent, and nodal involvement that are obtained from surgical and pathology reports should be noted in the case of cancer surgery.

#### *Medical*

Major illness and complications, both self-limited (i.e., pneumonia) and chronic (coronary artery disease or diabetes) should be outlined and review both treatments and hospitalizations. A wallet-sized card with a list of diagnosis, medication and a copy of an electrocardiogram (ECG), if abnormal, is a useful aid to an unfamiliar physician in an emergency situation.

### Drug Allergies

Persons with serious allergies, regardless of age, should be encouraged to wear a medi-alert bracelet or necklace. Unconscious patients may have drug allergies noted on their permanent medical record. Serious drug allergies should be noted on a patient's permanent problem list.

### Habits

Alcohol, drugs, tobacco, tea, and coffee use should be quantitated. Terms such as "he or she is an alcoholic" or "tobacco abuser" do not accurately portray these problems late in life. Special attention needs to be focused on a patient for whom this is a new pattern (*see* Volume II, Chapter 17). Older people sometimes

begin to use alcohol in an attempt to cope with losses and loneliness during a period of uncertainty. They deny or minimize the use of alcohol in medical interviews. Relatives and friends may first bring the problem to a physician's attention. A knowledge of alcoholism may provide an explanation for enigmatic falling episodes, confusional periods, and nutritional deficiencies.

### Family History

Most familial diseases have manifestations in earlier adulthood and do not pertain to elderly individuals. It is valuable to inquire about contact with tuberculosis in family members. Alzheimer's disease and some malignant diseases may have a genetic predisposition that is manifested in later years. A family history can provide information relevant to physician-patient rapport. For example, a person's attitude about certain diseases or about the medical profession may stem from earlier experiences with a family member. If a family member has had complications of an illness, this knowledge may instill fear in a patient.

### Review of Symptoms

This inventory is designed to survey the problems that are known to be occult, but nevertheless common in the elderly population. The goal is to uncover these symptoms early enough to plan an intervention for a patient's benefit. A thorough review of systems requires time and patience, especially with a slowly responsive, partially deaf patient; but, it is well worth the effort if treatable or modifiable conditions are uncovered.

#### *General Systems*

Instead of the usual typical set of symptoms, the only evidence of physical or mental health impairment may be an insidious, slowly progressive decline in function. A disinterest in life, weight loss, agitated or reclusive behavior, all may be subtle manifestations of a thyroid disease, chronic infection, malignancy, uremia, dementia, drug side effect, congestive heart failure, or depression. These vague symptoms may be noted initially by a neighbor or relative rather than by the patient, who may be unaware

that anything is wrong. A careful review of the duration of decline and the temporal relationship to the death of a loved one, a move to a new residence, or a change in drug dosage may provide an answer. As mentioned previously, the symptoms of depression, anorexia, vague and poorly characterized pain and confusion should not be attributed to old age alone, until a careful investigation has been carried out to exclude other diagnoses.

#### *Skin*

The skin of an elderly person is notably thin and may be dry with a loss of elasticity. These changes make an evaluation of dehydration of the skin less reliable. An increased capillary fragility may result in reddish-purple spots that appear on the hands and forearms (senile purpura). Bruisability, however, also may reflect fragile skin, vitamin deficiency, coagulopathy, liver disease, and/or elderly abuse. Patients who are confined to bed or a wheelchair for long periods of time may develop pressure sores. There is a predilection for these to occur over bony prominences that are subjected to pressure for extended periods of time (e.g., heels, occiput, sacrum, and scapulae).

Ulcerations, moles, rashes, and other new skin lesions should be investigated with respect to the duration and symptoms of itching, bleeding, or pain. Pruritis with or without a rash should call into question new or old medications, jaundice, soaps, new clothing, and other new environmental exposures.

#### *Hearing*

Diminished hearing may be noticed by an elderly person's family and friends before the patient is aware of it. Some persons purposely ignore it, because they wish to avoid a hearing aid and the negative stigma of aging that is associated with its use. Hearing loss may invoke paranoia in older persons who hear sounds indistinctly and who incorrectly assume that a conversation is about them, which generates feelings of resentment and hostility. Hearing loss restricts daily activities by preventing telephone conversation, listening to the radio, and social interactions.

Presbycusis is a gradual bilateral loss of hearing in an older person that sometimes is accom-

panied by a ringing in the ears (*see* Vol I, Chap. 9). There is difficulty in understanding speech, especially with simultaneous background noise and other conversations. The presence of disruptive background noise at social gatherings, stores, and restaurants sometimes makes communicating so taxing that one retreats from social interactions. High-frequency sounds are difficult for an elderly person to hear and certain loud sounds are uncomfortable. A person may only hear parts of words, not the consonants (which are of a higher frequency), but only the lower frequency vowels. Speaking loudly or shouting often causes distortion by increasing the higher frequency sounds. Not all older adults are hard of hearing, and those who are not resent being shouted at.

#### *Cardiovascular Symptoms*

Dyspnea is a commonly elicited symptom that may indicate cardiac or pulmonary disease. Dyspnea alone may be an anginal equivalent with the shortness of breath overshadowing or replacing chest pain as the marker of coronary insufficiency.<sup>1,2</sup> Weakness and confusion alone may be the initial symptoms of congestive heart failure. Similarly, the first manifestation of a myocardial infarction is variable. An older person may feel weak and faint or experience syncope in the absence of any chest pain. Classic chest pain occurs in only 25% of older patients, although a recent study supports the occurrence of some chest pain in almost 60% of elderly patients.<sup>2</sup> Symptoms demand careful scrutiny to avoid missing major diagnoses. Weakness, faintness, vertigo, and syncope are common complaints that lead to falls. Postural hypotension is just one of the many possible causes. The worsening of a chronic stable anginal pattern or of congestive heart failure should alert a physician to consider thyrotoxicosis, a change in dietary habits, or medication non-compliance. Pedal edema often is not cardiac in origin; chronic venous insufficiency, hypoproteinemia, liver disease, and sedentary habits all can lead to pedal edema.

#### *Gastrointestinal Symptoms*

Anorexia may occur with infection, depression, dementia, and medication side effects, and it need not imply the presence of gastrointesti-

nal pathology. Gastric pathology, however, can be insidious with minimal symptoms of early satiety or weight loss.

Dysphagia (difficulty in swallowing) is a frequent problem that usually is due to motility disorders, mass lesions, obstructive strictures, or a pseudobulbar palsy due to a stroke. Classically, liquids are more troublesome with a neuromuscular or motility disorder, while solids are more difficult for those with intraluminal obstructions.

Constipation can be particularly troublesome in a sedentary person, especially with a diet that contains few bulk foods, poor fluid intake, and medications with anticholinergic side effects. Diarrhea may have various etiologies, but if it alternates with constipation then one should be suspicious of a fecal impaction or overuse of laxatives.

Rectal bleeding has multiple causes that include hemorrhoids, vascular ectasias, inflammatory bowel disease, cancer, and diverticula. This should be investigated as in any other age group. Fecal incontinence always should be thoroughly evaluated.

#### *Genitourinary Assessment*

The frequency of urination (particularly nocturia) and urinary incontinence lead to major disabilities. Thorough questioning is indicated to evaluate possible diabetes, bladder infection, prostate obstruction, and causes of incontinence, so that studies can be obtained for treatment or appropriate referral to a urologist.

Nocturia not only is a nuisance, but it may subject an individual to injuries from accidental falls or to dysuria, and the frequency may point to an infection. An inquiry should be made about evening fluid intake or the administration of an afternoon diuretic as possible modifiable causes.

Incontinence of urine may have multiple etiologies; a search for reversible and treatable causes is essential. Medications, especially diuretics and those with anticholinergic side effects, can play a role. The time of day that incontinence occurs may provide clues to correcting the disorder (e.g., incontinence at night may be due to grogginess caused by a sleeping pill. A history of previous prostate problems or surgery may be relevant. Stress in-

continence generally is first noted with the loss of small amounts of urine when coughing, sneezing, or laughing in multiparous women. They may have rectocele, uterocoele, and atrophic urethritis/vaginitis in conjunction. Urge incontinence defines an urgency to urinate, but being unable to get to the bathroom on time. Patients with incontinence due to a stroke or dementia with diminished cerebral control of urination may not be aware of this urge.

Environmental factors should be sought; a patient with limited mobility who is trapped in a bed with side rails or strapped in a chair may be incontinent solely because of his or her inability to get to the bathroom. This occurs frequently in hospitals and nursing homes. The distance from the bed or chair to the bathroom may decide whether or not the patient is continent or incontinent.

Health professionals should try to be tactfully candid on the topic of sexuality. Open-ended questions such as "is your sexual life as fulfilling as you would like it?" indicates that a physician is willing to discuss these problems if a patient wishes.

#### Physical Examination

A physical examination begins by observing a patient before the interview, as he or she enters the room during the interview, and as he or she sits, stands, and answers questions. Hearing, visual, and neurologic disabilities may be immediately obvious.

#### *Vital Signs*

**Blood Pressure** Blood pressure should be taken in both arms, although differential readings that indicate a possible subclavian steal syndrome are uncommon. More importantly, determinations also should be made with a patient lying, standing, and sitting. Normal, asymptomatic elderly patients may demonstrate a decline of 20 mm Hg in systolic pressure when they stand.<sup>1</sup> A greater drop in systolic blood pressure with a systolic pressure of less than 100 mm Hg is seen in elderly patients who have symptomatic postural hypotension. If it is accompanied by tachycardia, the cause may be volume depletion due to dehydration or



blood loss. Without an increase in heart rate, an autonomic nervous system disturbance or a beta-blocking drug must be considered.

*Temperature* This parameter should be routinely measured. Poor thermoregulatory control that is manifested by cold and heat intolerance is a consequence of an autonomic nervous system dysfunction. The conservation of heat via cutaneous vasoconstriction and an increase in heat production via shivering is impaired in elderly persons. In an overheated environment, an old person has the opposite problem with a diminished capacity for sweating; therefore, he or she cannot lower the body temperature efficiently. Elderly persons are at risk for hyper- and hypothermia during the extremes of weather in summer and winter.

A clinician should be alert for hypothermia. A low-reading rectal thermometer should be available to confirm low oral readings, especially in high-risk patients with alcoholism, hypothyroidism, phenothiazine use, and stroke. Poverty also is a major risk factor. If confirmed as  $<35^{\circ}\text{C}$  or  $<95^{\circ}\text{F}$ , special measures need to be instituted to rewarm a patient (*see* Volume I, Chapter 30).

*Weight* Weight is a useful measurement; unfortunately, it often is not recorded. It may be used both to monitor a patient's nutritional status and in diuretic therapy for congestive heart failure. Several recordings over periods of time provide reference information when patients complain of weight loss. Weight is a vital sign that a home health staff can follow with homebound elderly patients.

#### *General Statement*

A brief description of the general appearance at the time of an examination should include the state of nutrition, state of hydration, cooperation, and apparent age.

*Eyes* Wrinkling and loosening of the skin around the eyelids produces an eversion or ectropion of the eyelids with exposure of the conjunctiva, and often with an accompanying inflammation or tears. Entropion, or incurving of the eyelids, may produce an irritation of the eyelids by the eyelashes. Tear production is diminished in elderly persons.

Visual acuity should be checked via the use

of the Snellen chart; if one is not available, a patient can be asked to read convenient printed material such as a newspaper or magazine. Each eye should be checked separately with and without eyeglasses. Visual fields can be screened quickly in a cooperative patient by the confrontation method.

A careful ophthalmologic examination evaluates the cornea, lens, and fundus. Some cataracts can be readily seen by using an ophthalmoscope. An examination of the retina should be systematic, and the optic disc should be carefully examined for pressure atrophy due to glaucoma; also, the macula should be checked for evidence of macular degeneration, and the background retinal field for evidence of diabetic or hypertensive retinopathy. Many older patients have had cataracts extracted. In this case, the ophthalmoscope should be used with a +10 diopter lens. Measurement of intraocular tension is easily done in either the office or home, and it may alert a physician to an early case of glaucoma before the visual loss is irreversible.

*Oral Cavity* The gums and teeth should be checked for infection, caries, and intraoral lesions. If a person wears dentures, he or she should be evaluated for the fit and state of repair. Mucosal lesions should be sought, especially in smokers.

*Hearing* Profound hearing problems will be obvious during an interview. Mild losses, however, may be missed unless testing is included in the examination. The external canal always should be checked for wax build up. Asking a patient if he or she hears a ticking watch may detect major losses and determine which side is affected. A refined testing of frequencies should be referred to an audiologist.

#### *Pulmonary Examination*

Older individuals may have subtle but significant pulmonary pathologies, particularly those with long histories of smoking or occupational exposure to lung toxins. The coexistence of cardiac or neurologic problems sometimes obscures pulmonary problems. Obstructive disease, pneumonia, pulmonary embolism, tuberculosis, and cancer are prominent considerations in elderly persons. An examination

should determine the ability to generate a cough, the pattern of respiration, expansion of the chest, and auscultation of the lung fields. In a cooperative patient, an estimate of forced expiratory volume can be made after a patient takes a deep breath and subsequently counts while exhaling.

### Cardiovascular Examination

Carotid and femoral pulses should be auscultated for bruits, although therapy for an asymptomatic carotid bruit is uncertain.<sup>3</sup> A firm hard artery on palpation may be due to Moncheberg's medial sclerosis. The character of the carotid pulse may be an indicator of aortic valvular disease, if it is significantly slow in the upstroke (AS) or rapidly collapsing (AI).<sup>1</sup>

An auscultatory S-3 gallop in old age generally indicates left ventricular dilatation and failure. A chronic fourth heart sound is heard frequently enough to be considered almost normal in a frail elderly person; this probably reflects decreased compliance of the left ventricle, but not failure. However, an S-4 gallop that develops suddenly in a person with angina pectoris may indicate an acute change such as a silent myocardial infarction.

Systolic murmurs are common and occur in 60–80% of elderly subjects in some series. They originate from the aortic area and often are due to a dilatation of the aortic annulus and ascending aorta that is associated with sclerosis or calcification of the aortic ring. This murmur is shorter in duration and less intense (grade 1–11/V1) than that of aortic valvular stenosis. Without other evidence (e.g., slow carotid upstroke or evidence of a left ventricular hypertrophy), aortic stenosis should not be diagnosed on the basis of this murmur.<sup>1</sup>

A history of weight loss and anemia in a patient with a new murmur that is suggestive of aortic insufficiency (AI) or mitral regurgitation (MR) should make a physician suspicious of bacterial endocarditis—especially in an individual with a recent urologic or dental investigation.

Atrial fibrillation is common, but it might indicate a systemic disease such as thyrotoxicosis or pulmonary emboli. Tachycardia may indicate a systemic problem with thyrotoxicosis

or occult blood loss and may be the only significant abnormal finding on an examination.

### Abdomen

A palpable, abdominal aortic aneurysm should be carefully distinguished from a simple tortuous aorta, which is less than 3 cm wide and seldom has an associated bruit.

Intra-abdominal pathology (e.g., acute appendicitis, gall bladder disease, or bowel obstruction) may present atypically with poorly localized pain.

### Rectal Examination

This examination provides invaluable information about the prostate gland in men and the cervix, uterus, rectal wall, and contents of the lower abdominal cavity in women. A rectal examination still is considered the best screening examination for prostatic carcinoma. Fecal impactions and rectal masses can be detected, and the stool can be tested for occult blood.

### Genitourinary Examination

Men should have an inguinal examination for hernias. Women should have a periodic pelvic examination. A pelvic examination must be done cautiously and without trauma. The vaginal mucosa may be friable and tear easily. A thorough examination must be done on symptomatic patients, or if estrogens are used.<sup>4</sup> The extent of this examination should be guided by symptoms. There is a decreasing rate of incidence of carcinoma of the cervix after 75 years of age. Endometrial carcinoma is uncommon, especially if estrogens are not taken; most are discovered after symptoms occur, rather than on a routine examination. Discomfort must be weighed against benefits in a very old, infirm woman who has no symptoms that are referable to this area.

### Neurologic Assessment

Neurologic disease is a major cause of disability in old age, which often produces significant functional impairment. Special consideration must be allocated to an examination of the ner-

vous system because of age-related changes of posture and balance, and of disease entities related to stroke, parkinsonism, and dementia that cause a loss of functional capability and (frequently) falls.<sup>5</sup> An accurate functional assessment of older people with neurologic disorders is crucial to determine and coordinate appropriate rehabilitative measures and support systems.

A loss of frontal lobe inhibitory function produces frontal lobe release signs that are manifested by abnormal facial and hand movements (primitive reflexes). The palmomental reflex and the glabellar reflex that are found in some normal old persons is observed more frequently in persons who have dementia.<sup>6</sup>

Absent ankle jerks and a diminished vibratory perception in the ankle and foot are characteristic findings in elderly persons. However, there is controversy about such changes being strictly age-related in the absence of adequate study of long-term influences of mild-to-moderate metabolic changes (e.g., decreased glucose tolerance, environmental toxic influences, and viral disease). Clinically, an age-related peripheral neuropathy itself is not functionally significant, but it may be meaningful when associated with visual, muscular, or postural abnormalities; a clinically significant peripheral neuropathy suggests causes other than aging itself (e.g., diabetes, alcoholism, and malignancy).<sup>7</sup>

A systematic mental status examination is important in the examination of every elderly person. A physician can rapidly administer a screening examination to evaluate certain critical functions in every patient. These should include the level of consciousness, orientation, attention, expressive and receptive language, memory of immediate, recent, and past events, constructional ability, abstract verbal reasoning, proverbs, and statements that require judgment. Occasionally, a garrulous, interesting older patient with good social skills appears to have normal mental capabilities; he or she has learned to cope with an intellectual impairment in a gradually constricting environment. However, a screening mental status examination uncovers obvious deficits. This occurs frequently enough so that a cautious physician will not rely on global impressions, but will

perform a systematic mental status examination.

A very old person stands with feet apart, flexed at the knees and hips, bent over, and looking upward. Short shuffling steps with very little flexion at the ankles cause older persons to trip and stumble more frequently. The flexion at the knees causes increased work and fatigue of the thigh muscles. There is a loss of arm motion on walking, and turning around is done en bloc. This senile gait appears to be a subtle form of parkinsonism, although it lacks many other features, such as tremors and the cogwheel phenomenon. The bent-over posture is attributed to degenerative changes in the intervertebral discs. In addition to describing the gait, the functional abilities in walking and standing should be described.

### Basic Laboratory Tests

Laboratory tests usually are guided by a patient's particular problems, ability to cooperate, and limitations of intended therapy. It is of little value to test for problems in which there is no intent of resolution due to a far advanced or terminal disease. In most geriatric practices, however, this is not the case. In almost all patients, there are conditions such as anemia, electrolyte disturbances, and infections where treatment may substantially improve even seriously impaired patients. For a routine evaluation, a complete blood count, serum creatinine level, electrolyte panel, and urinalysis suffice for most asymptomatic patients. Thyroid functioning should be assessed, especially in older persons with cognitive, cardiac, and neurologic disorders; periodically, even in asymptomatic patients. A stool guaiac test should be a part of every initial physical examination and the evaluation of anemia. Chest x-ray films should be ordered for symptomatic patients or for those who are at risk for pulmonary disease (e.g., patients with a history of smoking, lung cancer, or a malignancy that is known to metastasize to the lungs). Electrocardiograms should be initially obtained in all elderly patients and repeated at appropriate intervals in patients with pacemakers, conduction disturbances, and symptoms of severe angina.

While physicians always should be cautious not to needlessly squander health care resources, and while laboratory tests should never be done "routinely" without good reason, it also is essential not to err on the opposite side. Failing to investigate a protean symptom, such as falling or anorexia, may lead to a cascade of illnesses that could significantly impair and possibly shorten a person's life. Appropriate and meticulous medical evaluation and treatment can improve the quality of life and prolong the life span in some patients. There are no simple rules to determine what constitutes an appropriate investigation in a geriatric patient, because they are all different. Each must be assessed as an individual, not as a representative of a certain chronologic age group. As with all medical practice, time devoted to interacting with a patient is likely to be more productive in the diagnosis and therapeutic decision making than a battery of screening laboratory tests.

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# Psychological Aspects of Patient Evaluation

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Three decades of research have yielded significant data that begin to elucidate the complexities of human aging. Human aging is defined as complex interactive alterations in the physical, psychological, social, philosophical, and spiritual aspects of a person throughout the life span. Human aging is an important area within gerontology (the study of aging) and geriatrics is health care in relation to aging.

This chapter will focus on research in the psychological aspects of later life and the translation into clinical practice. Geropsychology researchers, to date, have attempted to: 1) Describe characteristics of older adults; 2) Define normative, pathologic, cognitive, emotional, developmental, and behavioral aspects of maturity; 3) Aid in predicting behavior and adjustment; 4) Develop methods of psychological assessment and treatment of elderly persons; and 5) Evaluate treatment effects and program interventions.<sup>1-9</sup>

The goals for this chapter are aimed at: 1) Challenging practitioner attitudes; 2) Developing the knowledge base or what a geriatrician needs to know for practice; and 3) Defining the principles for practice or what a geriatrician needs to do. The emphasis is on what is different later in life as applied principles for a geriatrician (physician, nurse, and mental health or allied health professional).<sup>10,11,14</sup>

## Defining Normal

With few exceptions, much of the geriatric research literature is problem oriented.<sup>14</sup> The characteristics of older adults who are living normal and vital lives in the community have not been documented extensively.

The Kansas City Studies of Adult Life,<sup>15</sup> a field survey of community-residing elderly persons in the late 1950s, suggested several major adaptation styles in maturity: disengagement, activity, and continuity. An important issue emerged concerning whether it is "natural and inevitable" that older persons and society mutually relinquish the roles, rules, and relationships that were obtained during mid-adulthood.<sup>16</sup>

During the 1960s, a large panel of "normal" community-residing elderly persons were studied longitudinally by researchers at Duke University.<sup>17,18</sup> These studies of normal aging showed physical health to be a key determinant in the quality of later life. Where health was maintained, elderly persons continued active social participation and enjoyed satisfaction with their lives, relationships, and activities during maturity.

Several longitudinal studies of cognitive functioning<sup>19</sup> also have demonstrated the maintenance of intellectual skills well into later life

as a positive correlate of physical health and continued stimulation. Despite the fact that emotional and physical health problems correlate positively with increasing chronologic age, the preceding studies advise that "illness" does not accurately represent the period of later life for 95% of the elderly population who are residing outside of long-term care institutions.

## Research Methods

Much geriatric research data is cross-sectional, thus comparing two age groups at one point in time. The paradigm often consists of comparing a group of 70-year-old persons with college sophomores on cognitive or performance tasks. Inevitably, older subjects do poorly; historically, this supported the idea that later life signifies a loss, decline, stasis, or a wait for death.<sup>20</sup> Such data supports an attitude that aging is denied or, perhaps, feared. Age differences that are obtained cross-sectionally may, in fact, relate more directly to differences other than age (e.g., health, schooling, experience, or socioeconomic factors).

Longitudinal studies (following one cohort or group over an extended period of years) prove that age changes are often less dramatic than those observed in cross-sectional studies. Which data can be applied with confidence to depict population characteristics?

More recent and robust are cross-sequential methods that compare several age groups longitudinally. These life span developmental studies have shown "within" age group variability to be greater than "between" age group variability over time in a number of cognitive, performance, and psychosocial criteria.<sup>1,21-25</sup> What emerges is the fact that individual differences, which are obtained during the life span, apparently become greater during the period of later life. Thus, each elderly person is unique and requires highly individualized assessment and care.

## Attitude

Geriatric health care providers, patients, and families are not immune to social values, customs, and attitudes toward human aging and

elderly persons. The important issue of attitude is complex and difficult to analyze in an age-stratified society.<sup>12,13</sup>

Some elderly persons will live out their lives in poverty, isolation, or institutionalization. This stereotype, then, is extended to all elderly persons. Thus, physicians, mental health and allied health professionals, public officials and elderly persons themselves have an increasing responsibility to counteract this false and destructive stereotype. One way is to provide opportunities for the well-being and social participation of elderly persons.<sup>9</sup>

With respect to health care, older adults often have multiple chronic diseases and disabilities, and die; thus, the philosophy, aim, and efforts of many medical care providers are threatened. A geriatric patient, who is characterized elsewhere as a "stranger in our land"<sup>26</sup> represents a subgroup of the older adult population to which all medical trainees are exposed. This ill, hospitalized minority subgroup of elderly persons dramatically influences the attitudes and practices of health care students, who eventually may generalize all elderly persons. Obviously, if elderly persons are regarded as frail, dependent, senile, diseased, and of low social utility, then a geriatrician will be imbued with fatalism, cynicism, and frustration in his or her attempts to serve elderly patients and their families.<sup>22</sup> Such negative attitudes represent ageism or stereotyping based on chronologic age.<sup>28,29</sup> Physician attitudes can be improved by exposure to reliable knowledge and by introspectively responding to the idea of one's own aging.

## Geriatric Specialty

Since 1945, geriatrics has been recognized as a medical specialty in Great Britain. In the United States, the debate focuses on functional versus categoric issues; that is, whether health care is a function of all persons despite age, or if there are indeed special concerns by age group or category. Geriatric health care appears to be an emergent specialty, and its growing academic credibility is changing medical attitudes towards elderly persons (*see* Vol II, Chap. 8). The "unique and complex medical problems associated with aging"<sup>30</sup> are acknowledged in the

growing available literature on geriatric medicine.<sup>31–36</sup>

## Psychosocial Models

Collectively, aging attitudes stem from and interact with psychosocial theories of later life. These models directly influence health care policies, programs, and practices. They are described in the following paragraphs.

### Pathologic Theory

Health characteristics, behavior, and social activities of elderly persons are considered on a continuum ranging from normal to abnormal. Social deviancy among elderly persons and a departure from usual social norms and values is a cardinal measure. This theory often is applied in medical and health care settings.<sup>37,38</sup>

### Disengagement Theory

This theory postulates that later in life it is inevitable, irrevocable, and mutually agreeable that elderly persons begin to have less interactions with others and engage less frequently in social roles. This is assumed to be desirable and to result in the eventual disengagement of individuals from the social system.<sup>12,16</sup>

### Activity Theory

The activity theory postulates that it is important to continue the role and activities of the middle years well into later life. Thus, opportunities for being active and engaging in leisure and other pursuits remains paramount, as exemplified by senior citizen centers.<sup>39</sup>

### Continuity Theory

This theory suggests that one's personality in the earlier years has a strong influence on one's adjustment during the later years. In fact, we become more like ourselves in this period of later life.<sup>12,15</sup>

### Heterogeneity Theory

The recognition of individual differences and an increased variability in later life that is based on life span developmental psychology supports

heterogeneity.<sup>23,24</sup> This theory postulates that there is increased variability later in life and increased "within" group differences with respect to chronologic age. The implication is that there cannot be a single approach that is applicable to all elderly persons.

In brief summary, attitudes towards aging are composed of a complex constellation of psychological sets. This "model" of a geriatric patient becomes a significant variable influencing practice.<sup>27</sup> In reality, perhaps more important than with any other age stage, geriatrics demands a recognition of the unique individuality of each elderly patient.<sup>34</sup>

## Knowledge Base

### Mental Health Data

The frequency and incidence rate of mental health problems later in life, as a category of general health problems, has been shown to increase with chronologic age.<sup>40</sup> It is important to note that some 95% of the present elderly population reside in the community, while about 5% are in institutions of all types at any given time.<sup>41</sup> Among the community-residing group, it is estimated that 10–20% suffer from significant psychiatric disorders.<sup>42</sup> Furthermore, it is believed that approximately 7% of those persons over 65 years of age have a dementia, with the incidence increasing to 20% over 80 years of age. Many of the problems of elderly persons that require intervention are attributable to the "five D's": depression, delirium, dementia, death, and dying. It is important to note that these problems can coexist.<sup>36,43,44</sup>

Depression is termed the "common cold" of elderly persons, with an incidence rate as high as 30% of all elderly persons in the community suffering from a significant and treatable depression. Later in life, depression is not simply endogenous; in fact, it occurs in numerous forms among elderly persons.<sup>33</sup> For example, there can be an organic depression, anticipatory grief, depression that is secondary to a life review<sup>29</sup> or nutritional deficits, and others. Depressions, when accurately identified, can be treated and are responsive to psychotherapy (see Volume I, Chapter 36). Antidepressant drugs may be useful when used judiciously with attention to both side effects and interactions

with other drugs. It is important to consider alternative interventions, such as a glass of milk or wine at bedtime, instituting a daily exercise program, or family counseling.<sup>44</sup>

Delirium, previously termed the “acute brain syndrome,” can have numerous causes in elderly persons (e.g., trauma, toxicity, or tumor). Delirium often is abrupt in onset, requires a careful history and physical examination with laboratory work for a diagnosis, and most importantly can be reversed. If confused with depression or dementia and allowed to progress, delirium may result in permanent cognitive compromise.

Dementia is recognized in three major forms: 1) Multi-infarct dementia with cerebrovascular disease; 2) Senile dementia of Alzheimer’s type (SDAT), which arises from a primary cerebral neuronal degeneration; and 3) Normal pressure hydrocephalus with a triad of confusion, urinary incontinence, and an impaired gait.<sup>45,46</sup> Dementia also can arise in combination with other degenerative neurologic or systemic disorders (e.g., Parkinson’s disease, progressive supranuclear palsy, Korsakov syndrome, and arteriosclerosis) (*see* Volume I, Chapters 4 and 35).

Dementia is recognized as the fourth leading cause of death in the United States today.<sup>46</sup> It is characterized by an insidious, progressive cognitive compromise, often with affective and behavioral disturbances. Although dementia and depression may mimic each other, in depression the cognitive functions remain intact if examined carefully.<sup>9,36</sup>

On a daily basis, some 3,000 elderly persons die, while 4,000 achieve the age of 65 years. Death today is largely the experience of the elderly age group. Issues of loss, grief, and widowhood can be pernicious, and special counseling can be helpful where a life-threatening illness or death of a family member occurs. Vague feelings of loss, emptiness, or anxiety can persist even up to years following the death of a spouse or family member; they often coexist with physical health complaints.<sup>29</sup>

Among institutionalized elderly persons, it is estimated that up to 50% have significant psychiatric disorders. The use of psychotropic medications in institutions is indeed great. The average age of institutionalized elderly persons is 77 years, and the average length of stay is about 30 months, which often terminates with death.<sup>41</sup>

Generally, the staff in long-term care settings are prepared to expect certain behaviors; for example, confusion and wandering may be expected, while assaultiveness, demanding behavior, or verbal abusiveness may be regarded as unacceptable. Too often, the solution seems to be punitive, which includes physical and chemical restraints. Some critics note that nursing homes today, in effect, are psychiatric settings notably without expert staff, training, and resources to deal with the high incidence rate of psychiatric, affective, and behavioral problems that are present.<sup>10</sup> The interest and availability of medical directors who offer clinical training and program development can do much to improve such situations.<sup>47</sup>

### Common Psychological Problems

In considering the common psychological problems of later life, it is helpful to review the characteristics of a successful adaptation to maturity. First, there is some congruence over the life course; in effect, what the person was, what they are, and what they hope to become has commonality or similarity. Also, there is some acceptance or coming to terms with what society prescribes for an elderly person; that is, an older adult in some way accepts being an “elder statesman” in his or her family, community, and society.

Successful aging involves a complex balance between past experience, present resources, and environmental demands. Developmentalists propose that successful adaptation depends largely on the resolution of successive psychosocial tasks.<sup>23,39,48</sup>

Later life may involve major transitions and changes in roles, rules, and relationships that were obtained during the middle years.<sup>12,49</sup> Studies of age adjustment, loss, and stress<sup>50</sup> suggest that—for many elderly persons—the period of later life may be as turbulent psychosocially as earlier developmental periods (e.g., adolescence).

Common psychological problems<sup>9,29,36</sup> later in life which are most often referred for consultation to a psychologist include the following:

#### Aging Per Se

In a society that emphasizes youth, vitality, and productivity, both gerontophobia and ageism abound.<sup>29</sup> Indeed, one could ask, “why sur-



vive?"<sup>51</sup> Among elderly persons, denial, minimization, and projection ("They're old, I'm not!") are manifest.<sup>14,52</sup> Remedies to hide "age spots," to wash "gray" away, and to remain "forever young" abound. Even thinking that one is old eventually may require psychotherapeutic intervention.<sup>53</sup>

### Social Relations

Outliving or surviving relatives and friends, late-life marriages, and family conflicts with or without a disease, all are major social problems that are encountered in maturity.<sup>5,37</sup> The ability to maintain social interests and to establish new relationships appears significant in positive aging.<sup>54,55</sup>

### Disability

Disability rarely is planned; yet, cancer, strokes, cardiovascular, renal, and other disabling forms of chronic disease have a high incidence rate later in life. Psychological reactions, adjustments, and sequellae often involve both patient and family members. The socioeconomic aspects of disability can be devastating. Medical management, including rehabilitation and community health services, are paramount.<sup>56</sup>

### Retirement

For many elderly persons, retirement is an event that signifies the cessation of full-time, meaningful employment. Psychosocial research shows retirement to be a complex process for which many are unprepared.<sup>12</sup> Developing senior job services that offer part-time flexible work opportunities can provide for a continuing sense of purpose and meaning in life (in addition to income).

### Forgetfulness

Cognitive studies in maturity<sup>57-59</sup> generally show that where health is maintained cognitive functions are preserved in the later years. Memory difficulties, therefore, should be interpreted as general symptoms that require further clinical investigation. Deficits in recent memory may herald the onset of a primary dementia, particularly if insidious, gradual, progressive,

and where other pathognomic signs are absent.<sup>9,60</sup> In contrast, the presentation of abrupt onset memory problems increases a suspicion of delirium due to multiple causes.<sup>66</sup> An additional clinical issue is defining whether the memory problem actually impairs functioning. If so, remediation, memory aides, and cognitive retraining (including functional reality orientation) may be useful.<sup>9,32,46</sup>

### Widowhood

At any period during adulthood, the loss of a spouse is a major stress, if not the primary stress.<sup>61</sup> The loss of a spouse includes many psychosocial dimensions (i.e., loss of a companion, driver, helper, or homemaker). The adjustment follows no singular sequence and the survivors must be helped to adapt as their own needs require.<sup>62</sup>

### Loneliness

This is a ubiquitous state of mind for many elderly persons i.e., the subjective sense of "being alone." Elderly persons may outlive peers, friends, and even their own families; resources and abilities to make new acquaintances wane. In some cases, a physician, clinic, or hospital become a surrogate family, with an elderly patient periodically demanding attention. Joining a "senior citizen center" or home visits by peers can be helpful for some; for others—especially those persons who deny they are old—such social interventions fail. Suicide may become the solution; it is especially common in white males who are widowers.

### Diminished Resources

For some elderly persons, socioeconomic resources are retained; for others, resources are limited (if not eroded completely), which eventually leads to a "welfare nursing home placement." An increased awareness of a lifetime allocation of resources is emerging.<sup>63</sup> The problem is national in scope and requires public action and major policy decisions.<sup>12,51</sup>

### Adaption

How is it possible to enjoy a full 4 score and 10 years in contemporary society? As Darwin

noted in his historic treatise, the rule seems to be to adapt or perish. Adaptive models focus on individual-environment interaction<sup>64</sup> and point to the necessity for a geriatrician to consider environmental factors in health care (e.g., transportation, neighbors, or safety).

## Clinical Intervention

### Principles for Practice

Multiple, complex, and interactive problems that often are presented by elderly persons require multiple, practical, and (often) creative solutions.<sup>6,9,29,32,36,65</sup> Table 9-1 lists geriatric patient-clinician characteristics and special clinical considerations.

The role and function of a clinician may differ in geriatrics.<sup>67</sup> Ideally, a clinician has a strong commitment and genuine interest in older adult patients. Older adults are valued and are responsive to medical and psychological treatment.<sup>4,9,29</sup> A knowledge of “what’s different” in medical care for a geriatric patient is

paramount.<sup>27,35</sup> The effective geriatrician is required to have a specific applied knowledge of the types of health problems, treatments, medications, and health and community resources that are available to older adults.

A person-centered holistic model can be useful in individual assessment and therapy, agency and resource planning, and community resource coordination. For example, as an interview guide, the model raises questions regarding one’s health, cognitive functioning, social relations, outlook on life, and living situation.<sup>18</sup> Operationalizing the whole person model, a clinician becomes a collaborative team member, which includes the patient-family unit, community health resources, agency and related supports.

A clinician’s role often may be that of a manager rather than initiating acute treatment and cure approaches. The assessment and management of a geriatric patient can be enhanced through home or care facility visits. Regular office or clinic visits, or nursing home or hospital rounds, enable a geriatrician to manage, detect early, or even prevent many geriatric health care problems.<sup>34</sup>

TABLE 9-1 Elderly Patient and Clinician Characteristics

Elderly Characteristics	Clinician Characteristics
Long past, shorter future	Increase time with history taking
Multiple, interactive problems	Complete medical evaluation, team approach
Sensory and physical changes	Compensatory methods
Change in learning	Focus, repeat, pace, familiar
Reliability as a historian	Collaborate, case management
Reasons for services	Grief, depressions, dementias, competency, behavior and family problems
Personal (ego) strength	Analysis versus short-term intervention
Diminished financial resources	Sliding scale, public and voluntary programs
Multiple needs	Home visitation, community advocate
Advanced age	Role reversal
Chronic conditions	Optimal management versus cure

### Psychological Assessment<sup>68-70</sup>

#### *Interview*

Through the interview process, it is possible to obtain information regarding a patient’s affect, cognitive functioning, behavior, and performance. Interviews may be structured, including self-completion forms,<sup>29</sup> or information may be obtained through a systematic inquiry.<sup>71</sup> Special techniques are noted for interviewing confused, disoriented, or demented elderly persons<sup>32</sup> or those who are presenting a variety of illnesses.<sup>72</sup> Since elderly persons often present with both psychogenic and organic symptoms, careful attention to health history, practices, and functional observations yield important clinical data.<sup>73,74</sup>

Compared with younger patients, an interview with an older adult may require a longer period of time for history taking with special attention to later life versus life-long problems. Attention to peripheral sensory modalities is critical (i.e., can the person see or hear?). In addition to medical problems and diagnoses, an interviewer needs to assess functional capacities. For example, an older patient may be re-

quested to walk, read, write, identify common objects, and perform other functional tasks. Additionally, patient observations can be made that include gait, posture, speech, facial expression, emotional tone, unique or unusual mannerisms, and motor performance. Geriatric interview data should be corroborated with family members for accuracy. An optimal assessment also may entail a non-threatening manner, pacing, repetition and multiple brief sessions or observations.<sup>75</sup>

#### *Behavioral Observations*

Applying the principles of behavioral analysis, based on operant and respondent conditioning or learning, can be useful clinical tools.<sup>6</sup> A geriatrician, staff, or family actually may record the behaviors of interest or concern (so-called target behaviors), along with their frequency, magnitude, and circumstances in which such behaviors are exhibited. Recording not only provides a useful clinical record of behavior, it can serve to make elderly persons or their families more aware of when, and under what conditions, behaviors of interest occur. These data can provide rational, problem-solving solutions. A demented patient who “acts up” in social situations, but who is agreeable at home, may be behaving inappropriately due to overstimulation. In other words, family members can learn that overstimulation precipitates inappropriate behavior, and they can use this in managing the environment on behalf of a demented elderly person.

In addition, careful behavioral observations over time can help to define the clinical course of a disease or problem. A demented, confused elderly person who rather abruptly becomes combative and hostile, for example, may behaviorally display the effect of an intercurrent medical illness.

#### *Psychological Tests*

As adjuncts to an interview and observation, multidimensional assessment formats,<sup>71,76</sup> brief and valid cognitive screening instruments,<sup>77-79</sup> adaptations of psychometric tests,<sup>80</sup> special geriatric projective instruments,<sup>81-83</sup> and dementia screening scales,<sup>84</sup> all are useful with elderly patients (*see* Table 9-2 and Volume II, Chapter 10).

When administered, scored, and interpreted

TABLE 9-2 Representative Psychological Tests

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Cognitive-general
Wechsler Adult Intelligence Scale-Revised (WAIS-R, 1981)
Halstead-Reitan Neuropsychological Test Battery
Luria-Nebraska Neuropsychological Test Battery
Full-Range Picture Vocabulary Test
Ravens Progressive Matrices (Colored)
Cognitive-screening
Mental Status Examination (MSE)
Short Portable Mental Status Questionnaire (SPMSQ)
Wisconsin Card Sorting Test
Quick Test
Mini-Mental State Examination (MMS)
Memory
Wechsler Memory Scale
Rey Auditory Verbal Learning Test
Complex Figure Test
Memory for Designs Test
Babcock Strong Recall Test
Performance
Complex Figure Test
Bender-Gestalt Test
Benton Visual Retention Test
Block Design (WAIS-R, 1080)
Kohs Blocks
Personality-General
Minnesota Multiphasic Personality Inventory (MMPI)
Rorschach Technique
Senior Apperception Test
Gerontological Apperception Test
Health/affect screening
Zung Self-Rating Depression Scale
Geriatric Sentence Completion Form
Beck Depression Inventory
Cornell Medical Index
Millon Behavioral Health Inventory
Multidimensional Functional Assessment (OARS)
Rating scales
Geriatric Rating Scale
Dementia Rating Scale
Portland Adaptability Inventory
Mattis Organic Mental Syndrome Screening Examination
Sandoz Clinical Assessment-Geriatric

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by qualified professionals, these psychological tests can be useful in describing, predicting, and defining the interventions for older adults. Objective and projective measures of intelligence, memory, personality, symptomatology, and organic conditions can be made.

Perhaps most widely used is the 10-item Mental Status Examination (MSE), which was

developed by Kahn and associates.<sup>77</sup> Using an interview format, an examiner asks five questions that relate to orientation (new knowledge) and five items that pertain to old information (remote or stored memory). For example, “what day, month, year is it?” or “who is the President of the United States?” Scoring is relatively straightforward: 0–2 errors (negative for cognitive impairment), 3–5 (mild), 5–7 (moderate), and over 7 (severe impairment). Variations of the MSE, including more extensive items or performance tasks, also are available.<sup>85,86</sup>

Cognitive functions, such as intelligence, memory, reasoning, and behavioral performance, can be evaluated by using the Wechsler Adult Intelligence Scale-Revised (WAIS-R, 1981). This widely used scale of adult intelligence includes norms for older adults that allow a comparison of test scores of individuals with their age peers. The WAIS-R yields a full-scale IQ, a verbal IQ that is derived from six subtests, and a performance IQ that is derived from five subtests. The examiner is able to determine the level of intellectual functioning and descriptive aspects (e.g., vocabulary, reasoning, calculations, and visuo-practic functioning).

Memory can be evaluated via the Wechsler Memory Scale, including verbal and non-verbal retention and recall tasks. Learning with repeated trials can be assessed via the Rey Auditory Verbal Learning Test, in which 15 paired associate items are repeated for five trials and are concluded with a recognition task. Nonverbal recall can be evaluated by using such tests as the Rey Osterieith Complex Figure, Memory for Designs, or Bender Gestalt (recall task).

Multiaxial tests (MMPI, CPI\*) are quite lengthy and require relatively functional eyesight and reading comprehension. Instead, brief rating scales or checklists such as the Zung Self-Rating Depression Scale and the Geriatric Sentence Completion Form are favored under most circumstances.<sup>67</sup> Multipart batteries, such as the Reitan Neuropsychological Battery or Luria-Nebraska are lengthy and require stamina for both the examiner and examinee. However, portions of such batteries can be employed separately (e.g., Aphasia Screen, Finger Tapping, or Left-Right Hemisphere Scales).

\* MMPI = Minnesota Multiphasic Personality Inventory.  
CPI = California Personality Inventory

### *Neuropsychological Testing*

Cognitive assets, as well as deficits, can be explored by using neuropsychological tests.<sup>85–87</sup> Such testing can be especially useful as aids in establishing differential diagnoses, serial testing (defining the course and progression of a cognitive disease), and prediction of behavior (e.g., competency or behavioral safety). For older patients, a neuropsychological evaluation may be beneficial in more precisely defining cognitive disorders. Such data can serve to advise health care providers, staff, or family members in such practical matters as optimal communication, supervision, or behavioral management.

Neuropsychological testing is generally indicated when a concern exists regarding an older adult’s cognitive functioning. More precisely, such test data can be helpful for a wide variety of neurologic or medical diseases (e.g., infarcts, dementias, systemic encephalopathies, or other degenerative disorders). Test results can help to establish functional or behavioral aspects of a disease, as well as to indicate compensatory and behavioral management strategies.

Regarding the progression or course of a cognitive disorder, serial testing that uses (for example) parallel forms such as the Wechsler Memory Scale or Luria-Nebraska is recommended. This is necessary in test-retest situations to account for test learning or practice effects.<sup>87</sup>

It is crucial that a neuropsychologist is sensitive to factors that affect an older patient’s test performance. Such factors may include: 1) Testing location; 2) Stamina or fatigue during the testing process; 3) Test familiarity or experience; 4) Cautiousness; 5) Incidence of peripheral sensory or motor deficits; 6) Interaction of deficits (e.g., linguistic-motor); and 7) Intercurrent illness.<sup>87</sup> The major concern is that such factors, unless adequately appreciated, may be misinterpreted as cortical deficits in the interpretation of neuropsychological test results. However, when carefully executed, such testing can be a valuable adjunct to a clinical assessment and treatment.

### *Intervention*

Psychological intervention can be beneficial in four areas: individual, group, family, and community.<sup>32,43,38</sup>

The reviews of individual psychotherapy

vary from general discussions,<sup>67,90</sup> elderly persons and their families,<sup>5</sup> behavioral approaches,<sup>6</sup> psychoanalysis,<sup>4</sup> psychotherapy with demented elderly persons,<sup>36</sup> and special assessment methods.<sup>29,78</sup> Therapeutic goals of patient management, educating family and staff, using ancillary resources (protective services or volunteer visits), and a life review are frequently mentioned features.<sup>29,89</sup> While individual psychotherapy with older patients is clinically valuable, few empiric studies exist.<sup>9,67</sup>

Group work with elderly persons can be an efficient use of limited time and staff, especially in institutional settings.<sup>32</sup> Group content, process, and leader functions differ significantly from those with younger adults. Specific approaches can include resocialization, remotivation, reality orientation, reminiscing rehabilitation, and cognitive or behavioral retraining.<sup>43,88</sup> Elderly groups can be educational (retirement preparation), psychotherapeutic, or social (resocialization, serving affiliate, or self-help functions—National Alzheimer Disease Foundation). In geriatric group work, it has been noted that therapists often must assume a position of more authority and responsibility than in situations with younger people who are more familiar with this kind of interaction. Reality focus seems most beneficial, regardless of the specific type of group. It is advised that geriatric groups optimally meet frequently and briefly, as opposed to the more conventional 90-minute sessions.<sup>32,90</sup>

In many geriatric groups, life review and reminiscing are key ingredients, since older adults tend to reflect on past experiences in attempts to provide an identity and meaning for themselves in the present. Thus, they integrate their lives as they have lived them with their current selves.<sup>29,32</sup> Besides reactivating interests and social responsivity in the presence of others,<sup>90</sup> groups provide alternatives to traditional mental health services, which include: neighborhood, organizations, institutional governments, informal drop-in centers, and a variety of day care and day treatment programs.<sup>65</sup>

Adults in the United States most often grow old in the social context of their families. Family and kinship dynamics are extremely important to clinical insight.<sup>5</sup> The presence or absence of family has been noted to be of great significance in psychotherapy for elderly per-

sons.<sup>4</sup> Where family relation conflicts are determined, the family systems approach (involving all family members) and a focus on their perceived problems and solutions has much to offer.<sup>5</sup> Frequent issues may include competency, care-giver dilemmas, abuse, sexuality, and intergenerational conflicts and disputes over real property.<sup>29</sup>

Community intervention is based on the fact that a geriatrician often must assume an advocacy role on behalf of elderly patients, especially when family support is lacking. With respect to mental health, traditional delivery systems simply are not effective.<sup>17,91,92</sup> As with intervention, there are important differences in how geriatric health services are organized. Creative options are being explored in innovative institutional and community mental health programs.<sup>65</sup> The need is apparently great. One epidemiologic study indicated that some 81% of all community-residing older adults who might benefit from mental health services are not receiving them.<sup>42</sup>

#### *Psychological Consultation*

As licensed health care providers, psychologists have a major role and responsibility in caring for this nation's older adult population. Working collaboratively with physicians and other health care providers, psychologists can be effective team members in the assessment, treatment, and consultations that involve elderly persons and their families.<sup>8,9</sup> Psychological consultation is significantly more than determining whether or not a patient is "crazy." A consultation is indicated to objectively evaluate a range of cognitive disorders, behavioral disturbances, and affective or interpersonal dysfunctions; also, perhaps, to aid in such later life transitions as widowhood, retirement preparation or adjustment, disability, sexuality, and marital or family concerns.

A physician should be prepared to discuss a patient and his or her concerns with a consulting psychologist who can render a report that includes background information, family concerns, test results, diagnostic impressions, and care or treatment recommendations. Based on the fact that many geriatric patients have both psychogenic and organic problems, a physician-psychologist partnership has much to recommend on behalf of all concerned.<sup>11</sup>

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# Instruments to Assess Functional Status

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The essence of geriatric practice is the expert management of a patient's needs. To accomplish this goal, a geriatric team must translate its knowledge about a patient's functional abilities and limitations, psychological state, social supports, and personal preferences into recommendations that often have far-reaching effects on a patient's life style. This requires a physician to become involved in collecting, synthesizing, interpreting, and weighing a formidable amount of patient-specific information. Much of this information differs, in kind, from laboratory values, physical signs and symptoms, and radiology results, which are combined to reach a medical diagnosis.

The gerontologic and geriatric disciplines have spawned a large family of diverse and unruly assessment tools to measure various aspects of the physical, mental, and social functioning of old people.<sup>1</sup> These instruments range from brief screening tools to comprehensive multidimensional batteries that yield multiple scores. Some of these latter instruments have become enshrined as multipurpose instruments that are used, without adaptation, to identify patients who are at risk, to develop the information base for care planning, to monitor care, and to generate the outcome measures for evaluating the care programs. Unfortunately, the effective all-purpose geriatric assessment tool is as illusory as the proverbial free lunch. Instead, assessment instruments should be tailored to the purposes at hand.

This chapter discusses the considerations for a physician in choosing assessment tools to incorporate into clinical practice. The choice of

instruments depends on the purpose of the measurement (e.g., screening, initial care planning, monitoring, or program evaluation) and the expected characteristics of the population being assessed. Beyond the choice of instruments, a geriatric team needs to consider the general measurement strategy, which includes criteria for deciding who conducts the assessment, when, where, using which informants, and with what level of detail.

## What is Measured?

Physical, mental, and social factors almost seem inextricably intertwined in the etiology of functional impairment in elderly persons. A clinician needs both a measure of the extent and nature of the functional impairment itself (e.g., what can the patient do, what does the patient do) and measures of the separate components that might account for the functional results (e.g., physical health, pain, or discomfort levels, depression, social circumstances, and so on). The latter determinations offer clues to the cause of functional impairments; therefore, they suggest appropriate strategies for a remedy of the functional impairment depicted in the first measure.

A general functional measure must take into account the capabilities of a patient, the social environment in which a patient is located, and the resources (financial and otherwise) at a patient's disposal to minimize the functional effects of physical or mental impairments. For

convenience, the characteristics to be measured can be separated into several domains.

### Physical Functioning

General physical health can be measured through combinations of symptoms, diagnoses, physical handicaps, categories of drugs that are taken, and reports of disruptions due to illnesses (e.g., hospital days per year, bed days per year, or days unable to perform usual activities) to produce a summary statement of a person's health status.<sup>2</sup> Self-ratings and professional ratings of health also may be incorporated into such measures. This approach offers an overview of morbidity levels (actual and self-perceived) and can be incorporated into self-completed questionnaires, which are supplemented by checklists to be completed by a physician or other care-givers. Pain and discomfort also merit measurement (both alone and to contribute to a summary score); however, at present, our ability to gauge this characteristic systematically is rudimentary.

### Self-Care Abilities/Independent Living Skills

Geriatricians concur in the importance of measuring abilities linked to self-care. Conventionally, a distinction has been made between: 1) Basic activities of daily living (ADL) that keep an individual fed, clothed, toileted, and clean; and 2) More complex, so-called instrumental activities of daily living (IADL) that may be necessary for independent living. The IADL activities include cooking, cleaning, laundry, using the telephone, using public or private transportation, managing money, or taking medicines. The performance of these functions depends on a happy combination of physical abilities, mental acuity, motivation, and social circumstances. Social factors, in particular, must not be overlooked. For example, it is easier to use public transportation if the bus stop is nearby. Some men who cannot prepare meals simply may have never learned to cook. Labor-saving equipment may change laundry from an impossibility to a manageable task. Self-medication may become possible through a strategy of simplifying the regimens, making containers more readily distinguishable, and eliminating

child-proof caps. The care team can exercise ingenuity in its efforts to improve IADL scores, which (in turn) are related to independent community living.

### Mental Functioning

Although general measures of mental functioning are available, it is a disservice to elderly persons to combine information about cognitive abilities and general affective status into a summary statement. As it is, cognitive abilities and affective states interact with the confusion of a care-giving team. Therefore, it is worthwhile to measure the cognitive and affective dimensions separately. Cognition can be further divided to include (for example) memory, perception, judgment, calculation, and social intactness. Some persons can participate lucidly and appropriately in a wide range of social experiences and make judgments about an immediate situation, despite considerable memory loss. Cognitive measures should be sensitive enough to pick up these distinctions, which have practical implications for care-planning.

Affective status measures must include a measure of depression that is capable of differentiating the saddened mood states prevalent in the entire population (and especially among elderly persons) from a sustained and severe depressive state that puts an individual at risk for deteriorating functioning, self-destructive behavior, and high mortality rates. Anxiety is a second affective component worthy of attention, especially because it may be the impetus for hasty decisions regarding a change in life style.

### Social Functioning

Social functioning includes social contacts and relationships, social roles, resources, and activities. These characteristics have an objective and a subjective component. The frequency and range of social contacts and activities can be enumerated; however, only a patient can indicate whether the observable social circumstances are perceived as satisfactory. A geriatric team is interested in the extent and nature of the available social support from two perspectives: 1) Its potential for providing care and assistance to a patient; and 2) Its potential for

meeting a patient's needs for human affiliation (e.g., companionship and the giving and receiving of confidences). The geriatric field also has developed summary measures of a perceived social well-being that measures abstractions such as morale, life satisfaction, or contentment.<sup>3-5</sup> Finally, a new and promising area of instrumentation is evolving to measure "person-environment fit." This requires that information about an individual's functional abilities and value preferences be combined with objective information about a given social environment. The score generated measures the desirability of the environment for that particular person.

### Judging the Need for Care

The geriatric team is increasingly being asked to determine how much care is needed, of what type, and for how long. Some assessment tools have been developed to help a care-planner decide what is needed on the basis of observed functioning, the likelihood of ameliorating that functioning, and the measured social supports. Of course, the formulas used to move from assessment to prescription of health care and supportive services require assumptions that are based on value judgments. How much risk should individuals be permitted to take? How protective should care be? How much expectation do we have for relatives to provide care? It is crucial that a physician examine and consider the assumptions embedded in the tools used to establish program eligibility in his or her state, locality, or organization.

### Why Measurement?

Measurements are distinguished from non-standardized clinical judgment in the specificity and uniformity they bring to the assessment process. The implication of measurement is that standardized techniques will be used to gather and record information. Clinicians sometimes argue that such standardization dehumanizes and oversimplifies the complex phenomena being observed, hampers the artistry of the intuitive care-giver, and interferes with the physician-patient relationship.

This argument creates a spurious dichotomy between measurement and clinical assessment. The instruments used to measure functional status gauge the limitations of capability or performance, but they do not explain the etiology of the observed phenomena. A full medical history and physical examination, with its accompanying tests, are still needed to find out what is wrong. Clinical judgments often can become incorporated into the measures. None of the assessment tools discussed in this chapter can be used to reach a diagnosis. Conversely, a diagnosis alone gives little information about the capacity for independence once a patient is diagnosed as suffering from arthritis, diabetes, heart disease, or a dementing illness. Little has been explained about a patient's capabilities and prognosis for independent living.

Measurements are needed to evaluate the effects of treatments or simply to monitor changes over time in the functional areas so important to a patient. Without systematically looking for changes in the psychological and social functioning associated with medical treatment, such changes will be found only in a haphazard fashion. Also, without implementing a measurement strategy that is applied consistently, a physician is hampered in interpreting his or her observations. A precipitous change in any measurement may be more important than the actual measurement itself. For example, we may note two patients whose weekly social contact is limited to one face-to-face encounter and one daily telephone call. However, for this one patient, this may represent a continuation of a stable pattern and, for the other patient, it may be an ominous change in a previously gregarious individual.

Measurements are also needed to identify cases from a larger population and to determine both their need and eligibility for publicly funded services. The eligibility issue becomes a quasi-legal matter, with equity demanding consistency in assessment approaches. The measurement also can be an organizing tool for a geriatric team, and even for the patients or their families. It is a systematic way of considering all circumstances and factors relevant to developing a plan to maximize a patient's independence. Optimal care plans flow from a good assessment.

Measurements also serve a community function beyond the planning and evaluating of one individual's care. For want of a nail, the nursery rhyme tells us, the battle was eventually lost. Perhaps, for want of a sensible and inexpensive service (e.g., hearing aids or home modifications), patients are experiencing undue functional impairments and ultimately are being offered more disruptive and expensive services (e.g., nursing home care or daily in-home services). However, we can only document such situations through an aggregation of cases that have been assessed in a uniform manner. Similarly, this systematic assessment forms the basis for program evaluation and for many quality assurance techniques that use patient-specific outcome measures.

Finally, systematic measurement has strategic significance for training in the health professions, for resocializing previously trained practitioners, and for demonstrating the importance of geriatric programs. Appropriate assessment tools that can demonstrate a positive change can combat the pervasive prejudice that geriatric care makes no difference. For instruments to have this effect, they must be able to capture increments of improvement or deterioration at the lower end of the functional spectrum. Some measures perpetrated on an older patient are akin to measuring nail growth in yards—there is little likelihood that the nail's growth measured so far will ever occur! Armed with suitable assessment tools, it also is possible to teach paraprofessionals (nurse's aides or home health providers), family members, or perhaps patients themselves to monitor important changes and to take appropriate actions to intervene or summon other assistance. Even when assessment tools have been designed for an older population, many still are insensitive to meaningful functional levels in the frail elderly populations found in nursing homes.

## Types of Measures and Scores

The available measurements differ in their scope and detail. Some are designed as screening tools, whereas others are designed for thorough evaluations. Both a screening tool and a

detailed instrument may be unidimensional (i.e., measuring a single dimension of functioning) or multidimensional. Instruments also differ in the extent to which they summarize information through one or more scores.

Some instruments for geriatric assessment are, in actuality, standardized recording formats. (An example is the PACE\* methodology developed for multidisciplinary assessment and care-planning for nursing home residents.<sup>6,7</sup> This technique involves applying decision rules to making a large number of observations, but no effort is made to summarize the information through scoring techniques. Similarly, many of the tools used to measure social functioning are purely descriptive, with no effort to weigh the information to rank the adequacy of that functioning; in contrast, other tools do provide scores. There are screening instruments, for example, that score cognitive functioning, complete with cutoff scores to suggest when a patient is not a reliable informant.<sup>8,9</sup> There are multidimensional assessment tools that yield a single score, such as the Sickness Impact Profile<sup>10-12</sup>; or, a score for each domain, such as the OARS\* instrument.<sup>13</sup>

The development and interpretation of scores on the assessment batteries involves several considerations.

## Norms

Before drawing conclusions that certain patterns are pathological, one needs information about their normal distribution. There is a danger that we will focus on observed problems and functional impairments in the patients who are being assessed and then undertake protective interventions without realizing that the phenomenon is prevalent in the population at large. Similarly, without population-based norms, a program may be held responsible for poor outcomes that exist independently of that program (e.g., a nursing home held responsible for depression when its prevalence mirrors that of the general population).

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\* PACE = patient appraisal and care evaluation; OARS = Older Americans Research and Service (Center Instrument).

## Thresholds

For the voluminous descriptive information to have clinical significance, one must define thresholds below which the observations connote a problem. The geriatrician is not so interested in developing the perfect scale to capture a range of social behavior as he or she is in developing mechanisms for determining when an individual has reached a level of social isolation, depression, or fragile social support that requires professional assistance.

## Cultural Differences

Interpretations must take into account differences that are based on ethnicity or social class. The interpretations also must consider age-cohort characteristics, which may involve behavior patterns and preferences that differ from those of the care providers and assessors.

## Selecting an Instrument

Reliability and validity, of course, are general considerations for choosing an instrument. Reliability—the property of producing the same result in repeated applications in the absence of real change—is poorly established for many instruments now in use. Inter-rater reliability most often is established through asking several interviewers to complete the form on the basis of a standardized stimulus, such as a videotaped interview. When multiple interviewers gather the information independently, it is much more likely that interviewer styles and sensitivities or extraneous circumstances of a particular interview introduce unreliable results. This is particularly true if the method of assessment involves either questioning or observing a patient directly. Professional ratings have a better chance of being reliable, but they also may not be valid. For example, consider when floor nurses rate the ADL capacity of their patients based on widely shared beliefs, but without empirical verification.

Validity—the property of measuring what one intends to measure—is difficult to achieve when given the abstractions that we examine in geriatrics. There is an ever-present danger that

scales purporting to measure complex qualities (e.g., cognitive ability, social support, or morale) become too trusted. Sometimes, we act as though the measurement were a concrete manifestation of the property measured (e.g., height or weight) instead of an approximation of an elusive concept. Because action based on such measures can set in motion a self-fulfilling prophecy, it is important that the geriatrician examine the items in the scales used and understand the arguments made for their validity.

Beyond reliability and validity, other considerations are important for the selection of the measurement strategy.

## Choice of Informant

A decision about whether the informant is to be the patient, a family member, or a professional care-giver can influence the results rather markedly. In general, there is too much reluctance to get information directly from an elderly patient.

## Type of Information

Related to the choice of informant is the decision about the type of information that will be used. Information may be gathered from ratings that are based on general observation or on specific demonstrations of abilities, or from a self-report.

## Capacity Versus Performance

Functional abilities may be measured according to the capacity to perform a function or according to the actual behavior in performing that function. For example, we can measure the extent to which a patient can bathe him- or herself or the extent to which he or she does bathe him- or herself. Capability can be assessed through self-report (e.g., “can you walk 10 feet?”) or through demonstration (e.g., “show me how you would walk 10 feet.”) The former method is subject to distortions due to an exaggeration or underestimation of abilities, whereas the latter method can be cumbersome. However, it is possible to apply assessment techniques by using demonstrations for a wide variety of functions, such as making change, using the telephone, dressing, taking medicine, reading, or writing (the Performance ADL test

is a good example<sup>14</sup>). There are times, however, when it is more appropriate to assess actual performance than the capacity to perform. For example, a physician may want to use a patient-specific assessment to determine whether the quality of life is adequate in a particular long-term care facility. In that case, it is much more important to know whether the patient does go out than whether he or she can go out, or whether he or she does take a bath by him- or herself than whether he or she can do so. If a question were posed in terms of capacity, real restrictions in independence might slip by unnoticed.

### Time Frames

Available instruments vary in the time frames established for measurement. They may probe one's behavior or feelings right now, over a recent short period (e.g., 1 day, 1 week, or 1 month), over a longer period such as 1 year, or even over an entire lifetime (e.g., "have you ever felt short of breath?"). The shorter the time period in question, the more likely that accurate information can be recalled. However, if the object is to assess a particular patient rather than to describe a whole population, a short time frame is inappropriate to tap rare—but important—social events. For example, "last week" would be an injudicious time period on which to base an understanding of a patient's contact with out-of-town relatives.

### Place and Time of Measurement

Too often, elderly persons are at a disadvantage when they are assessed. In an acute care hospital, for example, they experience the unfamiliarity and dependency-engendering nature of the surroundings. Furthermore, they still may be recovering from an acute episode. Inevitably, some assessment must occur in an acute hospital, but the assessor should regard that information as a likely understatement of a patient's capabilities. When in doubt, it might be worthwhile to send a patient home and to assess what occurs under those circumstances, even if a patient falls into the large group of hospital patients who technically are eligible for nursing home care because of a functional impairment.

### Amount of Detail

A considerable variation is available in the amount of detail that is offered by a measurement tool. For example, let us consider measures of the ADL. The most commonly included items are bathing, dressing, getting to the toilet, transferring, and feeding. A parsimonious way of measuring these items is used in the Katz ADL scale,<sup>15</sup> where each function is dichotomously rated as either independent or dependent (*see* Table 10-1). Other scales introduce a wider range of response choices, which at least differentiate between complete independence, independence with equipment, dependence on help from other persons or complete dependence. For example, the Barthel Self-Care Rating Scales<sup>16</sup> have permitted more response categories and also have increased the number of items by dividing the tasks (e.g., drinking from a cup or eating from a plate) (*see* Table 10-2 for a portion of the Barthel Self-Care Rating Scales). In another modification of ADL measurement that was designed for an arthritis program, separate ratings are made of the speed of performance and the pain or discomfort that accompanied the performance.<sup>17</sup> In rehabilitation settings, extremely detailed approaches to ADL measurement that divide each task into numerous subcomponents are available.<sup>18</sup>

### Purpose of Measurement

The purpose of the measurement should influence the choice of the assessment tool and the general assessment strategy.

### Screening

If the instrument is to be used for screening and case-finding, then brevity is important. The items included on a brief instrument should be selected to achieve the desired sensitivity and specificity. To screen for depression in a recently bereaved elderly person, one seeks a tool that specifically picks up severe depression. Asking a person, "how often have you thought of killing yourself?" is more useful than asking, "how often do you feel sad and blue?" The latter question would pick up so many false positives that another layer of screening

TABLE 10-1 Katz Index of ADL

Index of Independence in  
Activities of Daily Living

The Index of Independence in Activities of Daily Living is based on an evaluation of the functional independence or dependence of patients in bathing, dressing, going to the toilet, transferring, continence, and feeding. Specific definitions of functional independence and dependence appear below the index.

- A Independent in feeding, continence, transferring, going to toilet, dressing, and bathing.  
 B Independent in all but one of these functions.  
 C Independent in all but bathing and one additional function.  
 D Independent in all but bathing, dressing, and one additional function.  
 E Independent in all but bathing, dressing, going to toilet, and one additional function.  
 F Independent in all but bathing, dressing, going to toilet, transferring, and one additional function.  
 G Dependent in all six functions.  
 Other Dependent in at least two functions, but not classifiable as C, D, E, or F.

Independence means without supervision, direction, or active personal assistance, except as specifically noted below. This is based on actual status and not on ability. A patient who refuses to perform a function is considered as not performing the function, even though he or she is deemed able.

**BATHING** (Sponge, shower or tub)

Independent: assistance only in bathing a single part (as back or disabled extremity) or bathes self completely

Dependent: assistance in bathing more than one part of body; assistance in getting in or out of tub or does not bathe self

**DRESSING**

Independent: gets clothes from closets and drawers; puts on clothes, outer garments, braces; manages fasteners; act of tying shoes is excluded

Dependent: does not dress self or remains partly undressed

**GOING TO TOILET**

Independent: gets to toilet; gets on and off toilet; arranges clothes, cleans organs of excretion (may manage own bedpan used at night only and may or may not be using mechanical supports)

Dependent: uses bedpan or commode or receives assistance in getting to and using toilet

**TRANSFER**

Independent: moves in and out of bed independently and moves in and out of chair independently (may or may not be using mechanical supports)

Dependent: assistance in moving in or out of bed and/or chair; does not perform one or more transfers

**CONTINENCE**

Independent: urination and defecation entirely self-controlled

Dependent: partial or total incontinence in urination or defecation partial or total control by enemas, catheters, or regulated use of urinals and/or bedpans

**FEEDING**

Independent: gets food from plate or its equivalent into mouth (precutting of meat and preparation of food, as buttering bread, are excluded from evaluation).

Dependent: assistance in act of feeding (see above); does not eat at all or parenteral feeding.

Evaluation Form

Name \_\_\_\_\_ Date of Evaluation \_\_\_\_\_

For each area of functioning listed below, check description that applies. (The word "assistance" means supervision, direction of personal assistance.)

**BATHING**—either sponge bath, tub bath, or shower

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Receives no assistance (gets in and out of tub by self if tub is usual means of bathing)	Receives assistance in bathing only one part of body (such as back or a leg)	Receives assistance in bathing more than one part of body (or not bathed)

**DRESSING**—gets clothes from closets and drawers—including underclothes, outer garments, and using fasteners (including braces, if worn)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets clothes and gets completely dressed without assistance	Gets clothes and gets dressed without assistance except for assistance in tying shoes	Receives assistance in getting clothes or in getting dressed, or stays partly or completely undressed

TOILETING—going to the “toilet room” for bowel and urine elimination; cleaning self after elimination and arranging clothes

Goes to “toilet room,” cleans self, and arranges clothes without assistance (may use object for support such as cane, walker, or wheelchair and may manage night bedpan or commode, emptying same in morning)

Receives assistance in going to “toilet room” or in cleansing self or in arranging clothes after elimination or in use of night bedpan or commode

Does not go to room termed “toilet” for the elimination process

TRANSFER

Moves in and out of bed as well as in and out of chair without assistance (may be using object for support such as cane or walker)

Moves in or out of bed or chair with assistance

Does not get out of bed

CONTINENCE

Controls urination and bowel movement completely by self

Has occasional “accidents”

Supervision helps keep urine or bowel control; catheter is used or is incontinent

FEEDING

Feeds self without assistance

Feeds self except for getting assistance in cutting meat or buttering bread

Receives assistance in feeding or is fed partly or completely by using tubes or intravenous fluids

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SOURCE: Katz S, Ford AB, Moskowitz RW, et al: Studies of illness in the aged. The Index of ADL: A standardized measure of biological and psychosocial function. *JAMA* 185:94ff, 1963. Used with permission.

would be needed to identify those who are at greatest risk. When a condition frequently occurs in the population and ranges in its severity, the specific approach seems to be indicated even if some real cases are missed. In contrast, when screening for a relatively rare condition with life-threatening implications (e.g., elder abuse) a more sensitive screening tool is desirable. The false-positives can later be eliminated without enormous expense.

We may appropriately question whether the tools currently being used to screen for dementia are too sensitive, especially given the frequency of at least some memory loss, the heavy use of prescription drugs, and the lack of social milestones to prompt one’s memory for date and place. They may be useful when routinely used to alert a clinician to memory loss and to set in motion a process of ruling out alternative causes. Such tools should never be used to diagnose dementia.<sup>19</sup>

Sometimes, screening measures are combined with a longer assessment tool, so that a failure of the initial screen triggers the more in-depth assessment. However, such strategies remove the major advantage of screening; that is, doing a preliminary sorting inexpensively. For the convenience of both care-givers and patients, screening tools should be refined so that they can be administered by telephone or by receptionists. There also is a considerable untapped potential for using self-report screening tools that can be completed by patients and their families before an encounter with a physician.

### Comprehensive Assessment

Comprehensive assessment tools need to be conducive to the needs, pace, and constraints of clinical encounters. They should contain branching questions, so that patients need not



TABLE 10-2 Examples of Items from Barthel Self-Care Rating Scales

Score	Items
	Transfer/chair
0 Intact	Able to approach, sit down, or get up from a regular chair safely; if in wheelchair, able to approach a bed or another chair, lock brakes, lift foot rest, and safely perform either a standing pivot or sliding transfer; able to return safely, changing the position of the wheelchair if necessary; able to remove and replace arm rest if necessary.
1 Limited	As above but requires adaptive or assisting devices such as a sliding board or a lift, or takes more than a reasonable time, but does not require assistance.
2 Helper	Minimal assistance or lifting is required.
	Dress upper body
0 Intact	Able to dress and undress upper body, including obtaining clothes from their customary places such as drawers and closets; able to handle bra, slip, pullover garment and front-opening garment, as well as manage zippers, button, and snaps.
1 Limited	Requires prior retrieval or arrangement of clothes, or able to dress presentably in spite of omission of some of above or through use of special closures, or takes more than a reasonable time.
2 Helper	Patient performs at least one-half the effort him- or herself.
	Bladder continence
0 Intact	Complete voluntary and elective control of bladder (never incontinent).
1 Limited	Has catheter, urinary-collecting device or urinary diversion; able to clean, sterilize, and set up the equipment for irrigation without assistance; able to assemble and apply condom drainage or an ileal appliance without assistance; able to empty, put on, remove and clean leg bag or empty and clean ileal appliance bag; no accidents. May have bladder urgency.
2 Helper	Needs assistance with external device, or has occasional accidents, or cannot wait to get bedpan or to the toilet in time.
3 Null	Incontinent despite aids or assistance.
	Bowel continence
0 Intact	Complete voluntary and elective control of the bowels (never incontinent).
1 Limited	Regularly requires stool softeners, digital stimulation, suppository, laxative, or enema, but does not require assistance; has colostomy but does not require assistance; no accidents. May have bowel urgency.
2 Helper	Needs assistance using suppository or taking an enema or has occasional accidents.
3 Null	Incontinent despite aids or assistance.

SOURCE: Sherwood SJ, Morris J, Mor V, et al: *Compendium of Measures for Describing and Assessing Long Term Care Populations*. Boston, Hebrew Rehabilitation Center for Aged, 1977, mimeographed.

be offended, inconvenienced, or made anxious by questions that are either too easy or too difficult. They should be keyed to thresholds with a clinical significance and be capable of measuring functioning in increments that reflect improvements or deterioration which are meaningful to a patient. The comprehensive assessment tool should provide the basis for care decisions and, thus, should provide information about capacity as well as performance; it also should provide for the notation of information that is relevant to the etiology of a functional limitation. They should permit easy incorporation into office routines. Here, a physician might consider assigning a nurse or

social worker to administer the comprehensive assessment.

### Monitoring

One monitors for two general reasons: 1) To observe any change in problems that have been noted and, perhaps, treated; and 2) To rescreen in areas where no problems were found. The frequency and detail of the monitoring should depend on the type of problem, the type of regimen that was introduced, and the expected frequency of change. Although medical providers generally understand the importance of developing a monitoring strategy for the use of potent

drugs, they are less conscious of the need to monitor the effects of socially oriented decisions (e.g., nursing home placements, decisions to send a patient home under the care of a frail relative, or a posthospital, adult foster care placement). The effects of such interventions can be monitored with the help of specially designed tools. It also is feasible to involve paraprofessional personnel, relatives, and patients themselves in this monitoring.

## Role of Value Judgments

Assessment instruments have a veneer of science. It is easy to forget that they embody value judgments at every step. Values are reflected in the choice of items to be measured and the way results are scored (i.e., the way items are weighted in an overall score). Most of all, value judgments are reflected in the decision rules by which the information generated by the assessment is translated into an action plan.

### Half Empty or Half Full?

No matter how detailed an assessment, eventually a judgment is required about what the information means. Does a describable set of social conditions add up to an adequate or inadequate environment for self-care? Does a 5 on a scale of 1–10 in physical functioning mean that a patient can or cannot live alone? Such questions are interpreted according to the optimism or pessimism of the beholder.

A physician may not be fully aware of the implications of a recommendation that a patient receive substantial amounts of assistance. Such a prescription can set into motion a chain of events whereby care at the intervals and intensity suggested is deemed too expensive to deliver in the community. Thus, a benevolently protective interpretation of this assessment data may be responsible for iatrogenic dependency and social disruption. This is particularly true if a concerned and risk-averse family is acting on a physician's advice. The interpretations are further tempered by philosophical beliefs regarding whether it is better to err on the side of offering too much or too little care.

The very act of assessment involves taking

inventory of a person's limitations, which then may seem to add up to a heavy weight of problems. A more optimistic stance requires a consideration of the strengths that an individual brings to the situation. Sometimes, the instrument itself seeks out evidence of strength; an example is the inclusion of "positive cognition" in the criteria for identifying dementia.<sup>20</sup>

## Setting Goals

The purpose of assessment is to lead to care plans that will improve or prevent the deterioration in functional status. However, we have argued for a far-ranging assessment of physical, mental, and social factors; each of which, in turn, can be divided into several dimensions. When a clinician establishes goals for care, he or she must have determined which outcomes are to be maximized. Value preferences are at the heart of that determination. If activity comes at the expense of physical comfort, if mental alertness comes at the expense of pain, if social satisfaction comes at the expense of a considerable risk to safety, what goals should a health care team adopt? Should the preferences of a patient be consulted? Those of the family? The care-givers themselves? Or, perhaps, the person or agency paying the bill? These are important decisions that require thoughtful attention. The assessment itself will not provide the answer, but the assessment will provide the basis for predicting a variety of likely outcomes of various care strategies.

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# Ethical Dimensions of the Physician-Patient Relationship

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The ethical aspects of the physician-patient relationship are shaped by such factors as the medical tasks at hand, the understanding or implicit contract between a physician and patient, the expectations that both physician and patient have of medical care, the social and institutional background of medical practice, and the personal and professional values that physicians and patients bring to the interaction. In this chapter, we will focus on four related aspects of the physician-patient relationship: 1) Autonomy and paternalism; 2) Truth-telling and disclosure; 3) Adherence to medical regimen; and 4) Problem patients. Underlying all four of these are questions about who should make decisions regarding therapy and whose evaluations of health, illness, and the quality of therapy should govern health care.

## Autonomy and Paternalism

The degree to which physicians may legitimately influence their patients' decisions has been a subject of lively debate during the last 2 decades.<sup>1-4</sup> Making decisions for others generally is termed "paternalism" or "parentalism,"<sup>5-7</sup> and the polar positions in this controversy can be conveniently labelled "traditional paternalism" and the "patient choice model."

Proponents of both positions agree that physicians legitimately possess a measure of medical authority that arises from their professional obligation to maintain both knowledge and expertise in medicine.<sup>8,9</sup> Physicians can authoritatively educate patients about medical matters.

Where patients have misapprehensions about the nature of their disease or what to expect from treatment, physicians can offer more realistic accounts. In addition, physicians have a professional commitment to use science in the service of humanity, to encourage health, and to treat diseases and injuries. Physicians are expected to respect these goals and to refuse to cooperate with unwise or substandard practices (even when requested by patients), unless convincing reasons can be given for setting these standards aside. Thus, most commentators agree that physicians may legitimately attempt to persuade patients of the importance of health and freedom from disease and to educate them about appropriate therapies.

## The Traditional Paternalism Model

Traditional medical paternalism is an extension of two features of this core concept of authority. First, many patients rely on physicians to guide them securely through bouts of a disease, to rescue them from the threat of death, and to wield the powers of science to lessen suffering.<sup>10</sup> Even when a patient is less trusting, medical therapies that are controlled by a physician can have a significant impact on a patient's comfort and life. Also, health care institutions often place considerable decision-making power in the hands of physicians, while individual patients lack the means to control these institutions.<sup>11</sup> Thus, physicians have significant psychological, medical, and institutional power regarding the important health decisions of their patients. Second, health care practice broadly

involves clinicians in intimate personal issues such as family relations, sexuality, judgments of maturity and sanity, employment counseling, and so on. A sensitive physician can easily become a psychological and personal counselor for patients. Thus, physicians can extend their guidance beyond medicine to include personal and moral realms.<sup>12</sup>

Traditional paternalism combines these two elements of power and intimacy. Traditional paternalists believe that, on some occasions, sound practice requires using power and an intimate knowledge of their patients to direct them forcefully toward proper treatment in three ways: 1) A physician may guide patients toward values that he or she personally holds in high regard. A physician who believes in responding quickly and aggressively to problems may press for immediate treatment and may override a patient's preference for a slower pace; 2) A physician may assume that a patient accepts the same health values as that physician and, therefore, may move quickly ahead with procedures without inquiring into a patient's wishes; and 3) A paternalist physician may overrule the judgment of patients who seem to be making a mistake. For instance, patients may need to be pressed to accept a burdensome, but ultimately beneficial, treatment such as cancer chemotherapy. Even people who ordinarily are fully competent can become stressed, confused, or depressed by medical urgencies. Paternalist physicians may obtain a patient's compliance with their judgments through the weight of medical authority, direct instructions, the theater of infallibility, playing on fears and dependencies, ignoring objections and questions, or communicating information selectively.

### The Patient Choice Model

The patient choice model rejects practices of the traditional paternalist model as being inconsistent with the ethics of medicine. This position holds that, insofar as possible, all decisions regarding medical care should be made by individual patients. In its purest form, the patient choice model sees a physician as limited to informing patients about therapeutic options, discussing the pros and cons of these options, and answering questions. Patients are expected to take this information and use it, together with

personal values and self-knowledge, to make decisions on treatment that health professionals are expected to accept.

This antipaternalist position has its philosophical roots in the works of Immanuel Kant and John Stuart Mill.<sup>13,14</sup> Kant saw autonomy as a major element of respect among persons. Autonomy is the ability to choose and to carry out actions because of goals and values that one perceives as being one's own.<sup>15-17</sup> Paternalism violates autonomy by taking control from the patients and placing it in the hands of their medical care-takers. Mill emphasized personal liberty, particularly the freedom of speech and personal expression. The American legal tradition emphasizes autonomy in its laws on contract and negligence. Judicial decisions generally have followed the tradition of Cardozo, who wrote in 1914:

Every human being of adult years and sound mind has a right to determine what shall be done with his own body; and a surgeon who performs an operation without his patient's consent commits an assault, for which he is liable in damages. . . . This is true except in cases of emergency where the patient is unconscious and where it is necessary to operate before consent can be obtained.<sup>18</sup>

The concept of informed consent is an attempt to express in medical care the legal tradition of autonomy.

What (according to the patient choice advocates) is wrong with paternalism? Three objections usually are raised. First, the patient choice advocates argue that many putative acts of paternalism are not really paternalistic. The rationale for paternalism is that one is doing something for a patient's own good. Antipaternalists argue that physicians are self-deceived when they force patients to do what is "for their own good"; in such cases, physicians impose on patients to benefit themselves and use paternalistic justifications as rationalizations.<sup>19,20</sup> For instance, physicians often have been accused of being reluctant to terminate a life-sustaining therapy in order to serve their own anxiety regarding death and to cloak this fear with expressions of dedication to the patient.

Second, patient choice advocates argue that liberty and autonomy are basic human values. It is essential for people to control their own lives; otherwise, they become less human and

lose both social standing and the respect of others. Autonomy is especially vulnerable in chronically debilitated older persons who depend heavily on others to implement their choices. Moreover, those who devalue elderly persons also devalue their autonomy.

Third, patient choice advocates argue that personal liberty is good for people: "Only I know how best to manage my life and understand what will satisfy me." The patient choice advocates claim that physicians simply cannot know enough personal information about their patients to guide them. Patient care will be improved by patient control; patients will feel more satisfied and their care will meet their needs more exactly.<sup>21</sup>

### Respect for Persons

Since these issues are under debate, a physician may wonder to what degree he or she may ethically direct his or her patients to particular courses of therapy, instead of involving them in decisions regarding their care. The key to resolving this issue is that physicians should maintain, throughout their practice, respect for patients as persons. A respect for patients generally involves two factors. First, it involves maintaining an empathetic appreciation of a patient's point of view. This means listening to patients, having compassion for their suffering, and seeing them as whole persons with a wide range of interests, abilities, and needs in a social context of their own. Second, respect for persons also involves avoiding manipulating them for one's own ends. More subtle forms of manipulation and a lack of respect include keeping older patients waiting longer on the assumption that they have nothing important to do with their time or failing to communicate directly with a patient and instead talking to his or her spouse, son, or daughter. An intermediate form of manipulating patients for one's own ends is represented by the practice of institutionalizing persons with questionable or borderline competence so that one "doesn't have to worry about them." More extreme forms of manipulating elderly persons include such instances as warehousing them in nursing homes for profit<sup>22</sup> or pauperizing them to make them eligible for benefits.<sup>23</sup> Because a respect for persons requires both empathy and non-manipula-

tion, the use of paternalism must be very selective and carefully circumscribed.

A respect for persons is an important concern in geriatrics. Some cultures regard elders with special respect, dignity, and reverence. They believe that wisdom takes a long life to achieve and recognize experience as a basis for knowledge and authority. Some cultures also see a long life as an achievement, and they honor elderly persons for attaining great age.<sup>24</sup> In the United States, the status of elders varies widely. Some achieve a high standing through public office, wealth, or creativity. However, most commentators see a general disregard and a lack of respect for elderly persons in the United States.<sup>25</sup> This may be attributable to their minor role in economic production, to increasingly nuclear family structures, to technologic changes that undermine the value of accumulated wisdom, to a youth-oriented culture that is devoted to activity and innovation, or to the poverty of elderly persons as consumers. Older persons may have to struggle to be heard; families and institutions may hinder communication between older patients and their physicians.

Indeed, there is a patent irony in a young physician who acts "paternalistically" (i.e., like a parent) toward an older, wiser, and more experienced patient. In this situation, we see a potential conflict between two sources of authority: scientific expertise versus personal experience and wisdom. Although medical education fosters a trust in "objective" scientific health factors and discourages confidence in a patient's subjective reports of symptoms, older patients often have valuable insights about their health that have been won through long experience. Some of this personal knowledge may sound quaint to a physician, but respect for persons involves giving them credit for some authority about themselves. It even may be medically unwise, as well as disrespectful, to neglect a patient's interpretations of his or her symptoms. For instance, one study found that the low self-assessments by patients of their overall health were more powerful predictors of death than their medically oriented "objective" health status.<sup>26</sup>

Thus, differences in the values and expectations between a physician and patient normally should be occasions for negotiation and teach-

ing—not expressions of dominance. It is important to respect a patient's choices, and to err on the side of liberty. For example, one may send a patient home after treatment of a depression even though some risk of suicide always persists, rather than foster despair and dependency through institutionalization. If patients are realistic about their situation and clearly wish to refuse treatment—even if death is a risk—there rarely can be respectful grounds for physicians to substitute their own judgment of the situation.<sup>27</sup> A patient may prefer to spend his or her last weeks in alcoholic oblivion instead of pursuing the more fulfilling course that is suggested by Kübler-Ross's stages. Although it is, perhaps, hard for some to appreciate, such a choice may fit better into a person's life patterns and values than a more standard hospitalized demise. Also, consider the case of an elderly patient with a gangrenous leg. This patient refuses a surgical amputation. If at this juncture physicians discuss the matter with the patient, they may learn that this patient really would rather die than lose his or her last remaining elements of independence; or, that he or she feels that bodily integrity is of such importance that he or she would rather go intact into the next world sooner than piecemeal later. A respect for autonomy requires that when patients make such judgments competently, their decisions should be respected.

It is also important in these situations to maintain communication. If a patient is to make maximal use of a physician's point of view, a maximally open exchange of views and information is needed. This may be difficult in many health care settings. The common problems of aging, such as poor hearing, interfere with such communication. Institutions for the chronic care of elderly persons also may debilitate patients, prohibit privacy, or allow little time for discussion.

Physical and social dependency make support for autonomy a delicate matter. For instance, spoon-feeding a debilitated patient may require time and sensitivity.<sup>28–30</sup> Others who are intimately involved in aiding vulnerable persons to achieve personal objectives need to have sensitive interpersonal skills and to avoid taking advantage of a patient's dependency.<sup>31</sup> Indeed, victimization and even physical abuse of elderly

persons are prevalent social problems.<sup>32–34</sup> It is important for physicians to strive to overcome institutional obstacles and to prepare patients for better participation in their care.

### Mental Incapacity

Must paternalism be avoided altogether? Or, is it possible both to respect a patient and act (to some degree) paternalistically? In general, paternalism should be avoided, but there are a variety of conditions under which patients are unable to make decisions for themselves. Mental retardation and illness, dementia, and depression, all may make a person unable to manage his or her affairs. Some medications reduce mental competence. In a crisis, a person may be unable to exercise judgment due to an emotional upheaval; rarely, there may be information that some patients are unable to handle. Paternalistic practice generally is acceptable and sometimes required in such circumstances. However, since judgments of mental capacity are so difficult to make, such determinations should be approached with care. A patient's refusal of certain treatments never should be presumed to be incompetent. For a judgment to be made, a careful investigation of mental and situational factors must be undertaken.

### Justified Paternalism

Should competent patients ever be treated paternalistically? Although patient choice advocates hold that paternalism never should be practiced, some believe that a respectful coercion of competent patients occasionally is justifiable.<sup>2,7,35</sup> Certain conditions, however, should be met. First, a patient should receive full respect and should not fall into a class of disvalued patients. Second, a physician should have an effective therapy of low risk to offer. For instance, treating acute meningitis in a patient who refuses treatment mysteriously and without reasons<sup>16</sup> is more justifiable than requiring a patient to stay in a coronary care unit for observation when that patient wants to go home. Third, the coercion or inducement should be brief and mild. For example, patients who are recovering from surgery may be appropriately cajoled, urged, and threatened until they get up and move around. Such a brief intervention

contrasts with incarcerating a patient to obtain compliance with tranquilizer therapy. Fourth, there should be a good reason to suppose that the value being sought is a patient's and not merely a physician's and that a patient's real interests are foremost. To overcome a patient's reluctance to have an amputation, one needs a very good reason to think that this patient really is more interested in diminishing the risk of death at the price of losing a leg. In contrast, in the case of forcing people to get out of bed after surgery, ambulation is part of a larger project in which a patient is engaged—i.e., recovering function; thus, there is a good reason to think that this patient will be grateful later. Last, it is important to be cautious when patients request paternalistic treatment. For instance, if the choice is left with a patient and this patient replies, "Doctor, I want you to decide," this may arise from both a genuine indecision on a patient's part and a need for guidance that this patient can use maturely. The generation of people who are now among the very elderly population may not be comfortable with the patient choice model. They may want to relate to a physician as a priestly authority figure. In these cases, a physician should be able to assume such responsibility as is appropriate, while continuing to make decisions within the framework of a patient's value system. However, a physician should not assume this attitude towards a patient without first attempting to enjoin this patient's participation in decision making. When an ongoing relationship exists, values and perspectives are more likely to be revealed, thus making serious decisions less of a struggle for power and more of a true partnership.

There is a deep and ongoing debate among philosophers over the importance of avoiding paternalism in showing respect for persons. Although autonomy is not an absolute value and subordinating it to other important goals (e.g., health, personal independence, and the needs of others) occasionally is justifiable, it is important that such judgments be made with a full respect for the person. Since most expressions of paternalism are inconsistent with a respectful concern for the whole patient, current practice recommends that it be avoided (except in limited circumstances).

## Truth-Telling and Disclosure

The move toward respect for patient choice and away from traditional paternalism is closely related to a fuller disclosure of medical information to patients. To make choices, patients need adequate information. The process of obtaining informed consent involves giving patients the information that they need to make competent decisions about their care.<sup>36</sup> Truth-telling and disclosure, however, go beyond decision-making. People also seek medical information to understand changes in themselves and to cope with them, to reduce anxiety, and to develop supportive communication with experts in health and disease.

Disclosure has increased, especially with regard to potentially terminal conditions.<sup>37</sup> For example, in 1961, Donald Oken surveyed physicians and found that approximately 90% maintained a policy of not telling patients about their cancer diagnoses.<sup>38</sup> When the study was replicated 20 years later, researchers found a complete reversal in medical opinion; 90% favored the disclosure of a cancer diagnosis.<sup>39</sup> In both studies, physicians attributed their preference for disclosure or non-disclosure to clinical judgment. This shift can be justified by the following reasons in favor of disclosure.

### Reasons for Disclosure

First, the decline of paternalism reflects a more general abandonment of the detailed control of patients and their ideas. Informed patients assume and accept more responsibility for the management and consequences of care than do uninformed patients. Thus, through disclosure, physicians share the responsibility for care more widely.

Second, there is a greater recognition that medical language is not magical (i.e., that speaking the name "death" does not bring about death). The word "cancer" is used more widely and does not inspire quite the irrational dread it once did. We increasingly recognize that rendering a grim prognosis does not mean destroying a patient's ability to cope with a serious illness. Negative reactions to bad news can be ameliorated by a clinician's continuing presence and support.



Third, the patients' rights movement is part of a broad consumer rights movement that favors full disclosure, honest advertising, fair purchase contracts, and rational consumer decision-making. Consumer rights presume that when providers—whether they are automobile dealers, drug companies, or physicians—provide full and honest descriptions of their services, consumers can better control their purchases and improve their quality of life.

Fourth, medical care has traditionally required patients to fully disclose their symptoms and reactions to medications. Respect and reciprocity require that this honesty be returned.<sup>40</sup>

Fifth, the trust that is so important to the healing relationship requires a policy of disclosure and honesty in the long run, even though that policy may create difficult moments. If patients come to believe that physicians will be dishonest with them, they are likely to disbelieve the truth even when physicians are being honest. Thus, the long-range consequences of dishonesty also must be considered.

Lastly, discussing dying with patients can be beneficial for both patients and staff. Kübler-Ross saw disclosure as an important element of a supportive environment in which patients recognize their situation and resolve feelings about dying in a healthy way.<sup>37</sup>

### Cautions

Despite this general presumption favoring truth-telling, many subtleties bear careful analysis. In the first place, the principle that "one should tell the truth," is ambiguous. It could be taken to mean that "we should not tell lies." Conversely, it could mean that "we should fully disclose all those things we know to be true." The latter reading would require much broader and fuller disclosure than the former.

Second, we can distinguish between the concepts of honesty and sincerity (on one extreme) and the concept of saying what is true (on the other). The former apply to the character, intention, and overall attitudes of practitioners. The latter applies to verbal expressions alone. The principle of truth-telling can be seen appropriately as part of a broader charge to maintain an open and forthright professional character.

Third, avoiding lies generally is regarded as a stronger obligation than full disclosure. This

generally is due to the fact that lying tends to induce false beliefs in others instead of merely tolerating them, and it maximizes one's involvement in deception. For instance, it is one thing to hold back from trying to talk a patient out of his or her firm belief in the value of Vitamin B-12 injections; it is another to urge patients to undergo Vitamin B-12 therapy for imagined health worries.

Fourth, although lying, in general, is more problematic morally than non-disclosure, a failure to disclose information is (on some occasions) tantamount to lying. When a patient clearly does not know a crucial fact about his or her health and is entitled to it, a disclosure is obligatory and silence is no more defensible than lying.

Fifth, there is many a slip between the lip and the ear. Strictly true statements can be misunderstood by clients. The prominent silences of withheld information may tell patients more than disclosure, may cause anxiety, or may give mistaken messages.

### Disclosing Bad News

A basic commitment to open communication and the right to know should be managed with an appreciation of the reasons for it and its complexities. For instance, if there were a good reason to think that a patient would be significantly harmed by a disclosure, withholding or delaying information should be considered. If the information is of a nature that the patient nevertheless needs to know it, one often can ameliorate this problem through care and timing in revealing the information. Patients who are anxious to maintain a high degree of control over their lives may willingly undertake medical risks to meet their needs. However, some patients may prefer paternalism; thus, disclosures may ethically take a back seat to reducing a medical risk. For instance, there is some evidence that coronary care unit patients who deny their condition fare better than patients who recognize the dangers they are facing.<sup>41</sup> This suggests that one should approach discussions about death with more caution in coronary care unit patients than in oncology unit patients.

Being upset and emotionally demonstrative in reaction to bad news is not necessarily harmful. Being upset normally is only one stage in

accepting difficult truths,<sup>37</sup> and it can have a positive health impact.<sup>42</sup> When bad news needs to be disclosed, physicians are better off thinking in terms of how to disclose and how to provide support during a period of crisis, rather than thinking of withholding information. The characterologic concepts of honesty and sincerity are crucial here. It is not merely important to tell the truth. Clinicians should maintain sufficient honesty and sincerity to stay with their patients and to help them work through their reactions. This is an important area for self-examination by physicians. Some physicians support truth-telling in principle, but their cool and distant manner and quick departure in telling bad news reveal a fear of the intimacy that is needed for honest communication about a serious illness.

### Side Effects

To make rational decisions about taking medications, patients need to be aware of the potential side effects. However, physicians commonly believe that patients are more likely to suffer the side effects of medications if they are told about them.<sup>43</sup> This is a medical reason for withholding information in such cases. However, drug prescribing is a realm in which a rational approach is badly needed. Many drugs are prescribed for conditions for which they are not indicated,<sup>44-47</sup> and patients often fail to take prescribed medication.<sup>48</sup> More prudent prescribing and better disclosure methods can go far to improve the adherence of patients to medical regimens; therefore, a strong presumption in favor of disclosure is justifiable. Moreover, the kinds of side effects that are engendered most often by communication are those that fall under the heading of discomforts (e.g., headaches and nausea) rather than dangers.<sup>49</sup> Again, it is more important to find ways of disclosing information that minimize harm, rather than to think in terms of withholding information.

### Placebos

The use of placebos challenges the injunction to tell the truth and should be approached with extreme caution. A placebo is a medication that has no active physiologic mechanism for the condition being treated.<sup>50</sup> Since placebos oper-

ate by means of suggestion, there is a direct conflict between the issues of truth-telling and medical benefit. Placebos more often are prescribed for patients who are not respected by their physicians because of non-compliance or low social standing.<sup>51</sup> In fact, however, placebos work best when there is a good physician-patient rapport; the "best" patients often are the best candidates for a placebo response.<sup>43,49</sup> Some studies also suggest that a high degree of disclosure is possible while still maintaining the placebo effect. For example, during withdrawal from narcotics, a patient may know that some pills or injections will be dummies and still receive the intended medical benefit.<sup>43,52</sup>

### Mistakes

Physicians may hesitate to disclose their mistakes to their patients. However, many patients are sympathetic to the difficulty of practicing medicine without error and are impressed by an honest disclosure. Thus, admitting mistakes may make a contribution to a physician-patient relationship. Moreover, where additional medical care is needed because of an iatrogenic illness or frank errors, patients are entitled to an explanation.

### Non-Standard Remedies

Many people hold false beliefs about health and medicine. Unless physicians possess missionary zeal, they must tolerate many of these false beliefs in their patients.<sup>53</sup> The general presumption that favors disclosure does not require that one tell patients all that one knows. One can tolerate illusion and hypochondria in patients and still meet the obligations of disclosure. For instance, an ear, nose, and throat specialist detected early signs of throat cancer in a 56-year-old woman. He tried to impress her with the fortuitousness of the discovery and the need for prompt therapy. The patient, however, felt no pain or discomfort. She was sure that she did not have cancer and that cancer meant a death sentence. She would not accept therapy. At this point, the physician attempted to convince her that she had cancer. He was unwilling to proceed with therapy unless she clearly understood the reason for it, but she steadfastly refused to accept the diagnosis. In hindsight, this physi-

cian believes that it would have been prudent to have abandoned a full disclosure and to have pressed for therapy without insisting the patient fully understood the situation. As it happened, this patient refused treatment until she became symptomatic 1 year later. This physician feels that an earlier intervention might have prolonged the patient's life.

Sometimes, patients seek information about alternative therapies, "quack" remedies, and even such threatening items as books on suicide methods. The legal doctrine of informed consent does not require discussing remedies that are beyond the standards of medical practice. However, discussing them with patients who ask about them can help to strengthen a physician-patient relationship. Addressing oneself directly and consciously to what may seem to be foolhardy courses of action may do more to discourage such a course than to pretend these remedies do not exist.

### Who Should Disclose Information

Determining who should give patients information is a problem in our complex health care institutions. The American Hospital Association's, *A Patient's Bill of Rights* places the first responsibility for communicating information that is relevant to informed consent on a physicians' shoulders.<sup>36</sup> Likewise, hospital policies usually give physicians the major responsibility for disclosing patient diagnoses and treatment plans. However, other members of a health care team may know the outcome of a pathology report before the attending physician. Moreover, nurses and aides work intimately long hours with patients, and there may be many occasions for important discussions of medical matters.

Nurses are particularly conscious of their responsibilities for patient education and for advocating the needs and rights of hospitalized patients.<sup>54,55</sup> Instead of attempting to maintain tight control over information and overburdening themselves with educational functions, physicians would do well to delegate disclosure as widely as possible and to support multiple sources of information for patients in hospital settings.<sup>54,55</sup> Supporting the relationships of other professionals with patients can strengthen the interprofessional relations of a hospital

team, increase the overall level of information that is available to patients, make communication with patients more timely, and show a collective respect for the rights of patients. Teams should discuss coordinating communication patterns with patients as a regular part of their conferences.

Some physicians have philosophical objections to the notion of truth-telling and disclosure for patients. For example, some physicians maintain that absolute objectivity is impossible; thus, truth-telling is an impossible ideal. They feel that one way or another, they will present a biased view to patients. However, it is important to strive for objectivity and honesty with patients, even if perfection in these realms is an ideal just beyond our reach. We can improve the level of patient care and recognize the rights of patients even though we fall short of ideal objectivity.

Another reservation comes from those who believe that illusions are important to people. People engage in self-deception, especially with regard to health and illness. They sometimes have treasured and unshakeable beliefs about vitamins, allergies, dietary practices, and managing their bowels. However, the ideal of scientific practice requires that practitioners avoid self-deception and struggle against illusion in testing and recommending therapies. If patients avoid illusions, they will be able to control and manage their health more effectively. The struggle against illusion serves both physicians and patients.

### Adherence to Medical Regimen

Prescribing medications and managing regimens are among the most common and most important interactions between a physician and patient. In this setting, physicians become directly and concretely involved in their patients' lives. Prescribing a therapy, regimen, or medication may have many meanings to both a physician and patient. In addition to the psychological impact of a medication, it may symbolize the power of science, reassure a patient, constitute a gift, establish a bond between a physician and patient, appease the conscience of either the physician or the patient, and so on. For a medication or a regimen to be effective, a pa-

tient must carry out a physician's instructions for its use. For a patient to have the power to carry out these instructions, the meanings or significance that a regimen has for this patient must support the physiologic activity of the regimen or drug.

### The Problem of Non-Adherence

Physicians and other health care professionals have many ways of encouraging patients to accommodate themselves to medical regimens. When adherence to a regimen is crucial, a patient may be hospitalized so that the responsibility for the timing and dose can be assumed by hospital staff. However, when patients take their instructions and prescriptions home, they and their families take over the detailed management of medication. This places considerable power in the hands of both patients and their families. In itself, that power can be a benefit. Patients may feel healthier when they believe that they have more autonomy.<sup>40</sup> For instance, hospice programs sometimes report that patients who control their own pain medication obtain better pain control and do not abuse medications. However, a close adherence to a regimen is, for the most part, problematic for patients. The regular taking of pills of any kind challenges memory and fits poorly into busy or irregular lives. Some regimens involve a Puritan abstinence from pleasurable and habitual activities such as smoking, drinking, or eating spicy foods. In a survey of the available literature on compliance, Blackwell found that somewhere between 25–50% of all patients failed to take their prescribed medicines. A large proportion of the remainder frequently made mistakes in the dose, timing, and duration of medications.<sup>48</sup> As with a missionary who sees parishioners fall by the wayside, a physician may be troubled by how to bring his or her patients back to the fold of medical orthodoxy. Moreover, non-compliant patients challenge the ego of a physician; he or she may feel powerless, personally rejected, or that his or her work is meaningless.

Because patient compliance with regimen seems to express such virtues as self-care, concern for health, discipline, and persistence (and because non-compliance also challenges a physician), non-adherent patients may seem to be

offensive to a physician. For example, a patient confesses faith in medicine in a physician's office, but then turns away from it at home. A non-adherent patient embraces values that a physician rejects—comfort above health, irregular life patterns above scientific precision, and maintaining old habits instead of learning new ways. Thus, a non-adherent patient risks the danger of being judged as a hated or problem patient.<sup>51</sup> As a negation of medical practice, a problem patient tends to acquire additional negative features in a physician's imagination. A non-compliant patient is pictured as slovenly, careless, old, forgetful, alcoholic, irresponsible, irrational, or deficient in character or sanity. However, non-adherence is widespread, and physicians should understand that it is not a moral failing of a patient or a personal rejection of physicians. Indeed, since patients sometimes interpret the meaning of medication differently, they may modify their prescriptions in good faith. A respect for autonomy demands a respect for the different perspectives of patients regarding medication.

### Supporting Adherence

An awareness of non-adherence is the first step in appreciating the ethics of coping with it. A clinician cannot assume that his or her patients are taking prescribed medications. In their wish not to disappoint physicians, to avoid seeming incompetent, or out of sheer ignorance, patients may report that they are taking medications when they are not. Careful questioning and an accepting atmosphere can support fuller disclosure by patients with regard to their medical regimens.

Success in obtaining adherence is not simply a question of achieving a rigid objective. The first question with regard to obtaining compliance is not "how" but "whether" to press for better adherence to a regimen. Is a physician offering something that is worthy of a patient's adherence? For instance, some elderly persons are multiply and overly medicated. The side effects of combined medications can be extremely burdensome to a patient's independent function and mental competence. In assessing a geriatric patient, a prudent physician would, if possible, withdraw all medications before proceeding with a diagnosis. In these cases, a pa-

tient's neglecting his or her medications may only serve to balance out the polypharmacy. Whether adherence should be desired or not depends, in part, on a risk-benefit assessment for each individual situation.

Even if the objective is worthwhile to both a physician and patient, it does not follow that any means to achieve it is justifiable. We already have defended both the patient choice model over paternalism and disclosure over withholding information and lying. Obtaining adherence also must be conducted within the limits of respect for persons.

### Respect for Persons

Respect for persons demands that a good analysis of the problem of non-adherence be sought. A lack of ability on the part of a patient may be the problem (e.g., forgetfulness or a complex diet may pose problems). A patient may not understand the importance of the objective, or it may be in conflict with a patient's other personal values. In the last case, the truth simply may be that a patient does not want the medication. Making these distinctions is important in determining whether or not to support memory, engage in negotiation, educate patients, or plan another therapy.

The values of older patients are likely to be well-developed through long experience, and these values may have a special power for them. Moreover, certain values may be more closely associated with later life experiences than those early in life. Pacing, sense of time, and priorities may shift during life.<sup>56</sup> Certain tasks can be regarded as being particular to aging; for instance, integrating one's life experience into wisdom, resuming activities that were interrupted by midlife tasks, or preparing for death.<sup>31</sup> Certain problems also can be more closely associated with aging, such as increasing isolation as peers die off. Tasks and problems gain poignancy and importance when they are conducted under the shadow of death.

Medications and regimens should be consistent with a patient's values, life goals, and life style (e.g., very restrictive diets can be extremely burdensome). A less than optimal medical regimen can be justified by the important psychological gains of a more varied diet. Regimens need to be realistic in terms of a patient's

home situation. Costs, transportation, family structure, and cultural values all may set limits on the potential for medical manipulation. Accepting tailoring and control by a patient and restraining one's own enthusiasm for futile medical perfection may do much to turn an impossible regimen into a successful one.

The moral value of respect for persons is consistent with good medical practice. Indeed, a good practice rests on its ability to address the needs of patients as persons. The physiologic and biochemical features of drugs and regimens must be judged in terms of their actual effects on patients as a whole. Thus, the moral value of respect for persons is an important part of adequate prescribing practices and techniques for obtaining compliance.

### Problem Patients

The concept of problem patients does not refer, in this sense, to those patients who have unusual or interesting medical problems. A problem patient is the "undesirable", "uninteresting", or "hateful" patient.<sup>57-61</sup> In this discussion, the challenges of a physician-patient relationship are not primarily medical and intellectual but are human and emotional. The origins of these problems vary widely and involve personality, values, social status, the nature of disease, and so on. The concept of a "problem patient" is emphatically a relational one. A patient who is a problem for an individual physician may not be a problem for another. Patients who are difficult for certain kinds of physicians may be interesting, rewarding, challenging, and worthwhile to physicians with different kinds of education. Some patients who are difficult for physicians to work with may be challenging and rewarding to nurses or social workers. Problem patients are defined as much by the values of medical practice as they are by the individual characters of the patients.

### Self-Examination

Since the concept of a problem patient is a relational one, perceiving a patient as a problem suggests an examination of both a patient's and a physician's values and characters. Since the character of a physician is the most accessible

to examination by that physician and because a physician's character has a long-term impact on patients, a physician who encounters a difficult patient should first ask: "What are my values?" "What are my expectations of patient care?" Patients do not exist to serve or to satisfy the ego of a physician. In working with difficult patients, physicians may find that they can fulfill their conceptions of adequate medical service, even if they are unable to pursue their most cherished aims with every patient.

Geriatric patients may cause anxiety in physicians, because they remind them of their own aging and mortality; they may arouse unconscious conflicts with parental figures; or they may threaten a physician's competence by seeming so frail that they might die during procedures.<sup>62</sup> Defining a cure (consciously or unconsciously) as a complete remission of symptoms or a restoration of youth is to doom many patients to failure. Indeed, an emphasis on research to slow the aging process or to extend the life span may reflect both the ideology of youth and our cultural lack of regard for elderly persons.<sup>63,64</sup> If aging were valued, then such research would only delay a desirable phase of life. Elderly persons with complex chronic problems may seem to be boring and frustrating to physicians who are oriented to acute care.<sup>65</sup> Adjustments that solve one problem may only create others. In older patients with complex chronic problems, medical assistance is by no means useless. The fine tuning of an old machine is an art that requires great judgment. The problem is not for patients to make themselves more interesting in these areas, but for physicians to develop the skills and training that are needed to make complex chronic problems medically more interesting.

### Suffering

Most acute care practice rests on the assumption that health problems can be solved and that when they cannot, the suffering they cause can be palliated. Some people become problem patients because they suffer in ways that medicine cannot help. Sometimes, we react to suffering with fear and rejection. Thus it is easy to fear and reject a patient who is suffering. Where medicine cannot intervene to eliminate suffering, physicians need to be prepared to maintain

communication, even if this involves sharing the burden of suffering. One of the most important functions of health care professionals is to assist patients both in finding meaningful ways to interpret their suffering and in providing a community of support for them.<sup>66,67</sup>

A disvalued person also may be a problem patient. Some patients may be disvalued because they are irresponsible about their health (e.g., they smoke or drink). Other patients may be disvalued because they are poverty-stricken, run-down, or oppressed. For some physicians, elderly patients generally are disvalued patients.<sup>68</sup> In a world of "social triage," disvalued patients (as with patients who have uninteresting diagnoses) tend to receive less respectful care than more favored clients.

### Scarce Resources

Another type of problem patient seems to impose heavily on medical resources. The limited resources may be of several different types, such as local or national fiscal resources, staff time and energy, pharmaceuticals and equipment, organs or blood, beds and institutions; and so on. The allocation of scarce resources is a complex area of ethical concern, but most commentators agree that fairness and justice should govern their distribution.<sup>69,70</sup> Since the impact on the federal budget of the costs of health care for any individual patient are so small and uncertain, worry over national health care costs should not be expressed in decisions that are made at a patient's bedside. Instead, such concern should be expressed through institutional policies that are designed to create fair access to medical resources. Most commentators believe that such considerations as the need of a patient for care, the wishes of a patient, the likelihood that therapy will be successful, the burdens of treatment on a patient, and (to a lesser degree) its burdens on a patient's family, all are relevant considerations; but past and potential social productivity, blameworthiness for illnesses, and the likability of a patient are not relevant. In the case of scarce resources (as in all cases where patients are seen as creating problems), it is important to remember that health care is a compassionate enterprise and even burdensome patients deserve respectful and well-appointed care.

Insofar as age makes successful treatment less likely and more burdensome to a patient, it is a relevant consideration; but, age per se is not a relevant consideration in allocating resources. Although some physicians see less value in the lives of older persons because they may have shorter life expectancies than younger persons, this consideration is counterbalanced by the increased respect due to them for their experience and life-long contribution to society. Health care is not necessarily based on future productivity, and it may be owed to persons on the basis of their past contributions and commitments. Moreover, the decreased time that is available may increase its importance. Fixed age limits on access to care, therefore, must face strong ethical challenges. Moreover, physicians may find themselves involved in the issues of intergenerational justice. Younger family members may feel burdened by providing care for their parents and may overlook the care that was given to them while they were young.

### Dangerous Patients

Also problematic are patients who are dangerous to the staff or to other patients. These patients may be demented, delirious, angry, obstreperous, out of control, and so on.<sup>71</sup> Certain distinctions are crucial in deciding how to treat these patients. First, it is important to distinguish patients who are actually dangerous from those who are merely obnoxious, aggressive, or hard to care for. A patient who pulls out intravenous lines or who yells at the staff is not necessarily dangerous. Second, when sedatives are used to protect others from a patient, the rights of that patient to liberty must be considered; therefore, great care must be taken not to impose sedatives on patients without excellent reasons. Because they are disregarded, institutionalized elderly patients sometimes are subjected to blanket pacification through the use of drugs.<sup>72</sup> Third, when patients are dangerous, physicians should be conscious of the rights of non-physicians who must work closely with these patients. Nurses and technicians are entitled to protection. Although the rights of a patient must be considered, the needs of the staff also have weight. Fourth, protecting others

from patients is not so much a medical problem as it is a legal or police problem. It is important to distinguish between restraining a patient for his or her own welfare and restraining a patient for the sake of others. Insofar as a physician is acting to protect others, he or she is acting in a police or court role. Insofar as a physician is acting to protect a patient, the issues of paternalism are involved. In either case, ethical issues involved in limitations of liberty or autonomy must be considered.

### Institutional Limits

Problems in physician-patient relationships may arise neither from a physician nor a patient, but from underlying institutional limitations. Limited resources, the focus on acute care, lack of coordination between institutions, limited referral options, ignorance about chronic illnesses, and multiple social problems, all make it difficult to give respectful and even-handed treatment to all patients. For instance, a physician's power to control a patient's access to medical resources may invite patients to act manipulatively toward their physicians. Such patients then may be seen by their physicians as having manipulative personalities, although they would not act this way in other circumstances. It is important in these settings neither to blame patients nor oneself: instead, one should understand how institutions affect a physician-patient relationship. It is possible to resist institutional pressures toward social triage and to find creative ways to give meaning to suffering that cannot be alleviated.

In treating problem patients, the main objective should be to get beyond the problem and encounter a patient as a person. As interdisciplinary teams develop, increasing resources are available to support physicians in coping with human problems. A coordinated interdisciplinary team offers varied skills and personalities for coping with combined medical and personality problems. The physician-patient relationship is not a unitary and unchanging concept, nor is it determined entirely by the medical sciences. As medical science develops, it should be guided by the ethical goals of practice. These goals shape a physician-patient relationship and are linked with the social setting of health care.

Encounters between physicians and patients are not only encounters between professionals and laypersons, they also are encounters between values. A dialogue on values between a physician and patient requires respect and patience on both parts. Geriatric practice requires that both medical authority and the authority of age each receive respectful consideration.

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## CHAPTER 12

# Nutrition

ERICA T. GOODE, M.D., M.P.H.

Nutrition is a life-long process. An individual's nutritional intake has a completely pervasive impact on his or her entire being. The characteristic amount of calories and nutrient density is necessarily altered by a person's age, sex, activity, family and social practices, range of choices, economic status, and degree of health or illness. When nutrition is suboptimal or excessive, the impact on that individual is determined by his or her unique requirements and adaptability. While we know something of the nutritional needs of groups of healthy subjects (as reflected in the recommended daily allowances (RDAs) established by the United States National Research Council<sup>1</sup>) our knowledge of specific individual variation and how it affects the quality and duration of human life is limited. Animal studies show that the concept of "more is better" does not hold true at least for calories in rats, since the life span of male rats may be doubled by underfeeding.<sup>2</sup> A caloric restriction may lead to a beneficially delayed cell cycle turnover, may be more compatible with a known diminution in the total body cell mass with age (as shown in humans<sup>3</sup>), or may in some way improve immunologic functioning. While "ideal nutritional intake" for a healthy, non-medicated, and active elderly individual weighing approximately what he or she should differs only slightly from that of a younger counterpart, this set of homeostatic forces rarely prevails. The requirements may change over time for aging persons as they and their environments change.

Thus far, few studies have addressed the issues of nutritional requirements in elderly per-

sons. Many "standards" that have been established as guidelines (e.g., the RDAs) have made nutrient recommendations for a single group over 51 years of age. It should be kept in mind that these are extrapolated from the known requirements in younger individuals, and they may provide only limited guidance in relation to a particular elderly person's requirements.

### Nutritional Status and Aging

Cell cultures of human fetal fibroblasts undergo 50 population doublings when controlling for detrimental media factors and crowding. If a younger and older population of human cells is mixed in cultures, the older population dies first; again, when it reaches an inherent number of approximately 50 cell doublings (*see* Volume I, Chapter 1). Fibroblasts that are taken from individuals with an illness associated with a relatively earlier aging process (e.g., diabetes or progeria) die sooner than expected *in vitro*. However, there is not a 1:1 correlation between this cell-doubling number and the longevity of a respective individual. Furthermore, while small amounts of hydrocortisone can prolong the diploid fibroblast cell life span by increasing the proportion of cells that actively synthesize DNA (S phase) and through increasing cell division,<sup>4</sup> no nutritional factors beyond standard media levels have been shown to play a direct role in prolonging the inherent *in vitro* life span of a cell line.

In rats (a much more complex system than the *in vitro* one), whose life spans can be dou-

bled with caloric restriction, it is not known whether or not the doubled life span represents a genetically preordained cell cycle-doubling number. Morphologically, however, tail tendons from underfed, biologically youthful rats contain collagen fibrils that appear to be underaged in terms of contractibility, which is relative to the tail collagen of their ad libitum-fed peers.<sup>5</sup> Calorie restriction in various animal models also can improve immunologic aging and delay the onset of tumors.<sup>6</sup> An analogy can be drawn between a long-lived lean rat and certain human subjects, in that a non-obese individual is indeed at less risk for developing hypertension, diabetes, a joint disease, endometrial cancer, and other ills than his or her obese counterpart. Longitudinal studies have shown an increased mortality rate in markedly obese humans, most dramatically in those who are diabetic.<sup>7</sup>

Conversely, population studies have suggested that while both extreme leanness and extreme obesity are associated with an increased mortality, a mild-to-moderate overweight condition in humans was not (*see* Volume II, Chapter 4). These are population studies, and many factors involved are not clear. In this controversial area, a clinician must remember to consider the improved quality of life that appropriate nutrition can offer to individual patients.

### Nutrient Intake/Nutrition Assessment Surveys

In the past 20 years, United States agencies have completed three major nutrition assessment surveys that were designed to determine the adequacy of dietary intake among United States citizens, including the elderly population.<sup>8-10</sup> Despite some sampling error and certain biases in interpretation, the results of all three provide a reasonably accurate overview. Smaller regional studies,<sup>11-12</sup> have explored specific dietary intake and nutritional statuses of elderly persons and provide data for the development of intervention programs that are designed for older Americans. A major drawback with each of the above-cited surveys is that all are cross-sectional, rather than longitudinal, in design.

Within each survey, nutrient intake has been evaluated against RDA values, which have

changed somewhat between 1968, 1974, and 1980, thus altering the interpretation of "adequate" intake. Also, since each RDA value is set at a level designed to provide an intake of that nutrient at 2 standard deviations (SD) above the mean "required" intake for a group of healthy persons of that age and sex, each study has developed its own yardstick for determining adequacy. This makes intersurvey comparisons less meaningful.

Nevertheless, the major conclusions regarding the nutritional status of individuals 60 years of age and greater are that older women were more frequently deficient in nutrients and had greater degrees of deficiency than men in calories, calcium, iron, Vitamin A, thiamine, and riboflavin. Some studies revealed suboptimal levels of dietary protein and niacin, as well. The suboptimal intake of calories, thiamine, and riboflavin was often demonstrated in men. Only certain studies showed a limited intake of protein, calcium, Vitamins A and C, and niacin. With increasing age, the number of nutrients that are ingested at suboptimal levels increased for both sexes. One study performed clinical examinations on patients in a search for physical signs of a nutritional deficiency. For both blacks and whites, at least one such sign was seen in 41% of all individuals, and two physical signs were demonstrable in 15% of those persons studied.

## Nutritional Assessment

### Introduction

A screening nutritional assessment should be made initially, and at appropriate intervals thereafter, to intercept early changes in a formerly well-nourished person and to prevent nutritional problems. Most manifestations of nutritional problems are relatively non-specific and can develop late in the course of a chronically aberrant intake. A physician may serve as the primary assessor,<sup>13</sup> but a variety of other paramedical personnel, community members, or agencies can assist in providing an assessment, therapy, and follow-up examination for nutrition in an elderly patient.

The nutrition history may be as brief or comprehensive as needed for the intended pur-

poses. Information may be obtained through the use of a questionnaire that is completed by the subject (using large print and good spacing) or a nutritionist during the interview. The history form (see Figure 12-1) can serve as a guide for detailed questioning. In addition, cross-checks are included in the form of a self-administered 24-hour food diary, a food frequency list, and an interviewer checklist of probable nutritional adequacy.

The physical examination includes anthropometry, which encompasses height, weight, and wrist circumference as a screen for body frame size. It also can include skinfold determination, underwater weighing, and other methods of obtaining body composition information.

The actual measurement of height is essential, although there is considerable dispute about the usefulness of standard height measurements in elderly persons.<sup>14</sup> Height de-

creases with vertebral fractures, kyphosis, and other age-related changes. An estimate of true height may be best made by the combined values of current height and reported initial height. A bedside height may be obtained by measuring from the sacral prominence in both directions, while a patient lies in a decubitus position.

Several height-weight charts exist, such as the Metropolitan Life Insurance Company table, in which no provision is made for aging (see Table 12-1).<sup>15</sup> Table 12-2<sup>16</sup> shows age-related real weight changes and is based on actual measurements of 13,600 subjects, as reported by the National Center for Health Statistics. Standard values can be used to assess acceptable weight, with a 15%–20% compliance value added to the upper “desirable weights.”<sup>17</sup> It should be noted that even Table 12-2 only goes to 75 years of age and that no standardized tables exist for very elderly persons.

FIGURE 12-1 Nutrition History

Older Adult

I. Data

Name \_\_\_\_\_ Sex \_\_\_\_\_

Birthdate \_\_\_\_/\_\_\_\_/\_\_\_\_ Age \_\_\_\_\_ M F

Occupation \_\_\_\_\_  
(former) (present)

Marital status \_\_\_\_\_  
S | M | D | W | Sep |

Ethnicity of meal preference \_\_\_\_\_

Do you eat well?

\_\_\_\_\_ always | usually | sometimes | never

Restrictions \_\_\_\_\_  
yes | no

Describe: \_\_\_\_\_

Self-imposed/prescribed \_\_\_\_\_

For how long? \_\_\_\_\_  
Months Years

Meals generally eaten with others: \_\_\_\_\_  
With whom? \_\_\_\_\_  
B | L | D | Snacks

Who prepares the meals? \_\_\_\_\_

Your health is: \_\_\_\_\_  
 good fair poor

A. General Meal Pattern (or last 24 hours if no stable pattern):

BREAKFAST	AMTS	LUNCH	AMTS	DINNER	AMTS
Foods eaten:					
Other: _____		Other: _____		Other: _____	

Major variations from stated pattern? \_\_\_\_\_  
 yes no

Do patterns vary on weekends? \_\_\_\_\_  
 yes no

Does money for food fluctuate much? \_\_\_\_\_  
 yes no

B. Exercise?

What? 1. \_\_\_\_\_ 2. \_\_\_\_\_

Amount \_\_\_\_\_

Frequency \_\_\_\_\_

Has amount of exercise changed in the past year? \_\_\_\_\_  
 yes no

In what way? \_\_\_\_\_  
 \_\_\_\_\_

C. Food Sources:

Characteristic fat sources:

(cross check of meal habits)

Butter \_\_\_\_\_ Margarine \_\_\_\_\_ Lard \_\_\_\_\_

Oil (type) \_\_\_\_\_ Other \_\_\_\_\_

Daily salt intake:

“a lot” \_\_\_\_\_ “some” \_\_\_\_\_ “little” \_\_\_\_\_

Salt food at table? \_\_\_\_\_  
 yes no

In cooking? \_\_\_\_\_  
 yes no

Soy sauce used? \_\_\_\_\_  
 yes no

Pickles? \_\_\_\_\_ Pickled foods? \_\_\_\_\_  
 yes no yes no

Relish? \_\_\_\_\_ Salt pork? \_\_\_\_\_  
 yes no yes no

FIGURE 12-1 (Continued)

D. Drugs Taken:

Medicines	Routinely		Intermittently	
	Amt/#	Dose	Amt/#	Dose
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				

Do you use: (Name type used)  
Baking soda? Laxatives? Antacids?  
(amt/week) (amt/week) (amt/week)

\_\_\_\_\_  
\_\_\_\_\_

Vitamins, mineral supplements, other food supplements? name dose or strength  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Benefits derived from supplements? (In the patient's own words): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

E. Sleep habits: hrs/night hrs/day  
Any night eating: \_\_\_\_\_  
yes no

F. Dentures worn? \_\_\_\_\_  
yes no  
Any problems? \_\_\_\_\_ (describe)  
Gums OK? \_\_\_\_\_  
yes no

G. Weight: Problematic? \_\_\_\_\_  
yes no  
Any major changes, last 5 years? \_\_\_\_\_  
\_\_\_\_\_

H. Do you avoid certain foods because of:  
yes no  
Problems with digestion? \_\_\_\_\_  
Problems with diverticuli? \_\_\_\_\_  
Problems with fat intolerance? \_\_\_\_\_

Lactose (milk) intolerance? \_\_\_\_\_

Problems with diarrhea? \_\_\_\_\_

Problems with vomiting? \_\_\_\_\_

I. Changes you would make in your diet if you could (would): \_\_\_\_\_

\_\_\_\_\_

J. Who or what most influences your present eating habits? (Several may apply)

Person-family member? \_\_\_\_\_

Your children? \_\_\_\_\_

Other person? \_\_\_\_\_

Restaurants? \_\_\_\_\_

TV commercials? \_\_\_\_\_

Money? \_\_\_\_\_

K. Food budget:

Food stamps, public assistance, and so on \_\_\_\_\_

How much do you spend on food per week (for yourself)? Home use: \$ \_\_\_\_\_

Meals out: \$ \_\_\_\_\_

L. Shopping habits:

Frequency: \_\_\_\_\_  
times per wk or month

Stores used:

1. \_\_\_\_\_ 3. \_\_\_\_\_

2. \_\_\_\_\_ 4. \_\_\_\_\_

If you can't, who shops? \_\_\_\_\_

M. Kitchen facilities:

Cooking: (check all that apply)

Stove \_\_\_\_\_ Oven \_\_\_\_\_ Hot plate \_\_\_\_\_

Microwave \_\_\_\_\_

Storage facilities at home:

Refrigerator \_\_\_\_\_  
yes no

Freezer \_\_\_\_\_  
yes no

Other \_\_\_\_\_

Vegetable garden? \_\_\_\_\_  
yes no

N. Write down everything you ate yesterday. It sometimes helps you to remember if you start with evening and work backwards. Include alcoholic beverages, juices, and so on taken with medicines.

\_\_\_\_\_



TABLE 12-1 Desirable Weights for Men and Women—According to Height and Frame (Age 25 and Over)

Men			Women								
(Weight in pounds in indoor clothes; for nude weight, deduct 5-7 pounds)			(Weight in pounds in indoor clothes; for nude weight, deduct 2-4 pounds)								
Feet	Height (with shoes)*		Small Frame	Medium Frame	Large Frame	Feet	Height (with shoes)†		Small Frame	Medium Frame	Large Frame
	Inches	Inches					Inches	Inches			
5	2		112-120	118-129	126-141	4	10		92-98	96-107	104-119
5	3		115-123	121-133	129-144	4	11		94-101	98-110	106-122
5	4		118-126	124-136	132-148	5	0		96-104	101-113	109-125
5	5		121-129	127-139	135-152	5	1		99-107	104-116	112-128
5	6		124-133	130-143	138-156	5	2		102-110	107-119	115-131
5	7		128-137	134-147	142-161	5	3		105-113	110-122	118-134
5	8		132-141	138-152	147-166	5	4		108-116	113-126	121-138
5	9		136-145	142-156	151-170	5	5		111-119	116-130	125-142
5	10		140-150	146-160	155-174	5	6		114-123	120-135	129-146
5	11		144-154	150-165	159-179	5	7		118-127	124-139	133-150
6	0		148-158	154-170	164-184	5	8		122-131	128-143	137-154
6	1		152-162	158-175	168-189	5	9		128-135	132-147	141-158
6	2		156-167	162-180	173-194	5	10		130-140	136-151	145-163
6	3		160-171	167-185	178-199	5	11		134-144	140-155	149-168
6	4		164-175	172-190	182-204	6	0		138-148	144-159	153-173

\* 1-inch heels.

† 2-inch heels.

SOURCE: 1983 Tables of heights and weights for men and women. Metropolitan Life Insurance Company, New York, used by permission.

TABLE 12-2 Age-Adjusted Average Weights (Pounds)\*

Height	Men (Ages)										Women (Ages)													
	18-24		25-34		35-44		45-54		55-64		65-74		18-24		25-34		35-44		45-54		55-64		65-74	
	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet	Inches
5	2	130	141	143	147	143	143	143	143	143	143	4	9	114	118	125	129	129	129	129	132	130	130	130
5	3	135	145	148	152	147	147	147	147	147	147	4	10	117	121	129	133	133	133	133	136	134	134	134
5	4	140	150	153	156	153	156	153	153	153	4	11	120	125	133	136	136	136	136	136	140	137	137	137
5	5	145	156	158	160	158	160	158	158	156	5	0	123	128	137	140	140	140	140	140	143	140	140	140
5	6	150	160	163	164	163	164	163	163	160	5	1	126	132	141	143	143	143	143	143	147	144	144	144
5	7	154	165	169	169	168	169	168	168	164	5	2	129	136	144	147	147	147	147	147	150	147	147	147
5	8	159	170	174	173	173	173	173	173	169	5	3	132	139	148	150	150	150	150	150	153	151	151	151
5	9	164	174	179	177	178	177	178	178	173	5	4	135	142	152	154	154	154	154	154	157	154	154	154
5	10	168	179	184	182	183	182	182	183	177	5	5	138	146	156	158	158	158	158	158	160	158	158	158
5	11	173	184	190	187	189	187	187	189	186	5	6	141	150	159	161	161	161	161	161	164	161	161	161
6	0	178	189	194	191	193	191	191	193	192	5	7	144	153	163	165	165	165	165	165	167	165	165	165
6	1	183	194	200	196	197	196	196	197	190	5	8	147	157	167	168	168	168	168	168	171	168	168	168
6	2	188	199	205	200	203	200	200	203	194	5	8	147	157	167	168	168	168	168	168	171	168	168	168

\* No shoes; light outdoor clothing.  
SOURCE: National Center for Health Statistics.

Skinfold thicknesses often are used to estimate body fat stores (e.g., “overfatness”). While it is most accurate to weigh subjects under water to assess body fatness, this is not broadly practical. Instead, skinfolds should be used. The biceps, triceps, subscapular, and suprailliac crests are measured in a standard way,<sup>18</sup> using Lange or Harbenden calipers. These should be done bilaterally, since hemibody measurements are quite different in most individuals. Some studies have attempted to use one measurement—the triceps or subscapular skinfold for this derived value; but, an assortment of studies have shown the relative inaccuracy of a single measurement, especially for elderly males.<sup>18</sup> In general, anthropometry data for the elderly population is limited. Studies are currently in progress that will clarify the extent to which fat percentages change with age at varying levels of habitual exercise. Except in well-exercised individuals, skinfolds may be relatively valueless for the extremely elderly population.

A clinical examination begins by observing a patient for generalized abnormalities, such as extremes of habitus, edema, color, or significant muscle wasting; it includes a full examination for clinical signs of nutritional problems. Specific signs of a deficiency should not be overlooked (*see* Table 12-3<sup>19-21</sup>). Most physical changes that are associated with suboptimal nutrition are common with other signs of underlying illnesses. Laboratory studies must be done to confirm these impressions. Most laboratory test results have not been standardized to those of normal elderly individuals. Assessed protein stores are only correlated with protein status in early stages of deprivation. In 19% of otherwise healthy elderly individuals, serum albumin values can be abnormally low when compared with standards for younger adults.<sup>22</sup>

Medical observers can assess nutritional status with good interobserver reproducibility (81%) and a good correlation of observations with objective laboratory measurements of nutritional status.<sup>23</sup> Many medical observers, however, will not address a comprehensive nutrition assessment in either history taking or physical examination. Even in a medical office setting, a simple measurement of height often can be overlooked. It is critical that a medical

practitioner notes specific changes in elderly patients which are most likely to represent nutritional changes—and then acts accordingly.

### Probability of Specific Needs or Deficiencies in Elderly Persons

Recommended daily allowances have been established by a committee of the National Academy of Sciences National Research Council. They represent a value that is considered to be 2 SD above the range of “typical” human requirements. The RDAs (*see* Table 12-4) assist in estimating the nutritional adequacy of a characteristic dietary intake for protein, and also for some vitamins and minerals. While this set of allowances is designed for groups of people, it can be used to roughly assess the needs of an individual. The RDAs account for changes in the calorie requirements of elderly individuals older than 75 years of age<sup>24</sup>; otherwise, no specific recommendations are outlined for persons beyond 65 years of age. A clinician must develop an “index of suspicion” with respect to nutrition. Generalized malnutrition should be considered if a person is ill, immobilized, drinks alcohol to excess, is demented, takes multiple medicines or laxatives, is excessively heavy or lean, has ill-fitting or no teeth, or has limited access to food for any reason (including economic).

Major nutrition imbalances that occur in an aging person take the form of excessive calorie intake relative to activity, excess fats (the total percentage of calories and/or a predominance of saturated or monounsaturated fats), and excessive sodium. A fiber deficiency is a major problem, with the attendant problems of constipation, higher blood sugars in diabetics, and an added predisposition to diverticular diseases and colon carcinomas. Deficient calcium is seen almost universally in white and Oriental women unless it is supplemented. A wide individual variation in protein use is demonstrable among the elderly population and can lead to a suboptimal protein status in some older individuals with a seemingly adequate intake. Finally, a small collection of single-nutrient insufficiencies may be seen, such as folic acid (especially

TABLE 12-3 Physical Examination

Physical Findings	Consider Deficiency of (If italic, pathognomonic)	Consider Excess of	Non-Nutritional Possibilities for Same Sign
<b>Hair</b>			
Pluckable	Protein		
Thin, sparse	Protein, biotin, zinc	Vitamin A	Chronic illness; genetic (males)
<b>Nails</b>			
Koilonychia	Iron		
Transverse ridges	Protein, calories		
Pallor	Iron, Vitamin B-12, folate		Anemia of chronic disease
White spots	Zinc		
<b>Skin</b>			
Acanthosis nigricans		Calories	Malignancy, diabetes
Dry, scaling	Vitamin A, Zinc, EFAs*	Vitamin A	Cachexia, illness
Poor wound healing	Vitamin C, Zinc, protein, calories		Felty's, other illnesses
Erythematous eruption		Vitamin A	
Flaky paint dermatosis	Protein		
Follicular hyperkeratosis	Vitamins A, C, EFAs		Familial (idiopathic)
Perifollicular hemorrhage	Vitamin C		Coagulopathy
Scrotal or vulvar eczematous changes	Riboflavin		Variety
Nasolabial seborrhea	Riboflavin, Niacin, Vitamin B-6		
Corkscrew curls of body hair	Vitamin C		Rarely familial in blacks
Petechiae, purpura	Vitamins C, K		Senile purpura, steroids
Pigmentation, desquamation (sun exposed)	Niacin		Superficial similarity to bullous pemphigoid, porphyria cutanea tarda
Lemon-yellow cutaneous flush	Vitamin B-12	Niacin	Superficial similarity to carotenemia
Wasting	Calories		Cachexia (illness)
Hypercarotenemia		(Benign) carotene excess	Hypothyroidism
Vitiligo	Vitamin B-12		Autoimmune, diabetes mellitus, Addison's disease
<b>Eyes</b>			
Angular palpebritis	Riboflavin		
Corneal vascularization	Riboflavin		
Dry, dull conjunctiva (xerophthalmia)	Vitamin A		Sicca syndrome
Bitot's spot's	Vitamin A		
Mild scleral icterus	Vitamin B-6		Hepatitis, other liver disease
Papilledema		Vitamin A	Intracranial lesion, pressure pseudotumor cerebri
Fundal capillary microaneurysm	Vitamin C		

TABLE 12-3 (Continued)

Pale conjunctivae	Iron, folate, Vitamin B-12		Anemia, other causes
<b>Heart</b>			
Congestive heart failure, sudden death	Vitamin C, thiamine		Multiple other causes
<b>Abdomen</b>			
Hepatomegaly	Protein	Vitamin A	Liver disease, alcohol, multiple illnesses, hemochromatosis
<b>Muscles, Extremities</b>			
Pedal edema	Protein, thiamine		Congestive heart disease, stasis
Calf tenderness	Thiamine, Vitamin C		Thrombophlebitis, postactivity, cramps
Muscle wasting	Calorie, protein		Disuse, steroids
<b>Bones</b>			
Osteoporosis	Calcium (chronic)		Chronic steroids, heparin
<b>Joints</b>			
Tenderness	Vitamin D, calcium, phosphorus		Osteomyelitis, fracture, inflammatory
Arthralgia	Vitamin C		Multiple causes (infectious, antigen-antibody related)
<b>Neurologic</b>			
Confabulation, disorientation	Vitamin B-1 (Korsakoff's)		
Encephalopathy confusion → coma with CN††	Vitamin B-1 (Wernicke's)		
VI weakness, ophthalmoplegia, nystagmus			
Tetany, irritability	Calcium, magnesium (seen with severe illnesses that cause imbalances)		
Ophthalmoplegia	Phosphorus thiamine		Diabetes mellitus
Ataxia, ↓ vibratory position sense	Vitamins B-1, B-12		Alcoholism
DTRs ↓ slowed relaxation	Vitamin B-1		Hypothyroid
DTRs† ↑ Babinski positive	Vitamin B-12		
Drowsy, lethargy		Preformed Vit A, D	
Weakness, paresthesias	Vitamins B-1, K+		Diabetes mellitus, multiple other causes
Decreased touch sense (stocking/glove)	Vitamins B-1, B-6, B-12		Diabetes mellitus, multiple other causes
Decreased position, vibratory sense	Vitamin B-12		Multiple other causes
Incontinence (cord neurogenic changes)	Vitamin B-12		Multiple other causes
Hypogeusia	Zinc		Chemotherapy, chronic disease

\* EFA = essential fatty acids.

† DTR = deep tendon reflexes.

†† CN = cranial nerve.

TABLE 12-4 Food and Nutrition Board, National Academy of Sciences-National Research Council Recommended Daily Dietary Allowances\* (Revised 1980; Designed for the maintenance of good nutrition of practically all healthy people in the United States)

Category	Age (years)	Weight		Height		Protein (g)	Fat-Soluble Vitamins				Water-Soluble Vitamins			
		kg	pounds	cm	inches		A ( $\mu\text{g RE}$ )†	D ( $\mu\text{g}$ )††	E (mg $\alpha$ -TE)§	C (mg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg NE)¶	
Males	51+	70	154	178	70	56	1,000	5	10	60	1.2	1.4	16	
Females	51+	55	120	163	64	44	800	5	8	60	1.0	1.2	13	

Minerals									
Category	Vitamin B-6 (mg)	Folacin† ( $\mu\text{g}$ )	Vitamin B-12 ( $\mu\text{g}$ )	Calcium (mg)	Phosphorus (mg)	Magnesium (mg)	Iron (mg)	Zinc (mg)	Iodine ( $\mu\text{g}$ )
Females	2.0	400	3.0	800	800	300	10	15	150

\* The allowances are intended to provide for individual variations among most normal persons as they live in the United States under usual environmental stresses. Diets should be based on a variety of common foods to provide other nutrients for which human requirements have been less well defined.

† Retinol equivalents. 1 retinol equivalent = 1  $\mu\text{g}$  retinol or 6  $\mu\text{g}$   $\beta$  carotene.

†† As cholecalciferol, 10  $\mu\text{g}$  cholecalciferol = 400 IU of vitamin D.

§  $\alpha$ -tocopherol equivalents. 1 mg  $\alpha$ - $\alpha$  tocopherol = 1  $\alpha$ -TE.

¶ One NE (niacin equivalent) is equal to 1 mg of niacin or 60 mg of dietary tryptophan.

†† The folacin allowances refer to dietary sources as determined by *Lactobacillus casei* assay after treatment with enzymes (conjugases) to make polyglutamyl forms of the vitamin available to the test organism.

in persons who are abstaining from fresh produce and eating limited meat), riboflavin (if dairy products are shunned), Vitamin B-12 (in enforced or true vegans), zinc, calcium, or magnesium.

## Prevention and Common Problems

A generally preventive approach to nutrition in elderly persons must be implemented during youth to reap the greatest health benefits. By the time an elderly individual is assessed, there may be the need for an active intervention as well as for prevention. Often, the source of a nutritional deficiency is social and/or economic. A physician's role as a coordinator of interdisciplinary management is critical in this area.

Advice from allied health professionals is valuable, but a patient will fully value the advice given by a nutrition counselor only if that counsel is reinforced by a physician. Realistically, a physician rarely will have time to launch a thorough nutrition evaluation on each elderly patient. A nutrition history form can be used as a screen, and the exhaustive techniques that are outlined for physical and laboratory evaluation can be reserved for glaringly malnourished patients.

A broadly applicable approach to assessment uses a 7-day food diary kept by a patient and evaluated in terms of the dietary goals that were developed by the Senate Select Committee on Nutrition and Human Needs<sup>25</sup> (see Table 12-5). The use of an eating pattern that is consistent with these goals theoretically promotes normal weight, normal blood pressure, and also the prevention of—or improvement in—such degenerative processes as obesity-associated adult-onset diabetes, hypertension, some forms of heart disease, as well as such simple problems as constipation. Use of these goals may promote periodontal and dental health and may decrease the tendency toward developing some forms of cancer. Despite many objections,<sup>26</sup> the dietary goals have withstood the test of time, have been modified and adopted by the United States Department of Agriculture (known as the Dietary Guidelines), and are widely recognized as a prudent dietary recommendation.

The use of these goals presumes that a relatively wide variety of foods will be chosen within each of four categories, which include

TABLE 12-5 Dietary Goals

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Increase carbohydrate consumption to account for 55–60% of the caloric intake.

Reduce overall fat consumption from approximately 40% to 30% of energy intake.

Reduce saturated fat consumption to account for about 10% of total energy intake; also, balance that with polyunsaturated and monounsaturated fats, which should account for about 10% of energy intake each.

Reduce cholesterol consumption to about 300 mg/day.

Reduce sugar consumption by about 40% to account for about 15% of total energy intake.

Reduce salt consumption by about 50–85% to approximately 3 grams/day.

*The goals suggest the following changes in food selection and preparation:*

Increase consumption of fruits and vegetables and whole grains.

Decrease consumption of fatty or processed high-fat meats and increase consumption of poultry, fish, and lean cuts of meat.

Decrease consumption of foods high in fat\* and partially substitute polyunsaturated for saturated fat; no fried foods; trim fat and skin from meats. Substitute low or non-fat milk for whole milk.

Decrease consumption of butter fat, eggs, organ meats, and other high cholesterol sources.

Decrease consumption of sugar and foods high in sugar content.

Decrease consumption of salt and foods high in salt content.

Keep alcoholic drinks to 2 per day or less.

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\* See Table 12-6.

milk, meat (or high-protein food), fruit and vegetables, and grain groups. Each group supplies invaluable nutrients, including (from the milk product group) the vitamins riboflavin, Vitamin D, Vitamin B-12, and pantothenic acid. Magnesium, zinc, calcium, and protein are ample. The meat group and high-protein alternatives provide niacin, thiamine, folic acid, and Vitamins B-6 and B-12. Iron is the primary mineral, and protein is provided in large amounts. The vegetable-fruit group contains Vitamins A, C, E, and B-6, and folic acid; minerals include iron and magnesium. The bread-cereal group supplies niacin, thiamine, Vitamin B-6, and pantothenic acid; ample iron, magnesium and zinc, and substantial fiber are present. Fiber is not a specified component of the dietary goals; however, it is extremely important, particularly in elderly persons, as an adjunct to normal bowel functioning. Approximately 2 Tbsp/day of

wheat bran is inexpensive and helpful in this regard.

It is presumed that an individual will better handle the nutrients in food and will have an improved quality of life if he or she limits the intake of alcoholic beverages. One or two glasses of wine or the equivalent seems prudent; but, absolute recommendations are difficult, since individual physiologic and psychological tolerance varies. Finally, while the goals do not mention exercise as a means of improving health status, it is understood that this is critical to anyone's health. Many elderly persons (particularly women) regularly subsist on a limited 900–1,000 calories/day, which does not provide adequate protein, vitamins, or minerals. Also, an increased level of exercise generally provides an impetus for an increased caloric intake and (hopefully) an improvement in associated nutrients.

No studies have been done that evaluate the nutritional status of a large population of elderly people who eat in accordance with this set of guidelines. However, the guidelines can be used as a screen for adequacy of intake when an individual's patterns are evaluated by dietary history. As an example, the Pilot Geriatric Arthritis Program evaluated the nutritional intake of individuals over 55 years of age based on the dietary goals alone and on four index nutrients: calcium, Vitamin C, Vitamin A, and protein.<sup>27</sup> Calcium was found to be most often deficient, Vitamin A the next most frequently deficient, and Vitamin C was third; finally, protein was taken suboptimally in only a minor percentage of the individuals studied.

### Obesity (*see* Volume I, Chapter 29)

Obesity (excess body fatness) rarely begins abruptly in the elderly population. It generally has begun decades before. Treatment should optimally occur early after its onset and be aimed at those individuals who are developing associated risk factors. It is difficult to provide a calorie-restricted diet at any age that satisfies the RDA for nutrients. The problem is heightened in elderly persons due to decreased energy requirements and often markedly reduced exercise. If calorie restriction is essential, a comprehensive vitamin-mineral supplement and attention to protein and fiber intake is critical.

The risks that are directly associated with obesity in elderly persons include: 1) Adult-onset diabetes; 2) Increased heart size; 3) Arthritic problems, including osteoarthritis; 4) Gout; 5) Hypertension; 6) Biliary tract disease; and 7) Endometrial carcinoma in women.<sup>28</sup> Less directly associated with obesity is an increased risk of atherosclerosis and ischemic heart disease (which is seen more frequently in leaner men than in age-matched, more obese women), despite the clear increases in serum cholesterol, triglycerides, and hypoalbuminemia that are seen with increasing adiposity.<sup>29</sup> Respiratory incompetence and sudden death (presumed to be cardiac) also are obesity-associated risks.<sup>30</sup>

### Osteoporosis

Osteoporosis is one of the most severely detrimental diseases of elderly persons, particularly in white and Oriental women; it is probably to some extent preventable. The variety of factors that lead to osteoporosis in the elderly population is thoroughly covered in Volume I, Chapter 28. Several of these are nutrition-related, and include (most importantly) attention to calcium, phosphorus, phytate, and magnesium in the diet at an early enough age (premenopausally in women) to prevent significant osteopenia. Sun exposure or Vitamin D in the diet and exercise also are essential.<sup>31–33</sup> The role of dietary fluoride is not presently quantifiable.

Once osteoporosis develops, its reversibility is limited. Since the problem is asymptomatic before an overt fracture, women need guidance regarding calcium-magnesium supplements beginning at approximately 35 years of age. Osteoporosis is felt by many researchers to be due to the low calcium:phosphorus ratio in our Western diet,<sup>34</sup> to inactivity,<sup>35</sup> and (in some) to a lactase deficiency.<sup>36</sup> Bone loss is accelerated postmenopausally when estrogen levels decline. Several studies have demonstrated the preventive aspects of supplemental estrogen use. Diminishing levels of exercise with age may be a major contributor to bone calcium loss.<sup>37</sup>

One important study was conducted with 130 perimenopausal women 35–50 years of age who were placed on normal diets with "usual" levels of exercise and calcium intake. The subjects



TABLE 12-6 Calcium : Phosphorus Ratio\*

Foods (Balance)	Effect on Calcium (Ca : P Ratio)	Specific
Sesame seeds, molasses, seaweed		2 : 1
Milk, milk products, root vegetables, some leafy vegetables	Good	1 : 1–1.2 : 1
Shellfish, fruit, fruit juice		Just <1 : 1
Whole grain foods, baked items, rice, potatoes, eggs, legumes, most vegetables		1 : 2–1 : 9
Meat, fish, poultry, soft drinks, flour		1 : 10 or >1 : 10

\* Ca = calcium; P = phosphorus.

maintained a continual negative calcium balance with recommended (RDA) levels of calcium.<sup>38</sup> Despite a declining gut ratio of calcium absorbed to calcium ingested with age, it nevertheless was possible for all the women studied to achieve a positive calcium balance. This required an intake of 1.241 grams/day of calcium for a steady-state calcium balance and approximately 1.4–1.5 grams/day of calcium for a positive calcium balance.

Lesser risk factors for developing osteoporosis include smoking, relative leanness (since adipose tissue is a major source of extragonadal estrogen production postmenopausally), duration of lactation, and inadequate skeletal acquisition in youth and/or small body habitus.<sup>39</sup>

Desirable calcium intake is related to level of dietary phosphorus. In general, the calcium : phosphorus ratio in an adult diet should remain in the 1 : 1 range. Table 12-6 shows foods that provide an ample calcium : phosphorus ratio. Table 12-7 provides specific examples of high-calcium foods. Since this is a difficult relationship to achieve in a mixed high-protein Western diet, examples of inexpensive readily available calcium supplements are included (*see* Table 12-8).

Several practices, some of which are common in elderly persons, lead to a diminished calcium absorption. These include:

High antacid intake;

High oxalate diet (includes spinach, rhubarb, chard, chocolate, sorrel, beet greens, parsley, and bran);

High phosphorus medications such as Nutraphos®; and

A high phytic acid or phytate diet (seen in raw grain foods).

Phytic acid binds calcium in the gut. Yeast-leavened products promote the presence in the gut of phytase, which is an enzyme that inactivates phytate. Phytate also is capable of binding iron and zinc.

Osteoporosis can be delayed or offset by eating a balanced diet, which includes adequate calcium (either dietary or supplemental) to a level of approximately 1.5 grams/day in females. Males may require less. Daily exercise is important—as aerobic as allowable by an individual's cardiovascular and pulmonary status;

TABLE 12-7 Good Food Sources of Calcium

Milk,* buttermilk
Cheese*
Cottage cheese,* ricotta, Farmer's cheese, mozzarella
Canned salmon (when bones are eaten)
Leafy greens (? oxalates): collards, bok choy, kale, and mustard greens
Rutabagas
Broccoli
Blackstrap molasses
Tofu (bean curd-cake)
Fortified soy milk
Masa Harina
Tortillas (corn, not flour)
Sunflower seeds
Sesame seeds

\* Can be high in saturated fat.

TABLE 12-8 Calcium Supplements

Name	Generic	Ca/tab (mg)	Mg/tab (mg)	Other Ingredient
Dolomite tab	Calcium and Magnesium carbonate	130 mg	80 mg	0
Titralac® 1 tbsp 1 tsp liquid	Calcium carbonate	168 mg Ca 400 mg Ca	0 0	0 0
Os Cal® tab	Calcium carbonate	250 Ca	0	125 units Vitamin D-12
Calcit®	Calcium gluconate Calcium lactate Calcium carbonate	152.8 mg Ca	0	100 units Vitamin D-2
Tums®	Calcium carbonate	200 mg Ca	0	0
Generic	Calcium gluconate	500 mg	0	0

but, more likely, just the movement of the skeletal structure against gravity. Some fluoride is advisable, although massive sodium fluoride supplementation is unwarranted. If the water is not supplemented, tea and sardines are good sources of fluoride.

### Periodontal Disease

Periodontal disease, which leads to a demineralization of the jaw, is a widespread problem in the United States (*see* Volume I, Chapter 34). Tooth loss occurs in an estimated 35 million people, starting at about 35 years of age. Seriously affected edentulous patients already are limited in their nutritional repertoire. The lack of mastication itself leads to a further demineralization of the mandible. Animal studies<sup>40</sup> showed that osteoporosis and jaw demineralization were promoted by feeding a diet with a calcium : phosphorus ratio of 1 : 10. Clinical resorption of bone was found on a histologic examination of several bone sites, and it was first detected in the mandibular alveolar bone and was followed by vertebral bone. Resorption of jaw trabecular bone led to a loosening of the teeth, which was followed in turn by a traumatization of the gingivae, by hemorrhaging, and by a superinfection of the gums. Another study<sup>41</sup> reported the ability, in several species of animals, to reverse demineralization of long bones and jaws by feeding a high-calcium diet

with a calcium : phosphorus ratio of 1.2 : 1 for approximately 42 weeks. The demineralization of the jaw and vertebral bodies occurred at approximately the same rate and preceded the demineralization of long bones. The feeding of a diet with an optimal calcium : phosphorus ratio led to a remineralization of both the jaw and vertebral bodies, which proceeded more rapidly and completely than in the long bones.

Despite the fact that a correspondence between osteoporosis and alveolar bone demineralization has not been demonstrated in humans, it seems reasonable to recommend optimal levels of dietary calcium to prevent both problems.

### Cardiovascular Disease

Cardiovascular disease in an elderly individual is considered to be largely irreversible. Clearly, the emphasis on identifying risk factors as modifiers of atherosclerosis must be addressed at a young age. Hypertension, hyperlipidemia, cigarette smoking, diabetes mellitus, obesity (in some), and probably a lack of exercise, all are contributors to degenerative arterial disease. The definitions of predictors of atherogenic risk become less and less clear with advancing age. Even the reliable low-density lipoprotein (LDL) cholesterol to high-density lipoprotein (HDL) cholesterol level becomes less predictive,<sup>42</sup> and it eventually is non-predictive for atherosclerotic complications in very elderly persons. For

a patient over 75 years of age, it would be unwise to make major interventions in the type and amount of dietary fat (*see* Volume I, Chapter 29). It would seem prudent in a relatively young elderly individual (i.e., between 60–75 years of age) to advocate the dietary goals with a relatively limited amount of saturated fat and an overall fat intake of approximately 30% of the total calories ingested. Some authors would dispute this view,<sup>43</sup> advocating that a decreasing fat intake to approximately 10% of the total calories does provide some amelioration of both cardiovascular and peripheral vascular diseases (even in elderly persons) when coupled with a high-complex carbohydrate diet and exercise routine. For a severely compromised elderly person who is looking for an answer and willing to devote his or her time to such a regimen, it is not harmful if other nutritional principles are not neglected.

Studies done with a population of healthy, active, 60–93-year-old individuals showed that HDL cholesterol concentrations could be inversely related to alcohol consumption with either total carbohydrate or refined carbohydrate ingestion—both expressed as a percentage of the total calorie intake.<sup>44</sup> It should be noted, however, that these dietary factors were not related to an LDL:HDL ratio of cholesterol. Individuals who consumed a low-carbohydrate diet had 10–20% higher protective HDL cholesterol levels than did those who consumed diets high in these food substances. Dietary fat did not correlate particularly well with HDL cholesterol in this population. These early studies should not be taken as a mandate for the alteration of dietary goals-type recommendations.

Exercise must be accounted for in any study that attempts to relate nutrition to cardiovascular disease (*see* Table 12-9 and Table 12-10). One early study<sup>45</sup> looked at the total serum cholesterol levels as these were influenced by relative amounts of physical activity in two separate communities in Switzerland; one was rural and the second was urban. At comparable ages, groups at each decade of life between 10–70 years of age were similar in most features; but, cholesterol levels were uniformly higher in the urban study subjects. The rural population is notable for a high level of physical activity, even among octogenarians. At 70 years of age, serum cholesterol levels of the rural men and

women were 160 ml/dl and 190 ml/dl, respectively. In the urban area, the corresponding levels were 195 ml/dl and 235 ml/dl. Both groups consumed similar levels of dietary fat at 35% of the calories/day, and also a similar saturation of fat. Each population had similar smoking habits and weight. The only major variable that emerged was the hard physical activity in the rural community.

### Hypertension (*see* Volume I, Chapter 12)

Hypertension may be subject to some dietary interventions in elderly persons. The role of sodium chloride and its relationship to hypertension has been explored extensively, but specific information about old age is lacking. Certain strains of animals are susceptible to salt-induced hypertension; in others, this relationship is not seen.<sup>46</sup> It is highly likely that similar genetic properties may occur in humans, since hypertension often is seen in multiple members of a family. The characteristic United States daily intake of salt is somewhere between 4–10 grams of sodium per individual. Salt intake below 2.5 grams/day has been advocated as a means of reducing extracellular fluid,<sup>47,48</sup> primarily for individuals with a strong family history of hypertension. However, this sort of recommendation must be viewed with caution in elderly persons, since they often have a reduced sense of taste (hypogeusia) and because sodium is a means of increasing taste in food.

It seems reasonable to moderate the levels of sodium in a hypertensive elderly person's diet as one factor in treatment. There is a close association between the degree of processing of foods and the sodium levels in those foods.<sup>49</sup> Processed foods almost invariably tend to lack the same levels of nutrients that are seen in fresh foods and include excessive levels of sugar, salt, or saturated fats.

Labels are important clues to sodium content, but are difficult at times to interpret. A label may say sodium phosphate, ascorbate, benzoate, nitrate, ferrocyanide, and so on, which is clear. However, an individual must be cautioned to also avoid foods that are labelled with monosodium glutamate, disodium or trisodium (phosphate, isonate, and dihydrogen pyrophosphate), baking soda or powder, garlic, onion, celery salt, sea salt, salt pork, brine, or

TABLE 12-9 Mean Heights and Weights and Recommended Energy Intake

Category	Age (yrs)	Weight		Height		Energy Needs (with range)*	
		kg	pounds	cm	inches	kcal	
Males	51-75	70	154	178	70	2,400	(2,000-2,800)
	76+	70	154	178	70	2,050	(1,650-2,450)
Females	51-75	55	120	163	64	1,800	(1,400-2,200)
	76+	55	120	163	64	1,600	(1,200-2,000)

\* The energy allowances for the older age groups represent mean energy needs over these age spans, allowing for a 2% decrease in basal (resting) metabolic rate per decade and a reduction in activity of 200 kcal for men and women between 51-75 years, 500 kcal for men over 75 years, and 400 kcal for women over 75 years. The customary range of daily energy needs of  $\pm 400$  kcal at any age emphasizes the wide range of energy intakes that are appropriate for any group of people.

SOURCE: From The Harris-Benedict equation, in Blackburn G, et al: Nutrition and metabolic assessment of the hospitalized patient. *J Parent Enteral Nutr* 1:11-22, 1977, used by permission.

self-rising flours. Over-the-counter and prescribed medications, particularly antacids, laxatives and sleep-aids, are notorious offenders; labels must be read. A Fleet's enema can provide 300 mEq of sodium if retained for 1 hour.

#### Diabetes (see Volume I, Chapter 25)

It is widely recognized that glucose tolerance declines with age<sup>50</sup>; however, fasting blood sugar does not significantly change with age, and it rises very little as a person becomes progressively older.<sup>51</sup> Although not all elderly diabetics are obese, many are at least 20% above the recommended weight for their height.

A typical American Diabetes Association (ADA) diet can be a formidable challenge to an elderly individual who is being coached for the first time. A clinician must bear this in mind in

instructing an elderly diabetic person to follow dietary instructions. Such factors as life-long ethnic and social patterns of eating, financial problems that limit the amounts and types of foods available to an individual, and various limitations on cooking and home resources must be taken into account. In addition, a newly diagnosed diabetic patient may have a limited comprehension and require repeated instruction. It is advisable to simplify the instructions by providing an individual with dietary goals. This supplies a relatively high percentage of carbohydrate in one's diet, much of it complex; a general avoidance of simple sugars and refined carbohydrates must be emphasized and can be recommended to all older individuals.

Programs and individual work with an elderly person require the assistance of a dietician, with an emphasis on very simple recipes and the use of a variety of fresh and seasonal

TABLE 12-10 Activity Energy Needs

A means of estimating energy needs for an individual may be derived from the Harris-Benedict equation (developed in 1908), (which considers height, weight, age, and sex in arriving at basal energy expenditure (BEE). A further correction is made for normal activity levels or increased requirements incurred with illness or injury.

$$\text{Males: } \text{BEE} = 66.47 + 13.75 (W) + 5.0 (H) - 6.75 (A)$$

$$\text{Females: } \text{BEE} = 655.09 + 9.56 (W) + 18.5 (H) - 4.67 (A)$$

W = Actual weight in kg

H = Height in cm (inches  $\times 2.54 = \text{cm}$ )

A = Age in years

Adjustment for an ambulatory individual:

Activity	Formula
Light or sedentary sitting or standing	$\text{BEE} \times 1.2$
Moderate walking, housework	$\text{BEE} \times 1.5$
Strenuous running, carrying a load	$\text{BEE} \times 1.75$

foods whenever possible. Foods should be used that can be eaten without cooking and without teeth. Examples include dairy products that emphasize low fat items, meats that are soft and available (e.g., fresh fish, canned [water-packed] tuna, chicken or turkey without skin that can be finely cut before eating), and lean red meats (on occasion). The vegetable-fruit group can emphasize such items as green beans, summer squash, cauliflower, broccoli, cabbage, spinach, and other dark green vegetables—all of which can be steamed without fat and are soft when cooked. The emphasis should be on limited cooking, so that vitamin and mineral content is maintained. Many soft raw fruits are available, and some are surprisingly high in fiber (e.g., pears and persimmons).

Dietary fiber can be important in controlling hyperglycemia in a diabetic person.<sup>52</sup> Some diabetic elderly persons have been able to discontinue hypoglycemic agents altogether after adding high-fiber foods to their diets. Legumes, bran in juice and sprinkled on cereal, high-fiber cereal, bran muffins, and a variety of fresh fruit and vegetables may be used.

## Cancer

Whether one can alter the chances of developing a given type of cancer through changes in one's nutritional practices is a topic of major interest and debate to physicians and patients alike. Nutrition can play either a protective role through the maintenance of health and immunologic competence or a harmful role through the introduction of excesses (calories, fats, alcohol, or nitrates) or carcinogenic substances. In 1980, the National Cancer Institute commissioned the National Research Council to make a comprehensive study of the topic of nutrition and cancer as a means of providing guidelines for food policy action and recommendations for further research.<sup>53</sup> The committee focused on cancers that are known or suggested to be diet-related. These include tumors of the breast, uterus, prostate, gastrointestinal tract, and the urinary bladder. The relation between these cancers and dietary practices has usually been established by animal studies.

Of all dietary factors, the one most strongly linked with carcinogenesis was the total level of dietary fat and calories. An interpretation of

this observation is complicated. As the levels of dietary fat (and calories) increase, one usually finds progressively larger amounts of hydrogenated fat. These artificially firm, hydrogenated fats introduce abnormal trans-saturated fatty acids, which have been shown to change the properties of biologic membranes and by this mechanism may act as cocarcinogens.<sup>54</sup> One might do better to have small amounts of butter and fresh oils in one's diet and to avoid such hydrogenated fats as cooking shortenings, hardened margarines, baked goods, and other products that are made from these items.

The issue of dietary fiber has been given wide publicity for over 10 years. One study found no association between high-fiber intake and a lower risk for colon cancer; however, it did show that the incidence of colon cancer was inversely related to the intake of the pentosan fiber fraction that is found in whole wheat products. The committee concluded that the total fiber from fruits, vegetables, grains, or cereals exerts a protective effect against colorectal cancer, but that any possible influence is probably related to the intake of specific components of fiber than to the total fiber itself.

In looking at the protective effects of vitamins against cancer, the committee focused on the role of Vitamins A, C, and E. There was found to be an inverse relationship between the intake of Vitamin A and/or carotenoids and carcinomas that occurred in the lungs, larynx, or bladder. Several studies have explored the role of high doses of Vitamin A, especially retinoids (synthetic analogues of the vitamin), in preventing neoplasias. In animals, retinoids have been shown to inhibit chemically induced neoplasias of the breast, bladder, lung, and skin. Vitamin C possibly inhibits the formation of some N-nitroso-related carcinogens. Vitamin E has a similar effect in terms of N-nitroso compounds.

The committee recommended the ample use of cruciferous vegetables (cabbage, broccoli, cauliflower, or brussel sprouts) because of their indole content, which (based on animal studies) may be protective against cancer. They further recommended decreased amounts of food additives. With the exception of saccharin, no additives have been shown to be directly tumorigenic, but it is reasonable to be cautious with respect to the use of high levels of new food

substances. The mycotoxins, especially aflatoxin, are powerful carcinogens. However, they generally are not present in the United States food supply due to regulated food storage methods.

Certain foods contain extrinsic mutagens (e.g., charred meat and fish) and the attendant products of browning in these foods. The committee noted that in areas of the world where very highly salted and cured meats are eaten regularly, there is a much greater incidence rate of cancers (particularly of the esophagus and stomach) than is seen in the United States. If alcohol intake is excessive, particularly when combined with tobacco smoking, there were many more cancers of the mouth, throat, larynx, esophagus, and lungs than would be seen in a comparable group of non-alcohol users. The committee recommendations, except for the specific provisos enumerated above, are those of the dietary goals.

### Vitamin and Mineral Supplementation

Vitamin and mineral supplementation to the level of the RDAs is recommended for any person over 60–65 years of age. Even a relatively healthy-looking diet, which provides more calories than many elderly women consume, nevertheless is often deficient in some nutrients. In the long run, this may lead to subtle changes that can significantly diminish the quality of life. A number of studies have underscored this impression, both in the prevalence of deficient nutrients and in the correction of some clinical problems with an adequate dietary intake.<sup>55,56</sup>

A recent study of 270 healthy elderly persons between 60–94 years of age who are active in the community, take no medicines, but do use supplemental vitamins and minerals, showed that those with the lowest supplemental intakes performed less well on the Wechsler Memory Test and the Halstead-Reitan test (which measures abstract thinking).<sup>55,56</sup> For both tests, low blood levels of Vitamin C and Vitamin B-12 were noted to correlate with poorer scores. Low riboflavin and folic acid serum levels correlated with a poorer performance on the abstract thinking test. Nutritional intake, as reported by patients, did not always correlate with blood levels of nutrients.

### Drug-Nutrient Inter-relationships

Food that is taken in combination with pharmacologic agents can interfere with the absorption, bioavailability, metabolism, or excretion of certain drugs.<sup>57</sup> Nutritional status itself must be good for an “optimum” hepatic handling of pharmacologic agents. An individual’s status with respect to protein, essential fatty acids, ascorbic acid and riboflavin, calcium, magnesium, and zinc all have an influence on drug metabolism. Certain nutrients are interfered with in one of a variety of the above fashions. Some drugs are specifically used for their vitamin antagonist properties.

Certain drugs, such as tricyclic antidepressants, may promote nutrient intake. Amitriptyline (begun with 25 mg at bedtime) may be highly effective in not only improving depression, but in concomitantly improving appetite and nutrient intake. Cyproheptadine hydrochloride also can be used for appetite, but its antihistaminic properties may be a problem unless used only at bedtime. Antidepressant medication may need readjusting if an individual has gained undesirable weight during antidepressant therapy. Some drugs promote or inhibit absorption of nutrients.

Since many elderly individuals are given a variety of medications from multiple physicians, and may take over-the-counter preparations as well, it is critical for one physician to act as a conduit and advisor with regard to these substances and dosages. It then behooves this physician to determine which, if any, may be compromising the nutritional status. It is well known, although often overlooked in the press for time, that a patient complains of malaise, palpitations, fatigue, anorexia, and muscle cramps may be suffering the effects of over-medication and undernutrition.

### Federal Nutrition Programs

Recent federal programs that lead to nutrition assistance for elderly persons have included the United States Department of Agriculture’s two programs: the National Food Stamp Program and the Direct Food Distribution Program. Both are available in virtually every community for feeding needy people, including the elderly

population. Both programs pose access problems for debilitated persons. Volunteers can help to some extent. Medicare indirectly influences nutrition intake through an improvement of health and conservation of personal funds for food expenses. More directly, the National Nutrition Program for Older Americans, authorized by the Older Americans Act of 1965, Title VII, is a formula grant program that provides federal allotments to each state Agency on Aging based on the number of state residents 60 years of age and older.<sup>58</sup> Each state agency, in turn, awards funds to local communities for elderly nutrition programs. Each program provides at least one hot meal per day, 5 days/week, which meets 33% of the daily RDA. Recipients must be over 60 years of age (although a spouse may be younger) and must be eating inadequately for financial or physical reasons or by virtue of social isolation. Funds for transportation and outreach are less readily available, since the program primarily is designed for congregate meals. Typically, no "meals-on-wheels" system is built into the program; but, in some areas, provisions are made to serve the home-bound.

Despite the mandate that is arising from the 1969 White House Conference on Food, Nutrition, and Health<sup>59</sup> that the goal of adequate nutrition for all United States citizens is an appropriate one, the United States lacks a national nutrition policy or guidelines for action. While we continue to see legislation in which economic vicissitudes, national defense policy, agricultural policy, foreign trade, and other factors prevail over the goal of adequate food for all age groups, nutrition may continue to be a subpriority for the foreseeable future.

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## CHAPTER 13

# Exercise

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All available medical evidence shows that functional capacity at the cellular, tissue, organ, and system levels decreases with age. The most important losses in the cardiovascular system are related to heart function. The ability of the heart to pump blood (maximum cardiac output) declines approximately 8% per decade after adulthood.<sup>1</sup> Blood pressure typically increases with age as fatty deposits gradually clog the coronary arteries and the circulation decreases.

Respiratory changes include a decrease in vital capacity and stiffening of the chest wall. Since breathing requires more muscular effort, maximal ventilation decreases.

Skeletal muscles gradually decrease in strength, and the capacity for muscular endurance is reduced. Some 3–5% of all muscle tissue is lost in each decade.

### Physical Decline with Aging

All these losses combine to create a considerable loss in the body's ability to transport oxygen from the ambient atmosphere to the consumer cells and to use it at the cellular level. This loss in maximal oxygen consumption capability translates into a loss of energy. Men have lost about 50% of this capacity by 75 years of age. Women follow a similar course.<sup>2,3</sup>

Thus, it is possible that the functional losses that are reported in the literature as age changes

may, in fact, result from at least three contributing factors: 1) An increasingly sedentary life style; 2) Unrecognized incipient disease processes; and 3) True aging changes. The first factor, "disuse phenomena" or the "hypokinetic disease" of Kraus and Raab, is the only one of the three that can be easily reversed.<sup>4</sup>

### Parameters in Older Patients

Over a 5-year-period, my colleagues and I tested and trained over 200 volunteer subjects at the Laguna Hills Retirement Community, in California. These subjects ranged from 56–88 years of age and every sample drawn from the population averaged within 2 years of age 70.<sup>5–15</sup>

### Need for Medical Examination

In one phase of an experiment, we tested to their voluntary maximum tolerance 29 men, 61–79 years of age who had had a medical screening examination, including a resting 12-lead electrocardiogram (ECG). Of the 29 men, 15 had premature ventricular contractions (PVCs). Of eight men who had to discontinue the experiment before attaining maximal tolerance, four had multifocal PVCs, two had an ST-segment depression greater than 3 mm, one had severe angina, and one went into ventricular tachycardia. On the basis of this evidence, we concluded that both a medical screening examination and an individual assessment of exercise tolerance are essential to ensure the safety of older peo-

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SOURCE: de Vries HA: Tips on prescribing exercise regimens for your older patient. *Geriatrics* Apr 1979, pp 75–81, reprinted with permission of *Geriatrics*.

ple—even so-called healthy normals—in an endurance-type exercise program.

### Type of Exercise

Recent evidence has supported Tuttle and Horvath's<sup>16</sup> earlier findings that different types of exercise may elicit very different physiologic responses, even when the work bouts are equated for metabolic demand. The increase in heart rate with a unit increase of oxygen intake ( $\dot{V}O_2$ ) is greater for arm work than for leg work.<sup>3,17-20</sup> The blood pressure response at equal levels of  $\dot{V}O_2$  also is greater for arm work than for leg work<sup>3,18,19</sup> and greater for static contractions than for rhythmic limb exercise.<sup>21-23</sup>

Our work in this area showed that cardiac effort, which is estimated from the heart rate-blood pressure product in these older men, increased least rapidly with an increased work load in walking-type exercise. Cycling created considerable isometric tension in the upper limb muscles. Crawling exercises created heavy isotonic loads in the small muscles of the arms and shoulders. An analysis of the data showed that the increase in blood pressure was the most important determinant of the increasing work of the heart.

We concluded that the most effective training loads could be handled with the least cardiac effort by maximizing the rhythmic activity of large muscle masses, and by minimizing high activation levels of small muscle masses and static muscle contraction.<sup>10</sup> The natural activities of walking and running seem to accomplish this.

### Prescription of Exercise

Principally, we used progressive walking, jog-walking, and continuous jogging in our work with elderly persons. We provided each individual three cues for the monitoring of exercise heart rate (taken 5–10 seconds after the cessation of exercise):

1. Minimum heart rate = 40% of heart rate range;
2. Target heart rate = 60% of heart rate range;
3. Heart rate of 75% heart rate range should not be exceeded.

Table 13-1 shows the double-progressive approach we used for gradual progression in a jog-

TABLE 13-1 Double-Progressive Jog-Walk Program Based on Three Workouts per Week

Days	Run	Walk	Number of Sets*
1 → 6	50 steps	50 steps	5 → 10
7 → 12	50 steps	40 steps	5 → 10
13 → 18	50 steps	30 steps	5 → 10
19 → 24	50 steps	20 steps	5 → 10
25 → 30	50 steps	10 steps	5 → 10
31 → 36	75 steps	10 steps	5 → 10
37 → 42	100 steps	10 steps	5 → 10
43 → 48	125 steps	10 steps	5 → 10
49 → 54	150 steps	10 steps	5 → 10
55 → 60	175 steps	10 steps	5 → 10
61 → 66	200 steps	10 steps	5 → 10
67 →	Individualized program		

\* Increase number of sets by one each day at each level of exercise.

walk program based on three workouts per week. This approach worked well in average, healthy, and asymptomatic older men and women. However, in a few subjects, even this protocol proved too severe,<sup>7</sup> and we decreased their exercise to a progressive walking program.

### Trainability

Over a 42-week training period, oxygen transport in the experimental subjects improved by 29% ( $p < 0.05$ ), while the controls showed no significant change.<sup>7</sup> Highly significant improvements ( $p < 0.01$ ) also were observed in vital capacity (19%), minute ventilation ( $\dot{V}_E$ ) at 90% maximum (35%), and in arm strength (12%).

Other significant health benefits that were observed during the experience at Laguna Hills included a decrease in skinfold measurements concomitant with weight loss, and a decrease in both systolic and diastolic blood pressure. Exercise also had a highly significant “tranquilizer” effect on resting muscle action potentials, which appeared to be considerably better than that of meprobamate.<sup>13</sup>

### Conclusions

On the basis of our work and the more recent work of others, we believe that the trainability of healthy asymptomatic men and women in their 60s and 70s is not greatly different in a

relative sense from that of young men and women. However, the hazards of endurance training may be considerably greater because of the increased incidence of asymptomatic cardiovascular diseases in older subjects. For this reason, medical screening and individual assessment of exercise response both are advisable before a subject undertakes endurance training beyond vigorous walking.

In addition to the training effect on oxygen transport and physical work capacity, other significant health benefits seem to accompany the training process, which include a decrease in skinfold dimensions and in diastolic and systolic blood pressure. One of the more important acute responses to endurance exercise appears to be the highly significant reduction in the resting muscle action potential level, which can be interpreted as a "tranquilizer" effect.

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## CHAPTER 14

# Sexuality

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Clinical studies during the past 20 years concerning the preservation of sexual activity as part of vigorous aging have confirmed that there not only is no specific age at which sexual activity must necessarily end, but that many individuals continue active sex lives into their 7th, 8th, and even 9th decades. In fact, study subjects who are 60–90 years of age engage in sexual relations with a variable frequency that extends from once every other month to three times per week. This proves to be more a function of how much sexual activity existed in early adulthood, as well as the availability of a willing partner and the state of one's physical health. Conversely, if sex has never been important nor particularly enjoyed, the aging process can even provide a convenient excuse for giving up sexual activity if this is desired. Recent studies by George and Weiler<sup>1</sup> have shown that despite older data suggesting a decline in sexual activity in the last half of adulthood, levels of sexual activity remain more stable over time than has been previously appreciated.

Much of this misinformation was due to myths that were perpetuated both by elderly persons themselves and by the medical profession to whom they came for assistance. For example, as soon as an aging male notices the anticipated slowing and dampening of his sexual responses, he is liable to worry that his erectile capacity is waning and fears it will disappear; he does not realize that this slowing is an expected part of the aging process. Women are less susceptible to these attitudes, but they may become victimized by their partners' anxieties

and withdraw sexually to protect their husbands from feelings of inadequacy. The net result is the loss of what could be an otherwise rewarding intimate life. An aging male is particularly prone to avoid confronting his diminishing powers to deny the encroachments of aging. The social view of sex in aging is often associated with notions of guilt and shame as to whether it is "proper" to be sexually active during advancing age; eventually, the need for sexual activity becomes completely denied and repressed. Another fact of aging that feeds sexual withdrawal is the comparison of the intensity of sexual responses during both middle age and early aging with what it was earlier in life. Men, for example, reach their peak of sexual activity in their late teens in contrast to women, who reach theirs in their 30s. It is ironic that during middle life, when women become more responsive, men become less responsive sexually. Further excuses for withdrawing sexually will be found with illnesses that increase in frequency after 60 years of age, although few health conditions make sex altogether impossible. Nonetheless, diabetes, arteriosclerosis, and cardiac problems (especially coronary artery diseases) bring additional anxieties that encourage sexual withdrawal, particularly in males. Much of this can be preserved if there is both an opportunity for counseling from a physician and the availability of a cooperative and understanding partner. An aging male is particularly vulnerable to erectile dysfunctioning if there has been a long period of abstinence due to illness, especially if he has been accustomed

to regular stimulation and intercourse. He can recover slowly once stimulation and sexual activity is resumed.

Despite abundant new clinical information about aging sexual functioning, there is some reluctance on the part of the medical profession to prepare the aging population to understand and accept their aging sexuality. "The readiness is all," as Hamlet says. Physicians often have problems in dealing with an aging individual, even to the point of denying their need for sexual activity during the aging process. One study<sup>2</sup> found that when physicians were given identical descriptions of patients with psychiatric symptoms that differed only in respect to the age of the patient, they more frequently referred patients who were described as young for psychological assistance than those who were described as old. Part of this may have roots in a physician's inability to see an elderly patient as anything but an "old person" and to confront one's own aging process, as well as the notion that an aging male who inquires about these difficulties can be stereotyped as "a dirty old man." Most often (in this author's experience), it is an extension of the difficulties that physicians have in discussing sexual problems with their patients comfortably, as well as the uncertainty about their own skills in sexual medicine, that force them to avoid taking a sexual history. There also is a fear that a physician's own ignorance in this area will be revealed. Add to this a physician's impatience in dealing with an aging patient, and the result is clinically irresponsible behavior. Physicians occasionally avoid addressing sexual issues by using inappropriate humor and arbitrariness with such comments as "Well, what can you expect at your age?" or "You'll get used to it as you get older," or "Well, maybe you've had as much as you're going to get!" Too often, this produces depression and only feeds a patient's loss of sexual self-confidence. Alex Comfort<sup>3</sup> has said that such patients can be "dewitched through thoughtlessly prohibitive or insufficiently explicit and reassuring advice." It is regrettable that a physician cannot become the advisor and guide for what Butler and Lewis<sup>4</sup> have described as "the opportunity for the expression of compassion, affection, and loyalty; affirmation of the value of one's body and its functions, a means of self-assertion and affirma-

tion of life, the pleasure of being touched and caressed." It has been pointed out that next to the fear of death, which we all share directly or indirectly, the fear of losing sexual pleasure and intimacy and the opportunity to insure their continued availability ranks high in the hierarchy of pressures that people feel as they enter middle age and advance further in the aging process. As someone has said: "Sex doesn't make you live longer, it only makes you want to!"

## Psychosexual and Social Issues

In addition to new available clinical information concerning functioning during aging sexuality, a large body of information has developed that is concerned with the psychological and social conditioning factors that are important determinants of sexual activity among elderly persons. Much of this is attitudinal. For example, it is difficult for sexually active parents and grandparents to understand and accept the sexual freedoms of their younger children. These same younger teens and adults can hardly believe that their elders, especially their grandparents, are continuing to enjoy the sensual and intimate sharing that they have pre-empted as their right. This was demonstrated in a sentence completion procedure for assessing attitudes toward elderly persons in which students most often stated that "sex for most old people is negligible, unimportant, and past."<sup>5</sup> Studies from Duke University, by Eric Pfeiffer, et al,<sup>6</sup> promote a more accurate understanding of sexual behavior during the middle life and geriatric years. They have pointed to dramatic differences between men and women of corresponding age with respect to the indicators of sexual behavior. Also, they have shown that men generally reported greater interest and activity than women, although both expressed a declining interest and activity with advancing age. It was apparent that sex still continued to play an important role in the vast majority of the subjects studied. Aging women exhibited a surprisingly greater sexual decline than their male counterparts. This conflicts with earlier studies by Kinsey and his team,<sup>7</sup> and especially with the studies of Masters and Johnson<sup>8</sup> who contend that an aging female shows little evidence of sexual incapacity. If this does occur, it is more liable to

be a function of a male's loss of interest and capacity with aging, rather than a female's own loss of interest and capacity. Although a husband's withdrawal may be a primary determinant, an elderly wife could find aging a good reason to end an activity that she had never found satisfying. All indicators seem to point to the lack of a sexually capable and socially acceptable partner as the major problem for women. Nonetheless, there is a significant increase in the sexual drive of a middle-aged woman. This often reflects an intense feeling of release and security from the risk of pregnancy, especially following menopause. In many cases, it may lead to casting about for new sexual partners or an opportunity to extend and develop her experience in sexual variation. It seems that the decline of sexual interest in women (if genuine) is one of circumstance rather than capacity, and it is extrinsic rather than intrinsic—an important insight for a practicing geriatrician. Possibly, this is a function of the passive role that many women assume, compared to men who are more liable to be sexually opportunistic and aggressive.

With declining sexual activity in both sexes, there is a parallel diminution in both masturbation and the frequency of morning penile erections. Ejaculatory intercourse also occurs less often in an aging adult according to Martin<sup>9</sup>; it declines from a 98% rate up to age 60 years of age, to 77% among men in their 80s. While a woman's capacity for sex remains intact throughout her life span, fewer women than men remain sexually active. If there is regular stimulation, there seems to be no special time limit that is drawn by advancing years for female sexual activity. Also, Klegman<sup>10</sup> reports that orgasmic responses still occur in women in their 70s and older; Christenson and Ganion<sup>11</sup> have found that older wives with younger husbands are more sexually active than younger wives with older husbands. Curious differences unique to each gender have been reported that affect sexual behavior. Men seem to be more reticent than women to admit they are no longer interested in sex, and they are most often the one who determines continuing sexual activity or its absence. However, a male is markedly affected in the frequency of his sexual expressivity by his health, past sexual experiences, general life satisfactions, capacity to adapt, ba-

sic fears, and social factors such as class and education level. For a female, however, her marital status seems to be of immense importance, as well as her acceptance of a suitable partner. Particularly among older women, the enjoyment derived from sexual activity in their younger years and their present orgasmic capabilities appear to be critical. Less important effects are related to religious, social, economic, psychological, and health variables.

## Sexual Functioning in Aging

The alterations in sexual functioning that occur with aging are unique to each sex. While a female experiences abrupt changes in endocrine functioning with menopause, a male's changes are a gradual cessation of fertility that is due to a slow diminution in spermatogenesis. This occurs after the 5th decade, although there may be persistent sperm production well into the 9th decade in some individuals. Although the level of circulating testosterone exhibits a gradual reduction past 60 years of age, in males, the decrease is much less than observed in sex steroid levels in women (*see* Volume I, Chapter 27). There is an even more intense decrease in the circulating free testosterone level that possibly is associated with the progressive rise in sex steroid-binding globulin past 50 years of age. Despite these and other endocrine changes previously described in this volume, there is no scientific support thus far for the notion of a male menopause or climacteric—certainly, nothing comparable to that seen in menopausal women.<sup>12</sup> Such clinical states have been characterized in males by such vague complaints in varying combinations as poor appetite, ennui, depressed libido and transient erectile difficulties, shortened attention span and difficulty in concentrating, irritability, fatigue, and disturbances in the sleep cycle. These symptoms are so non-descript as to be easily assigned to the more common psychosomatic states that are associated with the aging process (e.g., depression, anxiety, and mood instability). It is rare that any of the above can be specifically assigned to changes in the concentration of any single endocrine determinant, nor do they respond to injections of testosterone or other endocrine preparations.

Achieving an adequate firm erection requires more intense and longer direct stimulation of the penis, especially past 60 years of age. Pre-ejaculatory "seeping" generally is absent beyond this age due to the accompanying reduced seminal ejaculatory volume. The period of ejaculatory inevitability becomes progressively brief in aging (this may be associated with a testosterone deficiency), and it is often associated with the need for prolonged direct stimulation to make ejaculation possible. Much of this undoubtedly is a reflection of alterations in the prostate gland and the nerve supply to the genital area. As a result, in aging men, the plateau period in the sequence of sexual arousal becomes extended. Because of this, an aging male has a certain advantage as a lover in being able to provide prolonged stimulation for his female partner, who will benefit by the extended available time to reach orgasm and to enjoy multiple orgasms as well. Aging men also describe a lesser physical need to ejaculate, and there is a more rapid loss of erection following ejaculation. A progressively longer refractory period will ensue before another coital experience can be successfully undertaken. An aging male must understand that he may not be able to complete each coital experience with an ejaculation and orgasm.<sup>13</sup> Despite this, many aging males in their 7th and 8th decades and beyond discover that sufficient erectile capacity is available for a satisfying intercourse, even if an orgasm and ejaculation do not occur. Many aging males report that they approach maximum erectile firmness in a step-wise manner, at times softening with continuing stimulation and regaining firmness as arousal progresses. If this physiologic phenomenon is not understood as a natural evolution of aging sexual functioning, it can become a significant cause of anxiety and fear that erectile ability is being lost and will soon be totally unavailable. Secondary impotence due to this experience eventually can develop unless a patient is informed and educated by his physician as to its true significance and the partners are so advised that they can continue to be sexually active.

In an aging female, there is an evident gradual decline in reproductive capacity that begins somewhere between 30–40 years of age. This is followed later by irregularities in the menstrual cycle that signal the onset of menopause. In the

United States, this event occurs most often in women in their late 40s to mid-50s. There is no physiologic basis established that would prevent an aging female from continuing to enjoy sexual intercourse into later life. As mentioned previously, this is more determined by the lack of an available or cooperative partner, although it can be a function of her simple wish to end an activity that has never been satisfying. The latter point is especially true if there has been a dysfunctional marital relationship that possibly was associated with long-standing problems or life stresses. Frequently, an elderly woman who cares for a sick husband over an extended period of time finds herself sexually frustrated. This often continues following the death of that husband. Once the process of mourning and loss has been completed, she may wish to socially re-establish herself. However, many women who are not so inclined, find greater contentment in being able to shut off their sex life than do men in the same situation. Unhappily, there are social proscriptions that relate to whether or not this is age-appropriate. Although attitudes are changing, many women presently in the over-65 age group still are hampered by what is considered acceptable since they may be at risk of embarrassment if they do not "act their age." There is evidence that masturbation increases under these circumstances in older women who are inclined to relieve their sexual tensions despite their wish to develop rewarding heterosexual relationships.

The endocrine events that are associated with menopause are described in Volume I, Chapters 26 and 27. Although many women experience menopause asymptotically, others find that vasomotor instabilities (e.g., hot flashes, the atrophic changes in breasts, genitals, and skin), which are associated with irritability and depression, are very demoralizing. There is confusion about the exact meaning of many of these symptoms, with the exception of the correlation between hot flashes and decreased estrogen production. The physical correlates of the postmenopausal period, with changes in the vaginal cytology and the atrophy in the vaginal mucosa, are critical to good sexual functioning. Vaginal lubrication is slower in onset and eventually is diminished in amount. Longer stimulation may be needed during arousal and foreplay, but this change occurs at a time when the



genital tissues are less able to tolerate increasing friction. Dyspareunia due to vaginal dryness and pain may occur unless correction is achieved by local estrogen creams or a systemic estrogen replacement therapy. With low levels of estrogen, the sensitivity of the vaginal tissues increases, and there may be pain on clitoral stimulation and painful uterine spasms during orgasm. At times, the orgasmic phase may be short. However, a woman is fortunate that, for the most part, her orgasmic pattern is preserved; she may continue to have multiple orgasms if she has had them in the past. There may be only minor alterations in her libidinous drive.

At present, figures indicate that about four of five men who remain in good health during old age will continue to be interested in sex. About two of three men in their 60s remain sexually active, but only one in five are still active in their 80s. It has been observed in men that sexual interest declines somewhat with time, but not as much as performance. About one third of all women in their 60s continue to be sexually interested despite the fact that only one-fifth report ongoing sexual activity. In both sexes, other influential factors enter, such as one's general physical state, the use of drugs or alcohol, antihypertensive medications, and a wide variety of dysfunctional medical and surgical disorders. Although the capacity to function sexually remains, it depends on how well an aging individual can compensate for physical changes that occur with aging or accompanying illnesses, and the significance of sex during the past life of the relationship. It principally is the learned pleasure from frequent former, good sexual experiences that replaces the more physically oriented drives at this time in life. This is further supported by the notion promoted by Masters and Johnson<sup>8</sup> that during the postmenopausal period of women's lives, the psyche plays a large part in determining the intensity of their libido. They further indicate that endocrine factors alone could be responsible for sexual behavior in many postmenopausal women. One could expect a relatively uniform response to the diminution and ultimate withdrawal of sex hormones, but (so far) there is no established universal reaction pattern to sex steroid withdrawal.

The fact that many women intensify their in-

terest in sex after the menopausal period has been thought, in the past, to be due to freedom from the risk of pregnancy after menopause. However, the privacy, the exclusive attention to the married relationship in the absence of children who now are grown, and the notion that sexual activity can continue and is even to be cherished in old age—all of this has enabled the psychological and emotional components to dominate sexual drives in the elderly population. In caring for an elderly couple, it is important to know if sex has been valued as an important part of the intimate life of a well-functioning relationship over a long period of time so that guidance can be constructed realistically. Preparations for the inevitable through both the education of realistic expectations as aging continues and sympathetic counseling can go far in assuring that disinterest, sexual boredom, and inhibition do not take over. An interested geriatrician should be informed of the state of sexual activity in an aging couple and make certain that prolonged abstinence from sexual activity, with its ensuing handicaps, does not occur unless a physical illness supervenes. Sexual disuse can be devastating to an aging individual's capacity to resume a satisfactory sexual life.

### The Effect of Disease and Illness on Sexual Functioning During Aging

Aging in humans inevitably is associated with many emotional losses that have widespread and devastating effects on an elderly person's physical and psychological self-image. Much of our sense of intactness, our body image, (and especially) our self-concept, our sense of dignity and self-worth, as well as our attractiveness to others and vitality all seem to be related to the encroachments that aging has made; also, how intact and well-functioning our sexuality remains. During adult life, both our sense of age and our sense of sexual capacity seem to be related to our defense against isolation, loneliness, and how well our intimate needs are met. When both aging and a waning sexuality occur together, the effects may be disastrous and may lead to a serious depression. Add illness to these decrements and the result is demoraliza-

tion, depression, and a strong sense of futility and hopelessness.

The role of a physician in attending aging patients immediately becomes clear. Not only must he care for the physical illness, but he also must serve a patient through reassurance and re-education about how it is possible to preserve sexual functioning, the intimate life of the relationship, and attractiveness to others at a time when rejection and loneliness are threatened. Certain illnesses that strike during aging deserve special attention.<sup>13</sup>

Since intercourse is stressful, both physically and emotionally, it often is viewed as possibly life-threatening by those aging individuals with impaired functioning of the cardiovascular system. Nevertheless, sudden death during intercourse is rare and accounts for less than 1% of all sudden coronary deaths, and it is alleged to be more common during extramarital intercourse. In recent studies, particularly by Hellerstein, et al,<sup>14</sup> the cardiovascular demands during intercourse of 91 middle-aged and long-married men who were observed by using tape-monitored electrocardiograms (ECG) revealed that only 18 of 48 who had an arteriosclerotic heart disease experienced cardiac symptoms during intercourse; only five discontinued intercourse because of a rapid heart beat or severe angina. It was the author's contention that "the equivalent oxygen cost is similar to that of climbing a flight of stairs, walking briskly, or performing ordinary tasks." It generally is believed that most coronary patients should be able to resume their average daily activities within 8–12 weeks after an acute myocardial infarction in the absence of serious arrhythmias or congestive heart failure; more time is necessary if there are further complications. It is their recommendation that nitroglycerin or some equivalent coronary dilator be taken 10 minutes before intercourse if there is fear of angina during the period of exertion. Planned physical training following a coronary occlusion often will diminish anginal episodes in the early postinfarction months. A physician will necessarily have to be alert to the possibility that his or her patients may use their illness state as a way of withdrawing from continuing sexual activity and may (in a sense) be cheating themselves and their partners of a necessary and rewarding intimate life. In a normotensive

individual, during intercourse, the rate of respiration may increase to 40 breaths per minute with a sinus tachycardia in excess of 100–180 beats per minute. There is a concomitant rise in systolic blood pressure of 60–80 mm Hg above the resting pressure. The response of a hypertensive patient may be exaggerated during a period of exertion. This is non-threatening in cases of uncomplicated hypertension, because the major change will be an increase in heart rate with little change in stroke volume. Despite the sense of fragility of a hypertensive patient, it is surprising that more people do not experience cardiac or cerebrovascular accidents during sexual activity; but, such reports are rare. With effective medication, most risks are diminished, but the antierecile potential of many of the antihypertensive compounds must be kept in mind. Alterations in libido have been reported following cerebrovascular accidents. In one reported series of 105 stroke patients,<sup>15</sup> less than 60 years of age, 29% reported a diminution of libido following a stroke and 60% reported no change or even an increase. The frequency of coitus decreased for 43% of the group, but it was unchanged or increased in 22%. The fact that sexual activity decreased more than libido emphasizes the importance of psychological and social factors in determining the sexual behavior of disabled patients.

Similar considerations apply to physiologic stresses that are related to sexual intercourse with two common pulmonary disorders during aging: 1) Chronic obstructive pulmonary disease (COPD); and 2) Bronchial asthma. One study showed that of 100 men with COPD, only 17 were found to be impotent.<sup>16</sup> It was thought, however, that impotence was more likely related to psychological problems, such as poor identification and expectations of gender role, poor skills at communicating, and conflict resolution. Counseling should explore areas of conflict in a marital relationship or within the personality of an individual. Once marital partners understood their illness and took a more active role in intercourse or were encouraged to assume an acceptable role, coital frequency and enjoyment were comparable to, or even greater than, the norms in healthy couples of similar age.

There are special difficulties that are related to sexual functioning in aging males with diabe-

tes mellitus. Previous studies have shown that from one third to one half of all diabetic males eventually become impotent. Indeed, in a younger population, Kolodny, Masters, and Johnson<sup>12</sup> found a 200–300% higher incidence of a diabetic or a prediabetic curve in males with symptoms of secondary impotence when compared with a cross-section of the general population by using a 5-hour glucose tolerance test. Here, erection begins but fails to persist, and it suddenly may be lost. As a diabetic patient ages, the problem may intensify, but it is less related to the duration of illness or the use of antidiabetic compounds than to age. Once established, it is difficult to reverse. There seems to be no correlation between erectile capacity and the age of onset, insulin dose, or the degree of control of the diabetes; however, there is some relationship with the number of relapses, such as the frequency of ketoacidosis and coma. There not only are endocrine mechanisms, but also neurologic and vascular mechanisms that are active in the pathology of diabetes. Some changes suggest an impaired testicular function that is associated with slightly elevated 17-ketosteroid excretion and high estrogen excretion when vascular complications attack the circulation of the seminal vesicles and the vas deferens. There also is an obliteration of the penile arteries and a microangiopathy of small vessels of the corpora cavernosa, which produce a reduced blood flow. All of this can induce impotence. In diabetes mellitus, sexual problems more often afflict males and less often females who (in even advanced stages of diabetes) remain sexually expressive and competent, unless there is an extensive peripheral vascular pathology.

In acute and chronic renal failure, males again seem to be more prone to sexual dysfunctioning (especially erectile failure) than females. Fatigue, lethargy, listlessness, and the general effects of illness, all diminish sexual desire and force many patients to withdraw from their accustomed sexual life. Questionnaire studies<sup>17</sup> of 519 adults with a renal disease, who were treated with dialysis or had received renal grafts, reported serious sexual impairments relating to the frequency of intercourse, potency, and ability to achieve orgasm. All patients undergoing dialysis experienced a marked de-

crease in the frequency of intercourse after the onset of uremia. Of 345 men, 135 reported having no intercourse following the onset of uremia. Thirty-eight patients reported sexual activity three or more times a week before uremia began, but only four claimed such activity since. Of 90 women who experienced orgasm during intercourse before uremia, 47 reported orgasm with intercourse following kidney failure. These results seem to be less age-oriented than related to renal morbidity.

In an aging patient with chronic arthritis, a common sexual difficulty is related to the limitation of mobility during coital positioning. This most often accompanies an osteoarthritic-hip disease, especially if it is bilateral. While the same mechanical problems may occur in the presence of active rheumatoid arthritis, there also may be difficulty due to joint contractures, joint inflammation with pain, and the general symptoms of lassitude, weakness, fatigability, and even muscle atrophy. Despite these limitations, sexual activity can be conducted with the use of analgesics before intercourse. Patients should be encouraged to try a variety of experimental procedures and positions that allow the successful performance of intercourse, especially those that will minimize distress from painful weight-bearing joints.

For specific difficulties that are related to problems within the pelvis in females or (particularly) the prostate in males, readers are referred to Volume I, Chapters 17 and 18. Sexual problems can be expected with any surgical intervention in an aging patient. Procedures that are long-term and serious in the pelvic area may not only cause, but also exaggerate, sexual disturbances. For example, node dissections for tumors in the pelvic area, the testis, the bladder, or the prostate, rectum, and sigmoid colon all may have unfavorable consequences—particularly if erectile functioning is disturbed by a necessary nerve disruption that occurs due to the procedure, or if an ileostomy or cystostomy become necessary. The effects on a patient's sexual self-image, feelings of acceptance, and attractiveness are issues that require proper education and guidance by a sensitive and concerned physician. Dlin and Pearlman<sup>18</sup> have described a patient's point of view:

“When people face the loss of an internal organ, the re-location of a body orifice, and the loss of a natural body orifice together with facing the possibility of death, they suffer significant grief reactions that must be worked through. The slow and tedious working through of their personal feelings and their relationships with others depends on their maturity and sophistication. Sexual function is focused on because it represents very graphically the patient’s investment in life. Return of interest in this function in most individuals is a good indication of willingness to return to productive life.”

Surgical procedures in the lower pelvic area may be expected to interfere with good sexual functioning. Although surgery may remove a pathologic process or provide relief from the disabling complications of a disease, a patient’s expectation of permanent sexual dysfunctioning may be so strongly reinforced that they become content to live out this expectation. It requires an astute physician to sense the degree of psychogenic overlay and, through some form of acceptable guidance and psychotherapy, to help a patient to return to satisfying sexual activity. Much of the postoperative difficulty can be overcome by good preventive counseling, preoperatively, that will continue postoperatively and prevent demoralizing postoperative emotional states. Preoperative knowledge of a patient’s intimate and sexual life is fundamental, so that positive statements that sexual function in some form can follow the same pattern after surgery as it did before will dispel the myth that surgery destroys sexual responsiveness.

### Sexual Dysfunction in Aging

As may be seen from the previous discussions, there are many determinants of both the frequency and the quality of sexual life of an aging individual. They range from a fundamental lack of general understanding of the effect of the aging process on sexual functioning to the ability to accept the appropriateness of sexual activity in old age. It is critical to good medical care for a physician to acknowledge those factors that have established rewarding sexual activity in a long, friendly, and functional marital relationship so that there can be continued intimacy, nurturance, shared concerns, and a mutual

sense of worth. These features are basic to the care of individuals with a sexual dysfunction and often are overlooked by otherwise well-motivated physicians who feel that sexual concerns in aging individuals must be directly attacked. In the same context, one can include many of the special environmental features of aging that relate to career and retirement, emotional and physical fatigue, depression, and even excess weight and the use of alcohol. The role of physical illnesses can hardly be overlooked when assessing sexual dysfunctioning, especially those already mentioned that relate to cardiovascular disease, pulmonary and renal disorders, diabetes, and pelvic arthritis with its physical limitations of movement. Patients who use antihypertensive or antidepressive drugs also may have difficulty in managing an erection and in ejaculation. Less seems to be known about the effects of drugs on female sexual responsiveness. Segraves<sup>19</sup> feels that this probably reflects a tendency for physicians, who most often are males, to be more interested in a male’s functioning than in a female’s sexual experiences.

For whatever reason, an aging patient does not commonly choose to come for treatment of sexual dysfunction; in fact, a responsible physician interested in this age group frequently will have to initiate inquiries to elicit basic sexual information before intervening in the sex life of a geriatric patient. An aging patient often will assume, when dealing with a health problem, that sexual activity is to be avoided. Genuine sexual dysfunctioning does occur for a number of reasons in an aging individual. In females, this often takes the form of painful intercourse, which is commonly related to a postmenopausal vaginal wall atrophy with resulting dryness. It is best controlled by the use of a local estrogen cream or suppository. Contributing causes, of course, should be ruled out (e.g., mixed infections, diabetes, or vaginal carcinomas). Orgasm in an aging female occasionally is accompanied by painful uterine contractions. This can elicit extraordinary anxiety in both a woman—who may feel that there is a serious underlying disease, or her partner—who may attempt to modify intercourse in some more comfortable way. Failing this, his own preoccupation will produce erectile disturbances and, eventually,

secondary impotence. This can be relieved by an explanation from an informed physician. It is important that this is achieved before it becomes an established sexual pattern; especially if there has been a prolonged and pleasurable past sexual life. As noted previously, a relatively short-term period of dysfunctioning in an aging couple will respond quickly to proper management with a restoration of satisfactory sexual functioning. If allowed to continue, it may be very difficult to salvage. Again, this is especially true for males because of their difficulty in reachieving confident erectile functioning during the aging period, if they experience a prolonged period of abstinence.

Secondary impotence is the most common sexual complaint in an aging male and increases in frequency with aging. The many possible etiologic factors already have been alluded to, but the most powerful seem to be the fear of non-performance, insufficient knowledge about the normal evolution of sexual functioning as a concomitant of aging, and (particularly) the fact that orgasm and ejaculation is not to be expected with each intercourse experience. This kind of information must be shared by both partners, since in sexual intercourse what happens to one is happening to both. An aging male who cannot depend on his erectile performance is not only insuring that he will continue to be relatively impotent, but he is creating concerns in his partner, who, unwilling to expose him to failure, will withdraw and deepen the problem.

Except for those concerns that are directly related to the state of physical and emotional health of a patient, the management of sexual dysfunctioning is not any different than the treatment rendered for a younger patient.<sup>20</sup> Again, strict attention to how well informed a patient is and to contributory problems (e.g., diabetes, cardiopulmonary disorders, dietary concerns, and the use of drugs and alcohol) may be all that is necessary. A thorough review of prescribed medications (as noted above) is all-important, particularly antihypertensive compounds that are related to guanethidine and reserpine, as well as the phenothiazines or anticholinergic blocking agents, sedatives and so on. It is extremely important to detect an underlying depression in elderly persons, since any of the determinants described above may

be accompanied by a heavy layer of emotional distress. It is not only that depression itself can be devastating to sexual desire, but that the use of antidepressive compounds may be associated with a variety of erectile and ejaculatory dysfunctions. In the same context, an aging male frequently will confess that for most of his life sexual activity was most ego-satisfying when it was related to actual intercourse. For this man, sex will be thought of in genital terms, which subordinates important secondary accompaniments that are so often reinforced through intercourse, such as intimacy, mutual nurturance, affirmation of a sense of worth and acceptance, and protection against loneliness and isolation. When added to the need to hold and be held and to the attendant feelings of relatedness and reciprocity, much can be accomplished by a counselor who will assist an aging couple in developing non-coital techniques that can supplement the need for actual penis-in-the-vagina intercourse. This will be of special importance in the presence of a physical disease with handicaps that block the customary manner of engaging in intercourse. Those professionals who choose to work with a geriatric patient in the area of sexuality must be well-trained to perform a careful sex history to evaluate the sexual quality of the past marital relationship and the ordinary effects of aging on sexual functioning, the inroads of physical illness, and the state of a patient's understanding. Only then can a therapist understand the possibilities for those patients who wish to continue to be sexually active.

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# Sleep and Sleep Disorders

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## Epidemiology of Sleep Complaints in Elderly Persons

### Sleep and Sleep Complaints

Survey data reveal that a greater proportion of elderly persons are dissatisfied with the quality of their sleep than any other age group. A number of studies indicate that elderly persons awaken several times per night.<sup>1-3</sup> In one study,<sup>2</sup> 25–30% of all subjects over 65 years of age reported frequent night awakenings, 15% of all subjects 65–75 years of age reported arousals before 5 AM, and 25% of all men over 65 years of age and 40% of all women over 45 years of age considered themselves to be “light sleepers.” Of all subjects over 65 years of age, 15% slept fewer than 5 hours/night and had difficulty in falling asleep (i.e., long sleep latency), which is approximately twice as prevalent in females of all ages than in men; it was significantly more persistent in females over 55 years of age than in younger women.

Another survey of 1,064,004 subjects,<sup>4</sup> which was conducted under the auspices of the American Cancer Society, showed that insomnia increased with age (16% for men, 31% for women over 50 years of age). Several studies show that the elderly population went to bed earlier, had an increased amount and duration of wake after sleep onset (WASO), and had an increased number of daytime naps.<sup>5-8</sup> Similarly, in 1,006 households in the Los Angeles Metropolitan area<sup>9</sup> and in 1,645 adults living in Alachua County, Florida,<sup>10</sup> sleep difficulties generally

increased with age and were more prevalent in women than in men. Many reports confirm that sleep complaints generally increase with age.<sup>3,5-8,11</sup>

There also is an increase in hypnotic use by elderly patients. A telephone survey of 549 subjects<sup>12</sup> showed not only an increased complaint of WASO in elderly subjects, but also an increased use of sleeping pills and alcohol before bed. In one study,<sup>13</sup> 9% of the respondents took sleeping pills; again, with a higher proportion among women and elderly persons. In a random telephone survey of 6,340 respondents,<sup>14</sup> complaints about sleep problems did not increase with age. However, the female complainants outnumbered the males, and the intake of sleeping aids at bedtime increased with age. Johnson and Clift<sup>15</sup> also found an increased hypnotic use in the elderly population.

In conclusion, despite the heterogeneity of surveys, lack of knowledge of many variables, near systematic elimination of physically sick or incapacitated elderly persons from the surveyed populations, the elderly age group appears to have an increased time in bed, more WASO, and more daytime naps. In addition, elderly persons use more sleeping “aids” (e.g., aspirin, alcohol, and sleeping pills) and women complain more than men.

### Sleep Complaints and Mortality

Insomnia and short or long total sleep periods have been associated with a significantly decreased life span in men.<sup>4</sup> An increased mortality rate due to coronary artery diseases,

strokes, and aortic aneurysms has been reported in both men and women who slept more than 7.9 hours/night.<sup>16</sup> It has been observed that men and women, even without a prior history of heart disease, high blood pressure, diabetes, or stroke, were more likely to die within 6 years if they reported and complained that they usually slept less than 7 hours or more than 7.9 hours.<sup>17</sup>

Those persons who “often” took sleeping pills had 1.5 times the mortality rate of those subjects who never used sleeping pills. Findings for the elderly population were similar to those of other age groups.

## Normative Data on Sleep in Elderly Persons

### Objective Sleep Parameters

Standard sleep stage monitoring uses selected physiologic parameters that are recorded throughout the night or a 24-hour period. An international reference system<sup>18</sup> includes monitoring via the use of an electroencephalogram (EEG), an electro-oculogram (EOG), and a diaphragmatic electromyogram (EMG) to determine sleep states, stages, and wake time. Sleep scoring usually is performed in 20 or 30 second epochs, which depends on the type of polygraph used. Sleep staging is based (when an EEG is analyzed) on both amplitude and frequency. Sleep normally is subdivided into two states that are as different from each other as sleep is from wakefulness: rapid eye movement (REM) sleep and non-rapid eye movement (NREM) sleep. NREM sleep is subdivided into four stages (stages 1–4) that range from light sleep or the transition from wakefulness to sleep (stage 1) to so-called slow-wave sleep (stages 3 and 4), which is characterized by high-amplitude slow waves of 1–3 cycles per second. Multiple indices are calculated when objective sleep parameters are determined, which include total sleep time (TST) in minutes, total sleep period time (SPT), sleep latency (SL), wake after sleep onset (WASO), and wake after final arousal (WAF). The percentages of NREM and REM sleep, total time in bed (TIB), and total dark time (TDT) also are commonly reported. A notable factor in studies that were performed to determine normative sleep parameters is the great individual variability. This variance

stems, in part, from the small number of subjects who are monitored in each age group.

A number of disputes concerning the interpretation of data that is obtained from monitoring remain unresolved. For instance, it generally is accepted that monitoring equipment and experimental situations themselves affect a polygraphic recording. To compensate for what is termed the “first-night effect,”<sup>19</sup> most researchers do not include recordings from the first laboratory night in their findings. However, where there is a general agreement that the “first-night effect” subsides by the second night in middle-aged adults, controversy exists in this issue with respect to the elderly population. Some investigators claim that elderly subjects require as many as 4–5 nights for adaptation.<sup>20</sup> Other investigators, while finding the “first-night effect” to be more prominent in elderly than younger subjects, argue the effect nevertheless is negligible by the second night.<sup>21,22</sup>

Another controversy concerns the scoring of stages 3 and 4 NREM sleep in elderly persons. Currently, most researchers score all records the same way. However, there is evidence of normal changes in amplitude that accompany old age. Some researchers<sup>23</sup> argue that amplitude criteria should be modified in scoring EEGs of elderly subjects, thereby clarifying the differences between pathologic and non-pathologic data.

Table 15-1<sup>19–31</sup> presents subjective and objective evaluations of the different parameters in elderly subjects compared to middle-aged subjects. First-night effects were considered before any analyses were performed. As already mentioned, the most important change concerns stages 3 and 4 NREM sleep. This may be related to a problem in scoring criteria.

### Changes in Sleep/Wake Patterns

The process of aging results in changes in many physical and mental characteristics. Daytime phenomena include a loss of ability to perform highly skilled tasks in rapid fashion, to resist fatigue, to maintain physical stamina, and so on.<sup>31</sup> These changes may be sleep-related; changes in nocturnal sleep patterns may lead to decreased daytime alertness and to increased daytime fatigue. However, just as physiologic,



TABLE 15-1 Review of Research on Subjective Sleep Complaints

Sleep/Wake Variable	Subjective Impression	Objective Finding	Reference
Nocturnal time in bed (TIB)	Perceived as increased	Increased	19-21
Nocturnal sleep period time (SPT) (time from sleep onset to final awakening)	Variously perceived	Variable or inconclusive	19
Total sleep time (TST)	Perceived as reduced	Reduced or unchanged	19,22-25
Sleep efficiency (SE) (ratio TST to nocturnal TIB)	Perceived as reduced	Reduced	19,21,26
Sleep latency	Perceived as longer duration or unchanged	Normal or increased	18,19,21,26,28
Wake after sleep onset (WASO)	Increased number and total duration	Increased number and total duration	19-21,23,25,27,29
NREM sleep		Unchanged	21
Stage 1		Unchanged or increased	27,30
Stage 2		Unchanged or increased	18,30,31
Stage 3-4 slow-wave sleep (SWS)		Absolute and relative reduction scoring definition	148,30,31
REM sleep		Decrease in absolute amount, but percent of TST (relative amount) is unchanged	

age-related changes in sleep patterns can affect daytime functioning, changes in daytime functioning can affect nocturnal sleep.

Although there has been no controlled study that demonstrates the effects of retirement on sleep, one study has shown that daytime napping increases with age in men irrespective of employment status, but only in those women who are not fully employed.<sup>32</sup> This study showed that for both sexes, the TST in the 24-hour period was approximately the same over 60 years of age as below 40 years of age.<sup>33</sup> For elderly persons, however, daytime napping did not seem to compensate for impaired nocturnal sleep.

Although few objective data are available on the effects of different environments on the sleep of the elderly population, several groups<sup>34-40</sup> have demonstrated that environmental noise (e.g., that of airports) is more disturbing to the sleep of elderly persons than to

young persons. Men appear to be somewhat less sensitive to noise than women.

#### Inter-relationship of Biologic Rhythms: Changes in Elderly Persons

Humans have been found to have several fundamental and endogenous biologic rhythms that, in normal circumstances, follow a circadian pattern and are synchronized with each other.<sup>41</sup> For instance, the circadian rhythm of the core body temperature is very stable.<sup>42</sup> Other biologic systems, such as the hormonal and gastric secretions, also follow circadian rhythms; but they are less well understood at present. The regular alteration of sleep and wakefulness, which also is circadian, differs from other fundamental human circadian rhythms in that it can be altered at will. Other circadian rhythms can depart from their normal

patterns in many ways, but they are not easily manipulated. The period, amplitude, or phase may establish an abnormal relationship with another rhythm or "Zeitgeber," or may become desynchronized with another rhythm. Two rhythms may partially entrain each other with predictable changes in both. Finally, the pattern (wave shape) of the rhythm may change. A rhythm may become disorganized, the pattern of the rhythm may change, or the rhythm may disappear altogether. However, these changes are not brought about by a conscious choice on the part of an individual, as are changes in sleep schedules. In normal living conditions, there is a strong relationship between the sleep/wake circadian rhythms and other rhythms. However, when the sleep/wake pattern is changed (e.g., because of jet travel or a change in job scheduling, and so on), the other rhythms do not immediately shift phase with the sleep/wake schedule. As anyone who has experienced jet lag knows, time is required for the sleep/wake rhythm to entrain the other biologic rhythms.

The inter-relationship of these circadian rhythms in the elderly age group differs from the inter-relationship in middle age. One study found that the rhythm of body temperature speeds up in elderly persons and generally is higher during summer and autumn.<sup>41</sup> In more than 50% of the cases studied, a biphasic pattern with a transitory depression in the early afternoon was observed. With aging, there appears to be a breakdown of the biphasic pattern of sleep and wakefulness and a return to the polyphasic alternation of sleep and wakefulness that is seen in childhood; one study reported that, the amplitude of these cycles, as judged by the amount of NREM and REM sleep, is diminished.<sup>42</sup> Another study, however, failed to demonstrate any change in the period of the average REM-NREM cycle.<sup>31</sup> It appears from the available data that elderly persons may be at greater risk for presenting some instability in the amplitude of their biologic rhythms.

In conclusion, there is evidence that normal sleep for elderly persons is different from normal sleep for younger individuals, but data are scarce. Animal data<sup>43,44</sup> suggest that dysfunction in the mechanisms that entrain circadian rhythms may frequently accompany the aging process. This would mean that sleep and wakefulness would be locked into an abnormal and

conflicting relationship and may be responsible for the sleep fragmentation that is commonly seen in the elderly population.

## Sleep and Physiology in Sleep

The idea that the controls impinging on nearly all organs in our bodies are modified by the three states of alertness (wakefulness, NREM sleep, REM sleep) has only recently been accepted. One must understand these changes to comprehend the increased risks that are experienced by elderly persons during sleep, not only during major illnesses, but also in association with minor problems while awake. The autonomic nervous system, through its central control, readjusts its parasympathetic-sympathetic balance with each state of alertness (wakefulness, NREM sleep, REM sleep). An examination of a single organ or system may reveal only part of this readjustment of the parasympathetic-sympathetic interaction. As a general rule, from wakefulness to REM sleep, there is an increased vagal activity with a decrease in the sympathetic function.

Most studies have been performed on developing subjects (during infancy and early childhood) and middle-aged individuals. Significant differences were found in these two subpopulations. There is little normative data on multiple functions during sleep in subjects over 60 years of age.

### Breathing During Sleep

Most humans sleep in a supine position which influences breathing during sleep. The position affects tidal volume and oxygen saturation and may lead to specific problems in patients with disorders such as kyphoscoliosis, abdominal obesity, and thyroid enlargement. The recumbent position tends to intensify breathing disorders, yet most human physiologic studies are performed on standing or seated subjects. Arterial oxygen pressure (PaO<sub>2</sub>) decreases at a rate of 0.42 mm Hg per year after the 14 years of age in awake supine subjects.<sup>45</sup> Thus, a 60-year-old subject's PaO<sub>2</sub> would be at least 20–22 torr lower than an adolescent's.

Other physiologic changes also are related to the different sleep states. During REM sleep, for instance, a continuous antigravity muscle atonia is present, which involves the intercostal and accessory respiratory muscles.<sup>46,47</sup> Respiration is rapid and irregular, with brief episodes of hypopnea and apnea. The respiratory rate and minute ventilation decrease. This may be related to the loss of wakefulness stimuli.<sup>49</sup> Eye movements and myoclonic twitches often accompany other breathing irregularities during REM sleep. However, ventilatory studies that are performed on sleeping humans have produced controversial results. Some find during "phasic" REM sleep a depressed ventilatory response to carbon dioxide (CO<sub>2</sub>) as compared to NREM sleep, but no impairment during "tonic" REM sleep.<sup>49</sup> Other investigators have found no significant differences between REM and NREM sleep. Ventilatory responses to hypoxia are decreased, but present, during NREM sleep. The extent of these responses during REM sleep also is controversial.

Some airway reflexes are altered during NREM and REM sleep. Laryngeal stimulation produces different responses depending on the state of alertness, which includes the appearance of reflex apnea during sleep.<sup>50</sup> Depression of the cough reflex is greatest during REM sleep. Increases in upper airway resistance during sleep probably are related to the decrease in muscle tone of the upper airway-dilating muscles.

Finally, one must emphasize that the arousal response from sleep is one of the most, if not the most, important cardiorespiratory defenses of a sleeping individual. It leads to increased respiratory and heart rates and to the increased stimulation of all the mesencephalic-reticular formation. An impairment of this mechanism may be closely related to many sleep complaints and life-threatening situations for the elderly population.

## Cardiovascular Functions and Sleep

### *Arterial Pressure Changes*

#### *During Normal Sleep*

Significant hemodynamic changes occur during sleep in normal middle-aged human beings.<sup>51-55</sup> There is a direct relationship between sleep

stages and arterial pressure. Systolic and diastolic arterial pressure significantly decrease during NREM sleep and reach their lowest values during NREM sleep stages 3 and 4. Moreover, the lowest values are found during the first one third of the night, when stages 3 and 4 NREM sleep are predominant.

Arterial pressure varies during REM sleep,<sup>56,58-60</sup> probably as a result of phasic "bursts" during tonic inhibitions. During some abrupt increases, arterial blood pressure may exceed even the highest values that have been recorded in the same subject during waking hours. Similar findings have been noted in subjects who had sudden systolic and diastolic arterial pressure increases in association with twitches. Findings in animal studies corroborate this understanding of sleep-related systemic arterial pressure changes in normal humans.

### *Pulmonary Arterial Pressure (PAP)*

#### *Changes During Normal Sleep*

Cyclic variations of pulmonary arterial pressure (PAP) have been noted in three normal middle-aged subjects during stages 1 and 2 NREM sleep.<sup>61</sup> Conversely, during stages 3 and 4 NREM sleep, PAP was more stable. The PAP values were not different from values that were obtained when the subjects were awake and supine. Unfortunately, there is no systematic data on healthy elderly subjects.

### *Heart Rates and Sleep States*

Heart rate is lowest and most regular during stages 3 and 4 NREM sleep. In contrast, during REM sleep, heart rate variability increases, especially in association with phasic REM activity. Bursts of eye movements and myoclonic twitches are accompanied by a brief tachycardia and sometimes are followed by a rebound bradycardia. The parasympathetic system is largely responsible for the modulation of heart rate during sleep, in particular, for the bradycardia that can be seen during the REM sleep phase.<sup>62</sup> Experimental data have shown a great increase of vagal activity that reaches its maximum during REM sleep.<sup>63</sup> The sympathetic system also appears to play a role, although a minor one, in regulating the heart rate during REM sleep.

### Temperature Regulation and Sleep

Body temperature falls throughout the night, with the lowest body temperatures occurring in the early morning hours. However, with neutral ambient temperatures during REM sleep, rectal temperature increases about 0.2°C and skin temperature about 0.5°–0.2°C. The absence of sweating during REM sleep does not solely account for the increase in skin temperature; vasodilatation of the skin also may play a role. A decrease in sweating begins 2–3 minutes before each REM sleep period, and this thermoregulatory mechanism is suspended during the entire REM sleep period. Other temperature regulatory mechanisms, (e.g., shivering) also are absent during REM sleep. Experimental animal data have shown that hypothalamic thermoregulatory structures are inactive during REM sleep.<sup>63</sup>

Many other changes have been recorded during REM sleep. For instance, an increase in cerebral blood flow has been measured, with the smallest increase being 62% in the cerebellar white matter and the largest being 173% in the cochlear nuclei.<sup>64</sup> The phasic increases in cerebral blood flow occur in association with bursts of rapid eye movements. Large intracranial pressure waves also occur during REM sleep. The REM sleep-related rise in intracranial pressure may approximately double the steady-state pressure.<sup>59</sup> Furthermore, there are nocturnal reductions in the glomerular filtration rate (GFR), renal plasma flow, filtration fraction, and the excretion of sodium, chloride, potassium, and calcium.

In conclusion, sleep and sleep states have an impact on the controls of multiple physiologic variables, but investigations of the effects of sleep states on these variables have been performed only recently—and then rarely in elderly persons. When available, they indicate trends that are similar to those of young or middle-aged adults. These changes must be considered together with sleep pathologies and the impact of sleep on illnesses in elderly persons. For example, if a spontaneous increase of arterial blood pressure occurs during sleep in association with phasic REM sleep and twitches, then will these changes endanger an elderly subject who is presenting a high blood pressure and fragile cerebral arteries? Similarly, what is the

effect of a fall in arterial pressure during stages 3 and 4 NREM sleep on the arteriosclerotic cerebral circulation of elderly persons? Will the sudden intercostal and accessory respiratory muscle and REM sleep-related muscle atonia endanger an elderly person with an acute respiratory infection? No differentiation has been made within the “elderly” age group between a 60-year-old individual and an 80-year-old one. For all these reasons, a clinician must be especially sensitive to the possible inter-relationships of normal physiologic changes in sleep and the individual age-related and pathologic changes or symptoms in his or her patients.

### Sleep Pathologies

Sleep pathologies fall under two different headings: 1) Disorders of sleep; and 2) Sleep and sleep states that induce (or worsen) somatic syndromes. The two are interconnected (i.e., a disorder of sleep affects the physiologic changes that are associated with sleep) and, sleep-related syndromes often lead to sleep disorders such as insomnia and daytime somnolence). These interconnections may explain some of the epidemiologic findings on mortality and sleep disorders. If a subject presents an abnormal breathing pattern during sleep, he or she may wake up many times during the night for short or long periods. Thus, the nocturnal sleep disturbance may lead to a complaint of insomnia or daytime somnolence, with an increased time in bed during the day. However, underlying the complaint is a breathing problem that is significantly worsened by sleep or the cortege of changes that are associated with specific sleep states (e.g., oxygen desaturation, hypercapnia, cardiac arrhythmia, and so on). The result is an increased risk of death. Therefore, a sleep complaint in an elderly person should be evaluated systematically to detect the underlying problem and to select an appropriate treatment.

### Evaluation of Sleep Complaints

Any report of a sleep problem should lead to a complete physical evaluation of an elderly person. A sleep log kept for a few days before the clinic appointment may provide useful informa-

tion. The patient also should complete a sleep questionnaire, such as the Stanford Sleep Questionnaire and Assessment of Wakefulness (SQAW),<sup>65</sup> which may reveal areas for further questioning and investigations. If possible, a bed partner or someone who has had the opportunity to see or hear that patient sleep should be interviewed. A cassette tape can be used to record any sounds that a sleeping patient makes, if sources of information are available. This kind of tape can provide evidence of snoring, abnormal breathing noises, talking in one's sleep, abnormal nocturnal wandering, and so on. Also, an evaluation of known illnesses and chronic drug intake is essential. Cardiovascular drugs, corticosteroids, aspirin, central nervous system stimulants or depressants, and so on, all have a significant impact on sleep; especially in elderly persons whose drug metabolism may be different from that of a middle-aged adult. During the interview, the subject's sleeping quarters and the presence of external disturbances should be assessed. A subject's sleep hygiene must be noted, taking into consideration regular or irregular bedtimes, food or alcohol intake near bedtime, awakenings in the early morning, daytime naps, and the amount of daytime exercise.

A polysomnogram can provide an objective evaluation of specific biologic variables (e.g., heart rate, level of oxygen saturation) in relation to sleep states and stages. An interview with a patient should determine what physiologic variables need evaluation. An EEG, EOG, and digastric EMG are necessary to identify sleep/wake states and stages. These three channels usually are sufficient, although heart activity, abdominal respiratory effort, nasal air flow, blood gases, and diaphragmatic action may be measured for in-depth studied. The setting for the monitoring should be comfortable to facilitate replication of the normal sleep/wake pattern of a patient. The less equipment used, the less disturbed will be the patient's sleep. Elderly subjects' sleep tends to be more easily disturbed than the sleep of younger subjects, especially by invasive techniques. Techniques such as the 24-hour Holter ECG or time-lapse video, which can be used in a home environment, may be useful when screening for sleep-related problems. Recently developed microprocessors are extending the capabilities of ambulatory screening procedures.<sup>65</sup>

## The Sleep Disorders

In 1979, the Association of Sleep Disorders Centers (ASDC) established a comprehensive "Diagnostic Classification of Sleep and Arousal Disorders" (see Table 15-2).<sup>66</sup> This classification system allows us to perform investigations of sleep/wake disorders based on polysomnographic analysis. Two studies of elderly persons identify sleep apnea syndromes as significant problems. Insomnia that is associated with affective disorders (37%) and sleep apnea syndromes (18.5%) were the most common polygraphically confirmed diagnoses in 27 psychiatric patients over 55 years of age.<sup>67</sup> Another study<sup>68</sup> reviewed 83 patients (60 men, 23 women) 60 years of age or older who received clinical and polysomnographic evaluations. According to the ASCD classification system, 41 of these patients had disorders of initiating and maintaining sleep (DIMS, the "insomnias"), 39 patients had disorders of excessive sleepiness (DOES), and 3 patients had other dysfunctions that are associated with sleep. The most common major entities were sleep apnea syndromes (39%) and periodic leg movements (nocturnal myoclonus) that are associated with the restless leg syndrome (18%). These syndromes were found to be much more prevalent among elderly subjects than in younger patients ( $p < 0.001$ ).

### *Sleep Apnea Syndromes and Related Problems*

Sleep apnea syndromes can be subdivided into two major clinical entities: 1) Obstructive sleep apnea syndromes; and 2) Central sleep apnea syndromes,<sup>69-71</sup> on the basis of polygraphic findings.

#### *Obstructive Sleep Apnea Syndrome (OSAS)*

The prevalence of this syndrome peaks between 55-70 years of age.<sup>68,72</sup> It is seen more frequently in men than in women, but sex differences tend to decrease with increasing age, (i.e., the more years postmenopausally, the greater the possibility of a woman's presenting with obstructive sleep apnea). The clinical symptoms include persistent daytime sleepiness and a deterioration of memory and judgment, particularly in the early morning. Patients and family members often complain of early morning confusion, automatic behavior, and personality changes that involve sudden episodes of irrelevant behavior, jealousy, suspi-

TABLE 15-2 Summary of the Diagnostic System for Sleep/Wake Disorders that was Established and Recommended by the Association of Sleep Disorders Centers (ASDC)

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DIMS: Disorders of Initiating and Maintaining Sleep (Insomnias)

- Psychophysiological
  - Transient and situational
  - Persistent
- Associated with psychiatric disorders
  - Symptom and personality disorders
  - Affective disorders
  - Other functional psychoses
- Associated with use of drugs and alcohol
  - Tolerance to or withdrawal from central nervous system depressants
  - Sustained use of central nervous system stimulants
  - Sustained use of or withdrawal from other drugs
  - Chronic alcoholism
- Associated with sleep-induced respiratory impairment
  - Sleep apnea DIMS syndrome
  - Alveolar hypoventilation DIMS syndrome
- Associated with sleep-related (nocturnal) myoclonus and "restless legs"
  - Sleep-related (nocturnal) myoclonus DIMS syndrome
  - "Restless legs" DIMS syndrome
- Associated with other medical, toxic, and environmental conditions
- Childhood-onset DIMS
- Associated with other DIMS conditions
  - Repeated REM sleep interruptions
  - Atypical polysomnographic features
  - Not otherwise specified
- No DIMS abnormality
  - Short sleeper
  - Subjective DIMS complaint without objective findings
  - Not otherwise specified

DOES: Disorders of Excessive Somnolence

- Psychophysiological
  - Transient and situational
  - Persistent
- Associated with psychiatric disorders
  - Affective disorders
  - Other functional disorders
- Associated with use of drugs and alcohol
  - Tolerance to or withdrawal from central nervous system stimulants
  - Sustained use of central nervous system depressants
- Associated with sleep-induced respiratory impairment
  - Sleep apnea DOES syndrome
  - Alveolar hypoventilation DOES syndrome
- Associated with sleep-related (nocturnal) myoclonus and "restless legs"
  - Sleep-related (nocturnal) myoclonus DOES syndrome
  - "Restless legs" DOES syndrome
- Narcolepsy
- Idiopathic central nervous system hypersomnolence
- Associated with other medical, toxic, and environmental conditions
- Associated with other DOES conditions
  - Intermittent DOES (periodic) syndromes
    - Kleine-Levin syndrome
    - Menstrual-associated syndrome
  - Insufficient sleep
  - Sleep drunkenness
  - Not otherwise specified
- No DOES abnormality
  - Long sleeper
  - Subjective DOES complaint without objective findings
  - Not otherwise specified

TABLE 15-2 (Continued)

## Disorders of the Sleep-Wake Schedule

## Transient

- Rapid time zone changes ("Jet Lag") syndrome
- "Work shift" change in conventional sleep-wake schedule

## Persistent

- Frequently changing sleep-wake schedule
- Delayed sleep phase syndrome
- Advanced sleep phase syndrome
- Non-24-Hour sleep-wake syndrome
- Irregular sleep-wake pattern
- Not otherwise specified

## Dysfunctions Associated with Sleep, Sleep Stages, or Partial Arousals (Parasomnias)

## Sleepwalking (somnambulism)

## Sleep terror (pavor nocturnus, incubus)

## Sleep-related enuresis

## Other dysfunctions

- Dream anxiety attacks (nightmares)
- Sleep-related epileptic seizures
- Sleep-related bruxism
- Sleep-related head-banging (jactatio capitis nocturnus)
- Familial sleep paralysis
- Impaired sleep-related penile tumescence
- Sleep-related painful erections
- Sleep-related cluster headaches and chronic paroxysmal hemicrania
- Sleep-related abnormal swallowing syndrome
- Sleep-related asthma
- Sleep-related cardiovascular symptoms
- Sleep-related gastroesophageal reflux
- Sleep-related hemolysis (paroxysmal nocturnal hemoglobinuria)
- Asymptomatic polysomnographic finding
- Not otherwise specified

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cion, anxiety, and/or a general depressive outlook. Recurrent morning headaches and morning nausea also are common. The degree of incapacity ranges from a drastic impairment of daytime activities because of an irresistible urge for sleep, to drowsiness, or falling asleep only during quiet situations (e.g., watching TV or reading).

Family members and/or bed partners report that these subjects snore loudly at night. Their noisy pharyngeal snoring is associated with snorting that is interrupted by periodic silences. Abnormal movements during sleep may involve the entire body or, at other times, only single movements of the extremities. Sleep walking and falls from the bed may be observed. Nocturnal enuresis is infrequent, but significant nocturia is common.

On examination, a short fat neck, obesity, oral malocclusion, small palate with enlarged

uvula, and fat pharyngeal folds are frequently found. However, individuals of normal weight with normal neck features may present with OSAS. Hypertension is often observed. Nocturnal polysomnograms confirm the diagnosis by demonstrating the presence of obstructive apnea (complete interruption of air flow) or hypopnea (partial interruption of airflow) that are associated with oxygen desaturation. In most cases, the longest abnormal respiratory events are seen during REM sleep, but there are cases in which REM sleep seems to be free of any abnormal breathing. In less severe cases, apnea and hypopnea may be intermittent during both NREM sleep and REM sleep, and during the night. In these cases, a night-to-night variation may be seen, which often is related to daytime activities. Alcohol, particularly if ingested in the evening, may greatly increase the amount of sleep-related apnea.<sup>73</sup> Similarly, sleep depriva-

tion may lead to the same kind-of changes.<sup>73</sup> In elderly subjects, significant increases in apneic events are associated with upper respiratory infection, increases in air pollution, and seasonal allergies that involve the upper airway.

Systemic and pulmonary arterial pressures rise in association with episodes of sleep apnea or hypopnea and return to control levels when ventilation is resumed. However, when apneic episodes occur in rapid succession, pressures do not return to control values, and they show a step-wise increase. Only after awakening and returning to unobstructed breathing do systemic pressures and PAPs return to control levels.<sup>70</sup> Similarly, the pulmonary wedge pressure may rise with repetitive obstructive sleep apnea. Cardiac arrhythmias are associated with the repetitive apnea and concomitant oxygen desaturation, not only a significant bradycardia, but also a second-degree atrioventricular block, prolonged sinus pauses, and limited runs of ventricular tachycardias, and so on.<sup>65</sup> These changes are well-documented by 24-hour ECGs.

*Central Sleep Apnea Syndrome*<sup>70</sup> Subjects with predominantly central sleep apnea complain more of difficulty in maintaining sleep (DIMS) and also report several awakenings throughout each night. Depression and impaired sexual function also are frequently reported by this patient population. Subjects are, in most cases, normal or even underweight. Oxygen desaturation and hemodynamic impact are less pronounced than in obstructive cases, but cardiac arrhythmias still are frequently noted.<sup>63</sup> A progressive increase of central apnea in patients over 60 years of age has been noted.<sup>65</sup> Because some subjects do not complain of a sleep disorder, a clinical identification of the central sleep apnea syndrome is difficult.

The findings that elderly subjects may have insomnia that is associated with central sleep apnea, and that some increase in daytime sleepiness without a complaint may be associated with central sleep apnea, have raised concern about the effect of medications (particularly central nervous system depressants) and their potential impact on central sleep apnea and associated oxygen desaturation and cardiac arrhythmias.

*Sleep Stages Related to Apnea* Some subjects may have sleep apnea or hypopnea only during REM sleep. The largest group of subjects studied are women over 50 years of age who present a non-cancerous enlargement of the thyroid gland. In association with REM sleep-related atonia in a supine position, an increased pressure abruptly occurs in the upper airway, which causes a reduction of the diameter of the airway and an appearance of obstructive hypopnea. Subjects complain of repetitive awakening, particularly in the early morning hours, and a feeling of tiredness during the daytime.

Some patients have long, repetitive central apnea during REM sleep that is associated with significant oxygen desaturation. The major difference, compared to other subjects with central sleep apnea, is that oxygen saturation is at a level less than 50% before an arousal response is seen. These subjects have an abnormal control of ventilation during REM sleep. Daytime sleepiness or disturbed nocturnal sleep that is secondary to REM sleep-related apnea may be the first symptoms of multiple disease entities. The most common are: 1) Obesity-hypoventilation syndrome, which is frequently seen in postmenopausal overweight women. Apneas may be infrequent; however, hypopneas can be clearly identified. Oxygen desaturation is related to a decreased tidal volume and abnormal ventilation/perfusion; 2) Moderate kyphoscoliosis; and 3) Progressive neuromuscular disorder that involves the rib cage. These diseases lead to a secondary apnea syndrome, which originally is predominant during REM sleep and is related to the physiologic changes seen in association with the sleep state.

*Periodic Leg Movement  
(Nocturnal Myoclonus)*

The second largest objective cause of sleep complaints in the elderly population was periodic leg movements (PLM) that lead more frequently to a complaint of DIMS (79% of the surveyed population) than of daytime somnolence.<sup>72</sup> The periodic movement varied greatly in the same subject during the night and was most frequently limited to a unilateral or bilateral extension of the big toe; but, sometimes it was more diffuse and (in its complete form) consisted of a rapid flexion of the feet at the ankle and a partial flexion of the knee and hip.



These movements are distinguishable from other sleep-related movements by their periodic occurrence every 20–40 seconds and their stereotypical pattern. They may occur continuously throughout the night in severe cases, but usually occur only during part of the TST. Polygraphically, PLM are monitored with surface electrodes that are placed on bilateral anterior tibialis muscles (*see* Figure 15-1). They are not associated with any specific neurologic disorders, but frequently occur in patients with the restless legs syndrome and in subjects who are undergoing hemodialysis. They must be distinguished from hypnic jerks and other muscle twitches without periodicity and myoclonus. Patients with DIMS or DOES complaints may have PLM. When associated with narcolepsy, PLMs undeniably worsen the nocturnal sleep disruption and usually are seen only in subjects who have had narcolepsy for several years. The role of tricyclic medications—a frequent treatment of the narcolepsy-cataplexy syndrome—must be carefully evaluated.<sup>70</sup>

Historically, nocturnal myoclonus was first described as an epileptic event,<sup>71</sup> but no etiologic explanation exists for this syndrome. Two studies<sup>72</sup> clearly indicated that the PLM syndrome greatly increased with age, with a particularly sharp increase in the 50–59-year-old age

group. The treatment of this syndrome is essentially symptomatic. Recently, clonazepam in dosages ranging from 0.5–6 mg administered at bedtime, has been found to be helpful in some patients. A slowly progressive increase in dosage is recommended for elderly persons to avoid confusion, disorientation, and daytime somnolence that is associated with this drug. Other medications that have been tried with equivocal success are the benzodiazepines, particularly diazepam, baclofen, gamma-hydroxybutyrate, valproic-acid, and phenoxybenzamine.

#### *DIMS with Affective Disorders*

A large number of elderly patients who complain of “insomnia” have depression, which may be a prominent feature of the complex changes that are associated with aging.<sup>62</sup> In 18 elderly subjects (mean age, 64.3 years), there was a significant correlation between sleep efficiency and the Hamilton Depression Rating.<sup>62</sup> Similarly, the REM SL was correlated inversely with the severity of depression. They emphasize that the several major sleep characteristics that typify a primary depression are inversely related to age, including short REM latency, low SE, and reduced delta (stages 3 and 4) sleep. Because REM SL tends to shorten with age, the REM SL of a 60-year-old person

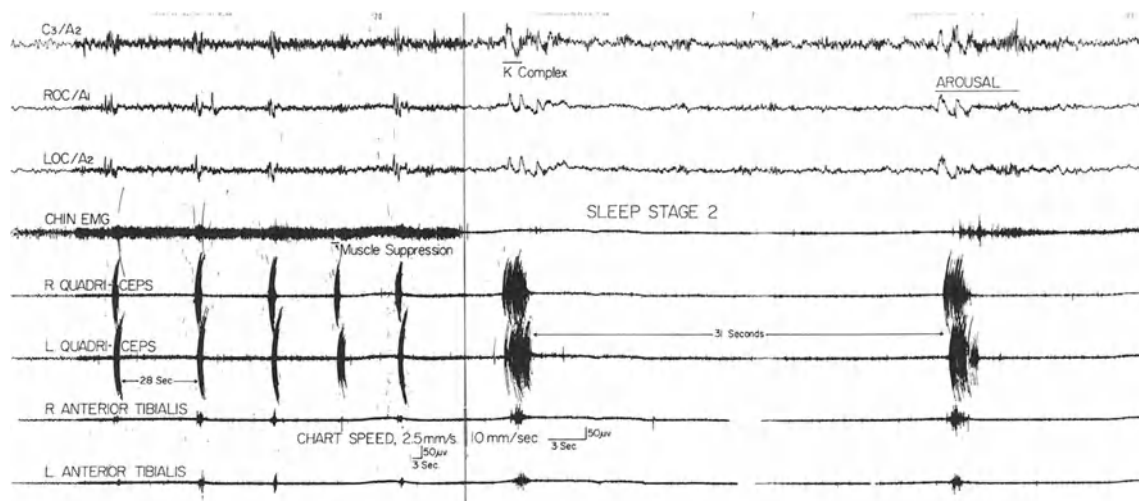


FIGURE 15-1 Recording obtained from an elderly patient who is presenting periodic leg movements (nocturnal myoclonus). The consecutive stereotypical movements with an interevent interval between 20–40 seconds (here, 28 seconds) are clearly shown. These events lead to alpha arousals and K complexes in the EEG derivations that indicate the secondary sleep disruption. At times, muscle contractions can be seen in the muscle anterior tibialis muscle.

would have to be shorter than that of a depressed 20-year-old person before a diagnosis of depression is indicated. A significant relationship exists between SE, SL, and the degree of cognitive disorder that is reported by elderly patients.

#### *Psychophysiologic DIMS*

If the sleep apnea syndrome and PLM syndrome represent the two major diagnostic categories that cover any type of sleep complaint, the psychophysiologic subdivision contained the largest number of elderly subjects who complained specifically of DIMS.<sup>63</sup> This group included 29% of all patients complaining of DIMS and 14% of the total patient population. Psychophysiologic sleep disorders include conditioned arousal responses to environmental and cognitive stimuli that occur at the onset of sleep. By definition, no major psychopathology is found in these patients. Currently, they are likely to be prescribed a hypnotic drug; however, they probably would benefit more from a non-drug program, which includes good sleep hygiene, relaxation, stress reduction, or behavior modification programs. An emphasis solely on the symptom—the disorder of initiating sleep—ignores the secondary problems of drug intake, which includes hypnotic drug dependency and drug withdrawal. In preliminary studies, the long-term results of non-drug programs are better than those for subjects receiving hypnotics.

#### *The Delayed*

##### *Sleep Phase Syndrome (DSPS)*

The delayed sleep phase syndrome (DSPS) may be seen in institutionalized elderly persons or may develop in elderly persons who are hospitalized for any reason.<sup>73,74</sup> This syndrome typically is characterized by a long SL (frequently several hours) and the ability (once asleep) to stay asleep for a normal amount of time, but with awakenings in the late morning or early afternoon. Subjects with this problem may attract medical attention not by their own complaint, but by the complaint or anxiety of the family members or the staff of retirement or nursing homes. The usual third-party complaint is that the subject is up all night disturbing others (including the staff), sleeps during the morning hours, and sometimes misses not only

breakfast but also lunch. The subject, if able to sleep during the daytime, may complain about night boredom and an inability to sleep at night, particularly if he or she is in bed because of situational and social pressures. Subjects usually do not complain about tiredness and fatigue because total sleep time is adequate, even if shifted. At some time before onset of the problem, these subjects have shifted their sleep time to the early morning hours; the peak and trough of several circadian variables, including the central core temperature, also have shifted. When (for whatever reason) an individual attempts to return to a more normal sleeping pattern, he is unable to do so even by using hypnotics, alcohol, and so on. However, chronotherapy with a progressive clock-wise shift of the sleep onset time by 3 hours every day usually will resettle the subject in a day/night cycle within 1 week.<sup>73</sup>

The two major causes of DSPS in elderly persons are: 1) Boat cruises, or foreign travel with jet lag making it impossible to readapt when back home; and 2) Hospitalization for a major illness during which a patient is awakened at any time of the night and day for treatment, which results in the complete disappearance of normal day/night rhythm. Non-drug treatment of this syndrome may be of significant help.

#### *The “Sundown Syndrome”*

This probably is one of the most difficult therapeutic problems facing geriatric sleep specialists. The “sundown” syndrome usually is seen in patients with some degree of dementia, and sometimes is associated with other neurologic disorders—particularly Parkinson’s disease. It also may be seen in delirium that accompanies an acute somatic illness or in a toxic drug reaction (*see* Volume I, Chapter 35). The abrupt appearance of a sundown syndrome in an elderly patient should lead to a systematic investigation of the latter possibilities. Characterized by a confusion and disorientation that is triggered (or at least greatly enhanced) by darkness, it is associated with continuous nocturnal wanderings that eventually are interrupted by short periods of dozing off. The nocturnal wanderings may appear to be semi-action-oriented; but, it frequently is obvious that they are not connected to any goal. Aggressive behavior

that is associated with hypnagogic hallucinations may be noted. If drug reactions or somatic illnesses are not the cause, a prognosis for therapeutic success is not good. Environmental adaptations such as placing a dim light in a patient's room, trying to follow a strict evening routine, placing a patient in a room with key familiar features (even if only a few to avoid injury) may help. All hypnotics and central nervous system depressant drugs have been tried with variable responses. Barbiturates and the long-acting benzodiazepines are not helpful because of unacceptable toxicity. The short-acting benzodiazepines, butyrophenone, chlorpromazine, and chloralhydrate are the most frequently used drugs.

#### *Dysfunctions Associated with Sleep*

Sleep walking and night terrors may be significant problems in elderly persons. Both symptoms may be seen together or independently. The abrupt appearance of nocturnal wandering in an elderly person should lead to a screening for temporal lobe epilepsy or a cerebrovascular accident that involves the temporal lobe. "Paroxysmal nightmare" with episodic, abnormal, and nocturnal behavior that is secondary to a right temporal lobe infarction was successfully controlled by phenytoin or carbamazepine.<sup>75</sup>

Night terrors and nocturnal wandering also may develop as typical NREM dyssomnias in elderly persons. Frequently, a clear-cut psychological trauma triggers a very late onset of these symptoms. A good initial approach in this group is psychotherapy and non-drug treatments, which have produced good results in more than 62% of all subjects.<sup>76</sup> However, benzodiazepines may be helpful in some cases.

#### The Impact of Sleep and Sleep States on Somatic Problems

The fact that multiple central nervous system controls of internal organs are "state-dependent" explains why a given sleep state frequently influences the course of an illness and may even temporarily worsen the problem. The most frequently studied problems have been those in the fields of respiratory medicine and cardiology. Sleep states may affect other functions, but, there is a need for more research. Factors that may be of little import while awake

can impinge much more strongly on a person who already is debilitated by a specific illness.

#### *Sleep States and Respiratory Problems*

Respiratory problems may be related to a disease of the respiratory apparatus or to a disease of the respiratory controls, which may be located on the sensory loop (chemoreceptors, stretch receptors, and so on), the integrative command and neuronal network, and the motor loop (phrenic nerve, respiratory muscles, and so on). It is obvious that REM sleep muscle atonia, the disappearance of a cough reflex, and all other physiologic changes that were previously outlined will worsen respiratory problems during sleep—particularly during REM sleep. Elderly subjects are at greater risk during REM sleep due to the age-related decrease of arterial oxygen pressure. In the recent past, patients with chronic obstructive pulmonary disease (COPD) have received attention. Several articles have confirmed frequent and significant oxygen desaturation in these patients, and also the secondary increased frequency of nocturnal cardiac arrhythmia.<sup>77-82</sup> The underlying pathologic problems are unresolved. REM sleep-related hypoxemia is seen with a significant impact in subjects over 60 years of age who have multiple problems ranging from fibrosing tuberculosis to asthma to bilateral pneumonia. Patients with borderline ventilation while awake and seated will present a significant oxygen desaturation during REM sleep. This has been polygraphically documented in kyphoscoliosis,<sup>83</sup> muscular dystrophy,<sup>84</sup> hemidiaphragmatic paresis,<sup>85</sup> old poliomyelitis (with its onset at least 20 years before onset of the new symptoms), multiple sclerosis with plaque that involves the thoracic area, amyotrophic lateral sclerosis, and an ablation of bilateral carotidian glomi. Patients with Shy-Drager syndrome, chronic cervical lymphadenopathies (particularly those secondary to chronic leukemia) also have shown evidence of a sleep-related airway subobstruction and a secondary worsening of ventilation during sleep. All these respiratory impairments frequently lead to disturbed nocturnal sleep and to secondary complaints of insomnia. Thus, before prescribing any sleeping pill, a physician should systematically assess the primary cause of the sleep disturbance.

*Sleep States and Cardiovascular Problems*

A worsening of acute cardiac failure during sleep, especially REM sleep, has been reported.<sup>86</sup> Prinzmetal angina also is directly linked to sleep, and some patients present an increase in cardiac arrhythmias with the appearance of REM sleep.<sup>87</sup> It is not clear why some cardiac patients improve during sleep, while the condition of others significantly worsens.

*Sleep States and Gastrointestinal Problems*

Sleep may greatly worsen gastroesophageal reflux (GER). The supine position and the associated disappearance or significant decrease during sleep of some pharyngo-laryngeal reflexes, including the cough reflex, may explain the sleep-related appearance of GER; this may lead to secondary aspiration pneumonia or laryngospasm.<sup>88</sup>

*Sleep States and Metabolic Dysfunction*

Hormones not only present a clear circadian rhythm, but some (e.g., growth hormone or prolactin) present a secretion pattern that is linked to sleep onset and a sleep period.<sup>89</sup> Therefore, an investigation of hormonal dysfunction may require evaluation during sleep. One specific problem—sleep-related apneic events and GER with its secondary complications—often is seen in insulin-dependent diabetics who are presenting with an autonomic neuropathy.<sup>90</sup>

*Sleep States and Sexual Dysfunction*

The physiologic changes secondary to the change of balance of the autonomic nervous system, which normally occur, during sleep and particularly during REM sleep, are responsible for regular nocturnal turgescence of the sexual organs. The close association of nocturnal penile tumescence (NPT) and REM sleep has been used to document the existence of organic impotence.<sup>91</sup> Normative data in the elderly population have been collected, and extensive studies during sleep may suggest specific etiologies (vascular, neural, or neuromuscular) and different therapeutic approaches for male impotence (see Volume I, Chapter 17).

*Sleep States and Temperature Regulation*

During the winter months, a sick elderly person may be much more sensitive to the thermic

REM sleep-related aregulation. The greatest danger occurs when malnutrition is associated with other poor social conditions. Because hypothermic events may occur during the early morning hours in association with REM sleep, careful thermocontrol approaches that are similar to those used in neonatology may be needed.

## Sleep and Drugs

Many medications have an impact on sleep or sleep-related phenomena. The following discussion is a summary of the effect of four commonly used families of drugs on sleep and an analysis of the effects of drugs that are used on sleep-related phenomena.

### Daytime Drugs and Sleep Problems

*Cardiovascular Medications*

The appearance of repetitive nightmares and night terrors in association with the use of anti-hypertensive agents is not as well known as other side effects, such as impotence and depression. There are no criteria for screening susceptible individuals beforehand,<sup>92</sup> but there is a significant correlation between drug intake and the appearance of repetitive stage 2 or stage 3 NREM sleep-disturbing nightmares in some subjects. The nightmares did not predict more important psychopathology than in the subjects without this repetitive side effect. Drug withdrawal eliminated the problem.

Quinidine-like medications also may lead to similarly disturbed nocturnal sleep, nightmares, terrifying dreams, and so on. With a drug such as lorcaïnide, this usually is temporary, with the nocturnal disturbance reaching its peak between the 5th–25th day of drug intake. The nocturnal problem may be alleviated by short-acting benzodiazepines taken at bedtime.

*Corticosteroids*

These medications, when used as an anti-inflammatory therapy, frequently are prescribed on a chronic basis. A common side effect is weight gain that is associated with edema. The progressive development of an obstructive sleep apnea syndrome has been seen secondary to drug intake. Most patients were over 60

years of age, and there was no clear sex difference.

#### *Tricyclic Antidepressant Medications*

The impact of tricyclic medications on REM sleep is well-documented.<sup>93</sup> In normal volunteers, depressed subjects, and narcoleptics, there is no suppression of REM sleep, but rather a dissociation of the different polygraphic components of REM sleep and a disappearance of the muscle atonia.<sup>94</sup> This effect of the tricyclic medications may be responsible for the secondary development of the PLM syndrome, which was first clearly observed in narcoleptic subjects but has since been documented in other patients.

#### *Antiparkinsonian Medications*

The introduction of L-Dopa, amantidine, and bromocriptine in the treatment of Parkinson's disease has improved the well-being of many patients. However, significant sleep problems may be seen with these drugs, including complaints of insomnia, nocturnal confusion, disorientation, hallucinations, and nightmares. Benzodiazepines, unfortunately, have little effect on these drug-induced symptoms, and if administering this medication earlier in the day does not help, a decrease in dosage or drug withdrawal may be necessary.

A second frequent problem is related to the time of administration of the medication. Some subjects experience drug withdrawal, an abrupt appearance of discomfort during the night, and complaints of chronic insomnia. A readjustment of the schedule of drug intake may solve the problem.

### Hypnotic Drugs

#### *Acetyl Salicylic Acid*

Multiple surveys have shown this drug to be one of the most frequently used "sleep inducers." Commonly used by elderly persons, it may be associated with alcohol intake to potentiate its "hypnotic" effect. It was found to be responsible for GER during sleep in some of our patients.

#### *Barbiturates*

The negative effects of barbiturate intake have been increasingly emphasized. The safety mar-

gin/efficacy ratio is so low that barbiturates generally should not be used by elderly persons. They were the first hypnotics in which respiratory failure following drug intake was noted. Nocturnal confusion and restlessness following barbiturate intake have been well-documented in the elderly population. Barbiturates also induce sleep fragmentation and abrupt withdrawal symptoms that lead to an appearance of nightmares and a worsening of the sleep disturbances. Because barbiturate hypnotics, such as pentobarbital sodium, lose their sleep-inducing properties in less than 8 days,<sup>95</sup> dosages must be increased to maintain the hypnotic effect. Drug dependency nearly always develops with barbiturates, and the safety margin decreases with each increase in dosage.

#### *Benzodiazepines*

A progressive awareness by physicians of the sleep-related dangers of barbiturates has led to the use of other types of sedative-hypnotic drugs. Because benzodiazepines have a higher safety margin/efficacy ratio, they have been preferred by many physicians. However, benzodiazepines also present significant problems considering that the long-acting benzodiazepines, which create a risk of systemic accumulation (especially in elderly persons), have dominated the market. Flurazepam, whose active metabolite N-desalkylflurazepam has a plasma half-life of around 50 hours in young adults, may not be eliminated as quickly in elderly subjects. The heart rate is increased with benzodiazepine-induced sleep.<sup>96</sup> In normal subjects, short-acting benzodiazepines (e.g., triazolam) decrease daytime sleepiness, while flurazepam increases it. Similar results have been found in chronic insomniacs.<sup>97</sup> Healthy elderly persons with central sleep apnea presented a significant increase in abnormal respiratory patterns with long-acting benzodiazepines.<sup>98</sup> The impact of benzodiazepines on breathing in various populations has been investigated several times.<sup>99-102</sup> Benzodiazepines tend to interfere with ventilatory control.

#### *Others*

Drugs such as methaqualone, glutethimide, and ethchlorvynol induce some of the side effects of barbiturates, such as drug dependency and (fre-

quently) a rapid loss of hypnotic efficacy. There currently is no safe sedative hypnotic on the market that can be blindly recommended to elderly persons. Long-acting benzodiazepines have more sleep-related side effects than short-acting ones. If a sedative-hypnotic must be used in an elderly subject, a short-acting benzodiazepine with a half-life of 3–6 hours would be the first choice.

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## CHAPTER 16

# Elderly Abuse

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In the 1960s, the syndrome of child abuse was introduced to the medical community.<sup>1</sup> In the 1970s, battered women banded together to counter spouse abuse, as did victims of rape and incest. Then, in the late 1970s, doctors, social workers, psychologists, sociologists, and lawyers noticed that elderly clients were being maltreated by care-givers. Systematic observations of maltreated elderly persons have partially codified the syndrome of elderly abuse, and are currently giving rise to prevention and treatment plans.

The abuse of elderly persons is a syndrome that represents one extreme of the age spectrum of familial violence and mistreatment. Elderly abuse, however, has been long-recognized in literature. Perhaps the best known example is the tale of Shakespeare's *King Lear*, an aging monarch who, after becoming dependent on his daughters, is cruelly victimized by them.

### Elderly Abuse Defined

Elderly abuse is defined as "the infliction of physical pain, injury or debilitating mental anguish, unreasonable confinement or willful deprivation by a caretaker of services which are necessary to maintain mental and physical health of an elderly person."<sup>2</sup> This definition extends to elderly persons who reside in long-term care facilities (often called institutional abuse of the elderly) as well as to elderly persons who live with spouses, families, or friends. Besides an overt physical assault on an elderly person, this definition encompasses a number

of other forms of maltreatment. These include unnecessary physical restraint in a bed or chair, or an unreasonable confinement to one's home without access to visitors. This definition also is applicable to withholding food, medicines, teeth, eyeglasses, hearing aids, and walking devices that are necessary to sustain the health or activity of an elderly person. Financial exploitation is a special category of elderly abuse that encompasses withholding an elderly person's funds (pension, social security checks and bank accounts) and willfully mismanaging an older person's money. Sexual abuse also occurs among the elderly population.

"Causing debilitating mental anguish" is less readily identified. Abused elderly persons can suffer fear or anxiety of another person to such an extent that physical or mental functioning is impaired. The fear of being beaten or punished, whether that punishment actually occurs, may in some instances be as serious a form of abuse as the actual act.

### Incidence/Prevalence

No accurate figures can be given for the incidence and prevalence of elderly abuse. Available figures of abuse that occurs among 2% of the population over 65 years of age are derived from surveys of social welfare agencies and census data of the number of frail and vulnerable elderly persons in a given area.<sup>3</sup> Where abuse occurs, it tends not to be an isolated incident, but rather a pattern of violence in which an older person is repeatedly harmed. The implementation of mandatory reporting laws (*see*

*below*) may give more accurate epidemiologic data because of more uniform reporting of elderly abuse. Accurate data from medical records have been difficult to retrieve because elderly abuse is not included in the International Classification of Disease, ICD-9.

## The Setting

Because the majority of abused elderly persons are frail and dependent on others for care, abuse is seldom the presenting complaint of an elderly person in a physician's office. A high index of suspicion is necessary to not miss this diagnosis. When abuse occurs, the resultant fractures, burns, malnutrition, dehydration, contusions, decubiti, punctures, and lacerations may appear in hospital emergency rooms. Because some frail elderly persons are prone to underlying conditions (instability of gait, poor vision, and frequent falls) that give rise to trauma, it may be difficult to differentiate accidental from willful injuries. Because intimidation frequently accompanies elderly abuse (but more often because the abused elderly victim has or has had a close, long-standing, on-going, and dependent relationship to his or her abusing care-giver), the victim is loathe to report abuse. The abusing care-giver may feel guilt and remorse over the damage that is inflicted, and bringing his or her abused relative to a hospital emergency room may be a hidden call for help. The facts presented may not be congruous with the signs of trauma or neglect that are present. This situation may be even more urgent for emergency medical technicians responding to an ambulance call.

People in an abused elderly person's community with access to that patient's home environment are likely to detect—but less likely to report—abuse. These people include neighbors, home health aides, emergency medical personnel, visiting nurses, social service workers, ministers, and the police. When abuse occurs, a physician is less likely to be notified; instead, police or social service agencies are more often contacted. Mandatory reporting laws (*see below*) have enhanced the reporting of elderly abuse by eliminating the liability for reporting an alleged incidence of elderly abuse.

In a primary care setting or a hospital emer-

gency room, the following observations should raise the index of suspicion that elderly abuse has occurred. The care-givers may show a loss of control or fear of losing control. They may present a contradictory history or one that does not or cannot explain the injury. They may project the cause of injury onto a third party. They may have unduly delayed bringing in the elderly person for care. They may over-react or under-react to the seriousness of the situation, or complain continuously about irrelevant problems that are unrelated to the injury. Finally, they may refuse consent for further diagnostic studies and remove the patient from the facility.

The interactions, including non-verbal communications, of an elderly adult and care-giver also may give clues that abuse is the problem. Anxiety and fearfulness of an elderly adult may be striking. Conversely, an elderly adult may appear to be excessively dependent on his or her adult child or other care-giver. In their interaction, an adult child may blame his or her elderly parent for what has happened. The care-giver may intentionally refuse to touch, talk, look, or listen to his or her elderly parent. In some instances, the interaction may be subtle and only observable by careful attention to clues, such as body language that reflects strife and tension.

## Etiologic Factors

A composite rendering of elderly persons most likely to be abused cannot be drawn with precision, because abuse takes place over a wide range, and because the data that create such a rendering are still imperfect. Nonetheless, there are certain recurrent themes. Dependency is a frequently encountered factor, and it most often arises from multiple medical illnesses and mental impairment. In some elderly persons, dependency is associated with helplessness (i.e., a feeling of powerlessness to control life and that no efforts could possibly change the situation). This perceived lack of control, whether real or not, accelerates the mode of dependency.

In addition, a victim of abuse is likely to be among the old-old; the range is from 60–92 years of age, but with a mean age of 84.<sup>3</sup> A victim is more likely to be a woman, even when

data are normalized for the greater percentage of elderly women in the population. She is more likely to have a low- or middle-class background and to be living with relatives. Nearly 50% of all victims manifest a moderate or severe mental impairment, and only 4% are free from any significant physical ailments.<sup>3,4</sup>

Besides the learned dependency on an adult child care-giver, several behavior patterns make an older person particularly at risk for abuse. One of these is having been extremely dependent on a spouse who is now deceased. This dependency is left in a vacuum when a spouse dies, along with its secondary gains of securing attention and care. It finds fresh expression when that old person comes to live with an adult child, and creates tensions within the family.

Another factor in an elderly person that leads to a risk for abuse is a persistence in an authoritarian role with his or her adult child. By advising, admonishing, and directing that adult child on whom an old person is dependent (in short, by treating him or her as a child), tension is created. This attitude is manifested by being intrusive in living arrangements and by allowing little privacy for an adult child and his or her family. Insistence on maintaining old patterns of independent functioning, which is at odds with both the new living situation and the present realities of infirmity, often leads to further tensions.

Financial conditions play a role in placing an old person at risk for abuse. Most commonly, an old person's savings and financial resources may be limited, and the presence of this person in a care-giver's household presents a financial burden on the family.<sup>5</sup> This situation may be exacerbated if that old person refuses to apply for financial aid or other services that would lessen this tension. Other frustrating, tension-provoking scenarios that make an older person at risk for abuse include: 1) Having a lot of money, but refusing to spend any of it; or 2) Using gifts of money in an attempt to control others—usually adult children or more distant relatives. In addition, as economic conditions worsen and Medicaid regulations demand impoverishment for eligibility, some families attempt to keep an old person at home “to preserve the estate,” which otherwise would be spent to satisfy Medicaid regulations.

## The Abuser

The portrait of an abuser perhaps emerges even less clearly. At present, the following characteristics seem to place an adult child at an especially high risk for abusing his or her elderly parent. Alcoholism and drug dependency in a care-giver enhance the likelihood for abusing an elderly relative, because these persons do not cope well with stresses of any kind. Another factor that enhances the likelihood for elderly abuse is a poor self-image. A limited capacity to express personal needs makes a person psychologically unprepared to meet the dependency needs of an elderly parent, especially when it is coupled with a denial of his or her parent's illness. The relationship between a care-giver having been battered as a child and becoming an abuser of an elderly parent is, as yet, unclear.

Other attitudes towards aging characterize an abuser. These include a negative attitude towards aging in general, viewing the parent as somehow being different from other old persons, and having unrealistic expectations of old persons—thinking they are more independent than they actually are, or that the response to their dependency should be accepted more gracefully.

Frequently encountered among abusing care-givers is the statement that they promised their parents never to put them in a nursing home. The care-giver underestimates the severity of his or her parent's multiple medical problems and cannot appreciate the magnitude of care that is demanded to maintain a patient at home.

In terms of living arrangements, social isolation tends to breed abuse by a care-giver, as does a lack of relief in caring for a frail, impaired old person. Outlets for anger and rage are non-existent. Care-givers often must sacrifice their own careers and personal lives to stay at home and care for an older person. Precarious finances are, thus, further jeopardized.

It is naive and not cautious to minimize the stress that is imposed by caring for a frail dependent parent. Providing care to a person who was once a care-giver reverses both the familial dynamics and the parenting roles. This may lead to conflicting feelings of love and fear to-

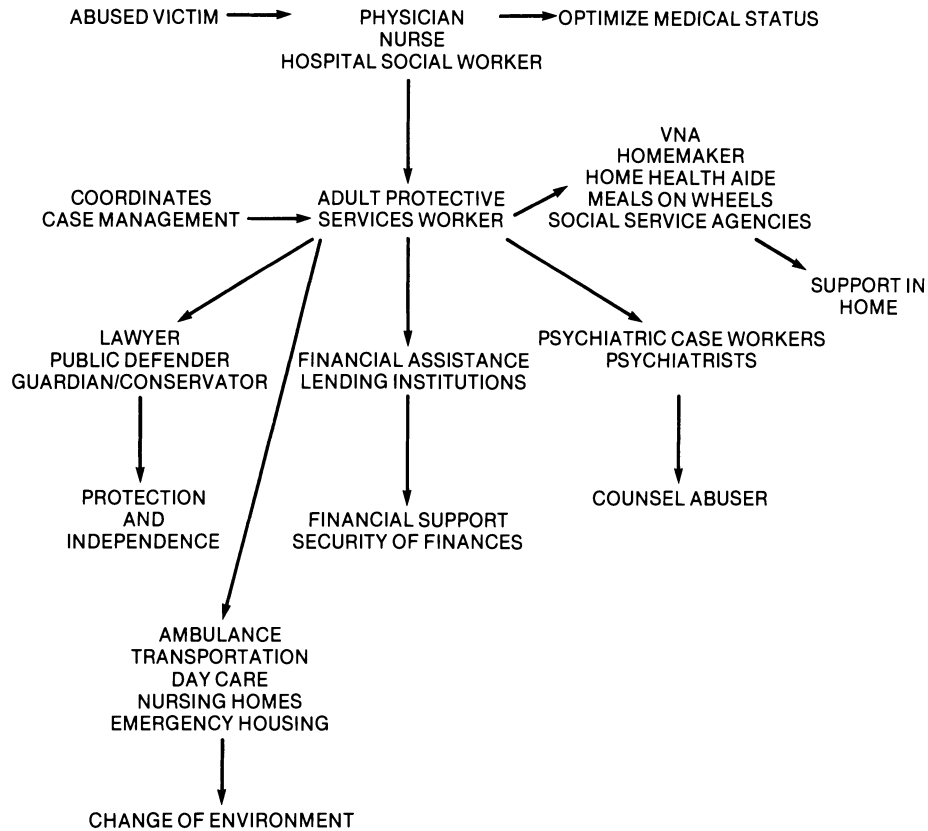


FIGURE 16-1 Professionals and services involved with elderly abuse.

wards one's parent. This emotional attachment may pull a care-giver away from his or her spouse and other family members. There often is an unspoken loss and grieving for the person who used to be; for the person whose body now seems to be inhabited by a different person—sick, peevish, incontinent, and ugly. There are feelings of anger, frustration, and helplessness at the incontinence, the wandering, and the sleepless nights. A care-giver is an isolated, fatigued, and careworn person.

Many times, a care-giver is also growing old. The relief and relaxation that is expected after the children are grown and have moved away is shattered by a new arrival. This arrival is not a baby, it is one's parent. Rather than the pleasures of watching a child develop, the progress is retrograde. Also, the situation often deteriorates so that an elderly parent becomes increasingly dependent, sick, and messy. Care for an aged parent consumes more and more time, so that there may be few chances for relief or even

TABLE 16-1 Professionals and Services Involved with Elderly Abuse

Physicians	Nursing homes
Nurses	Homemaker service
Social workers	Home health aide service
Social service agencies	Law enforcement agencies
Adult protective service workers	Meals-on-wheels
Lawyer	Financial assistance
Public defender	Visiting nurses
Guardians/conservators	Clergy
Psychiatric case workers	Police
Ambulance and transportation services	Fire department
Emergency shelter	

for going outside; the frustrations and isolation tend to mount. There may be sleep deprivation and fatigue that potentiates abuse. It also may be a care-giver's becoming ill him- or herself that first brings the problem to medical attention (see Figure 16-1 and Table 16-1).

## The Multidisciplinary Scope of Elderly Abuse

Elderly abuse is an area of geriatric medicine that interfaces broadly with many other disciplines. Because of the associated trauma and pain, elderly abuse comes within the purview of medicine. Because elderly abuse involves disturbed family relationships and social interactions, it also is the purview of social service agencies. Because the abuse of elderly persons constitutes battery and assault, it involves the criminal justice system.

In the case of child abuse, most states have the power to make interventions to safeguard the rights and lives of children who are unable to defend themselves. Questions of custody and placement in cases of child abuse then proceed along fairly straightforward lines. For abused elderly persons, however, the situation is different. Under the law, adults have the right to privacy in their homes and to have information about themselves held as confidential. Nonetheless, an abused elderly person has been maltreated or physically assaulted and is unable to defend him- or herself. These two tenets may create tension and conflict in the following areas.

First, access to a patient may present a problem. A victim of abuse often fails to report that abuse and may decline assistance to prevent further harm. In that case, the right to privacy is brought into conflict with the humane desire to offer help. To enter an abused person's home without his or her permission is considered trespassing. Countering this is the power of the state to regulate activities that bear on the health and safety of its citizens and the doctrine of the law termed *parens patriae*, which gives the state authority to act in a parental capacity on behalf of those who are unable to care for themselves or who are dangerous to others. The laws that deal with these issues vary from state to state. Thus, social service workers may not

always be allowed to visit an abused person in his or her home. Tact, gentle persistence, diplomacy, and an attitude of offering help rather than passing judgement that is combined with patience and repeated offers of help generally build a framework of trust between abusing families, their elderly relatives, and social service and health workers.

Second, a competent person has the right to refuse medical and social services. Unlike children, whose health must be safeguarded by responsible adults, adults have a right to privacy and self-determination. Thus, it is possible that an abused elderly person may wish to remain in a dangerous environment or to be left exploited or neglected, even to the point of starvation or death. The right to refuse services can be limited if a person, in doing so, represents a danger to others, or if a person is legally incompetent. If a person is found to be incompetent, a guardian may be appointed by the court. Without such a declaration of incompetency, social service and medical agencies have little authority to intervene, except in a life-threatening emergency.

Abuse of an old person generally is a criminal offense. An abused victim must file a complaint against his or her abuser and be willing to testify to prosecute under these laws. Criminal prosecutions are almost always counterproductive maneuvers in dealing with elderly abuse, since the purpose of criminal law is to punish for misdeed. Civil law is different; the goal is relief. Some states have enacted civil laws that pertain to domestic violence wherein restraining orders may be issued against the abusing party. Thus, civil law procedures more effectively separate the abused and the abuser through the use of temporary restraining orders than do criminal prosecutions. Often, however, a victim does not wish his or her family members to be involved with the law and, as a result, does not call on the law to intervene. The uncompromising nature of the law mandates its careful use, so that the delicate nature of family interactions is not unduly upset through its use.

Police interact with abused elderly persons in the setting of a crisis. In general, police do not act as social workers; they may intervene only in an emergency or if a victim calls for help. Sometimes, however, the presence of a uniformed officer exerts a calming influence.

Confidentiality must be strictly maintained. Information that is obtained from an abused victim can only be released to other agencies with the permission of the victim. The question of libel in alleging that elderly abuse has taken place recently has been addressed through the passage of mandatory reporting laws. These laws, which vary slightly from state to state, require the reporting of each alleged incidence of elderly abuse, usually to a central state agency.

Legislation to facilitate the mandatory reporting of elderly abuse serves several purposes. First, social service workers and others are removed from the risk of libel by alleging that someone has abused an old person. Second, it provides for uniform record keeping that makes case handling more efficient and gives a clearer picture of the incidence and prevalence of elderly abuse. Third, it focuses the attention of health professionals, social service agencies, and the public-at-large on the problem of elderly abuse (*see* the Appendix for a list of state offices that deal with elderly abuse).

The problem of differentiating real elderly abuse from paranoid ideation should be mentioned. Elderly people who suffer from paranoia may express the feeling that their caregivers are mistreating them and trying to inflict injury. This paranoid thinking can be clearly distinguished by the fact that an elderly person exhibits other paranoid ideas at a psychiatric interview. It may be helpful to visit their homes and observe the situation first-hand; also, psychiatric consultation is recommended.

## Intervention

Once a case of elderly abuse is identified, treatment is best initiated by using a team approach. Because the problem is multidimensional, the solution also must have a multidimensional scope of response. A list of agencies and personnel that are expert in elderly abuse is given in Table 16-1. The relationship of these agencies and personnel is given in Figure 16-1. The adult protective service worker plays a central role in coordinating intervention with the problem of elderly abuse. This person usually is a social worker, often with training in gerontology, who

helps to provide services for people in danger of being injured. Protective service workers usually are employed by the state or local municipality, and usually are the personnel through whom centralized reporting occurs. While each case needs to be assessed individually, some generalizations about the approaches to specific problems can be made.

In an emergency situation, the life of an abused elderly person is in danger through physical abuse. In this case, an elderly person must be removed from the hostile environment to either an emergency shelter or (more likely) a hospital. If necessary, the police may be summoned to prevent mayhem. The arrest and prosecution of the abuser may take place.

These life-threatening cases are a minority of the cases of elderly abuse. In the majority of cases, the focus is on maintaining the independence and functional capabilities of both an abused elderly person and his or her family or support system. Institutionalization may be the solution to the problem in cases where abuse is a reflection of the need for care that outstrips a care-giver's ability to provide it. In others, however, the tensions that potentiate elderly abuse can be ameliorated through optimum medical management that includes providing support in a patient's home. In these cases, an adult protective service worker can work in conjunction with other social service agencies to provide such in-home services as visiting nurses, homemaker services, home health aids, or meals-on-wheels. Day hospitals or day care may provide enough relief for a care-giver to lessen the potential for abuse. Respite care, giving a care-giver a vacation from caring for an elderly relative also may reduce the potential for abuse. Sending services into the home also means that there are outsiders watching, keeping tabs on things, and able to offer informal counseling and support.

In addition, an abuser can be counseled and helped to better understand the underlying illnesses. For example, self-help groups for Alzheimer's disease<sup>5</sup> promote better care, peace of mind, and reduce the potential for elderly abuse. Psychiatric counseling and referral and treatment in centers for alcoholism or drug abuse also may improve the situation. Anonymous telephone hotlines that provide a calm

sympathetic listener on the other end of the line may avert further elderly abuse.

In cases of financial exploitation, there are many avenues for providing help. First an adult protective service worker will assess the financial status of a client. A client's assets may be turned into more usable funds. For example, money that is invested in real estate can be made more accessible. A case worker also may be able to expedite an application for welfare or social security. Direct-deposit checking services or restricted two-signature accounts may prevent the manipulation of funds. Power of attorney may be granted for the management of finances. Conservatorships and guardianships may place control of other details of living in the hands of an advocate of a client, thus circumventing the potential for exploitation. In addition, a care-giver may be entitled to funds for taking care of an elderly relative or be eligible for financial aid in some other form.

The options for intervention that are presented here are complicated in real life by the limitations of services from area to area within the United States, and by an imperfect linkage among the many organizations and services cited (*see* Appendix). Coordination of these services is one of the prime goals for an adult protective service worker in dealing with elderly abuse. In particular, providing services in rural areas usually is more difficult, because the resources may be less accessible or non-existent.

In dealing with elderly abuse protective service workers often use preplanned protocols,<sup>6</sup> which provide a uniform approach to the problem. These protocols indicate what services are needed and which linkages need to be activated. First is emergency protocol, in which an imminent danger of life and limb exists. Second, there is the competent consenting victim, in which help is arranged along straightforward lines. Third, there is the competent non-consenting victim. This person can make rational decisions, but persists in remaining in dangerous situations. This, perhaps, is the most challenging situation that requires a great deal of tact and finesse to allow assessment and assistance. Fourth, there is the incompetent client. In this case, an elderly person is incapable of making decisions concerning his or her care. Promoting guardianship or conservatorship

normally is the chief goal and difficulty. Regardless of presentation and subsequent protocol, the initial challenge is to gain access to an abused elderly person, and then to develop trust that facilitates case work.

Finally, the problem of institutional abuse deserves mention. In some nursing homes, the residents are subjected to the same sorts of abuse as discussed above. The nursing staff, especially nurses aides, may have little training in dealing with the problems of institutionalized old persons. Sometimes, there are ethnic, cultural, or linguistic barriers to good care. The high turnover rate of nurses aides reflects the high stress of the job, the low pay, and low morale. Besides the theft of residents' possessions, there may be wrongful use of restraint, injudicious use of medications, or actual physical abuse. The Nursing Home Bill of Rights codifies a nursing home resident's rights to privacy, security, and good care. The presence of resident councils in nursing homes may address some of the issues of abuse; also, the state ombudsman (*see* Appendix) may have independent means of investigating alleged nursing home abuses. The tone that is set by the nursing home administration probably is quite important in preventing abuse by letting it be known that such abuse is not tolerated and will be investigated, and also by providing education for its employees and a means for ventilating pent-up frustrations. This reduces abuse and minimizes staff turnover. Being readily accessible to families and other concerned persons who may deduce abusive attitudes among the staff is important. Assessment must include the premise that assuring order and safety in a setting that enhances every patient's self-sufficiency is a demanding task for nursing home personnel. Thus, there sometimes is a fine line between protective restraint and abusive or unnecessary restraint.

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# Alcohol and Drug Abuse

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## Drug Use Behavior: A Risk-Continuum Model

Approximately 1 in 12 elderly men will have a serious drinking problem. If this is identified and the elderly drinker enters treatment, he will fare better than younger patients. However, since his initial presentation will include falls, confusion, or incontinence instead of the classic signs of alcohol abuse—and also because he consumes less alcohol than a younger problem drinker—chances are that his problem may not be recognized or treated. These and other facts about alcohol and drug abuse in old age have received little notice. Instead, one typically thinks of youth and younger adults, classic signs of intoxication or withdrawal, disruptive behavior, and failed therapeutic efforts when one considers these disorders. Recently available studies indicate that elderly persons do experience significant alcohol and drug problems, and that there are special hopeful features in this age group with respect to use patterns, diagnosis, and treatment.<sup>1-3</sup> Before this information is surveyed, it may be useful to mention a few definitions and concepts that underlie the present understanding of these disorders in people of all ages.

Use implies proper use of psychoactive drugs that are intended for therapeutic purposes or controlled social-recreational consumption of psychoactive substances according to learned habits of moderation and safety, which results in minimal or no adverse medical or social consequences. Misuse is the inappropriate

use of psychoactive (and other) substances that are intended for therapeutic purposes (i.e., prescription and over-the-counter preparations, for example, a failure to follow dosage instructions, or the use of a prescription intended for another individual.<sup>4</sup> Abuse is the habitual non-therapeutic use of any psychoactive substance in such a manner as to produce adverse medical or social consequences to the user.<sup>5</sup>

The generic substance abuse model—embracing the abuse of alcohol, licit and illicit drugs, tobacco, and food—has been proposed by the National Academy of Sciences, because present research suggests common biobehavioral bases for these disorders.<sup>6,7</sup> Drug use behavior (*see* Table 17-1) is a fruitful clinical perspective that describes use styles that may apply to any psychoactive substance.<sup>8</sup> It implies that the characteristics of the user often prove to be of more clinical importance than the characteristics of the drug itself. This risk-use continuum model further suggests that tidy diagnostic distinctions (e.g., between “alcoholic” and “non-alcoholic”) are often arbitrary. Two individuals may use the same drug differently with differing consequences; a given individual may use one substance differently than another substance or switch from one to another. Also, a change in substance use behavior may occur over time.

This chapter will review special features of substance abuse in the elderly population. The reader is referred to several other sources for more general information on diagnosis, medical complications, and treatment of substance abuse disorders.<sup>9-14</sup>

TABLE 17-1 A Continuum of Drug Use Behavior<sup>8</sup>

Experimental	Social-Recreational	Circumstantial-Situational	Intensified	Compulsive
Continuum of Use Frequency and Risks (risks are medical and social)*				
Low				High
<b>Descriptors:</b> No more than 10-15 trials Social Non-patterned (fortuitous) Normative in youth	Stable Social Patterned (drug supply and equipment for use kept on hand) Internalized "norms" or rules for safe use	Use related to Specific task (e.g., studying, truck driving) Life stress Specific recurring situation (e.g., social anxiety)	Daily or frequent sporadic use Low dose Outwardly normal functioning Life activities beginning to orbit around drug-related elements Dependence may occur with some substances	Daily or frequent sporadic use High dose Deterioration of social and vocational functioning Life orbits around drug use Dependence likely with many substances

\* For illicit drugs, overdose hazard and criminal risks occur at all points on continuum.

## Factors That May Modify Drug Use Behavior and Risk in Old Age

Elderly persons are more sensitive than younger adults to the effects of most psychoactive substances, which include alcohol, sedative-hypnotics, opioids, benzodiazepines, anticholinergics, and tricyclic antidepressants. Increased sensitivity may be one basis for the often-observed tendency of elderly drinkers to cease drinking or to reduce their intake. Increased sensitivity also may account for the occurrence of problems at lower substance consumption rates in old age than typically are associated with abuse or dependence in other age groups. Conversely, sensitivity to some drugs (e.g., psychomotor stimulants) declines with age.<sup>15-18</sup>

### Biologic Factors

Although unitary hypotheses (e.g., “reduced [hepatic] drug metabolism” or “[brain] receptor hypersensitivity”) recently have become fashionable explanations of age-related changes in drug sensitivity, such changes are better understood as consequences of multiple-interacting variables. Biologic changes that affect psychoactive drug pharmacokinetics and pharmacodynamics only lately have come under study in laboratory animals and humans. Peripheral changes that affect the absorption, distribution, metabolism, and elimination of drugs recently have been reviewed,<sup>19-21</sup> as have central nervous system variables (i.e., age-related changes in the density of neurons employing various neurotransmitters, activity of brain enzymes that metabolize them, density of receptor sites, and sensitivity of these receptors).<sup>22</sup>

Findings at present often are incomplete or inconclusive, but they clearly support a multivariate model for understanding changes in sensitivity to drugs with age. For example, an increase in alcohol sensitivity that is associated with higher blood alcohol levels after standard infusions may be largely related to a reduction in the apparent volume of distribution, which results from reduced body water and lean body mass.<sup>23</sup> Increased sensitivity to diazepam

which has an increased apparent volume of distribution with age, as with most lipid-soluble substances,<sup>24</sup> instead seems to be accounted for by reduced hepatic metabolism. This, in turn, is the result of reduced microsomal drug-metabolizing enzyme activity, liver mass, and hepatic blood flow.<sup>19,25</sup> There may also be an increase in brain benzodiazepine receptor sites.<sup>22</sup> Increased brain anticholinergic sensitivity appears to be related to reduced acetylcholine synthesis<sup>26-30</sup> and, possibly, to receptor hypersensitivity.<sup>22</sup> Decreased sensitivity to amphetamine, which exerts its stimulating effects by activating dopaminergic neurons, may be explained by the findings of an age-related reduction in the number of dopaminergic neurons,<sup>28,31,32</sup> dopaminergic receptor sites,<sup>33,34</sup> and dopaminergic-synthesizing enzyme activity.<sup>22</sup>

### Psychosocial and Psychiatric Factors

Environmental changes, subjective distress, and mental disorders also may affect the consumption of alcohol and drugs. Among psychiatric disorders, major depression<sup>5</sup> has been shown to precede the onset of drinking problems in 3-5% of all hospitalized male alcoholics<sup>35,36</sup> and in 14-25% of all female alcoholics.<sup>36,37</sup> The depressive alcohol abuser tends to have a later onset of alcohol-related problems.<sup>38,39</sup> Major depression must be differentiated from the mild depressions that most alcohol abusers are prone to because of alcohol effects on brain functioning and life problems, which are created by their drinking behavior.<sup>40,41</sup> Institutionalization in nursing homes and convalescent hospitals may curtail some problem substance use, but it also may expose elderly patients to excessive medication with psychiatric drugs in poorly supervised settings.<sup>42,43</sup> Common biomedical problems (e.g., insomnia and chronic physical illness with associated pain and emotional discomfort) increase in prevalence with age.<sup>44</sup> Suffering due to these conditions may increase the likelihood that some elderly persons will use alcohol, tranquilizers, or sedative-hypnotics to the point of adverse reactions or dependence.<sup>45</sup>

The role of psychosocial problems in elderly substance abuse is not settled. Marital discord, financial and housing problems, loss of employment, poor adjustment to retirement, loneli-

ness, and loss of a spouse or others, have long been implicated as causative or contributory factors in late-onset abuse. Explanatory hypotheses that relate old age substance use to life stress (e.g., as a "coping mechanism",<sup>46,47</sup> as an outcome of "learned helplessness",<sup>48</sup> or as a consequence of weakened ties to societal controls<sup>46</sup>) have been proposed, but not tested. An association between psychosocial stresses and old age alcohol abuse has been reported,<sup>49-52</sup> but empiric evidence for the stress-reactive model has not gone unchallenged.<sup>2,53</sup> One major difficulty with these common-sense attributions is that all elderly persons, in time, encounter most of the biomedical and psychosocial stresses described; but, relatively few develop substance abuse problems. Another difficulty with the attribution of increased substance abuse to stress is that among aging early-onset alcoholics<sup>53,54</sup> and opiate addicts,<sup>55</sup> a reduced consumption with advancing age often is attributed to the same stress factors that are associated with growing older; namely, physical debility, decreased drive, and lack of money. While these may prove to be valid and reconcilable views that are related to different cohorts, further work is required to elucidate the relationship between life stress and substance use behavior in old age.

### Diagnosis of Alcohol and Drug Abuse

A diagnosis of substance abuse in medical practice often is difficult. The tendency of abusers to deny their problem is legendary, there have

been extended debates about the validity of diagnosing substance abuse,<sup>56</sup> and the literature offers several competing systems of diagnostic criteria. The problems of diagnosis are further complicated in elderly persons by special medical, psychological, and social factors.

### DSM III: Diagnosis of Organic, Abuse and Dependence Disorders

The simplest system and the official system in the United States is offered in the *Diagnostic and Statistical Manual of Mental Disorders*, third edition (DSM-III), which divides substance use problems into two major categories: the substance-induced organic mental disorders and the substance use disorders.<sup>5</sup> Substance-induced organic mental disorders refer to the toxic consequences of excessive drug use. They are diagnosed according to the signs and symptoms that are caused by direct effects of drugs on the central nervous system. A summary of these disorders for drugs that are likely to be abused by elderly persons is given in Table 17-2.

Substance use disorders refer to drug use behavior or practices, and they are diagnosed according to the criteria for substance abuse and substance dependence summarized in Table 17-3.

Most patients who suffer from a substance-induced organic mental disorder will have a concomitant diagnosable substance use disorder. For example, a socially isolated chronic user of alcohol in excessive amounts may develop signs of alcohol withdrawal in a hospital.

TABLE 17-2 Substance-Induced Organic Mental Disorders<sup>5</sup>

Substance	Acute				Chronic		
	Intoxication	Withdrawal	Hallucination	Withdrawal Delirium	Amnesic Disorder (Korsakoff type)	Dementia	Delusional Disorder
Alcohol	X	X	X	X	X	X	
Sedatives	X	X		X	X		
Opioids	X	X					
Cannabis	X						
Tobacco		X					X
Caffeine	X						

TABLE 17-3 Substance Use Disorders: Criteria for Diagnosis<sup>5</sup>

Substance Abuse Disorder	Substance Dependence Disorder
Pattern of pathologic use	Either tolerance or withdrawal (required for any substance)
Impairment in social or occupational functioning due to substance use	Either a pattern of pathologic use or impairment in social or occupational functioning (required for alcohol and cannabis only)
Duration of at least 1 month	

By definition, both the alcohol withdrawal disorder and alcohol dependence disorder should be diagnosed. A contrasting example is a light social drinker who enters a hospital emergency room after an uncharacteristic drinking binge for several days following the death of a spouse. An alcohol intoxication disorder is diagnosed; but, alcohol abuse disorder is not diagnosed, because the history indicates that this is an evanescent, stress-related episode (less than 1 month).

#### Underdiagnosis in Old Age

The average older abuser is middle-class and does not fit the public stereotype. Partly for this reason, physicians tend to underdiagnose and under-report substance abuse in elderly patients. A formerly popular view held that substance abuse tends to disappear in old age.<sup>57-59</sup> While studies reviewed later in this chapter convincingly refute this view, a belief in the myth of "maturing out" or "burning out" of alcohol and drug abuse has remained another impediment to increasing physicians' awareness of substance abuse in older patients.

Clinical factors in old age also make a diagnosis difficult. The substance-induced organic disorders can be symptomatically difficult to distinguish from other psychiatric disorders that are common in geriatric patients. There is evidence that the chronic use of alcohol and sedative-hypnotics may produce depressive symptoms,<sup>41,60,61</sup> while substance-induced hallucinosis may superficially resemble schizophrenia or paranoid disorders. Substance-induced or withdrawal delirium may be misdiagnosed as a deteriorating dementia. The chronic use of alcohol, bromides, or phenacetin also may produce symptoms of dementia, which will be attributed to Alzheimer's or a

multi-infarct disease unless substance abuse is considered.

Non-specific presentations (e.g., poor grooming, incontinence, myopathy, falling, and cold injury) may be caused by alcohol abuse.<sup>62,63</sup> Osteoporosis may be a presenting sign of excessive alcohol, caffeine,<sup>64</sup> or nicotine<sup>65</sup> use. Other common metabolic problems in old age (e.g., unexplained hyperuricemia,<sup>66</sup> hypoglycemia,<sup>67,68</sup> or hypertriglyceridemia<sup>69</sup>) may be caused or aggravated by alcohol abuse.<sup>70</sup>

An unexpected response to a prescribed medication may be the first clue to undisclosed alcohol abuse. Acute alcohol intake reduces the metabolism of many drugs (e.g., phenazone, aminopyrine, meprobamate, diazepam, nitrazepam, or chlordiozepoxide), most probably because of the competitive activity of alcohol for hepatic microsomal drug-metabolizing enzymes.<sup>71</sup> Conversely, chronic alcohol use may bring about an opposite effect that induces microsomal enzyme activity with a resultant increased clearance of many drugs, including tolbutamide,<sup>72</sup> warfarin, phenytoin, meprobamate,<sup>73</sup> pentobarbital, and antipyrine.<sup>74</sup>

Social factors also contribute to underdiagnosis. Younger patients often are first identified as abusers by others, such as an employer, spouse, family member, or judge. However, older persons (retired and living alone) may not have sufficient contact with anyone to discover and bring their difficulties to the attention of a treatment agency or physician; or, family members may deny and cover over the abuse problem while supplying drugs or alcohol to a patient.<sup>62,63</sup>

A willingness to consider substance abuse in the differential diagnosis of a wide range of medical and behavioral presentations, and a meticulous approach when obtaining a history

of alcohol, medication, and other drug use, are a physician's best tools for accurate diagnosis.<sup>75,76</sup>

## Alcohol Abuse

### Prevalence

Although alcohol use and abuse in the community decline with age, the data shows that alcohol abuse remains a public health problem of moderate severity in the population over 60 years of age. Household surveys show that the prevalence of both alcohol use<sup>53,77-81</sup> and abuse<sup>49,82,83</sup> tend to decline significantly in old age. A similar trend has been noted in community surveys conducted in other Western nations,<sup>84-87</sup> and also in a few United States institutional studies.<sup>88-91</sup> Explanations for a decline in alcohol use and abuse with age include an increased alcohol sensitivity, underdiagnosis and under-reporting of cases, high early mortality of heavy drinkers,<sup>59,92</sup> institutionalization,<sup>59</sup> spontaneous recovery,<sup>57,59,80,93,94</sup> and generational differences in alcohol use or cohort effects.<sup>95</sup>

The prevalence of alcohol use and abuse is considerably higher in older men than in older women. Among men, up to 25% report heavy drinking in their early 60s, which declines to 6-7% in their 70s (versus 20-45% in those under 50 years of age); heavy drinking is reported by only 1-2% of all elderly women (versus 5-16%

in those under 50 years of age). The prevalence of problem drinking has been reported to be as high as 12% in older men and 1% in older women (versus 3-15% among all adult men and 1-4% among all adult women). Rates are far higher in certain subgroups of the population.<sup>96,97</sup> It is estimated that about 10% of all adult alcohol abusers are over 60 years of age.<sup>2,50</sup> Elderly alcohol abuse is far more common than the abuse of other substances,<sup>2,98,99</sup> even among criminals whose drug abuse rates are quite high.<sup>97</sup>

Active alcohol problems usually are more common among elderly persons who are entering institutions than those in the community (*see* Table 17-4). Prevalence reports of alcohol abuse in institutionalized groups tend to suffer from a lack of consensus about criteria for diagnosis of alcohol abuse, variable inclusion of inactive cases with those demonstrating current alcohol problems, a lack of sex-specific data, a lack of age stratification among the elderly group that was sampled, and a lack of comparison prevalence rates for younger cohorts (where appropriate). Nevertheless, the trend in the data is clear. Rates can run far higher than those depicted in Table 17-4 in especially vulnerable groups (e.g., 60% of all elderly black men and 35% of all black women who were admitted to an urban general hospital medical ward showed evidence of severe problem drinking.<sup>107</sup>) Older drinkers also can be dramatically over-represented in arrests for public intoxication.<sup>108,109</sup> Among arrested drinking drivers in

TABLE 17-4 Prevalence of Active Alcohol Abuse in Institutionalized Patients Over 60 Years of Age

Setting		N	Sex	Rate (%)	Reference No
General hospital medical ward admissions	U.S.A.	280	M <sup>+</sup>	5	76
	U.S.A.	113	M	8	94
	U.S.A.	136	M	8	100
	France	905	M & F	9	101
County/state mental hospital admissions	U.S.A.	*	M & F	9	90
	U.S.A.	*	M	11-12	102
	U.S.A.	87	M & F	17	103
Nursing home residents	France	*	M	33	104
	France	*	F	4	104
County acute psychiatric screening ward admissions	U.S.A.	534	M & F	23	105
	U.S.A.	100	M & F	44	106

\* N = several thousand in each survey; exact Ns not available.

+ M = male; F = female.

one study, the ratio of problem drinkers to social drinkers was highest in the elderly age group.<sup>110</sup> Older patients comprise 2–25% of all alcohol treatment program clientele.<sup>50,111–115</sup> Alcohol abusers over 65 years of age are likely to be admitted to a general hospital or Veterans Administration hospital, while younger abusers are more often sent to a state or county mental facility,<sup>116</sup> because of a greater tendency for associated medical problems in the former group and for social misconduct in the latter group.

### Clinical Presentation

Alcohol problems in elderly patients are difficult to diagnose and frequently will be missed, unless a clinician actively considers the possibility in a routine differential diagnosis. A non-specific presentation is much more common than signs of alcohol intoxication or withdrawal. Social isolation, injuries, falls, self-neglect, malnutrition, diarrhea, incontinence, or a general physical deterioration may be caused by alcohol abuse, but be mistaken for the effects of aging or multiple chronic illness.<sup>50,62,63</sup> The presentation may suggest another psychiatric disorder when the main feature is erratic or paranoid behavior, family quarrels, or estrangement.<sup>50</sup> The drinking problem may be further obscured by family denial or collusion.<sup>62,63</sup>

Dementia due to all causes coexists in 25–60% of all newly admitted elderly alcohol abusers.<sup>94,105,106</sup> Compared to other medical and psychiatric elderly patients, alcohol abusers may be younger and more likely to report multiple marriages, living alone, suicide attempts, and having been in jail.<sup>94</sup> Compared to medical patients, alcohol abusers also may report better education and job records, have less cardiac disease, but more chronic lung disease (probably in association with higher cigarette consumption).

### Early- Versus Late-Onset of Alcohol Abuse

Several investigators have proposed dividing elderly abusers into an early-onset (EO) group (in whom alcohol problems began before 40–60 years of age) and a late-onset (LO) group (whose first problem drinking occurred subsequently). Late-onset cases make up about one third of older abusers in several series,<sup>50,51,105,117</sup>

although the reported range is broader (4% to 80%), which depends on the clinical setting and cutoff age of onset that is used.<sup>94,106,115,118,119</sup> The EO-LO distinction is justified by some clinicians, because EOs often appear to be young alcoholics grown old, while LOs seem to present a more reactive form of alcohol abuse in response to the stresses of later life.<sup>13,50–52,120</sup> There is evidence that some LOs represent a primary depression with secondary alcohol abuse.<sup>38,39</sup> One argument against the EO-LO distinction is the possibility that it is too simple a classification, because systems of three<sup>121</sup> and even six<sup>122</sup> drinking history patterns have been proposed. Furthermore, the stress-reactive hypothesis for LOs lacks adequate empiric support.<sup>2,53</sup> The EO-LO distinction even may be artificial, because both groups share a number of features in common<sup>94</sup> and seem to respond to the same treatment approaches.<sup>50,62,117,123</sup> There also is some evidence suggesting that (irrespective of the age of onset) an alcohol abuse “career” runs a regular course, with a spontaneous recovery after about 20–25 years.<sup>2,94,115</sup> However, inactive or recovered older drinkers can return to active alcohol use.<sup>76</sup> Other proposed classifications for elderly alcohol abusers have included active versus inactive alcohol abuse<sup>94</sup> and demented versus non-demented groups.<sup>94,105,106</sup>

### Alcohol Use and Cognition

Alcohol induces both dementia and more subtle cognitive changes that suggest accelerated aging. An association between chronic heavy alcohol consumption and findings of dementia has been demonstrated not only in clinical surveys,<sup>105,106</sup> but also structurally in computed tomographic brain scans<sup>124–128</sup> and neuropsychological testing.<sup>129</sup> Apart from clearly demonstrated dementia or signs of “organicity,” neuropsychological studies have detected more subtle deficits on measures of abstract reasoning and cognitive adaptation to novel stimuli, in alcohol abusers,<sup>130</sup> and even in light-to-moderate social drinkers.<sup>131</sup> Social drinking<sup>132</sup> and alcohol abuse<sup>130</sup> were associated with greater cognitive deficits in older persons than in younger persons. In most investigations, the form of these test performance deficits is similar to that associated with aging in normal cohorts.<sup>129,132–134</sup> Thus, alcohol may mimic, mag-



nify, or accelerate changes in cognition that are associated with aging.<sup>135</sup> Not all studies support this “premature aging” model to describe alcohol effects on cognition.<sup>130</sup> The relationship between cognitive deficits and structural brain changes is unclear, as is the question of reversibility of cognitive deficits following protracted abstinence. The findings do support the contention that elderly persons who drink regularly are likely to suffer from some exaggerated impairment of abstraction and adaptive reasoning that is based on the additive effects of aging and alcohol on cognition.

### Therapeutic Uses of Alcohol

Anecdotal sources, for years, have recommended alcohol for elderly persons as an appetite stimulant,<sup>136,137</sup> mild “tranquilizer,” nighttime sedative, and for its symbolic value as a shared adult social gratification.<sup>138</sup> Several experimental studies of the effects of beverage alcohol on social behavior in institutionalized elderly patients have been reported. In one crossover study in a geriatrics hospital, most non-alcoholic patients preferred wine to grape juice in a social setting.<sup>139</sup> During wine-drinking sessions (45–90 cc of table wine—12% alcohol), patients became more sociable, which is an effect that was also observed (to a lesser extent) between sessions. Similar results have been reported using United States domestic beer (360 cc).<sup>140,141</sup> Table wine (60 cc) served with meals in a skilled nursing home favorably influenced patient satisfaction with food, bed, and facility.<sup>142</sup> In two studies, beer (360 cc) that was given in a “pub-like” setting within a geriatrics unit, was more beneficial than thioridazine, placebo<sup>143</sup> or pub setting alone<sup>144</sup> in improving patient social interactions and global behavior ratings. These careful studies used modest amounts of alcohol in a controlled setting. It is appealing to conclude that this practice may benefit willing older patients who are free of alcohol problems in institutional settings. Conversely, some authorities have cautioned that such a practice may divert staff attention from creating more fundamental changes to establish a congenial social milieu.<sup>103,123</sup> With an effective milieu, alcohol may be superfluous.

The usual controls on prescription drug use are not available when a physician recommends the “therapeutic” use of alcohol for elderly out-

patients; complications can arise. Iatrogenic alcohol abuse can result.<sup>145</sup> Adverse effects on sleep,<sup>146</sup> sexual performance, intellectual functioning,<sup>132</sup> mood,<sup>60</sup> and a variety of metabolic processes (including interference with the metabolism of prescribed medications<sup>70</sup>) may be the unintended consequences of alcohol that is recommended as an aid for these functions. Patients with chronic cardiac and pulmonary disorders, and those who are chronically taking medications, probably should not drink alcohol. On balance, it can be argued that the therapeutic use of alcohol is not without risks, but this is true for all medications. The medical use of alcohol is most safe in institutional settings where controls are possible, a social context for drinking can be assured, and efficacy has been empirically demonstrated.

## Drug Misuse and Abuse

### Prescription Drugs

Elderly persons receive substantial medication; the oldest 10% of the population are issued 25% of all prescription drugs.<sup>147</sup> Physicians may prescribe less rationally and more casually for geriatric patients,<sup>148–150</sup> and with less adequate control in institutional settings.<sup>42,43</sup> Elderly patients may make medication errors that are related to the complexity of their drug regimen, faulty memory, poor understanding of the regimen, hoarding, and drug sharing in residential facilities.<sup>45,151</sup> In particular, elderly persons take abundant psychoactive medications,<sup>98,150,152</sup> and the chance of abusing prescribed sedatives and analgesics may increase with age.<sup>153</sup> Despite ample documentation of widespread prescribing of psychoactives to the elderly population, there are no prevalence studies that effectively discriminate among appropriate use, misuse, and abuse of these medications.<sup>154</sup> A report of patients who were hospitalized for prescription drug abuse showed an even distribution by age into their 70s.<sup>155</sup>

Older patients are most likely to abuse prescribed sedatives and sedative-type tranquilizers, while younger patients are more likely to abuse prescribed stimulants.<sup>155</sup> In one large survey, prescription drugs (most often sedatives) and alcohol accounted for all cases of old-age acute adverse drug reactions, while illicit drugs

were more commonly implicated in younger patients.<sup>156</sup> In a general medical practice survey, older women were over-represented among patients who were judged to be dependent on sedatives.<sup>157</sup> A household survey of elderly persons found that 4% of those who were prescribed antianxiety agents were misusing them, but no misuse of hypnotics was detected.<sup>98</sup> Sedative abuse by elderly patients may, in some cases, have begun earlier in life; in an era when physicians—believing that these drugs had low abuse potential and regulated by fewer federal controls—were more likely to prescribe barbiturates and (later) glutethimide, ethchlorvynol, and methaqualone.<sup>13</sup> Once established, sedative dependence often is maintained through legitimate sources; an elderly patient complains of recurring or sustained anxiety or sleep disturbance, for which a physician may be likely to continue sedatives. Older patients often have a decided preference for one drug and may be maintained on an outmoded sedative for many years. Although friends also are a sedative drug source, illicit “street” sources are not commonly used by older persons.

### Over-the-Counter (OTC) Drugs

Older patients are significantly likely to misuse over-the-counter (OTC) medications.<sup>98</sup> The vulnerability of older persons to problems due to OTC drugs can be understood by considering four possible factors: 1) Increased sensitivity to some drug side effects (a factor in the adverse response to hypnotic and cold preparations that contain anticholinergics and antihistamines); 2) The long duration of drug exposure that may be necessary before toxic drug effects appear (phenacetin, aspirin, or bromides); 3) The medical condition for which the OTC drug is used may be very common in elderly persons (hypnotics, cold preparations, phenacetin, aspirin, or laxatives); and 4) The OTC drug was once widely available and considered harmless, and a patient’s use is based on this erroneous belief (bromides). Anticholinergics and antihistaminics may produce delirium when used in excess. Phenacetin and aspirin have been associated with an analgesic nephropathy and tentatively with dementias.<sup>158</sup> One Australian survey of aspirin use found that (particularly in women) the incidence of daily use increased to a peak in the 6th decade and remained high in the 7th decade,

with 20% of all housewives in these latter groups reporting daily use.<sup>159</sup> Arthritis accounted for much of the increase, which is an example of how drug use patterns are affected by the development of disease processes with aging. Of all aspirin users, 15% demonstrated misuse in another survey.<sup>98</sup> The diagnosis of analgesic abuse rarely is made before the development of organ damage, although it is evidently quite common.

Laxatives are widely used by elderly persons; as many as 30% of all persons over 60 use them regularly, with misuse by perhaps 10% of all users.<sup>98</sup> Excessive laxative use can cause hypokalemia or mimic surgical abdomen or malabsorption syndromes. Extensive medical work-ups may be conducted before a correct diagnosis is made.<sup>160</sup> Abusers went to great lengths to hide their laxative habits, and several had pre-existing psychological disturbances. Typical presentations in elderly persons are a complaint of diarrhea or findings of electrolyte imbalances; the patient initially does not disclose habitual and long-standing laxative use. Bromides have become less available, but cases of chronic bromism still are reported. These have mimicked dementia, depression, organic hallucinosis, seizure disorders, and strokes.<sup>161,162</sup> The presence of pigmented or acneform skin lesions and organic brain syndromes suggest the need to obtain an additional history and a serum bromide level. In elderly persons, even more than in younger patients, a careful history of OTC drug use is obligatory.<sup>75</sup>

### Caffeine and Nicotine

Caffeinated beverages (typical serving of coffee contains 100–150 mg of caffeine; tea, 50–75 mg; and cola drinks, under 50 mg) are widely accepted in Western culture, although they may acutely contribute to psychological disturbances (especially maniac, anxiety, and panic disorders) and to cardiac arrhythmias<sup>5</sup>; also, chronically to gastric disease, osteoporosis,<sup>64</sup> and perhaps pancreatic carcinomas.<sup>163</sup> Caffeine use in males declines with age, but 85% over 60 years of age continue to consume coffee or tea daily<sup>164</sup>; 23% of all elderly persons continue to consume four to six cups of coffee daily, and another 11% consume even more.<sup>98</sup>

Tobacco-related health consequences are well-known, and generally are more highly as-

sociated with cigarettes than with other tobacco forms. Tobacco use produces a syndrome of nicotine dependence. Withdrawal phenomena occur when many smokers cease heavy daily habits, which include changes in mood and performance.<sup>5</sup> Cigarette smoking declines with age. In one United States survey of men, only 17% over 60 years of age continued to smoke versus 48% in the group 40–59 years of age<sup>164</sup>; another survey found that 25% of all persons over 60 years of age still smoke.<sup>98</sup> Osteoporosis, weight loss, decline in muscle strength and in pulmonary function, are associated with smoking in elderly men.<sup>165</sup> Sustained heavy cigarette smoking in old age can be associated with high alcohol consumption.<sup>94,165</sup>

### Illicit Drugs

Some older opioid-dependent persons survive, continue opioid use, but avoid unwanted attention from criminal justice and treatment agencies.<sup>166–169</sup> These findings contrast with earlier studies of opioid abusers, which noted a sharp decline in the numbers enrolled in treatment and on federal addict registers after their 40s. This was interpreted to mean that older abusers either died or “matured out” of addiction.<sup>58,170,171</sup> One recently reported cohort of untreated older addicts had a mean age of 59 years and duration of use of 35 years.<sup>166</sup> Most were single or divorced men who began using opioids in their 20s or 30s, obtained their drugs from “street” sources, preferred hydromorphone to heroin, and used sedatives as alternative drugs of choice. Most had police records, had been imprisoned, and had decreased opioid use because of economic necessity; still, about 50% worked full-time. In a 20-year follow-up of young heroin addicts who were 38–59 years of age when surveyed, 13 were found to be dead, 23 addicted to heroin, 7 addicted to methadone or alcohol, and only 1 abstinent.<sup>169</sup> This group may represent a transitional status between the more visible young “street” heroin-dependent group and the older less visible hydromorphone users, who “hustle” less and live isolated, anomic, but comparatively stable, lives.<sup>3,55</sup> They may be driven into treatment by financial hardship or health problems.

Although the prevalence of opioid dependence is lower than in younger age groups, it is

increasing as younger users age.<sup>154,167</sup> In New York City methadone maintenance programs, clients over 60 years of age have increased from 0.5% in 1974<sup>172</sup> to 1.1% in 1980.<sup>3</sup> The trend is likely to continue, with 14% of all clients in the 40–59-year-old age group.<sup>154</sup> As in the case of younger addicts, older opioid-dependent persons also may abuse alcohol, cannabis, and even tricyclic antidepressants, which can produce euphoria.<sup>154</sup> There are similarities between elderly opioid users and elderly criminal recidivists whose capacity for success in the criminal world declines over time.<sup>173</sup>

Hallucinogen, psychomotor stimulant, and cannabis abuse in non-opioid users are very uncommon in old age.<sup>98,99</sup> Aging criminals report the highest use rates for all illicit substances.<sup>97</sup>

## Treatment

### General Principles

Hospitalization often is a preferred starting point for treatment and rehabilitation.<sup>50,155</sup> Indeed, elderly substance abusers often do not enter treatment until severe medical problems appear, which then require immediate attention in a hospital. They may not tolerate withdrawal symptoms well because of decreased physical stamina and a greater length of dependence. Once acute conditions have been stabilized, one’s attention can shift to careful and comprehensive assessment. A social worker, alcohol counselor, or psychiatric consultant may be requested to help. Relatives, friends, nursing home care-takers, caseworker, and others in a patient’s social network must be mobilized to provide information, renew emotional support to a patient, and help create plans for posthospital management. The following principles guide subsequent treatment in most cases: 1) Arrange additional social supports as a substitute for previous isolation or social activities that were centered around substance abuse; 2) Stabilize financial and residential problems; 3) Educate a patient and care-taker to avoid future misuse; 4) Provide vigorous outreach and follow-up activities; and 5) Consider appropriate medical aids (e.g., disulfiram or methadone maintenance) and structured social aids (e.g., social activities groups or senior day center participation). The

successful treatment of older substance abusers requires more staff initiative and attention to interpersonal needs when compared to the requirements of younger patients,<sup>174</sup> because of the impoverished social network of many elderly abusers.<sup>99,110,166,173</sup>

Follow-up management often is best achieved by an interdisciplinary team approach and the case manager model, which stresses advocacy, procuring, and monitoring of services on a patient's behalf by an agency worker. There is little evidence that probation or other legal pressures are helpful in treating older substance abusers, except to open doors to treatment resources. Older persons who are imprisoned tend to do poorly, and they often are abused by younger inmates.<sup>173</sup>

### Treatment of Alcohol Abuse

Some patients with alcohol problems may be successfully managed by primary care physicians, especially late-onset alcoholics who may respond to time-limited outpatient treatment. This includes emotional support, low-dose tricyclic antidepressants, and a referral for adjunctive socialization groups.<sup>52,103</sup> Depending on a patient's medical status, disulfiram may be a useful deterrent. In the past, isolated older alcoholics have been primarily treated in residential settings. However, with earlier identification, several model programs have successfully adopted a multidisciplinary outpatient approach that uses strong outreach and social support components.<sup>175-177</sup> Compared to younger patients, elderly alcohol abusers tend to be more submissive, feel the need for more interpersonal involvement with a professional staff, and benefit more from encouragement toward autonomous functioning.<sup>174</sup> Alcoholics Anonymous (AA) is useful for some older patients who may especially value its somewhat religious orientation; however, some socially restrained elderly patients may shun self-disclosure and the rough, profane testimonials that sometimes are exhibited in AA groups composed of younger persons.<sup>177</sup> Treatment decisions probably are best made by assessing a patient's need for emotional support, social structure, and medical care, and then by matching these to the available clinicians and programs.

Older patients are more likely to complete treatment successfully than younger patients and to maintain sobriety for longer periods.<sup>2,51,178-180</sup> The differences may be dramatic; one program reported 73% successful treatment for patients 60 years of age and older versus 40% for those under 60 years of age.<sup>2</sup> Chances for a successful outcome are diminished in patients with associated antisocial personality disorders,<sup>178</sup> dementia,<sup>51,105,106</sup> skid row status,<sup>181</sup> or family drinking partners.<sup>63,175</sup>

### Treatment of Drug Misuse and Abuse

Initial treatment of antianxiety agent and sedative dependence almost always requires hospitalization to cope adequately with denial, somatization, potentially serious withdrawal syndromes, and a tendency for immediate relapse.<sup>155</sup> Follow-up treatment is organized on the same principles as treatment of alcohol abuse, with a special emphasis on education of the patient, family, and all involved health professionals to decrease the risk of a later relapse.<sup>75</sup> Most persons with opioid dependence enter treatment voluntarily because of a lack of energy ("hustle") or money. Having switched from heroin to synthetic opioids, they are less prone to present with overdoses. Most readily accept outpatient methadone maintenance, require relatively high maintenance doses, and tend to spurn detoxification as an ultimate goal.<sup>154,172</sup> Methadone maintenance does not increase mortality in older patients.<sup>167</sup> Social support activities can be an important adjunctive service in elderly methadone maintenance.<sup>168</sup>

### Prevention and Education

Physician and patient education must complement government controls to effectively reduce drug misuse. The recent reduction in the prescribing and misuse of propoxyphene is an encouraging example of the impact of educative efforts to reduce an iatrogenic drug problem that was unchecked by controls alone.<sup>154,182</sup> Physicians who receive contemporary training in gerontology will learn to consider patients' difficulties in processing new information, hearing and sight problems, faulty memory, and lack of money—all as factors that affect compliance and thus safety. Writing out all instruc-

tions, reviewing plans with relatives or other care-takers, and asking patients to paraphrase imparted instructions, all are helpful aids.<sup>75</sup>

It is not possible to predict future trends in the elderly age group's consumption of alcohol and drugs from presently available information. Current prevalence rates and other epidemiologic data do not allow a delineation of age effects (changes in consumption attributable to physical aging processes), cohort effects (changes in consumption based on attitudes and practices learned as a member of a particular cohort or generation), and period effects (influences on consumption of particular social and environmental conditions during the time of measurement).<sup>95</sup> Depending on the contribution of each, one might predict future trends of declining, steady, or increasing substance abuse among elderly persons in the next 20 years.<sup>47,95</sup> Some effects of aging and associated disease inevitably will require an increased prescribing of psychoactives, while advances in geriatric psychopharmacology may at the same time enable more safe prescribing practices. Among cohort effects, more liberal attitudes and practices of the newly emerging elderly age group concerning drug and alcohol use may well alter future prevalence statistics<sup>47,154</sup>; but, these habits may be modifiable.<sup>183</sup> Period effects are numerous, but importantly include fashions in physician prescribing practices,<sup>149</sup> and various influences on them.<sup>148</sup> Emerging techniques for non-drug interventions in anxiety, pain, and sleep disorders may be applicable to elderly persons as safer alternatives to alcohol and other nostrums. New knowledge on age, cohort, and period effects will likely improve strategies of prevention, assessment, and treatment of substance abuse disorders.

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# Chronic Pain

PATRICIA A. NEWTON, M.D.

## A Rational Approach to Therapy

### Mechanisms of Pain

Pain receptors are free nerve endings. The skin pain fibers are mechanoreceptors, while the deeper pain receptors are polymodal and respond equally well to intense mechanical, thermal, and chemical stimuli. They basically may function as chemoreceptors and respond to agents that are released from damaged tissue, such as bradykinin, histamine, serotonin, and prostaglandin E<sub>1</sub> (PGE<sub>1</sub>). These free nerve endings, or nociceptors, are the dendrites of neurons whose cell bodies are in the dorsal root ganglia. They are the slow-conducting, unmyelinated C fibers in the peripheral nerve. Their axons enter the gray matter of the dorsal horns and synapse. These first-order pain neurons use "substance P" as a neurotransmitter. Then, there is a series of interneurons whose axons eventually leave the gray matter and project into the contralateral spinothalamic and spinoreticular pathways (*see* Figure 18-1). These two pathways serve different functions and form the basis of the two different kinds of pain.

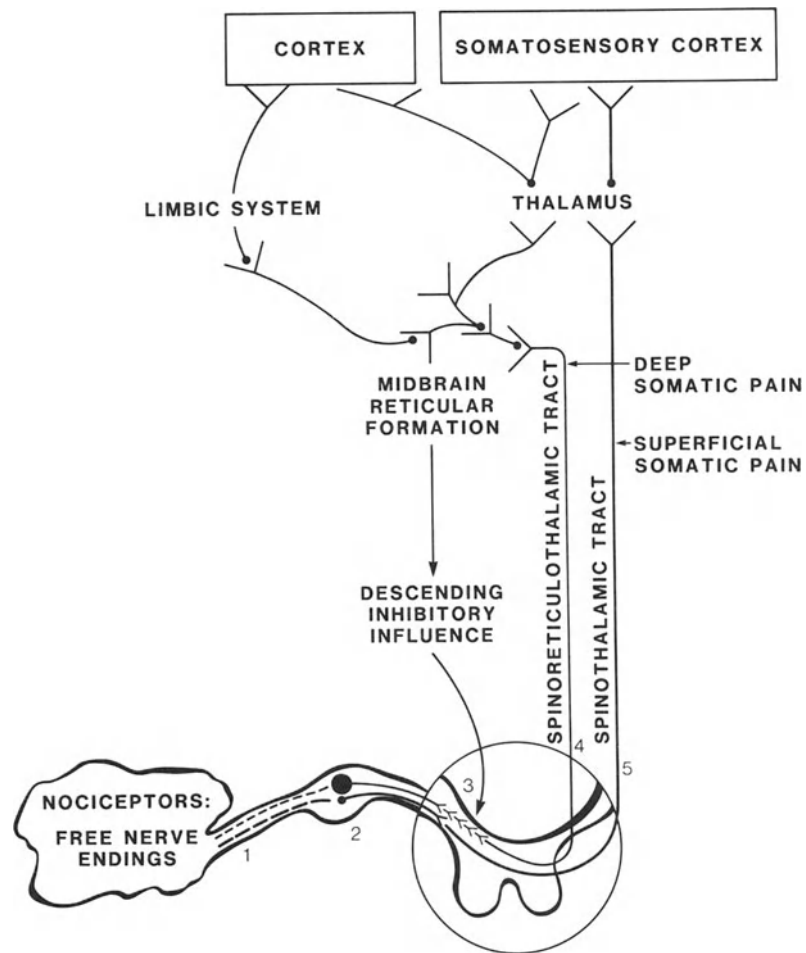
There are two types of somatic pain: superficial and deep. The superficial somatic pain is felt instantaneously on the skin, creates a sharp or prickling sensation, and is well-localized. Its impulses traverse the dorsal horn of the spinal cord in one synapse and directly project to the contralateral thalamus and somatosensory cortex. This fast, specific system localizes the first pain sensation. This type of pain sensation is of

a short duration, is not modulated by the endogenous pain control system, and probably is unimportant in chronic pain. Deep somatic pain from muscles, tendons, and fascia is a poorly localized aching sensation, although a portion of it may be sharper and more localized. These fibers go through multiple interneurons in the spinal gray matter and project to the contralateral midbrain reticular formation, from which they are relayed diffusely to the cortex and limbic system. These pathways inter-relate directly with the endogenous pain control system and are probably involved in chronic pain.

The approach to pain management has changed markedly since the discovery of the pain "gate," and the endogenous opiate compounds, the endorphins. These discoveries have paved the way to the concept that an endogenous pain suppression system can modulate pain perception.<sup>1,2</sup> Many therapies (e.g., narcotics, placebo, acupuncture, and transcutaneous electrical stimulation [TENS]) activate this endogenous pain control system. Emphasis is now placed on methods that stimulate this innate biologic capacity. An understanding of these mechanisms is important for understanding therapy and pain perception in the elderly population.

The endogenous opiates, met and leu enkephalin, are neurotransmitters with a high concentration in both the dorsal horns of the spinal cord and the periaqueductal gray of the midbrain reticular formation.<sup>3</sup> The exogenous opiate, morphine, directly stimulates these receptors, which reflects the function of the endogenous system.<sup>4</sup> When morphine is applied to

**FIGURE 18-1 Pain Pathways:** The primary pain afferents in the peripheral nerve (1) are dendrites whose cell bodies are in the dorsal root ganglion (2). Their axons enter the dorsal horn of the spinal cord and synapse in the substantia gelatinosa (3). Deep somatic pain perception requires activation of multiple interneurons in the spinal cord before ascending in the spinothalamic tract (4), whereas superficial somatic pain promptly traverses the spinal cord to the spinothalamic tract (5), thalamus, and somatosensory cortex. The deep pain pathways project to the midbrain reticular formation, and then they diffuse through the limbic system and thalamus to the cortex and somatosensory cortex. These pathways allow for the fast specific quality of superficial somatic pain and the diffuse emotional quality of deep somatic pain. The projection to the midbrain reticular formation connects deep somatic pain perception to the endogenous pain control system.



the dorsal horns, there is direct inhibition of pain fibers in the spinal cord.<sup>5</sup> The spinal cord gate, or pain pathways, thereby is closed to pain perception. When morphine is applied to the periaqueductal gray, a profound analgesia occurs for two reasons. First, some of the primary pain afferents relay through this area on their way to the cortex and limbic system, thus causing a central inhibition of pain sensation before it reaches the emotional or affective brain.<sup>6</sup> Secondly, the morphine closes the spinal cord gate by activating a descending inhibitory serotonergic pathway that blocks pain transmission in the spinal cord.<sup>7,8</sup> The destruction of this pathway or serotonin depletion<sup>10</sup> will markedly reduce morphine analgesia. Melzack and Wall have divided the endogenous pain control system into the “central biasing

mechanism” in the midbrain reticular formation and the “spinal cord gate.”<sup>11</sup> Both of these areas need some further discussion.

### The Gate Theory

The gate theory postulates that incoming sensory information, such as touch, and proprioception, along with descending cortical influences, can inhibit transmission of painful stimuli in the spinal cord (*see* Figure 18-2). This theory is supported by an impressive amount of confirmatory research.<sup>12</sup> The “gate” is located in the substantia gelatinosa (SG) region of the dorsal horn of the spinal gray matter. With deep somatic and visceral pain, the slow unmyelinated C fibers must activate a series of interneu-

## PAIN GATE IN THE DORSAL HORN

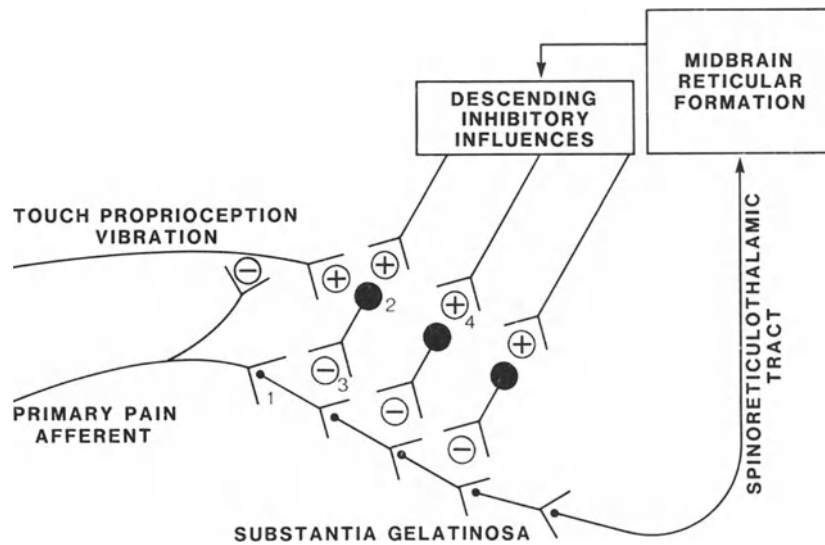


FIGURE 18-2 Pain Gate: The primary pain afferents are unmyelinated slow-conducting C fibers in the peripheral nerve. They enter the dorsal horn and using substance P, a neurotransmitter (1), synapse on a series of interneurons. Since touch and proprioception are carried by fast A fibers, they reach the spinal cord first and activate substantia gelatinosa (SG) neurons, which surround the pain interneurons (2). The SG neurons use enkephalin as a neurotransmitter (3) and presynaptically inhibit the pain interneurons, hence reducing pain perception by "closing the gate." The descending inhibitory neurons from the midbrain reticular formation use serotonin as a neurotransmitter (4), and they also activate the SG neurons and close the gate to pain perception. The midbrain reticular formation receives multiple inputs (*see* Figure 18-3).

rons before information activates the spinoreticular tract. These interneurons are surrounded by SG cells. The SG cells presynaptically inhibit the nociceptive fibers and decrease the activation of these interneurons. The perceived intensity of pain depends on the number of impulses that leave the interneuron pool. It is these inhibitory SG cells that use enkephalin as a neurotransmitter.

The large, fast A-alpha, beta, and gamma fibers that carry touch, proprioception, and temperature senses stimulate these inhibitory SG interneurons. Therefore, the faster-moving touch fibers reach the spinal cord first and presynaptically inhibit the pain fibers. The gate is closed. Rubbing the skin, TENS, hot packs, cold packs, acupuncture, methyl fluoride spray, and mustard plasters all use this segmental mechanism. They are considered counterirritants and work by producing *hyperstimulation* analgesia.

The incoming nociceptive fibers open the gate by inhibiting the SG cells. Therefore, a strong nociceptive influence will be assured of perception. In addition, a source of chronic pain may promote the perception of other pains. A chronically painful leg due to a myofascial disease will have a lower threshold for other sources of pain than the contralateral extremity. A resolution of the pain will be followed by normalization of the threshold.<sup>13</sup> This concept may be important in those patients who have multiple etiologies of pain.

### Endogenous Pain Suppression System

There is a strong descending influence from the brainstem that closes the spinal cord gate. Stimulation of specific areas of the midbrain reticular formation causes profound analgesia.<sup>14,15</sup> This analgesia is associated with a release of the endogenous opiate neurotransmitter, enkepha-

lin. The narcotic antagonist, naloxone, reverses this analgesia.<sup>16-17,18</sup> Since the pain afferents from visceral and deep somatic sites relay through the reticular formation before reaching the cortex and limbic system, some central inhibition of these afferents may occur during stimulation. This central inhibition, however, is not the main mechanism for the analgesia. This brainstem stimulation activates a descending pathway that profoundly inhibits pain transmission through the spinal cord gate.<sup>19</sup> This descending pathway uses serotonin as a neurotransmitter.<sup>15</sup> The destruction of this pathway by neurotoxins,<sup>20</sup> electrolytic lesions,<sup>21</sup> or serotonin depletion<sup>10</sup> markedly reduce both opiate analgesia and stimulation-produced analgesia. This evidence prompted several investigators to postulate a similar mechanism for opiate and stimulation-produced analgesia.<sup>22</sup> Their final common pathway is this descending serotonergic pathway. This serotonergic link may explain why tricyclic antidepressants that increase serotonin can be so effective in treating pain. The hypothesis of a central biasing mechanism<sup>11</sup> proposes that the reticular formation acts as a crossroads of information and receives input from the somatosensory and pain afferents, the limbic system, and the cortex. Since it projects to all these areas as well as originates the inhibiting descending serotonergic pathway, it is in a perfect position to receive multiple neurologic inputs and to modulate pain perception accordingly (see Figure 18-3). According to their theory, non-painful somatosensory (e.g., touch, vibration, or proprioception) input tonically activates the endogenous pain suppression system.<sup>23</sup> Non-painful stimulation, such as TENS or ice packs, would further enhance endogenous pain control through this central mechanism. Melzack emphasizes the specificity of this system by pointing out that localized peripheral stimulation can cause localized analgesia, perhaps at a distant site.

A more recent hypothesis emphasizes the effect of painful stimuli in activating the endogenous pain suppression system and in forming a negative feedback loop.<sup>1</sup> In this theory, the descending control system is not tonically active, but is activated only by painful stimuli. The fact that naloxone does not cause spontaneous pain, but that it worsens postoperative<sup>24</sup> and clinical pain,<sup>25</sup> strongly supports this theory.

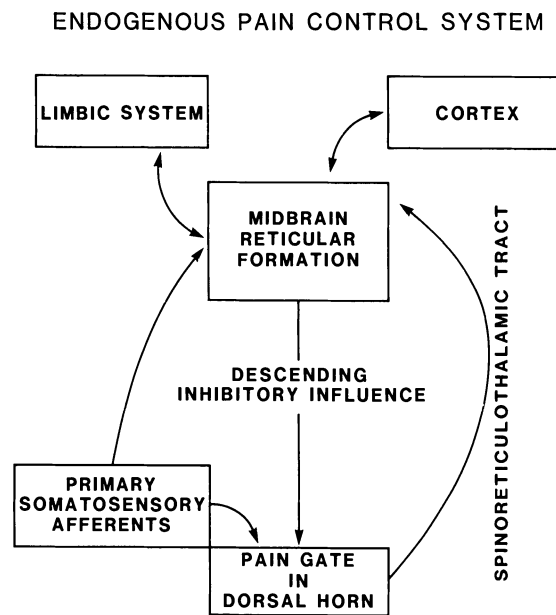


FIGURE 18-3 Endogenous Pain Control System: The midbrain reticular formation receives multiple diverse inputs and modulates pain perception accordingly through the pain gate in the dorsal horn.

In summary, there is a complex endogenous system that modulates pain perception. This system is dependent on enkephalin, serotonin, and an intact neurologic system. Other chemicals, such as norepinephrine, also may be involved. This endogenous pain control system can be activated by therapeutic modalities to produce analgesia.

### Pain Perception in Elderly Persons

Pain perception studies in elderly persons have mostly tested pain thresholds to cutaneous heat sensitivity. In general, they show a 10–20% decrease with age,<sup>26-30</sup> which suggests reduced pain sensitivity. However, these studies only address superficial somatic pain that is not affected by the endogenous pain control system. Therefore, their application to the chronic pain that is so common in old age is limited. One study of deep somatic pain (achilles tendon pain) demonstrated a decreased pain tolerance with age,<sup>31</sup> suggesting that deep pain perception actually may be increased in elderly persons. The elderly population is clinically reported to have decreased visceral pain; however, there are no experimental models.

The preliminary evidence for increased deep-pain perception in elderly persons is interesting for several reasons. First, this type of pain is modulated by the endogenous pain suppression system. This system must be evaluated in elderly persons if perception and therapy are to be rationally understood. There are theoretical reasons why this system may not function normally in elderly patients.

First, the endogenous pain suppression system is dependent on adequate levels of two neurotransmitters: enkephalin and serotonin. There is some evidence that biogenic amines, including serotonin,<sup>32</sup> are reduced with age. Monoamine oxidase (MAO), which metabolizes serotonin, increases with age<sup>33</sup>; therefore, it predisposes elderly persons to serotonin depletion. Serotonin depletion reduces the effectiveness of the endogenous pain suppression system and, therefore, increases pain perception. Elderly persons are predisposed to norepinephrine and dopamine depletion as well. Both of these neurochemicals may have a role in endogenous pain control.<sup>34</sup> Endorphin and enkephalin levels have not been adequately measured in stratified age groups. There is suggestive evidence that endorphin levels may decrease with age.<sup>35</sup> Since most neurotransmitters alter with age or diseases associated with age, it is likely that some alteration in enkephalin may occur as well.

Thus, pain perception as a function of age is complex. The various types of pain may change in differing ways. It is probable, however, that the assumption of a total decrease in pain perception is not accurate.

## Evaluation

### *Acute Pain*

Acute pain usually is well-localized and associated with signs of autonomic hyperfunctioning, such as tachycardia, hypertension, diaphoresis, and pallor. A marked decline in functional ability frequently accompanies acutely painful states. In elderly persons, the evaluation of acute pain can be confused because of an unusual presentation. Their acute pain may be poorly localized and referred from the site of origin.<sup>36</sup> The intensity of visceral pain and the autonomic response can be markedly reduced. For example, a myocardial infarction can pro-

TABLE 18-1 Special Aspects of Pain Evaluation in Elderly Persons

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Atypical presentation
Reduced visceral pain
Prominent musculoskeletal component of pain
Tendency for referred pain
Absent autonomic hyperfunctioning (e.g., tachycardia, diaphoresis)
Cognitive and behavioral symptoms may predominate
Historical inadequacies
Confusion
Under-reporting of symptoms
Minimal trauma
Multiplicity of medical problems
Multiple causes of presenting complaints
Multiple medical problems that alter and confuse the presentation of painful conditions
Numerous predispositions to chronic musculoskeletal disorders
Degenerative process of joints, tendons, and muscles
Other musculoskeletal aggravators ( <i>see</i> Table 18-2)

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duce an aching arm, jaw pain, or no pain at all.<sup>37</sup> Acute cholecystitis can be a poorly localized abdominal pain without the classic signs. A tachycardia and diaphoresis may be absent in both conditions (*see* Table 18-1).

There also is a tendency for acutely painful conditions to present with psychological or behavioral manifestations. Agitation, confusion, anorexia, insomnia, and even depression can be the most pronounced symptoms that result from a myocardial infarction, bowel infarction, or other conditions that are commonly characterized by pain. Therefore, a painful pathologic process is in the differential of all elderly patients with mental status or behavioral changes.

### *Chronic Pain*

A pain is considered to be chronic after it has been present for 6 months. It usually is a poorly localized aching pain, with several areas of involvement. Because of attenuation, signs of autonomic hyperfunctioning are not present, which leads physicians to discount the severity of chronic pains. A good evaluation and therapy should not only be directed at the pain, but at its psychological and functional complications as well, since they interact with the pain to produce disability.

TABLE 18-2 Aggravators of Chronic Pain

Musculoskeletal	Physiologic	Psychological
Trigger points	Fluctuation of primary condition	Depression
Postural imbalance	Addition of another primary painful condition	Anxiety
Obesity	Underlying medical diseases (e.g., hypothyroidism)	Insomnia
Muscular weakness		Learned pain behavior
Immobility, bed rest		Dementia?
Poor body mechanics		Drug dependence
Trauma		

### History

In addition to the complete medical and medication history, a history should include an accurate assessment of the onset, location, duration, and quality of symptoms. A search for exacerbating and relieving factors, trauma, and previous episodes all are important (*see* Table 18-2). A history can be particularly difficult in elderly patients who often under-report problems; hence, it may not be clear from a superficial history that a chronic problem has become steadily worse. Only astute questioning and a good functional history will show the worsening pain and functional decline. Interviewing a patient's family or home health team may add important information.

Trauma that is necessary to produce symptoms in elderly patients may be so mild that it cannot be remembered. Hips can be fractured by the twist of an ankle and bursitis can be aggravated by washing or drying dishes. A history of similar pain, while often helpful, also can be misleading. Elderly persons are prone to multiple disorders, and several conditions can contribute to the presenting complaint. For example, a prior history of fluctuating symptoms from degenerative joint disease (DJD) does not mean this acute exacerbation is related to that one underlying condition. A vascular insufficiency, muscular trigger points, or bony metastases also may be factors.

### Physical Examination

A meticulous physical examination that includes neurologic and mental status (MSE) examinations and a functional assessment is essential. Important points in the evaluation are:

1. Palpation for temperature difference (i.e., vascular insufficiency or warmth from inflammation);

2. Palpation for localized tenderness (i.e., bone pain, bursal, or tendon inflammation, muscular trigger points, or muscle spasm);
3. Specific maneuvers to reproduce the pain (i.e., straight leg raising, stressing an involved tendon, pressure on a muscular trigger point, or aggravating movements);
4. Range of motion of involved joints; and
5. Postural imbalance and body mechanics, including gait. The physical therapy and occupational therapy team members can help.

A good examination of the musculoskeletal system is important, because elderly persons are vulnerable to acute and chronic soft-tissue pain. The degenerative changes, postural imbalance, gait disturbance, inadequate exercise, muscular weakness, and immobility that elderly persons frequently experience, all predispose to soft-tissue pain syndromes. It is not unusual for an elderly person to recover from an acute medical illness only to be functionally limited by an aggravated soft-tissue pain.

Appropriate laboratory studies and x-ray film studies can help to narrow the differential diagnosis. It always is a potential pitfall to assume that degenerative bony changes are the sole cause of the patient's symptoms, as there is a lack of correlation between x-ray film changes and symptoms. X-ray films should be used liberally, however, to rule out metastatic diseases and fractures.

### Functional Assessment

The therapeutic goals for any geriatric pain patient include maintaining and improving both activity and mobility. Therefore, a good specific functional assessment is necessary for evaluation and follow-up. For the purposes of pain evaluation, it should include:



1. The distance the patient can walk before disabling symptoms (e.g., 10 steps, 1 block), as well as how much the patient walks in 1 day.
2. How many hours per day are spent in bed, in a chair, or in activities. A patient can make a diary of his or her activities to return on the next visit.
3. Specific activities that are avoided because of pain (i.e., dressing, housekeeping, eating, walking, or social contact).
4. A patient's ability to care for him- or herself and the type of help received. A complete physical therapy and occupational therapy evaluation may be necessary.

### Psychological Assessment

Depression is both a consequence and an aggravator of the chronic pain syndrome. It is a frequent complication of chronic pain and occurs in up to 80–90% of all patients.<sup>38</sup> Several studies have shown hypochondriacal, hysterical, and depressive symptomatology that reverted to normal with a cure of the chronic pain.<sup>39</sup> It is now well-accepted that personality changes occur secondary to chronic pain.<sup>40,41</sup>

Many primarily depressed patients also complain of chronic headaches, backaches, and other pain. There clearly is an intricate interaction between the symptoms of depression and pain, but one must not assume a painful condition is a manifestation of depression. Depression is a diagnosis of exclusion after a complete diagnostic evaluation. Primary abnormalities of serotonin and/or norepinephrine may well underlie both pain and depression as a common etiology.<sup>38</sup> Aging may predispose to a serotonin deficiency and, perhaps, to both pain and depression.

Whichever problem arises first, the pain-depression cycle forms a downward spiral. The anxiety, isolation, and immobility of depression aggravate pain perception and vice versa. Therefore, every patient needs a thorough evaluation for depression (*see* Volume I, Chapter 36). A loss of appetite, sleep disturbance, somatic preoccupation, loss of self-esteem, irritability, and loss of interest are common signs, but elderly patients may deny explicit mood changes.

Cognitive loss certainly is important in historical and symptom evaluations. Many observ-

ers have noted an underlying cognitive loss in patients who present with pain.<sup>42</sup> It might be thought of as a "masked dementia." The functional decline that is thought to be due to pain may truly reflect the intellectual impairment.

Physicians frequently are confronted with patients who seem to have symptoms that are out of proportion to their organic pathology. Such "functional overlay" creates negative attitudes toward such patients on the part of many health care professionals. All chronic pain patients have psychological complications, many of which resemble the hysterical and dependent behavior that is considered to be "functional overlay." Conversely, certain pre-morbid personality factors may predispose patients to develop chronic pain. After a chronic pain pattern is well-established, it can be quite difficult to differentiate these two types of patients. Most research has been done on younger patients, who have different life stresses, and its relevance to the geriatric population is unclear. Therefore, it is wrong to assume that an elderly patient's complaints are mainly "functional overlay," unless there is overwhelming evidence.

The concepts of operant conditioning and behavior modification have shed a great deal of light on this confusing area<sup>72,73</sup> by emphasizing that a clinical assessment of pain actually measures pain behavior (i.e., complaints, medication requests, dependency, limping posture, and a desire for rest). If these behaviors relieve the pain, they are strongly reinforced, since human behavior is markedly influenced by its consequences. A behavior such as rest that reduces pain and suffering will increase in frequency. In addition, the rest may help a patient to avoid strenuous tasks or help him or her to receive more support from his or her family, so that the rest behavior is reinforced both by the pain reduction and by secondary gains. For this reason, it may continue even after the acute pain is resolved. The rest is called an operant, as it potentially is under voluntary control and is influenced by environmental consequences. Operant conditioning refers to the process by which these operants become learned consistent parts of behavior. It is important to note that pain behavior increased by operant conditioning is not conscious and is not an intentional deception. The actual experience of pain is part

of the behavioral cycle. A patient still experiences the pain as the reason for rest. Behavioral treatment then uses the principles of reinforcement and extinction to change pain behavior. In this therapy, if the behavior improves, the pain diminishes.<sup>44</sup>

Operant conditioning of pain behavior seems to occur in two ways:

1. When pain behavior is communicated, positive reinforcement occurs. Some examples are special attention (i.e., sympathy, familial aide, a visit to a physician, special medications—especially narcotics or tranquilizers). Prescribed rest and relaxation can be very strong, positive reinforcers for elderly persons.
2. Something bad does not happen because the pain behavior is expressed. A care-giver might not go on vacation or a patient might not have to go to a bridge club where he or she is afraid of being embarrassed by a cognitive loss or urinary incontinence.

There are a few clues to help a health care worker pick out pain that is conditioned:

1. Clarify what a patient does when pain is present;
2. Clarify what a patient does not do because of pain, and what a patient would do if there were no pain;
3. Clarify what a patient's family and the health care team does when a patient complains of pain;
4. Clarify what a patient's family and health care team does when a patient is not complaining of pain; and
5. Evaluate the sleep pattern. Most chronic pain produces sleep disturbances and nighttime pain. Pain throughout the day and none at night with a good sleep pattern usually indicates conditioned pain.

A special emphasis should be placed on the evaluation of patients' access to caring relationships, satisfaction of dependency needs, ability to care for themselves, fear of being alone (especially at night), and fear of disability or dying. Using the questions outlined above, one can then identify specific positive reinforcers of pain behavior. Then, a specific behavior modification plan and counseling can be undertaken to

help increase mobility, decrease pain behavior, and reduce medication dependence. The techniques of psychological therapy and behavior modification will be discussed in detail in the following section on "General Management."

## General Management

The following are some general principles to follow in treating chronic pain problems:

1. After a specific diagnosis and aggravating factors have been identified, make persistent (but appropriate) efforts to relieve the pain. A working knowledge of both analgesic agents and the newer pain control modalities is necessary, because a combination of therapeutic options frequently is the most effective. Successful treatment will reduce the serious functional and psychological decline that so often is seen in chronic pain.
2. Treat the pain early and the exacerbations quickly and aggressively. During exacerbations, re-evaluate for aggravators and new diagnoses.
3. Prevent and treat functional decline. When the pain cannot be completely removed, emphasize maintaining ambulation, activities of daily living (ADL), and social interactions, since functional decline aggravates the pain-isolation-depression-pain cycle. In addition, immobility and muscle and postural weakness aggravate the underlying pain problem. Certainly, curtailed physical activity and rest are important in some pain problems, but they should be combined with therapeutic exercise. Rest is a strong reinforcer of pain behavior, and inappropriate or ambiguous prescriptions for rest can aggravate the chronic pain problem.
4. Treat and prevent psychological consequences, such as depression, anxiety, and pain behavior.
5. Treat aggravators of the painful condition. For example, insomnia creates muscular and soft-tissue pain syndromes.<sup>45</sup> Treating insomnia can be an excellent first step. Tricyclic antidepressants, L-tryptophan, diphenhydramine, and short-acting benzodiazepines (e.g., oxazepam) are appropriate. Do not prescribe strong, long-acting sleep medications for elderly persons.

6. Evaluate medication regimens and decide if a narcotic or sedative medication may be part of the problem. Patients who are taking such medications should be withdrawn to differentiate the underlying pain problem from the side effects of their medication.
7. Formulate a distinct plan and communicate it to the patient. See that patient regularly in a supportive environment regardless of symptoms. Do not wait until a patient has worsening symptoms. Try to form a therapeutic relationship in which both a physician and patient have responsibility. A patient is responsible for compliance, exercise, and social effort; a physician for good evaluation and reasonable attempts at pain alleviation.

### *Medication*

It is optimal to give the mildest effective analgesic. An adequate dosage and dosage interval are essential for an effective regimen. In elderly persons, side effects are more common and can be subtle.<sup>46</sup> A physician should look for the "therapeutic window," in which the chosen drug is effective with minimal or absent side effects.

In one study that used narcotics, the concern over side effects and addiction coupled with a poor knowledge of dosage and dosage intervals led to a 33% incidence rate of continued severe pain.<sup>47</sup> The undertreatment of acute pain in frail elderly persons may be even greater. This is unfortunate, because elderly persons have a considerable morbidity due to inadequately treated pain, which includes confusion, withdrawal, agitation, anorexia, immobility, depression, and (perhaps) a predisposition to developing chronic pain. Patients with an inadequate analgesic after a hip fracture show more confusion.<sup>48</sup> Many of these problems are the same side effects that one is trying to avoid by reducing the dosage of the narcotic. Therefore, the evaluation of symptoms and side effects can be confusing and must be done thoughtfully, as there are substantial hazards to both undertreatment and overtreatment. These issues can be even more confusing with chronic pain when addiction is a real concern.

Analgesic medications can be divided into those suitable for:

1. Mild pain, which includes aspirin and the non-steroidal anti-inflammatory drugs (NSAIDs);
2. Moderate pain, which usually includes a narcotic of low addiction potential or a narcotic antagonist; and
3. Severe pain, which usually includes a narcotic.

In general, narcotics are reserved for acute pain and the pain of a terminal illness. At times, severe pains of benign origin, such as a radiculopathy, require narcotics.

In addition, there is adjuvant medication, such as:

1. Antianxiety agents;
2. Tricyclic antidepressants; and
3. Narcotic potentiators.

Evidence for narcotic potentiation by phenothiazines<sup>49</sup> and diazepam<sup>50</sup> is lacking. Indeed, they may potentiate only the sedation and may actually interfere with the analgesia.<sup>51</sup> This effect is exactly opposite to the desired outcome. The antihistamine, hydroxyzine<sup>52</sup> (Vistaril) is an effective potentiator, but its effect is only mild to moderate. Tricyclic antidepressants,<sup>53,54</sup> aspirin, NSAIDs have additive effects with narcotics.

A physician's strategy for treating chronic pain should begin with the mildest agents, such as aspirin or NSAIDs. The age-related changes in drug effects and clearance need to be kept in mind when prescribing for a geriatric patient. It generally is thought that if anxiety or musculoskeletal spasms are prominent, a mild tranquilizer should be used. In elderly persons, a tranquilizer can produce profound side effects such as lethargy, weakness, confusion, and falls. Consequently, tranquilizers can easily become an aggravator of the chronic pain syndrome, and they may even have an antianalgesic effect.<sup>51</sup> If they are used for short periods of time, a short-acting drug such as oxazepam is best. The muscle spasm can be treated by other methods, which include heat, TENS, and trigger point injection. Antidepressants can be excellent adjuvants, even when a patient is not depressed.<sup>55</sup> If these are ineffective, a drug for moderate pain can be added or substituted. Codeine (30–60 mg Q4–6H) is the best choice for moderate pain. The analgesic efficacy and

safety of Darvon are in question, and the use of Talwin is limited by hallucinations and toxic psychoses.

If maximal doses of codeine (90–120 mg Q4H) are ineffective and psychological causes have been ruled out, then narcotic medication is appropriate in an acute or terminal illness. Morphine, meperidine (Demerol), methadone, and hydromorphone (Dilaudid) all are excellent pain relievers. Other pain relief modalities such as TENS, hypnosis, or biofeedback also should be considered.

#### *Non-Narcotic Analgesics*

Aspirin and NSAIDs work peripherally by inhibiting the synthesis of prostaglandins that are strong activators of the nociceptive fibers. Therefore, they actually are direct analgesics, as well as anti-inflammatory agents. This group of drugs is appropriate for mild-to-moderate pain and for additive effects with narcotics in severe pain.<sup>56,57</sup> The side effects of confusion, gastrointestinal irritation, bleeding, and renal failure are more common in elderly persons.

#### *Narcotics*

Narcotics are most effective when used on a regular dosage interval. A PRN (as needed) schedule, which allows the pain to return before receiving a dose, is less effective and increases psychological dependence and drug-seeking behavior (*see also* Volume II, Chapter 23).

The pharmacokinetics of narcotics change with age. There is an increased effect and longer duration of pain relief after intramuscular (IM) morphine administration in postoperative elderly cancer patients.<sup>58,59</sup> The clearance of morphine from the plasma is one-half that of younger patients. Four hours after 10 mg IM of morphine sulfate is given, the plasma level is double that of the young study subjects. Therefore, to avoid toxic accumulation, the dosage interval may need to be increased. In addition, there is evidence that the effect of a single dose of morphine is greater in elderly persons.<sup>60,61</sup> There is significant individual variation; adjustment on an individual basis is best.

The recommended dosing interval is every 3–6 hours, with every 4 hours being a good average. Meperidine (Demerol) has a shorter action and should be given every 2–3 hours. The pharmacokinetics of methadone predispose

it to accumulation over a period of 4 days or more. A beginning schedule of every 6–8 hours is advisable.<sup>62</sup> In very elderly persons (over 75 years of age), start by adding 2 hours to the dosage interval, then carefully adjust as needed. Untoward side effects include addiction, sedation, respiratory depression, constipation, and urinary retention. In elderly persons, confusion, agitation, falls, weakness, and urinary incontinence also can be a consequence of narcotics. Even with the side effects and dosing unclarity, a knowledgeable physician usually should be able to use narcotics safely in an elderly patient.<sup>53,63,64</sup>

In some chronic pain patients, narcotics addiction compounds the problem, but the scope of this problem with elderly persons is not well-delineated. In a symptomatic patient who is taking narcotics, the narcotics must be withdrawn before a proper evaluation of the pain can be made. Addiction and intermittent withdrawal symptoms are perceived as pain. A dose of methadone that is adequate to prevent withdrawal symptoms is established for 24–36 hours. It can be reduced 10–20% per day without fear of agitation or acute withdrawal symptoms.<sup>63</sup>

Narcotic analgesics activate opiate receptors in the brain and spinal cord, thereby potentiating the effects of the endogenous pain control system. They affect the endorphin-rich mid-brain reticular-activating system, which sends descending fibers to inhibit nociceptive transmission in the spinal cord. The exogenous morphine suppresses the endogenous endorphin system much the same as prednisone suppresses the pituitary adrenocorticotrophic hormone (ACTH). This is felt to be the biologic correlate of addiction. Tolerance may occur, because the receptors may proliferate or the narcotic-activated descending pain suppression systems may become depleted of the neurotransmitter, serotonin. There is preliminary evidence that 2 grams/day of tryptophan (a serotonin precursor) or a tricyclic antidepressant, which increases serotonin, may reverse morphine tolerance.<sup>65</sup>

#### *Intrathecal Opiates*

Morphine that is directly applied to the spinal cord of animals<sup>66</sup> and humans<sup>67</sup> produces analgesia. Morphine (0.5–1 mg, intrathecally or 1–3

mg, epidurally) produces profound analgesia without a concomitant blockage of sympathetic, sensory, or motor fibers. The technique hopefully will have value in cancer pain, as well as in operative and postoperative analgesia. A patient receives an Omya reservoir and can take his or her own morphine as needed. Generally, this avoids obtundation and respiratory depression. However, there are cases of late, severe respiratory depressions occurring hours after the injection.

### *Psychoactive Drugs*

The tricyclic antidepressants now are frequently used in the treatment of many kinds of pain. Studies have shown pain reduction in 60–80% of all patients. The mechanism of their action has not been totally elucidated, but some interesting possibilities exist. First, they could treat an underlying depression and, therefore, reduce the pain-depression-more pain cycle. However, pain treatment requires smaller doses and a shorter duration of onset. Also, tricyclic antidepressants are effective in non-depressed patients.<sup>68</sup>

Serotonin plays a crucial role in the endogenous pain suppression system, because it is the neurotransmitter of the descending inhibitory pathway, and it is even essential to opiate analgesia.<sup>8</sup> The methylated tricyclics (amitriptyline, imipramine, and doxepin) block serotonin reuptake; thereby, the tricyclic antidepressant may have a direct effect on nociceptive transmission in the spinal cord. Desipramine mostly affects norepinephrine, and it has not been studied as extensively as amitriptyline and imipramine. Therefore, the indications for desipramine in pain control are unclear.<sup>69</sup>

Several double-blind studies have demonstrated the effectiveness of amitriptyline and imipramine in tension and migraine headaches.<sup>70–72</sup> In addition, there are three double-blind studies that compare imipramine (50–75 mg) with placebos in the treatment of rheumatoid arthritis, osteoarthritis, and ankylosing spondylitis.<sup>73–75</sup> They all revealed superior pain relief with imipramine. However, one study of institutionalized patients with pressure sores and aches and pains failed to show an improvement with doxepin.<sup>76</sup>

Most studies using tricyclic antidepressants for deafferentation pain (i.e., diabetic neuropathy

and postherpetic neuralgia) have not been double-blind, but consistently suggest an effect.<sup>77–80</sup> The phenothiazene, fluphenazine, may aid in neuropathic conditions, but the literature is not conclusive. For pain due to terminal cancer, a tricyclic antidepressant produced excellent pain relief in 24% and good relief in 66% of all patients.<sup>81</sup>

Elderly patients are more prone to side effects and may have a more pronounced treatment effect, so the initial doses should be low. Doxepin or imipramine (25 mg orally at bedtime) is a good initial treatment. In general, amitriptyline is not as well-tolerated because of the anticholinergic and sedative side effects.

### *Other Medications*

Carbamazepine is used in the treatment of trigeminal and glossopharyngeal neuralgia.<sup>82</sup> It also is effective in treating the lightning pains of tabes dorsalis. Rash and significant bone marrow depression with aplastic anemia are the main toxic risks. Dilantin also is used alone or in combination for treating trigeminal neuralgia and other central pain states.

The evidence concerning drugs that affect L-Dopa is confusing. Both L-Dopa agonists (apomorphine<sup>83</sup> and L-Dopa) and antagonists (phenothiazines)<sup>79</sup> have been shown to be effective in certain painful conditions. This confusion is an interesting area of current research.

### *Hyperstimulation Analgesia*

Hyperstimulation analgesia is one of the oldest pain control methods known. In folk medicine, it sometimes is called “counter-irritation,” and it includes mustard plasters, hot cups, and blistering agents. In modern medicine, trigger point injection, acupuncture, TENS, dorsal column stimulation, and ice packs, all probably work by this mechanism. In hyperstimulation, analgesia, a moderate-to-intense sensory stimulation is applied to the body, frequently at a different site from the site of the pain. This brief, but intense, sensory stimulation can alleviate chronic pain for days, weeks, or sometimes permanently.

The prolonged relief of pain after short periods of stimulation needs further explanation. It is hypothesized that trigger points or acupuncture points cause a low level input that fuels

reverberatory activity in neural circuits. It is this reverberatory activity or pain memory that is responsible for the ongoing perception of pain. Intense stimulation somehow disrupts this circuitry. Repeated nerve block anesthesia may cause prolonged relief by disrupting this circuitry. It is important to replace this abnormal neural activity with normal proprioceptive and motor activities to prevent the recurrence of the abnormal patterns. This may partially explain the importance of therapeutic exercise in maintaining the pain-free state.

The questions regarding hyperstimulation analgesia now center on what type, quality, and intensity of stimulation is best. It is not clear whether non-painful or painful stimuli are the most effective. It also is not clear if the traditional acupuncture points are the only effective points of application. Most importantly, for the field of geriatric medicine, the functioning and reserve of this endogenous pain control system has not been tested in elderly patients. The effectiveness of hyperstimulation analgesia in elderly persons is not known.

#### *Transcutaneous Electrical Stimulation (TENS)*

Electricity has been used to treat pain for centuries. The Romans treated headaches and gout with an electric shock from a torpedo fish. In the eighteenth and nineteenth centuries, the sciences of electricity and neurophysiology expanded and produced numerous electrical devices aimed at relieving pain. In modern times, Norman Shealy, a neurosurgeon, pioneered work in dorsal column stimulation (DCS), which required surgical implantation of electrodes in the spinal cord. In 1968, while looking for predictors of success for DCS, he discovered that electric currents applied transcutaneously were effective in treating chronic pain.<sup>84</sup> Since 1971, many clinicians and researchers have been using transcutaneous electrical stimulation (TENS) for the control of acute and chronic pain.<sup>85,86</sup>

A TENS unit consists of a small battery-operated power generator that is about the size of a pack of cigarettes. The current is applied to the skin through two electrocardiographic (ECG) monitor-type electrodes. Although the placement of these electrodes varies with the condition being treated, they usually are

placed over the site of pain or the related nerve trunk that innervates the painful area.<sup>87</sup> Many investigators think that the most effective placements are classic acupuncture points, but no double-blind study has yet been directed at lead placement. The stimulation can be carried out by one of several methods. The patient can wear the stimulator almost continuously at a low intensity or have it stimulate intermittently at high intensity. Physical therapy departments usually manage lead placement and TENS procedure.

Since TENS became popular in the early 1970s, there have been numerous studies confirming its effectiveness.<sup>86</sup> Even though most of these are uncontrolled, they suggest an effect for postoperative pain,<sup>89,90</sup> acute musculoskeletal pain,<sup>84</sup> peripheral nerve injury,<sup>88</sup> postherpetic neuralgia,<sup>88</sup> phantom limb pain and stump pain, radiculopathy, chronic lumbar and cervical syndromes, osteoarthritis,<sup>91</sup> rheumatoid arthritis,<sup>92</sup> and cancer pain.<sup>93</sup> The evidence in a metabolic peripheral neuropathy is mixed, since only some of the studies show any effect.<sup>94,95</sup> The electrodes need to be placed directly over the involved nerve trunk proximal to the area of numbness.

There is an initial 10–30% placebo response that is entirely gone after 1 month. Approximately 80% of all patients with acute pain and 50% of all patients with chronic pain have an extended response. There is a drop-off in effect over 1 year, because only 25% of all patients still find the device useful. Most often, it is the depressed patients who discontinue therapy.<sup>96</sup> The patients that continue to use the device had greater mobility and activity than non-users after 1 year,<sup>127</sup> and many of them had not responded to numerous other therapies. Transcutaneous electrical stimulation is ineffective in central pain disorders (e.g., thalamic pain). Also, if psychological factors are compounding the problem, TENS will not be helpful. The side effects are minimal and involve mainly skin irritation. It should not be used in the area of a cardiac pacemaker.

Elderly patients should respond well to TENS, but this subject has not been studied directly. They need special and attentive directions to run the device properly. At times, the care-giver or home-based health care team needs to be primarily responsible.

### *Dorsal Column Stimulation (DCS)*

This type of hyperstimulation analgesia requires a laminectomy for electrode implantation into the dorsal columns of the spinal cord. A new method, percutaneous epidural stimulation, can be accomplished without surgery. About 50% of all patients obtain relief, but there is accommodation and loss of effectiveness over time.<sup>97</sup> Difficult recurrent equipment problems can necessitate reoperation.<sup>98</sup> For these reasons, dorsal column stimulation (DCS) is only considered when all other methods, including TENS, have failed.

### *Acupuncture*

The introduction of the ancient Chinese technique of acupuncture into Western medicine was associated with a great deal of mystery and fascination. It is now well-accepted that acupuncture causes the release of central nervous system endorphins, which block the perception of pain. It is the prototype of hyperstimulation analgesia. The early claims, such as surgical anesthesia, have not been substantiated; but, acupuncture has become widely used for the treatment of chronic pain. Its effectiveness is still controversial. Acupuncture therapy is used in several ways in modern pain therapy. Trained individuals insert fine needles directly into the points, then either rotate them manually or apply an electrical current. Physical therapists work with an instrument called a neuroprobe. This probe senses skin resistance and will light up when an acupuncture point is found, as the skin resistance decreases at traditional acupuncture points. An electric current is applied at the level of pain threshold for approximately 30-seconds. Manuals are available that suggest specific points for various pain syndromes. People can find and stimulate these acupuncture points manually; so-called acupressure. Pressure that is directly applied on the point for 20 seconds can be associated with a lessening of muscle spasm and pain reduction; TENS also may be applied directly to the acupuncture points.

The literature concerning acupuncture in chronic pain problems is contradictory. These have been uncontrolled trials with unselected patients with varying degrees, durations, and types of pain. The length of treatment also varies. Some studies show 60% of all patients with

chronic pain had sustained a subjective improvement with problems such as headache, low-back pain, arthritis, causalgia and frozen shoulder.<sup>99-102</sup> The acupuncture was most effective in pain of a short duration and in younger individuals.<sup>99</sup> In other pain centers, 3-10% of all chronic pain patients experienced sustained relief,<sup>103</sup> with a much greater percentage experiencing short-term relief. If the therapy was continued on a weekly basis, the success rate improved.

The findings of age differences in response to acupuncture are interesting. Acupuncture effectiveness relies on an intact neurologic system with adequate functional reserve. The endogenous pain system has not been tested in elderly patients, but preliminary data raises some questions about its functioning. This, however, is not grounds to deny an elderly person a trial acupuncture therapy.

### *Soft-Tissue Injection*

Elderly persons are prone to soft-tissue non-rheumatic pain, such as subacromial bursitis, trochanteric bursitis, tendonitis, and muscular trigger points. In soft-tissue injection, a local anesthetic-steroid combination is injected into a bursa, tendon sheath, joint space, or trigger point. An intra-articular corticosteroid injection can be helpful in degenerative joint diseases.

Several local anesthetics can be used, such as 1-20 ml of procaine, lidocaine, or the long-acting bupivacaine (Marcaine). The addition of epinephrine is not recommended. Excessive dosage or intravenous (IV) injection can lead to neurologic and cardiovascular side effects, which include light-headedness, muscle twitches, and bradycardia. If large doses are given intravenously, seizures and cardiovascular collapse can occur.

Any steroid preparation that does not precipitate can be used, such as 10-20 mg of methylprednisolone acetate (Depo-medrol, 40 mg/ml), which acts for 21 days, or triamcinolone acetonide (Aristocort, 10-25 mg/ml), which lasts for 90 days. The dosage is 5-15 mg. Injections in a tendon causes tendon damage and fraying that requires up to 6 weeks to heal. Therefore, avoid injection directly into a tendon and instruct a patient in a reasonable and not excessive activity program while the tendon heals. Soft-tissue injection with steroids should be

done infrequently (less than four times per year) to avoid damage to the tissues.<sup>104</sup> There is systemic absorption of the corticosteroid.

#### *Nerve Block*

Selective nerve blocks can be very useful in the care for some chronic pain problems, such as cervical and lumbar spondylosis, herpes zoster, cancer pain, and reflex sympathetic dystrophy. They are used diagnostically to confirm the origin of pain, prognostically in determining the results of neurosurgical ablation, and therapeutically—as in the use of neurolytic agents such as phenol.<sup>105</sup> Neurolytic agents seldom provide permanent pain relief, because the pain tends to reappear in several months. Therefore, they are most successful for terminal cancer pain. However, repeated local anesthetic blocks with long-lasting agents (e.g., marcaine) can produce long-lasting pain relief, which probably is related to the mechanism of hyperstimulation analgesia.

Nerve blocks are done at many levels of the nervous system. Peripheral, epidural, and sympathetic nerve blocks are the most common.<sup>106</sup> A peripheral somatic nerve block is used in glossopharyngeal and trigeminal neuralgia. Tension and occipital headaches frequently result due to compression of the greater and lesser occipital nerves as they pass through the splenius capitis muscle. Cervical arthritis aggravates the muscle spasm, which irritates these nerves and produces a headache. Breaking this cycle with a peripheral nerve block can be markedly helpful.<sup>107</sup> Shoulder pain due to tendonitis can be blocked by a suprascapular block. As with most blocks, a series of closely spaced repetitions may be necessary for a prolonged effect.

Epidural blocks are used for back pain with a radiculopathy. A steroid and local anesthetic mixture can reduce the inflammation of the nerve root.<sup>108,109</sup> The sympathetic nerves conveniently aggregate into ganglia that can easily be blocked. A stellate ganglion block is useful for reflex sympathetic dystrophy of the upper extremity and for the pain of Pancoast tumors of the lung.<sup>110</sup> A celiac plexus block at the level of the 12th thoracic vertebra successfully diminishes pain that comes from the upper abdominal viscera. This is useful diagnostically in abdominal pain and therapeutically in pain due

to abdominal cancer. The pain that is associated with a carcinoma of the stomach, pancreas, or retroperitoneal metastases can be treated with a neurolytic agent (e.g., alcohol or phenol).<sup>111</sup> Such treatment is safe and can be gratifying in some severely suffering patients.

Herpes zoster pain can be reduced markedly by paravertebral sympathetic blocks or epidural blocks. Either procedure acutely reduces the pain and also may decrease the incidence of postherpetic neuralgia. These procedures should be done early, because in the chronic state the pain is much less responsive.

#### *Neurosurgical Techniques*

Four types of neurosurgical procedures are used for pain control:

1. Destructive lesions;
2. Lesions of the frontal lobe;
3. Hypophysectomy; and
4. Stimulation techniques.

A percutaneous cordotomy produces satisfactory pain relief in 70–90% of all patients with low (1%) mortality, and it can be performed on frail elderly patients. This minor procedure is best used in lower extremity cancer pain.<sup>112</sup> Cutaneous sensation and motor function remain intact. A radiofrequency lesion of the gasserian ganglion (radiofrequency gangliolysis) is among the best surgical procedures for trigeminal neuralgia.<sup>113</sup> This procedure can be done easily under local anesthesia. Destructive thalamic lesions can produce analgesia, but it rarely is done except for terminal cancer patients.

A hypophysectomy is effective with pain that is secondary to a bony metastasis. Hormonally sensitive tumors, (e.g., of the prostate and breast) benefit the most. However, 30–50% of all patients with non-hormonally sensitive tumors respond as well.<sup>114,115</sup>

The first stimulation procedure was a DCS. However, the original excitement has waned because of poor long-term effectiveness and a high morbidity. More recently, electrodes have been placed in the midbrain periaqueductal gray via stereotaxic surgery. Stimulation causes a release of endorphins and profound analgesia. This technique is still experimental.



### *Psychological Therapy and Behavior Modification*

The psychological consequences change pain into suffering. The appropriate treatment of anxiety and depression reduces suffering. Therapy for depression includes tricyclic antidepressants, psychological counseling, and environmental intervention. Imipramine and doxepin have a dual role with a direct effect on pain reduction, as well as an antidepressant effect.

A caring and respectful therapeutic relationship with a primary physician is essential. This relationship should include clear explanations of the etiology of the pain and distinct plans for therapy. Allowing a patient to verbalize fears and concerns, repeatedly if necessary, is important. Directly addressing these concerns with an emphasis on finding a basis for hope and maintaining self-respect can be gratifying to both a patient and physician. A primary physician should schedule consistent appointments with his or her patient. If a patient must display pain behavior to receive medical attention, the pain behavior will tend to persist. As with other aspects in treating chronic pain, the visits should be time-contingent and not symptom-contingent.

Behavioral therapy often is a helpful adjunct.<sup>43,44</sup> In difficult cases, an inpatient team approach may be initially required. A geriatric unit with an interdisciplinary team could be an excellent place for behavioral modification programs. The principles of behavior modification also can be used in an outpatient setting.

To create a behavioral program, one must first identify pain behaviors that are being positively reinforced or "learned" (e.g., excessive rest and refusal to ambulate being reinforced by excessive sympathy and physical weakness). After reinforcers are identified, the environment must be controlled, so that the positive reinforcers are removed (the process of extinction) and new healthy behavior is strongly reinforced. The program will require cooperation and education of a patient's family and health care team.

In applying this type of program to frail elderly inpatients, it is important to assess their strength and level of functioning. If too much aid is withdrawn too quickly in a physically dependent patient, the program will be sabotaged by fear, anxiety, and anger. Pushing for unreal-

istic amounts of ambulation will produce pain, exhaustion, and frustration. All of these are tremendous negative reinforcers to the desired behaviors of ambulation. In addition, reinforcing independence does not mean removing sympathy or withdrawing meaningful contacts.

Activities that reinforce pain behavior should not be undertaken in response to symptoms, but on a time-contingent basis. Listening to symptoms should be done by one team member at a specified time, unless new symptoms arise. At other times, team members should not engage in conversations regarding symptoms. If a demanding hospitalized patient is ringing for the nurses hourly to complain, they can respond quickly and professionally to care for a specific request; however, they should not linger to talk at length about the target symptom. Conversely, if they visit every 45 minutes before a patient complains and they reinforce positive behavior or engage in other topics, that is not supporting the difficult pain behavior. The frequency of visits then can be slowly reduced. The same time contingency plan is important for prescribing rest, exercise, and medications.

A patient should exercise to a quota and not to his or her pain threshold. If an evaluation reveals that a patient can walk 10 steps before pain, an exercise program of 6–8 steps three times per day is appropriate. A patient works on a time-contingent basis to a quota and is not negatively reinforced by worsening pain. The number of steps can be increased slowly, approximately one to two steps every 2–3 days, so that a patient experiences exercise-rest instead of exercise-pain-rest. Time and consistent increases are the clues to success.

### *Hypnosis*

Hypnosis or trance is a natural phenomenon of concentration and inward awareness.<sup>116</sup> This trance state, which can be learned and improved, is similar to being deeply involved in any project (e.g., a book, movie, running, and so on). In this state of inward awareness, the study subject can "learn" to alter his or her perception of pain or suffering.

Hypnosis is more effective than morphine in relieving experimentally induced ischemic and ice bath pain.<sup>117</sup> Numerous studies have shown that hypnosis has a direct effect on the percep-

tion of pain.<sup>118–119</sup> In addition, hypnosis is an excellent forum to teach relaxation and anxiety reduction. Some authors have emphasized this effect in treating cancer pain.<sup>120</sup> The lifetime experiences of an individual can be used in a hypnotic state to help them comfort themselves.

There is a significant individual variation in the ability to experience hypnosis. Some researchers claim that one's natural capacity is greatest at 12 years of age, and then it slowly declines with age; however, elderly patients are capable of learning hypnosis if they are cognitively intact. Concentration, attention, and learning are necessary to benefit from hypnosis. In addition, the patients must be willing to participate and work with a therapist. If these two criteria are satisfied, any elderly pain patient can benefit from hypnosis.

### Physical Therapy and Mobilization

Physical therapy provides several helpful pain therapy modalities, which include exercise, massage, superficial heat, deep heat (short-wave diathermy, microwave diathermy, or ultrasound), cold (ice massage, vapocoolant spray), hydrotherapy, and supports. Physical therapists may be helpful in identifying a myofascial disease, as well as in applying the vapocoolant spray and stretching that are needed for therapy. The proper use of supportive devices (e.g., corsets for low-back pain, canes and walkers for ambulation, orthopedic shoes, and braces for degenerated knees) is essential in pain management.

The goals of mobilization are maintaining range of motion, strength, and ambulation. A loss of range of motion will lead to stiffness, pain, and weakness. Any contracture markedly increases energy and muscle strength that is required for walking. Therefore, passive or active range-of-motion exercises should be done. If the pain is acute or severe, only passive exercises may be possible.

A patient should have a program for maintenance of general strength. Non-weight-bearing mobility and strengthening can be done without aggravating the pain. All exercises and ambulations should be done by the quota method, whereby a patient exercises consistently to a point below his or her pain threshold. This point is slowly increased. This avoids overexercise

and aggravating the pain. Many elderly patients are so weak that this starting point is quite minimal. Pushing too fast, however, will only lead to discouragement.

### Myofascial Pain

Myofascial or soft-tissue rheumatic pain disorders are common problems that cause significant disability.<sup>121</sup> Myofascial pain syndromes consist of a localized soft-tissue pain that is associated with a trigger point. The principles of trigger point syndromes have not been specifically studied in the elderly population, but this group has numerous predisposers to myofascial pain problems—as well as a marked musculoskeletal component to their visceral pain.

Myofascial pain implies regional soft-tissue pain that is associated with a trigger point. The trigger point is a palpable, exquisitely tender indurated area of muscle or fascia. When pressure is applied to the trigger point, a localized spasm occurs; the so-called “jump sign.” More importantly, the pain syndrome that is associated with this trigger point will be reproduced. The area of pain may be referred some distance from the trigger point. For example, a very common trigger point is in the infraspinatus muscle (mid-scapula area), which produces a zone of referred pain in the anterior shoulder and down the radial side of the arm to the thumb and fingers. Pressure on the infraspinatus trigger point should reproduce the referred pain. The position of specific trigger points and their referral zones are consistent from patient-to-patient and, therefore, from well-defined diagnostic syndromes.<sup>122,123</sup>

A trigger point usually occurs in areas of previous trauma (e.g., overstretching, overuse, misuse, or cold). Table 18-3 lists the numerous factors that are known to produce and/or aggravate referred pain from trigger points. Older patients seem to be particularly prone to many of these factors. The increased kyphosis and compensatory head posture that is seen in many old people places significant stress on back and neck muscles. Muscle weakness due to poor muscle conditioning and inactivity can compound the problem and make muscles vulnerable to injuries. Gait disorders due to a peripheral neuropathy or strokes, compression fractures, hip fractures, canes, crutches, con-

TABLE 18-3 Factors That Can Aggravate Trigger Points

Mechanical	Emotional	Physiologic
Overuse or sudden trauma	Anxiety	Systemic phenomena
Misuse, injury, or poor body mechanics	Depression	Occult neoplasm
Postural imbalance/gait disorders		Hypothyroidism
Sedentary life and inactivity		Electrolyte imbalance
Muscle weakness		Skeletal
Cold		Arthritis, DJD*
		Herniated disc
		Ligamentous injury
		Visceral
		Angina
		Migraine headaches
		PUD*
		Drugs
		Drug-induced lupus syndrome
		Serum sickness
		Sleep disorders
		Insomnia
		Awkward sleeping position

\* DJD = degenerative joint disease; PUD = peptic ulcer disease

fractures, amputations, and walkers all create excessive mechanical stress on already vulnerable muscles. In some persons, latent trigger points can become activated by mechanical, physiologic, or psychological stresses.

The pain characteristically is a deep aching pain with tenderness. There will be one central area of pain within a larger area of referred pain. For example, a trigger point in the gluteus minimus will produce deep aching in the posterolateral buttock, which perhaps is associated with sharp pain on certain movements. There can be radiation of the pain down the posterior lateral aspect of the leg, which is a syndrome frequently confused with sciatica. A feeling of muscle weakness is common, even though muscle testing may reveal normal strength. Cutaneous hyperalgesia and coolness that is secondary to vasomotor changes also may occur.

Anxiety and depression are associated with trigger points because of an increased muscle tension and sympathetic outflow. In an anxious patient, diffuse aching pain frequently is diagnosed as psychosomatic. Trigger points may be the somatic component of his or her pain. This pain-anxiety-tension-pain cycle is a common example of psychological and physical interactions. The high incidence rate of anxiety and depression in elderly persons must be considered a risk factor for musculoskeletal pain. Tricyclic antidepressants may break this cycle.<sup>124</sup>

A clear pathophysiologic explanation of trigger points is yet to be developed. One theory is based on the considerable, although circumstantial, evidence for tissue hypoxia. Another cites hyperactive reflex neural circuits that only involve affected parts of the muscle. Electromyographic (EMG) studies show abnormal electrical activity in the center of a trigger point. Pathologic studies have been contradictory. Some show no microscopic changes, while others report muscle fiber degeneration and fibrosis. Electron microscopy shows a degeneration of the mitochondria, which points to an interruption of oxidative metabolism. There is no evidence for an acute inflammatory etiology, although some reports showed chronic inflammation along with fibrosis.<sup>125,126</sup>

These trigger points tend to become self-perpetuating and, therefore, chronic. Once activated, there is a reflex spasm and splinting to protect the injured muscle. In addition, there is a vasospasm that is aggravated by a sympathetic discharge, which causes local ischemia and prostaglandin and bradykinin release. All of these factors increase pain, which then produces more spasm; it may even recruit in new areas in the pain-spasm-pain cycle. The problem can become chronic, because the trigger point never gets stretched to its normal resting length. Apparently the abnormal neuromuscular excitability remains as long as the muscle

fibrils are contracted. Stretching to normal resting length breaks the cycle.<sup>127</sup> This forms the basis for the therapy outlined below.

Some authors have described an apparent connection between visceral disease and musculoskeletal trigger point disease (visceral somatic reflex).<sup>128</sup> Trigger points develop within the referral zone of a visceral pain, such as a myocardial ischemia or radiculopathy from a herniated disc. Trigger points have been demonstrated in the pectoralis major and serratus anterior muscles in patients with an ischemic myocardial disease. Ischemic cardiac pain could be reduced by treating these trigger points, even though ECG evidence of ischemia continues.<sup>129</sup> Ergonovine-induced angina also could be relieved in this way. Therefore, a reduction of pain after treatment of a trigger point may not rule out an underlying visceral disease.

Elderly persons have a decline in visceral pain and a preponderance of musculoskeletal and referred pain. How these observations relate to trigger point diseases has not been systematically studied. Even so, a physician needs to be aware that musculoskeletal pain may represent an underlying systemic disease, such as myocardial ischemia, peptic ulcer disease, hypothyroidism, electrolyte abnormalities, or neoplasms. For example, a carcinoma of the stomach or peptic ulcer disease may induce trigger points in the paravertebral muscles at the level of the lower thoracic vertebra.

The association of degenerative joint disease and myofascial pain is of special concern. Arthritis often is associated with abnormal muscle functioning and trigger points. Conversely, almost all arthritic complaints can be mimicked by trigger points.<sup>130</sup> This distinction is important therapeutically, because some of the pain that is associated with degenerative joint disease may be from trigger points and, therefore, should be treated differently. For example, the aching knee of a degenerative joint disease may be caused by a trigger point in the vastus lateralis.<sup>130</sup>

#### *Evaluation and Treatment of Myofascial Pain*

Evaluation should include an adequate assessment of posture, gait, emotional status, and sleep patterns. An examination requires a knowledge of the usual locations and referral zones of common trigger points (see Figure 18-

4). Palpation reveals a tender fibrous band that may "twitch" (localized spasm) when passed under an examiner's fingers. The pain is then referred to the expected area. Sometimes, there is so much spasm in the muscle that the distinct point can be found only after some therapy. Muscle strength, muscle spasm, and range of motion should be noted. An involved muscle will have a limited range of motion that is secondary to spasm, which will improve with therapy.

The main principle of treatment is that the muscle must be stretched to its normal maximal length. This lengthening needs to be maintained through therapeutic stretching and strengthening exercises. To obtain this stretch, analgesia of the trigger point area is necessary to avoid reflex spasm. A strong barrage of nerve impulses from the skin can decrease the pain and reflex spasm. This probably works through the spinal cord-gating mechanism, in which non-painful input can close the "gate" to pain perception.<sup>131</sup> Transient analgesia can be obtained by a vapocoolant spray, such as flourendone-methane. While spraying over the trigger point and referral area, the muscle can be passively stretched to its limit of comfort. Six or fewer sprays should be used, because excessive cooling of the muscle causes further injury. This whole procedure can be repeated if there still is a positive jump sign or if the maximum range of motion has not been obtained.<sup>132</sup> After the stretching, a damp hot pack can help with warming and relaxation.

An injection of the trigger point is another therapeutic option. Dry needling,<sup>133</sup> saline,<sup>134</sup> local anesthetic agents,<sup>135</sup> and corticosteroids<sup>136</sup> all have been described. A 1–5 cc dose of a local anesthetic (0.5% of procaine, 1% of lidocaine) is injected directly into the trigger point. This point is the most sensitive spot; usually, a patient can report when the needle hits the correct spot. A 5–15 mg dose of triamcinolone acetonide (Aristocort) can be added and followed by passive stretching.

Usually, there is immediate pain relief. As the local anesthetic wears off, the pain may return for 1 or 2 days. Then, perhaps, after a good night's rest, the pain will go away altogether. However, repeated injections may be necessary. Steroids should not be used more than every 6 weeks, but the local anesthetic can be

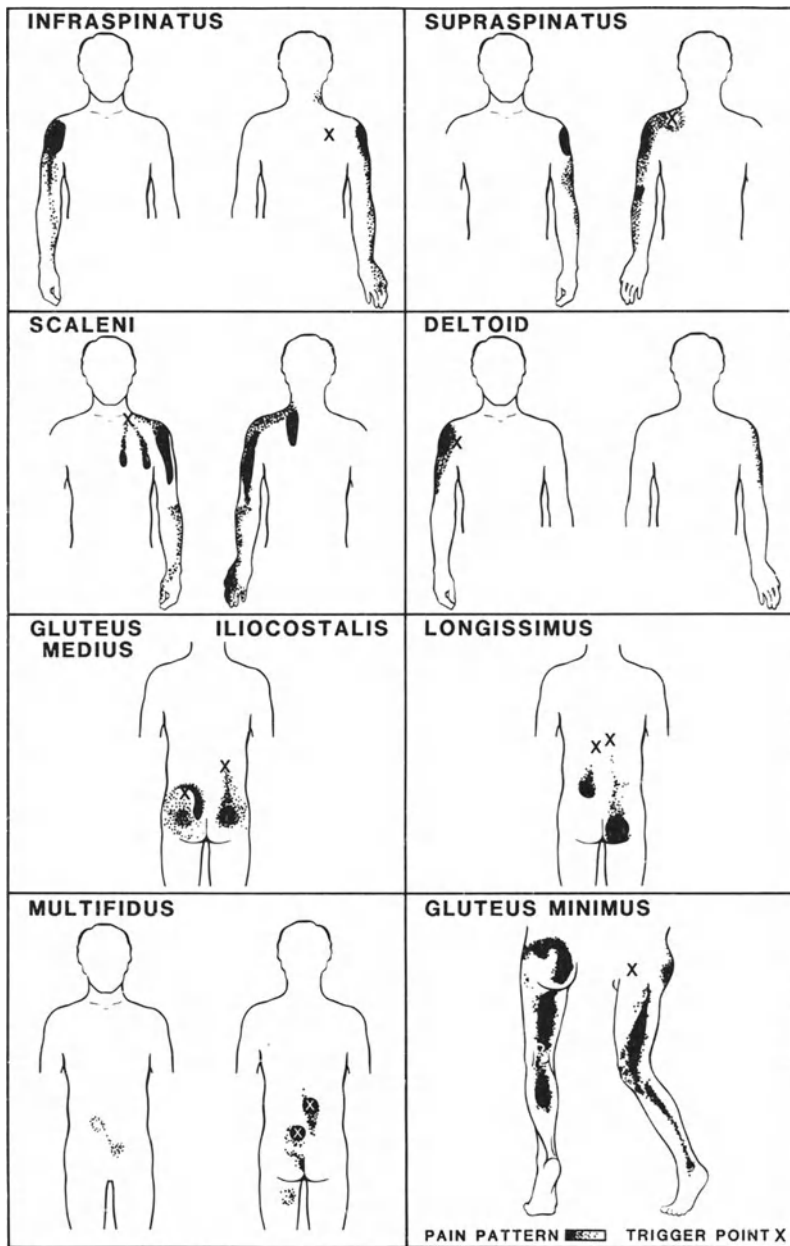


FIGURE 18-4 Examples of predictable patterns of pain referred from trigger points (From Travell J, Rinzler SH: Myofascial genesis of pain. *Postgrad Med* 11:425-434, 1952, used by permission of Dr. Travell and *Postgrad Med.*)

used repeatedly. It is interesting that dry needling or saline injection can be equally effective—an observation which has led to speculation about the similarity of trigger points and acupuncture points.

To prevent recurrences, a patient needs an exercise program that is appropriate for his or her level of functioning. These exercises should include stretching the involved muscles. If any aggravating factors have been identified, a specific therapy that is directed at them also is im-

portant. If aggravators cannot be removed (e.g., compression fractures), constant stimulation of the trigger point with a TENS stimulator can be quite helpful.

#### Deafferentation Pain

In deafferentation pain (also termed *anesthesia dolorosa*), the problem does not begin in the nociceptive fibers. Unlike somatic pain, there is no direct correlation of peripheral noxious

stimuli, activation of the afferent neural pathways, and conscious perception of pain. The dysesthesias occur because of neural damage that causes the interruption of sensory input, which leads to both a sensory loss and pain. The resultant sensory imbalance produces these poorly understood pain syndromes. Some examples are postherpetic neuralgia, phantom limb pain, peripheral neuropathy, reflex sympathetic dystrophy, and brachial plexitis. Causalgia due to a peripheral nerve injury also falls into this category. A central disruption of sensory pathways also causes deafferentation pain, such as the thalamic pain syndrome and the dysesthesia that is associated with paraplegia.

Deafferentation pain frequently is described as a new bizarre or unusual sensation (e.g., freezing, burning, crawling, pins and needles, electric shock, and tearing flesh). Normally, non-painful stimuli such as touch, pressure, and movement are interpreted as painful. Therefore, such things as changes in ambient temperature, physical contact, loud sounds, and movement of the painful area, can markedly aggravate the condition. In some instances, there is a component of somatic pain. For example, radicular pain initially is an aching pain with an intermittent, sharp-stabbing quality. This is a somatic pain due to a direct irritation of the nerve root. If the nerve becomes damaged, the dysesthetic causalgia pains that are associated with deafferentation appear. At this point, there would be a demonstrated sensory loss. With neuritic pain, it becomes very important to determine if it is secondary to irritation or deafferentation, because the mechanism of pain and treatment modalities may be quite different.

The mechanism of deafferentation pain is thought to be central. For example, cutting all the sensory dorsal roots to the involved dermatome of postherpetic neuralgia totally abolishes sensory input, but does not alleviate the pain.<sup>137</sup> This frustrating fact applies to most types of deafferentation pain. If there is a somatic component of the pain, it can be removed by neurosurgical ablation. However, deafferentation pain may continue after ablation.

The natural process of plasticity or regeneration of the nervous system may be the underlying etiology. In deafferentation, the sensory cell bodies in the dorsal root ganglia die, and their

axons that enter the spinal gray degenerate. This leaves a second-order neuron, possibly a pain neuron, with less synaptic input. The spaces left on this dendrite by the degenerated axons become filled with an overgrowth of surrounding presynaptic fibers that create an imbalance in which remaining influences have greater input into this second-order pain neuron. If they are excitatory neurons, their influences can stimulate the second-order pain neuron, and the central nervous system perceives pain. Usually, this degeneration and regrowth actually occur more centrally than the spinal cord and permit complex stimuli to perpetuate the pain.<sup>138</sup>

As discussed earlier, stimulation of certain central nervous system locations (e.g., periaqueductal gray of the midbrain) is associated with profound somatic endorphin-mediated analgesia.<sup>139</sup> Stimulation proximal to the sensory loss also can reduce deafferentation pain. Different locations, such as the thalamus and internal capsule regions, are used for deafferentation pain.<sup>140,141</sup> Since naloxone does not reverse this analgesia, it probably is not endorphin-mediated. This further supports a mechanistic dichotomy between somatic and deafferentation pain.

This dichotomy has two ramifications for therapy for deafferentation pain. First, narcotic analgesics probably are less effective in a deafferentation pain, although controlled studies have not been done. However, there are central nervous system stimulation data suggesting that effective therapy is not related to the endogenous opiate system. In general, drugs affecting the neurotransmitters have become more popular than narcotics for these pain syndromes. The tricyclic antidepressants, which increase serotonin and/or norepinephrine, can be successful. Dopamine may be a crucial neurotransmitter in reducing deafferentation pain. Both dopamine agonists<sup>83</sup> (L-Dopa and apomorphine) and antagonists (fluphenazine)<sup>79</sup> have been reported to be effective. Second, these syndromes respond well to TENS, DCS, and thalamic stimulation. The stimulation must be proximal to the sensory loss. Although TENS is not effective for any central pain disorders (e.g., thalamic pain), it works excellently for phantom limb pain, post-herpetic neuralgia, or sympathetic reflex dystrophy.<sup>84,85</sup> The elec-

trodes should not be placed directly over the dysesthetic area, because they will aggravate the painful dysesthesia.

### Post-Herpetic Neuralgia

The incidence of herpes zoster increases with age. About 50% of all patients over the 60 years of age will develop postherpetic neuralgia after acute shingles. The pain can last for 1–2 years and then be resolved spontaneously. Some patients, however, are left with a prolonged devastating pain syndrome. The neuralgia is a severe burning pain with occasional lightning sharp stabs in the involved dermatome. It is a dysesthesia in that any stimulation of the skin, such as wind, cold or touch, will be perceived as markedly painful. Emotional distress also can exacerbate the pain.

Postherpetic neuralgia is a type of denervation pain in that some of the sensory neurons degenerate during the infection. As described above, an imbalance then occurs in the sensory nervous system, which can lead to pain. Since this imbalance requires time to develop, early intervention may avert the underlying readjustment of the pain pathways. In addition, residual changes due to the inflammation may add to the pain. The inflammation forms the rationale for using steroids to prevent postherpetic neuralgia.

Therapy is both preventive and symptomatic. There is some evidence in the elderly population that early treatment of acute herpes zoster with steroids is associated with a reduction in the incidence and severity of postherpetic neuralgia.<sup>142,143</sup> These studies showed no increase in systemic dissemination of the virus. The equivalent of 60 mg of prednisone for 5 days, followed by tapering dosages over the next 2 weeks is recommended. The ability of antiviral agents (e.g., Ara-A, acyclovir, and interferon) to reduce the length of active infection and, perhaps, postherpetic neuralgia is now under investigation.<sup>144–146</sup> The preliminary evidence is encouraging. In patients who seem to be developing neuralgia, a series of paravertebral sympathetic nerve blocks have been used to reduce the severity of the dysesthesia.<sup>147</sup> These can be done safely and easily by a good anesthesiologist, but they must be performed early in the course of the disease to be effective.

Once the pain is chronic, the only therapy is symptomatic. Drug therapy and hyperstimulation can be used, usually in combination for the best results. Stimulation of the surrounding dermatomes with TENS may produce quite remarkable results.<sup>148</sup> It is important not to place the electrodes on the dysesthetic area, as this will aggravate the pain. Some authors suggest rubbing the area briskly with a terry-cloth towel several hours per day. An anesthetic spray, such as ethyl chloride, may help the resultant hyperpathia. Positive results may require several weeks. Anecdotal reports claim that acupuncture is beneficial.<sup>149</sup>

Drug treatment provides several options. Good double-blind studies show that tricyclic antidepressants are better than placebos for postherpetic neuralgia.<sup>150–152</sup> One study, using 75 mg of amitriptyline (Elavil), showed good pain reduction in 16 of 24 patients. This effect was separate from any antidepressant effect. Imipramine is just as effective and is better-tolerated by elderly persons. The neuroleptic, fluphenazine hydrochloride, can be added.

Narcotics only should be used as a last resort. Postherpetic neuralgia, as with other deafferentation pain, may respond poorly to narcotics; large doses may be required. Elderly persons have an increased incidence of side effects, which include confusion, falls, and orthostatic hypotension. Therefore, as in any prolonged pain disorder of benign origin, narcotics should be avoided if possible.

### Thalamic Pain Syndrome

The thalamic syndrome of Déjerine and Roussy follows an infarction of the sensory relay nuclei of the thalamus. There is a severe contralateral sensory loss, which is both deep and cutaneous. At times, pain and thermal sensation are the most affected, with only a mild touch and proprioceptive loss. After an interval of several months, as sensation appears to be improving, a patient can develop a severe deafferentation-type pain syndrome. This is characterized by a bizarre dysesthesia and hyperesthesia. Movement also aggravates the condition. Unfortunately, this syndrome usually continues for years without a resolution.

Medical therapy for thalamic pain is largely

ineffective. Phenothiazines<sup>153</sup> may give some relief, and diphenylhydantoin<sup>154</sup> is sporadically effective. Tricyclics meet with success in some patients. The dopamine agonist, apomorphine,<sup>83</sup> has been reported to be effective in a series of four case reports. It generally is thought that narcotics are not very effective, but there are no controlled studies to support this position. In a severely affected individual who is unrelieved by other therapy, narcotics at least should be tried, with monitoring for criteria of response.

Stimulation techniques, such as TENS, are ineffective. A number of neurosurgical techniques have been tried. Destructive lesions in the thalamus produced only transitory relief and no longer are frequently used. Subcortical somatosensory stimulation<sup>155</sup> is much more promising, but it is not yet widely used; also, elderly patients are at more risk for complications. It is an option that holds some promise for the future.

### Phantom Limb Pain

Phantom limb pain can have several etiologies that include local and central mechanisms.<sup>156</sup> It is important to differentiate stump pain from true phantom limb pain. Stump pain is a somatic pain caused by local neuromas in the transected nerve. Irritation of the neuroma by an artificial limb or movement aggravates the pain. The sensation varies from a diffuse aching to a sharp jabbing pain. Neuroma can be identified by consistently reproducing the pain via localized palpation. Injection with local anesthetics, usually repeatedly over a short period of time, is efficacious; also, TENS is helpful.

True phantom limb pain is a central deafferentation type of pain with the characteristic, bizarre paresthesias or cramping sensations. Most patients experience phantom sensations, but only 10% of these are painful. Frequently, there had been severe pain or trauma before amputation. Numerous therapies were discussed in the literature.<sup>157</sup> Stimulation techniques, such as DCS and—more recently—TENS, have been used with reasonable 5-year results.<sup>85</sup> Narcotic analgesics, tricyclic antidepressants, phenothiazines, and dilantin have been used for this syndrome.

### Peripheral Neuropathy

Peripheral neuropathy is a multifactorial disease that is due to a degeneration of the peripheral sensorimotor fibers. The pain is described as burning, cold, or numbness, with a tendency for worsening at night. Therapeutic modalities include tricyclic antidepressants.<sup>86</sup> One non-blind study suggests the addition of a phenothiazine.<sup>79</sup> If tolerated, a night-time dose of a mild-narcotic such as codeine can be quite beneficial. Evidence for the effectiveness of TENS is mixed<sup>85,148</sup>; only some reports show improvement. If other regimens fail, a trial may be warranted, keeping in mind that aggravation may occur.

## Common Musculoskeletal Pain Syndromes

### Shoulder Pain

The shoulder consists of three bones, which include the humerus, the clavicle, and the scapula. There are four joints: the glenohumeral, acromioclavicular, sternoclavicular, and scapulothoracic (*see* Figure 18-5). These joints operate in unison to provide the wide range of motion that is characteristic of the shoulder. The glenohumeral joint allows 90° of abduction, and then the motion of the scapulothoracic joint permits the impressive 180° range. The clavicle, acromioclavicular, and sternoclavicular joints keep the shoulder mechanism from collapsing onto the thoracic cage during movement. Even with all these joints, the shoulder mechanism sacrifices stability for mobility because the muscles, tendons, and ligaments provide the major support.

There are three principle muscle groups, which include: 1) Scapulohumeral or rotator cuff muscles, which abduct and externally rotate the arm; 2) The axioscapular or the rhomboids and trapezius, which move the scapula in relation to the vertebral column; and 3) Axiohumeral or pectoralis, which internally rotates the arm. Their tendons are supported by a major bursa, the subacromial or subdeltoid bursa. Since the mobility provided by these muscles is the major functional attribute of the shoulder, it is not surprising that most painful shoulders are



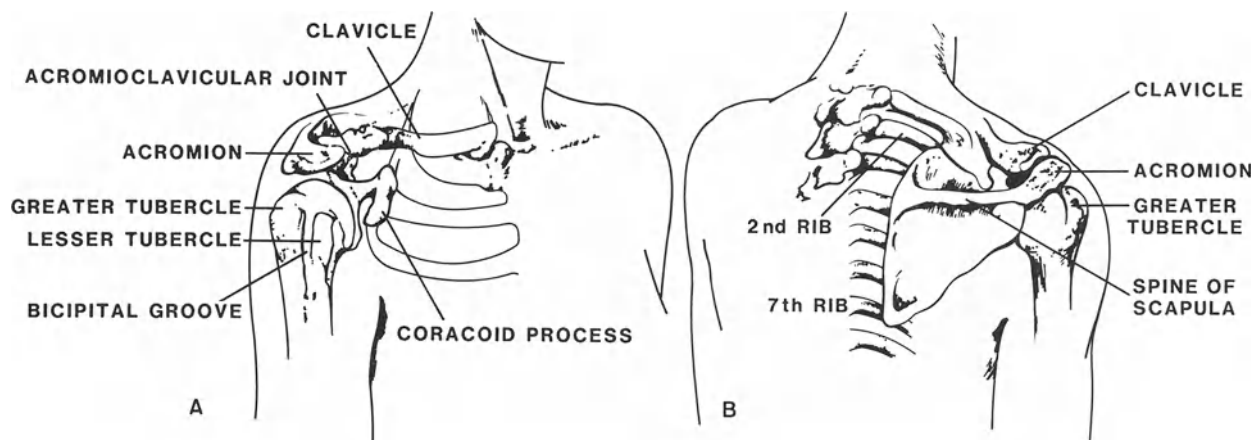


FIGURE 18-5 The shoulder mechanism viewed anteriorly (A) and posteriorly (B).

due to soft-tissue pathologies. As the shoulder is not a weight-bearing joint, degenerative joint disease is distinctly unusual. An exception is the acromioclavicular joint, which experiences pressure as it maintains the shoulder-vertebral column distance during active motion.

In addition to soft tissue rheumatism, a differential diagnosis of shoulder pain includes nerve root compression, entrapment neuropathies, brachial plexus injuries, referred visceral disease, or a systemic disease such as polymyalgia rheumatica (*see* Table 18-4).<sup>158-162</sup> Soft tissue rheumatism should have specific localized findings. Diffuse aching pain, a normal range of motion, and no localizing findings should alert a physician to another cause of the shoulder pain.

#### *History and Examination*

A history should elicit recent and remote trauma, associated symptoms that are suggestive of systemic or neurologic disease, the exact location and duration of the pain, and factors that aggravate and diminish it. Management of injuries and disorders that primarily require orthopedic attention is covered in Volume I, Chapter 33.

A physical examination includes: 1) A cervical spine and neurologic examination; 2) Inspection for atrophy, fasciculations, swelling or erythema; and 3) Palpation of several specific points. Localized tenderness of the acromioclavicular joint suggests a degenerative joint disease. A glenohumeral joint effusion is best

felt just lateral to the coracoid process on the anterior aspect of the shoulder. With a patient's palms supinated, palpate the bicipital groove in the intertubercular groove medial to the greater trochanter. A discrete tenderness suggests bicipital tendonitis. With the palms still upward, flex the elbow and slightly extend the shoulder to palpate the rotator cuff tendons as they insert along the upper edge of the greater trochanter. Localized tenderness suggests tendonitis or rotator cuff tears. Next, palpate the infraspinatus, supraspinatus, and deltoid muscles for trigger points.

The next step includes passive, active, and resisted ranges of motion. During this part of the examination, an examiner tries to reproduce the pain by five specific maneuvers. Muscle strength also should be tested at this time. First, the patient abducts the arm to the full 180°, if possible. If the patient cannot abduct 180°, an examiner checks the passive range of motion. Acute pain at 60–100° is the “painful arc” of rotator cuff disease. A decreased passive range of motion is characteristic of adhesive capsulitis. Second, the patient flexes the shoulder by reaching directly forward all the way over his or her head. Resisted flexion reproduces the pain of bicipital tendonitis. Third, the patient places the back of the hand between the shoulder blades and reaches as high as possible. This motion internally rotates the arm and aggravates the pain of infraspinatus trigger point disease. Fourth, with the elbow flexed at 90° and held against the body, externally rotate

TABLE 18-4 The Painful Shoulder

Musculoskeletal syndromes
Tendonitis; rotator cuff, or bicipital
Tears of rotator cuff
Subacromial bursitis
Adhesive capsulitis
Myofascial trigger points
Arthritis
Degenerative arthritis of acromioclavicular joint
Pseudogout of glenohumeral joint
Rheumatoid arthritis, infectious arthritis, or gout
Fractures
Subluxation, hemiplegia
Neurovascular
Reflex sympathetic dystrophy
Cervical nerve root: cervical spondylosis
Cervical outlet
Brachial plexus: injury, neuritis, tumor infiltration, or compression
Nerve entrapment syndromes
Aneurysms
Visceral disease
Pulmonary infarction; apical or diaphragmatic
Pancoast tumor
Mediastinal lesions
Diaphragmatic irritation; tumor, abscess, or infarction
Mesothelioma
Subdiaphragmatic disease (pneumoperitoneum, subphrenic abscess)
Gallbladder disease
Systemic disease
Polymyalgia rheumatica
Metastatic tumor
Rheumatoid arthritis
Hyperthyroidism or hypothyroidism

the arm by pushing it laterally. Pain on resisted external rotation occurs in rotator cuff tendonitis and subacromial bursitis. Fifth, the patient shrugs his or her shoulders, which tests the trapezius and rhomboid muscles, as well as the acromioclavicular and sternoclavicular joints.

X-ray films may disclose calcium deposits in the rotator cuff, calcium pyrophosphate deposition disease, and degenerative changes in the acromioclavicular joint. Arthrography will diagnose rotator cuff tears and adhesive capsulitis.

#### *Rotator Cuff Tendonitis and Bursitis*

The rotator cuff muscles include the supraspinatus (which abducts the arm) and the infraspinatus and teres minor (which externally ro-

tate it). They arise on the scapula and insert on the greater trochanter of the humerus. During abduction, these tendons must slide under the acromion, which can cause fraying and irritation. There is poor blood supply to the distal tendons, so that incomplete healing and loss of strength occur. Irritation and inflammation, particularly of the supraspinatus, produces rotator cuff tendonitis and subacromial bursitis.<sup>163,164</sup> A patient complains of a diffuse aching pain in the region of the deltoid, which is characteristically worse at night. Sleeping on the shoulder and abduction markedly aggravate the pain. An examination shows tenderness along the greater tuberosity of the humerus. Active abduction is limited by pain at 60–100° as the tendons are forced under the acromion. The passive range of motion should be nearly normal. Resisted external rotation reproduces pain.

Treatment goals include pain reduction, maintenance of the range of motion, and prevention of further attacks. The treatment to relieve acute pain includes rest in a sling for several days, NSAIDs (keeping in mind the increased incidence of side effects in elderly persons), and hot or cold packs. If the pain is unresponsive to those measures, an injection of 1 ml of 1% lidocaine and 20–40 mg of methylprednisolone acetate into the adjacent bursa may provide long-term relief. Care should be taken to prevent overusing this therapy and to avoid a direct injection into the tendon.

Adhesive capsulitis and reflex sympathetic dystrophy are complications of shoulder immobilization that produce chronic pain. Hence, long-term immobilization should be avoided, and a physical therapy program that is aimed at preserving the full range of motion should be initiated as soon as possible. Passive, gentle range-of-motion exercises should be done three times per day. Pendulum exercises are done with a patient leaning forward and slowly swinging the dangling arm, first in the plane across the body, and then along side the body. These exercises should be done for 10 minutes three times per day with a gradual increase in the amplitude of the swing. Preventive measures include identifying and removing stress.

Because of degenerative changes, elderly persons are prone to tears of the rotator cuff. Incomplete tears are difficult to distinguish

from rotator cuff tendonitis. Their management is conservative (*see* Volume I, Chapter 33).

#### *Calcific Tendonitis and Bursitis*

Radiologically apparent calcium deposition occurs in structurally abnormal rotator cuff tendons. These deposits usually are asymptomatic, but they can rupture and cause an acute, extremely painful, crystal-induced bursitis. There is a marked tenderness and spasm. Treatment is similar to rotator cuff tendonitis, except that an early injection of 1–2 ml of lidocaine with 40 mg of methylprednisolone into the bursae or tendon sheaths also is helpful.<sup>165,166</sup>

#### *Bicipital Tendonitis*

The long head of the biceps can become inflamed by a repetitive throwing or pulling motion. Tenderness is elicited in the bicipital groove, and resisted flexion of the shoulder reproduces the pain. Treatment of the bicipital tendonitis includes the removal of precipitating stress, NSAIDs, and occasional injections of 20 mg of methylprednisolone into the tendon sheath. More than three injections are not recommended, as they weaken the tendon.

#### *Frozen Shoulder*

Frozen shoulder,<sup>167</sup> or adhesive capsulitis, is characterized by a progressively worsening, diffuse shoulder tenderness that is associated with a reduced active and passive range of motion. Pathologically, the normally large joint capsule becomes fibrotic, which restricts motion in all spheres. The pathogenesis is unclear, but there are numerous associated factors, such as immobilization, tendonitis, trauma, cervical disc disease, myocardial infarction, tuberculosis, lung cancer, diabetes, and hemiplegia that is secondary to stroke. After a stroke, the shoulder can sublux and cause a severe pain syndrome, frozen shoulder, or reflex sympathetic dystrophy.<sup>168</sup>

There is an insidious onset of shoulder pain and stiffness over several months. The pain decreases after about 6–12 months, but the limitations of motion continue. Frequently, there is gradual restoration of function over 24–30 months. Some patients go on to develop the full picture of a reflex sympathetic dystrophy. A diagnosis usually is made clinically, but an ar-

thrography can confirm the contracted joint capsule.

The best treatment is prevention via early physical therapy for any painful or immobilized shoulder. During the acute stage, pain control is the priority. Anti-inflammatory drugs, ice packs, and intra-articular steroids<sup>169</sup> can be used. Applied heat during this state worsens the pain. Movement only should be done in the pain-free range. After the acute pain has subsided, active mobilization should be started by a physical therapist. Climbing the wall with the fingers of the outstretched abducted arm, stretching the arm across the chest towards the opposite shoulder, and pendulum exercises are best. Appropriate splinting is necessary in a subluxed hemiplegic shoulder.

#### *Reflex Sympathetic Dystrophy*

Reflex sympathetic dystrophy,<sup>170</sup> also known as Sudeck's atrophy or the shoulder-hand syndrome, is a poorly understood disorder of pain and restricted motion of the shoulder. In addition, there is a burning pain, swelling, and tenderness of the ipsilateral fingers that is associated with vasomotor instabilities, such as hyperhidrosis, vasoconstriction, and/or vasodilatation. Trophic skin changes (e.g., atrophy, scaling, and nail changes) occur as well. X-ray films reveal a patchy osteopenia.

The etiology of this disorder is poorly understood, but it may relate to a dysfunction of sympathetic neuroregulation. Predisposing factors are immobilization, trauma, myocardial infarction, stroke, cervical spine disease, and pulmonary lesions such as tuberculosis. Preventive mobilization should be done in the presence of these diseases.

The treatment is controversial, but the mainstays of therapy are adequate analgesia and physical therapy as soon as the acute pain subsides. The pain in acute stages is best handled by a 4–6-week course of prednisone (60–80 mg/day)<sup>171</sup> or a stellate ganglion block.<sup>107</sup> Repeated blocks may be necessary, but remarkably reduce symptoms. A TENS unit placed over the neurovascular structure to the arm may be as effective as a stellate ganglion block.<sup>139</sup>

#### *Cervical Nerve Root*

Cervical spondylosis is the most common cause of neurologic shoulder pain in elderly persons.

The degenerative osteophytes, most commonly C4-C7, can impinge on the intervertebral foramina and irritate the nerve roots. Narrowing of the spinal canal with irritation on numerous roots and a myelopathy also occurs. Since most of the deep muscles of the shoulder are supplied by these nerve roots, a deep aching pain and tenderness occur around the shoulder blade, deltoid, and supraclavicular regions.

The symptoms of cervical spondylosis are neck pain, stiffness, and limitation of motion. In addition, many patients have a diffuse aching shoulder pain, and some even have shoulder pain alone. An examination will not reveal the localized findings of intrinsic shoulder disease. This pain may or may not be associated with a radicular paresthesia, sensory loss, muscle weakness, and reflex changes. Maneuvers that compress or stretch the nerve root aggravate this pain. In the Spurling maneuver, an examiner places his or her hands on a patient's head, rotates it slightly toward the painful side, and applies downward pressure to try to reproduce the pain. Tilting the head to the opposite side and forcibly depressing the shoulder stretches the nerve root. X-ray films may show osteophytes and a narrowing of the intervertebral foramina, but correlation of symptoms to x-ray film findings is notoriously poor.

Treatment emphasizes reducing the aggravating muscle spasm in the neck. Posture strengthening exercises can help. Cervical traction that is performed several times per day is used if the pain continues and there is no x-ray film evidence of tumor. The emphasis should be on physical therapy rather than muscle-relaxant drugs, because the drugs carry a significant risk of side effects. Anti-inflammatory drugs and mild analgesic agents are appropriate for trial. An anesthesiologist can inject the neural foramina with a lidocaine-steroid combination that will produce long-term results. Surgery is indicated only with severe intractable pain, sensory and/or motor loss, or signs of myelopathy.

#### *Other Neurologic Causes of Shoulder Pain*

An involvement of the brachial plexus by tumor, injury, or compression (e.g., in thoracic outlet obstruction) all cause shoulder pain. They respond remarkably well to TENS. Peripheral nerve entrapments<sup>172</sup> of the suprascapular nerve, musculocutaneous nerve, or median

nerve (carpal tunnel) can present with shoulder pain.

#### *Polymyalgia Rheumatica (see Volume I, Chapter 19)*

Polymyalgia rheumatica, which is a clinical syndrome of unknown cause that occurs predominantly in elderly patients, is characterized by aching and stiffness of the proximal extremities (especially the shoulders and hips) and is improved by low-dose corticosteroids and, perhaps, NSAIDs.<sup>173</sup>

#### Back Pain

Of the general population in the United States, 80% will experience acute low-back pain in their lifetimes. Acute low-back pain is a self-limited illness with 40% of all patients becoming better in 1 week, 60–80% in 3 weeks, and 90% in 2 months.<sup>174</sup> The 10% of the population with a disability past 2 months are a major source of permanent disability. Since there are few documented etiologies and therapies for low-back pain, the emphasis has been placed on the known entity of a protruded intervertebral disc with its indications for surgical therapy. The peak incidence rate of acute low-back pain due to disc protrusion occurs in the late 40s and early 50s, with a rapid decline thereafter. In fact, a herniated disc is an uncommon cause of low-back pain in elderly persons who suffer from a different spectrum of back pathologies. Osteoporotic fractures, metastatic tumors, lumbar stenosis, and spondylotic radiculopathy all increase in incidence with age.

Since the etiology of the vast majority of acute and chronic low-back pain conditions is unknown, the symptoms are best-categorized into several patterns of low-back and extremity pain (see Table 18-5). In neuropathic pain or sciatica, there is nerve root involvement with pain in the distribution of the sciatic nerve. Paresthesia, sensory loss, muscle weakness, and diminished reflexes may occur. In non-neuropathic pain or lumbago, there is pain and tenderness in the low back, buttock, and lateral thigh. There are numerous pain-sensitive structures in the back that can cause this type of pain. Recent research has tried to delineate specific non-neuropathic syndromes and treatments. Even though some syndromes have

TABLE 18-5 Back Pain

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Neuropathic
Herniated disc
Spondylotic nerve entrapment
Lumbar stenosis
Tumor
Cauda equina syndrome
Non-Neuropathic (Lumbago)
Degenerative disc disease; annular tears or lumbar spondylosis
Muscular trigger point
Ligamentous injury; iliolumbar strain
Facet syndrome
Spondylolisthesis
Osseous
Metabolic bone disease: osteoporosis, osteomalacia, or Paget's disease
Infection: osteomyelitis or epidural abscess
Inflammatory spondylitis: rare to present in elderly patients
Neoplasia: myeloma, metastatic tumor, lymphoma
Visceral
Kidney: pyelonephritis or nephrolithiasis
Pancreatitis: carcinoma of the pancreas
Pelvic viscera: constipation, retroperitoneal neoplasm, bleeding abdominal aortic aneurysm

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been identified (e.g., muscular trigger points and the facet syndrome), it frequently is difficult to pinpoint the exact cause of the pain. In addition, isolated buttock and leg pain in the absence of such pain can occur from either neuropathic or non-neuropathic causes.

#### *Functional Anatomy of the Back*

The spine can be divided into anterior and posterior components. Anteriorly, the back is made of stacked vertebral bodies that are separated by the intervertebral discs. A disc functions as a hydraulic shock absorber and consists of the central nucleus pulposus that is surrounded by the thicker annulus fibrosis. In addition to its shock-absorbing and weight-bearing qualities, this disc system allows for spinal flexibility. The strong, supporting anterior and posterior ligaments carry much of the tension that is applied to the low back. The outer layers of the annulus fibrosis and the posterior longitudinal ligament are sensitive to pain.

The pedicles leave the vertebral bodies posteriorly and articulate at the facet joints to form the neural arch. These pain-sensitive joints pro-

tect the spinal cord by restricting rotation and lateral flexion of the vertebral column. They normally are not involved in weight-bearing. The ligamentum flavum supports the neural arch as it runs along the roof of the spinal canal. The nerve roots exist through the intervertebral foramina that is located between the pedicles (*see* Figure 18-6).

The vertebral column is then connected to the pelvis at the sacroiliac joints, which probably are immobile and a controversial source of pain in elderly persons. The paravertebral muscles, deep hip muscles, and iliolumbar ligaments provide much of the stabilization and support. These all are pain-sensitive structures.

Injections of hypertonic saline into the intervertebral disc, posterior longitudinal ligament, ligamentum flavum, and interspinus ligament reproduces the back and hip pain that is characteristic of lumbago.<sup>175</sup> Hypertonic injections into the facet joint<sup>176</sup> cause typical sciatic pain, but the distribution of pain does not always correlate with the area injected. Optimal back pain therapy requires identification and therapy of the specific damaged structure.

#### *Degenerative Changes*

At an autopsy examination, the lumbar spine always shows degeneration in middle-aged or older persons. The degree of this degeneration does not correlate well with the amount of pain that is experienced by a patient.<sup>177</sup> While the disc itself may not cause the pain, the degenerative process begins in the disc and centers around it. The L4-L5 and L5-S1 discs degenerate first, as they bear the most weight. The discs become compressed from gravity and cause a bulging of the annulus fibrosis, which (in turn) stimulates the vertebral lipping seen on x-ray films (*see* Figure 18-6). With age, the nucleus changes from a liquid gel to a granular solid, while the annulus develops radial cracks, especially posteriorly. Recurrent annular tears that cause lumbar pain eventually can lead to a protrusion of disc material into the spinal canal. With further age, the nucleus dehydrates to such an extent that herniation cannot occur, but there is a marked decrease in joint space and a loss of flexibility. There is a further bulging of the annulus and laxity of the posterior longitudinal ligament that causes instability and narrow-

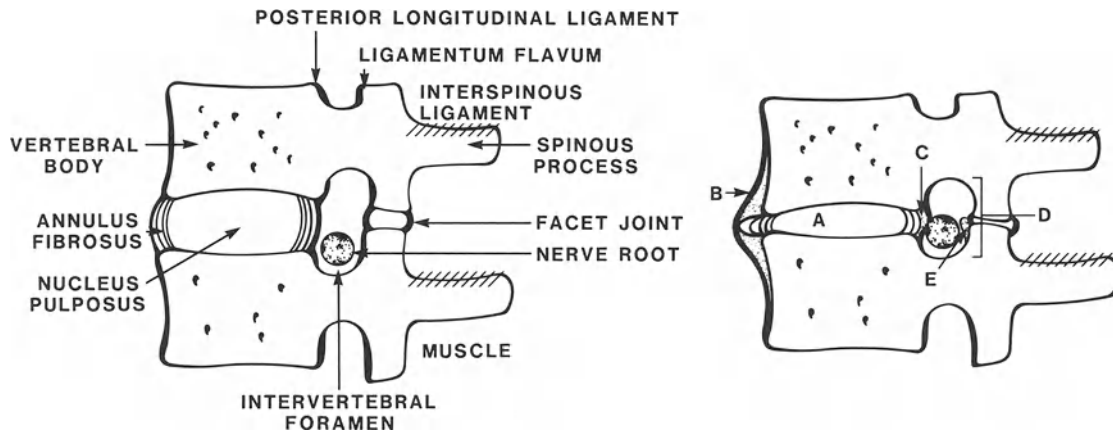


FIGURE 18-6 Degenerative changes in the vertebral column start with dehydration and a narrowing of the disc (A). The disc material bulges and the longitudinal ligaments lose their elasticity (B). Calcification of the fibrous material between the vertebral body and longitudinal ligament forms the osteophytes (C). Both the height and width of the intervertebral foramen are reduced (D). The compressed facet joint undergoes degenerative osteoarthritic changes with osteophyte (E) formation and joint capsule thickening. All of these changes predispose to a nerve root compression and add extra stress to the pain-sensitive structures of the back.

ing of the spinal canal and intervertebral foramina.

With a narrowing of the disc space, the facet joints are forced into closer opposition and become weight-bearing joints. These joints cause pain similar to sciatica. They go through the typical spectrum of synovial joint degenerative changes, which include a loss of articular cartilage, osteophyte formation, capsule laxity, and subluxation. Osteophytes narrow the intervertebral foramina and spinal canal and may lead to nerve root entrapment or spinal stenosis.<sup>178</sup>

Changes in posture and gait mechanics are part of the degenerative process. With age, extra strain in the lower back occurs from the increasing kyphosis and stooped posture. Changes in the ankle, knee, and hip joints also may place an increased functional demand on the lower back.<sup>179</sup> Hence, it is important to keep in mind that the anatomy and functional requirements of the lower back may change with age and certainly will change with pathologies such as compression fractures, strokes, and degenerative joint diseases. These new stresses can precipitate muscular and ligamentous pain, which needs to be taken into account during therapy.

#### *Diagnostic Approach*

Since the spectrum of pathologies that cause new onsets or marked worsening of low-back pain changes in elderly persons, a physician's suspicion of a metastatic tumor, compression fracture, or abdominal catastrophe should increase. The first goal is to identify causes that would require urgent therapy (e.g., cord compression, cauda equina syndrome, or a ruptured aortic aneurysm).

The clues to compression or cauda equina lesions are bladder and bowel dysfunctions, distinct sensory level, loss of rectal sensation, and sphincter tone. All acute spinal cord compressions will initially cause a flaccid bladder and overflow incontinence.

After these have been ruled out, an evaluation should be directed toward one or more specific diagnoses. In chronic back pain, a good examination<sup>180</sup> looks for the multiple contributors and aggravators, such as muscle spasm, leg-length discrepancy, osteoarthritis, and so on.

An inspection of the back includes watching a patient walk while looking for limping, listing, or obvious postural abnormalities. Check the lumbar area for scoliosis and the gentle lumbar

lordotic curve. An exaggerated lordotic curve suggests weak abdominal muscles. Scoliosis or an absent lordotic curve points toward a paravertebral muscle spasm. Discrepancy in the leg length can be estimated by standing behind a patient with your palms resting at right angles on the iliac crest. The range of motion is tested in flexion, extension, and lateral flexion. As an elderly spine is characterized by a decreased range of motion, a reproduction of pain and changes over time is the most important information. Pain on extension or when straightening from flexion suggest a pathology in the posterior elements. Pain on forward or lateral flexion suggests discogenic pain.

During palpation, an examiner should try to find the exact spot that reproduces the pain. If applying pressure to the spinous processes of the L2-L5 discs causes pain, an intrinsic disease of the spinal ligaments or facet joints is suggested. Pain in the sacral triangle, which is located between the lumbar spine and iliac crest, usually is due to iliolumbar ligament strain. One should palpate the paravertebral and gluteal muscles for obvious tenderness, spasm, and the distinct tender nodules of trigger points. With a patient on his or her side and the hip slightly flexed, palpate the ischial tuberosity, sacral notch, and trochanteric bursa. Localized pain in any of these areas can suggest a specific diagnosis. The abdomen should be palpated for tenderness or masses; musculoskeletal problems should not cause abdominal pain.

Maneuvers to reproduce the pain include full hip flexion while a patient is supine. Back pain suggests a facet joint or intrinsic hip pathology. The straight leg raising is a test for L4, L5, or S1 nerve root irritation, but it also tests the L1, L2, or L3 nerve roots.

A neurologic examination looks for evidence of nerve root compression. The S1 lesions produce a deep aching pain and tenderness in the buttock region below the sacroiliac joint, the posterior thigh, and calf. The plantar surface of the foot and the fourth and fifth toes also may be involved with either an aching or sharp lancinating pain. Paresthesias and a sensory loss are in the lower calf and fourth and fifth toes. Weakness, if present, involves the flexors of the foot and toes. The ankle reflex can be diminished and the straight leg-raising test can be positive.

Lesions of the L5 root produce pain in the lateral hip, groin, posterior lateral thigh, lateral calf, external malleolus, and dorsum of the foot to the first three toes. Paresthesia can occur anywhere within this radiation. Tenderness is in the lateral gluteal region around the head of the femur. Weakness involves the extensors of the foot and big toe. A clear decrease in reflexes usually is not observed. The L4 roots cause pain in the anterior thigh and medial leg with corresponding sensory loss. The knee joint reflex can be decreased.

X-ray films are useful in evaluating the presence of a tumor, osteoporosis, and spondylolisthesis (or sUBLuxation of the L5 on S1). Since degenerative changes are universal and their correlation to symptoms are unclear, spondylolisthesis does not diagnose the cause of back pain.

#### *Lumbar Stenosis*

Lumbar stenosis can be caused by congenital or degenerative abnormalities. The spondylotic degenerative changes discussed above can narrow the lumbar spinal canal to such an extent that multiple nerve roots are compressed before leaving the foramina. Previous disc disease, laminectomy, spondylolisthesis, and congenital narrowing all predispose to this condition.

The syndrome is most common in the elderly population and presents with severe, chronic low-backache with stiffening during rest. There are variable and patchy radicular symptoms that may require exercise to elicit, which involve any or all of the roots below L2. Over 30% of all cases have bilateral leg pain, which either can be a constant aching or be intermittently associated with walking. The unique presentation of lumbar pseudoclaudication is characterized by buttock and leg pain, weakness, and paresthesia during exercise. Rest that places the lumbar spine in mild flexion is required for a resolution of symptoms. Of all patients with lumbar stenosis, 20% present in this fashion. Night pains, restless legs, and burning pains also can occur and may be confused with vascular disease.<sup>181</sup>

Therapy should emphasize corseting and exercise to keep the lumbar spine slightly flexed and the pelvis tilted forward.<sup>182</sup> In some cases, an extensive laminectomy with decompression is required.

### *Tumor*

Metastatic cancer as a cause of back pain increases in incidence with age. The pain is caused by bony metastases, epidural metastases, meningeal cancer metastases, and intramedullary metastases. The most common tumors are of the lung, breast, prostate, kidney, as well as lymphoma and myeloma; 35% of all epidural metastases are the first presenting symptoms of a tumor.<sup>183</sup>

The pain is localized, with a gradual onset that follows a relentlessly progressive course. Frequently, the pain is worse at night or when lying down, and it usually has been present before neurologic sequelae. Of all patients, 85% have positive lumbosacral spine films.

Neurologic complications are a medical emergency. Depending on the site of tumor involvement that causes the cord compression, the cauda equina syndrome or a multiple radiculopathy can occur. A rapid or prolonged functional loss are poor prognostic indications. Therapy involves an aggressive multidisciplinary approach with systemic steroids, radiation therapy, and surgery.

### *Metabolic Bone Disease*

Osteoporosis is not intrinsically painful, but back pain due to vertebral compression fractures is its most common symptom. After the acute phase of the compression fracture, chronic pain from the kyphotic posture becomes a continuing problem. The management of the two phases is quite different.

The acute pain can occur after minimal trauma and can be disabling. Bed rest for several weeks may be necessary to control the pain, but a patient should ambulate for small distances, if possible, and perform exercises in bed to avoid rapid deconditioning. Analgesics, usually aspirin or tylenol with codeine, are indicated. The concomitant muscle spasm is best-treated with heat. If the pain lasts longer than 2 weeks, a patient should be ambulated slowly with the aid of a back support. A rigid, or semi-rigid dorsolumbar support with shoulder straps can be exceedingly helpful.

Since most compression fractures occur in the lower thoracic and upper lumbar spine, kyphosis and perhaps scoliosis can become marked. This postural change produces stretch and strain on ligaments and muscles that leads

to chronic backache. The pain is treated primarily by improving posture with rigid and semi-rigid back braces and extension exercises. A recent Mayo clinic study<sup>184</sup> showed that extension exercises reduced the kyphosis and occurrence of fractures, and that flexion exercises are contraindicated. Since muscle trigger points form in the paravertebral muscles, an injection, or TENS also can be helpful.

Preventive measures to reduce further bone loss (e.g., exercise and calcium replacement) should be implemented. While exercising, care should be taken to avoid reinjury.

### *Lumbago*

It may seem logical to ascribe most back pain to degenerative changes. However, there is no correlation between symptomatology and the degree of x-ray film changes. It is entirely unclear why some backs hurt while others, perhaps with even more degeneration, are pain free. Therefore, it is important to identify and treat the specific causes of lumbago (e.g., muscular trigger points,<sup>185</sup> paravertebral muscle spasms, and iliolumbar ligament strain<sup>186</sup>), and also to improve postural and mechanical aggravations.

### *Treatment*

Unless there is a cord compression or loss of bowel and bladder function, the treatment of acute low-back pain is "conservative," which traditionally includes rest, muscle relaxants, NSAID, and possibly analgesics.<sup>187</sup> This program is fraught with potential hazard for an elderly patient. Bed rest quickly leads to deconditioning and muscular weakening, which only aggravate the problem. Muscle relaxants are sedatives, which easily accumulate in elderly patients and lead to confusion, depression, lethargy, and weakness. Non-steroidal anti-inflammatory drugs and analgesics can cause gastric irritation, confusion, renal failure, and hyperkalemia. Hence, an elderly patient needs an emphasis on non-weight-bearing exercises during bed rest. If possible, early mobilization with the aid of a back brace or corset<sup>188</sup> should be attempted slowly. Muscle spasms should be treated by alternative methods such as heat, ice,<sup>189</sup> TENS, hydrotherapy, or massage. Traction often is advocated, but there is little evidence of its effectiveness. An elderly patient



with acute low-back pain frequently needs hospitalization to carry out these goals.

If the acute pain is due to nerve root compression, an extradural injection of a local anesthetic steroid mixture into the intervertebral foramina can be quite helpful. Follow-up data is limited, but one recent study showed a 40% improvement in a population of chronic pain patients. This result is very good for this population.<sup>107,190</sup> The general approach, if indicated by assessment, again is to examine closely for localized areas of tenderness that indicate a local pathology, such as muscular trigger points or an iliolumbar ligament strain. The iliolumbar ligament is in the sacral triangle between the iliac crest and the lumbar spine. An injection into the ligament, as it inserts along the iliac crest, may be helpful.<sup>191</sup> The trigger points can be injected or treated with TENS.

The complete chronic back program includes graded exercise to avoid exacerbating the pain, lumbar flexion exercises to increase abdominal wall musculature, body mechanics, and posture training. Some patients with osteoporosis may need a different type of exercise program that emphasizes extension exercises.<sup>184</sup>

Corsets and braces<sup>188</sup> may be helpful as well as a cane that reduces weight-bearing on the lower back. TENS, heat, and local physical therapy methods may help some patients. Medications should not be withheld if more conservative measures are unsuccessful, because this pain is not trivial and may lead to considerable disability that might be preventable.

Surgical therapy is reserved for progressive neurologic sequelae such as weakness, bowel and bladder dysfunctioning, or intractable pain. Extensive laminectomy for lumbar stenosis can be very successful. Degenerative spondylolisthesis can be surgically repaired with good relief. Newer methods of back pain control include an injection into or a denervation of the facet joint. In one recent study, 50% of all chronic pain patients improved with denervation, which is an impressive result in this population of patients.<sup>192</sup>

### Hip Pain

“Hip pain” can refer to a spectrum of locations that range from the posterior buttock and lateral hip to the groin. Since a differential diagnosis

changes according to the area involved, specific localization of the pain is essential (*see* Table 18-6). The hip joint is supplied by the obturator nerve, which projects pain into the groin and down the anteriomedial part of the thigh to the knee. A pain that is directly lateral to the hip joint is not osteoarthritis, but more likely trochanteric bursitis, myofascial disease, or radiation from a primary back pathology.

In addition to location, a history should emphasize the timing, quality, and exacerbation factors of the pain. Palpation searches for a localized tenderness, especially over the trochanteric bursa, the ischial bursa, the sciatic notch,

TABLE 18-6 Hip and Pelvis Pain

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Anterior hip or groin (perhaps with radiation to anterior knee)
Skeletal
Osteoarthritis of the hip
Aseptic necrosis of the head of the femur
Paget's disease
Soft tissue
Trigger point in abductor longus
Iliopsoas bursitis
Visceral
Renal colic
Appendicitis
Retroperitoneal abscess
Lateral hip (perhaps with radiation to lateral leg)
Soft tissue
Trochanteric bursitis
Trigger point in gluteus minimus
Non-neuropathic back pain; lumbago
Neurologic
Meralgia paresthetica
Nerve root compression, L3, L4, or L5
Posterior buttock (perhaps with radiation to the posterior leg)
Soft tissue
Ischial bursitis “wheelchair bottom”
Strain of iliolumbar and lumbosacral ligaments
Trigger point in the gluteus medius or piriformis vertebral muscles
Sacroiliac strain (?)
Vascular
Peripheral vascular disease of internal iliac artery
Neurologic
Spinal stenosis
L4, L5 nerve root compression
Systemic diseases
Paget's disease
Metastatic carcinoma
Osteomalacia
Fractures

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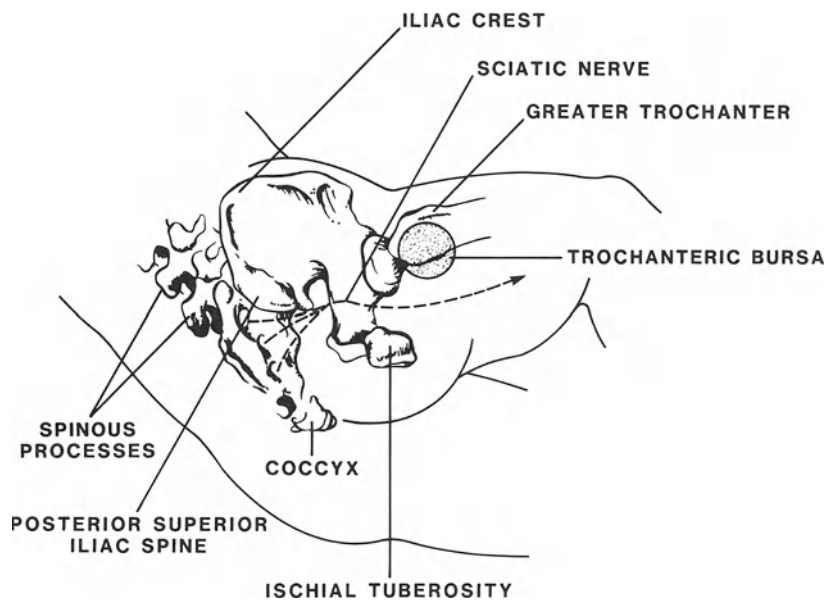


FIGURE 18-7 The low back and hip joint viewed with the patient lying on his or her side.

and the trigger points in the gluteal muscles (*see* Figure 18-7). With a patient lying on his or her side with the involved hip uppermost and the knee and hips slightly flexed, the trochanteric bursa is just lateral to the greater trochanter. The ischial bursa is over the ischial tuberosity, with the sciatic notch midway between them.

The sacroiliac joints are a controversial source of buttock pain, since they may be fused in elderly patients. With a patient supine, pressure on the anterior superior iliac spine tests the anterior ligaments. The posterior ligaments are tested with a patient on his or her side by applying downward pressure to the crest.

Elderly persons show reduced internal rotation and, perhaps, a generally reduced range of motion if degenerative joint disease is present. Muscle testing of the hip flexors, extensors, abductors, adductors, and rotators should be done for strength and reproduction of pain. The gait needs to be tested for mechanical disturbances due to the improper use of walking aids, strokes, leg length discrepancy, or poorly balanced shoes.

#### *Osteoarthritis of the Hip*

Osteoarthritis of the hip causes pain in the groin and anteriomedial aspect of the thigh to the knee. During walking, it is a deep gnawing

pain that is relieved by rest. Postexercise and night-time aching are quite common. The goals of therapy are to reduce pain, reduce weight-bearing, maintain mobility, and prevent deterioration (e.g., weakness and contractures).

Pain reduction options include aspirin, NSAIDs, tricyclic antidepressants, and mild analgesics such as codeine. Physical therapy modalities such as diathermy, heat, or hydrotherapy can be helpful. Transcutaneous electrical stimulation has been shown to help arthritic pain. A walker or cane in the hand opposite to the pain can reduce weight-bearing. Mobility is important, but excessive walking should be avoided.

Rest is important in pain reduction, but total bed rest is contraindicated. A patient needs specific non-weight-bearing exercises to maintain strength and range of motion of the hip. If either weakness or contractures develop, independent ambulation is severely threatened.

An intra-articular steroid injection is not as common in the hip because of concern about aseptic necrosis. In a severely affected individual, however, who is not a surgical candidate, injection therapy by an experienced rheumatologist should be considered.

Surgical procedures have revolutionized the therapy for osteoarthritis of the hip. Total hip

replacement is indicated for a severely limited individual to reduce pain, improve joint mobility, and restore functional capacity (see Volume I, Chapter 33).

### *Bursitis*

*Trochanteric Bursitis* There are two major bursae around the greater trochanter of the femur. The bursa of the gluteus medius is posterior and slightly superior to the greater trochanter, while the gluteus maximus bursa lies lateral to the lower edge of the trochanter. When these bursae are inflamed, there is pain in the lateral hip with radiation to the lateral thigh and perhaps extending up the buttock and distally below the knee. This syndrome is confused with sciatica. The incidence of trochanteric bursitis increases with age. Altered postural and hip joint mechanics that are associated with low-back pain, osteoarthritis of the hip, leg length discrepancies, and hemiparesis all predispose to this condition.<sup>193</sup>

A diagnosis is made by demonstrating tenderness in appropriate locations with reproduction of the symptoms. Resisted internal rotation and abduction also may reproduce the pain. Therapy consists of injecting a steroid-local anesthetic mixture into the involved bursae.<sup>194</sup> Physical therapy measures such as massage, heat, and exercise have been recommended, but their efficacy is unproven.

*Ischial Bursitis* This is an uncommon disorder that is caused by frequent sitting on hard surfaces, so that patients who are confined to wheelchairs are predisposed to this problem. An examination reveals tenderness that is localized to the ischial tuberosity, which is aggravated by sitting and relieved by standing up. Treatment is a local steroid injection. If the condition becomes persistent, excision can be considered.

*Iliopsoas Bursitis* This bursa lies between the iliopsoas muscle and hip joint, posteriorly. Bursitis usually is caused by a sterile, non-specific inflammation, but it can be a site of pyogenic infections that form an iliopsoas abscess. Pain is worst when the hip is flexed and abduction is attempted. If a patient is acutely ill, an intra-abdominal process or an iliopsoas abscess needs to be ruled out.

*Meralgia Paresthetica* This syndrome arises from the entrapment of the lateral femoral cutaneous nerve at the anterior iliac spine, where the nerve passes through the inguinal ligament. Symptoms include intermittent paresthesias, or hyperesthesia over the lateral hip region that extends into the lateral thigh. Constriction from a corset, belt, seat belt, obesity, or trauma are common precipitating problems. Treatment includes removing aggravating causes and injecting anesthetic-corticosteroid agents into the site of the nerve exit at the inguinal ligament.

### *Myofascial Disease*

Since the hip is the major weight-bearing joint, the surrounding musculature experiences a lot of stress. Muscular trigger points are quite common and can mimic osteoarthritis of the hip. Since the osteoarthritis can precipitate trigger points, it is important to examine a painful hip specifically for gluteal trigger points.<sup>185</sup> Appropriate therapy can reduce what was considered to be pain from the osteoarthritis.

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# Surgical Concerns

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## Evaluation of Surgical Risk

The decision to perform a surgical procedure on an elderly patient often is a difficult and complex process that demands an extensive knowledge of a patient's physiologic and psychological status. In most settings, preoperative care will fall largely to the province of a family physician, internist, or subspecialist, whereas surgery and postoperative care will be in the domain of a surgeon and anesthesiologist. It is important for primary care physicians to actively participate as consultants, both before surgery and during the postoperative period.

Although it commonly is believed by surgeons and non-surgeons alike that the prohibitions against surgery in elderly persons have been rapidly dwindling only in the last decade, Rankin and Johnson<sup>1</sup> noted as long ago as the 1930s that there was a steady increase in the operability of patients over 70 years of age. Several factors have increased the likelihood of a good outcome from a surgical procedure. Perhaps the most obvious factor is demography; the burgeoning numbers of persons over 65 years of age add to the total population from which surgical patients are drawn. The absolute numbers of "well elderly" persons for whom surgical risk is small has grown proportionately. Advances in surgical and anesthetic techniques offer increased safety for high-risk patients. The most important dilemma, however, is age itself. While the concept is no longer accepted that a specific number of years precludes a given patient from being considered for a procedure, age serves as a rough index for an in-

creased incidence rate of concurrent chronic pathologies. Thus, the incidence of chronic obstructive lung disease (COPD) is greater in the 70–80-year-old age group than it is in the 40–50-year-old group. Even in the absence of an overt pathology, an elderly patient is distinguished from a younger patient by a diminished physiologic reserve.<sup>2</sup> Although it is difficult to quantify, this becomes a serious consideration when considering a patient's ability to cope with the stress of surgery. An additional consideration is medicolegal. Patients and their families often are concerned about increased risks with advancing age, and some authorities feel this should be considered a part of informed consent.

The need for accurate risk appraisal for surgical procedures in the elderly population is clear. Surgical risk is the probability of morbidity and mortality that results from preoperative preparation, anesthesia, surgery, and postoperative convalescence.<sup>3</sup> Major limitations compromise the comparisons of risk, either among specific surgical procedures or across age bands. In a review of 108 articles that reported over 50,000 surgical procedures in elderly patients, the overall mean mortality rate was 13.6%; it used the number of patients as the denominator in the calculations.<sup>4</sup> Several methodologic problems were noted. The calculation of the mortality rate is different if the denominator is the number of procedures rather than the number of patients. Authors did not distinguish between emergency and elective surgery. Only in rare instances was a comparison group of mortality rates included for youn-

ger patients who underwent comparable surgery in the same institution by the same team. Postoperative follow-up not only varied among the studies, but they often did so within a single study. More than 50% of the studies did not report complication rates nor causes of death. Thus, this traditional approach does not reveal whether or not there is a greater relative risk for surgery with advancing age.

The Baltimore Anesthesia Study Committee<sup>5</sup> demonstrated a relationship between age and sex and the risk of anesthesia-related mortality, but it does not enable one to deduce whether or not age is an etiologic factor. The mortality curve is u-shaped; the fatality risk is somewhat elevated in children, nearly flat in young and middle-aged adults, and then climbs sharply in the older age groups. However, the surgical procedures performed on young and old patients varied greatly, and the procedure—rather than the age of the patient—may be the significant factor.<sup>6</sup>

The careful preoperative evaluation of an elderly patient initially must obtain basic data, such as mental status (*see* Vol I, Chap. 35), functional capacity (*see* Volume II, Chapter 10), sensory appraisal, classifications of anesthetic risk, and a cardiac risk index (*see* Table 19-1). Mental status, functional assessment, and sensory appraisal provide invaluable information in formulating a successful postoperative recuperative strategy. An accurate sensory appraisal and mental status evaluation offer a major opportunity for a physician to improve care for surgical elderly patients. A deaf geriatric patient will not hear instructions to request

narcotics for pain; a demented geriatric patient will not remember instructions to request pain medication. In addition to a review of auditory and visual acuity, it is important to ascertain the presence of any deficits in sensation. For example, because the incidence rate of peripheral neuropathy is increased in old age, the likelihood of encountering a patient with altered pain sensation is increased. If pain in an extremity plays a role in postoperative surveillance (*i.e.*, to alert a physician to ischemia, infections, and so on), the lack of pain sensation must be taken into account.

Anesthetic risk in the geriatric surgical patient has commonly been approached by classification by the Dripps-American Society of Anesthesiologists Physical Status Scale.<sup>7,8</sup> The scale shown in Table 19-2 has been used in patients over 80 years of age with a good correlation of results with predicted risk.<sup>9</sup> Several, normal age-dependent alternations in homeostasis play an important role in determining a safe anesthetic.<sup>10,11</sup> Alterations in lean body mass and hepatic and renal functions bear directly on the metabolism of anesthetic agents.<sup>12</sup> Temperature responsiveness is dulled, which results in a diminished ability to respond to physiologic stress of heat or cold. The presence of a cervical or temporomandibular degenerative joint disease may hamper intubation. A loss of muscle bulk can lead to tissue necrosis over bony prominences that are left unprotected or poorly positioned on the operating table during lengthy procedures. Muscle atrophy diminishes the receptors for the usual doses of muscle relaxant.

Medications frequently have the potential of interacting with anesthetic agents. For example, diazepam reduces the minimum alveolar concentrations for halothane by 35%. Digitalis

TABLE 19-1 Evaluation of the Preoperative Elderly Patient

Baseline data
Mental status
Estimation of functional capacity
Sensory appraisal
Dripps-American Surgical Society Classification
Cardiac risk index
Optional investigations
Pulmonary function tests
Stress test
Holter monitor
Cardiac nuclear imaging
Invasive investigations
Swan-Ganz
Cardiac angiography
Carotid angiography

TABLE 19-2 Anesthetic Risk

Class 1	A normally healthy individual.
Class 2	A patient with a mild systemic disease.
Class 3	A patient with a severe systemic disease that is not incapacitating.
Class 4	A patient with an incapacitating systemic disease that is a constant threat to life.
Class 5	A moribund patient who is not expected to survive 24 hours with or without surgery.
Class 6	Added to any class patient with emergency surgery.

toxicity is enhanced by suxamethonium. Large doses of L-Dopa cause vasoconstriction and hypertension when combined with anesthetic agents. A comprehensive, meticulous medication history is of the utmost importance.<sup>13</sup>

An evaluation of physiologic status preoperatively has been shown to estimate the operative risk.<sup>14</sup> The clinical evaluation considered both primary and ancillary diagnoses, an electrocardiogram (ECG), and an estimation of physical status based on the Dripps-American Surgical Association classification. Surgical factors that were evaluated included the type of anesthetic agent, transanesthesia morbidity, duration of anesthesia and procedure, and type

of procedure. The study examined physiologic factors for circulatory and respiratory status; in general, the parameters were consistent with age-related changes. However, the ventricular function index (>10) and adequate alveolar-arterial oxygen gradients (<35 mm Hg) appear to be indicative of a better tolerance of surgical stress in sick elderly patients.

A multifactorial index of cardiac risk has established that an age greater than 70 years was one of several determinants in predicting the development of postoperative life-threatening or fatal cardiac complications in non-cardiac surgery (*see* Table 19-3).<sup>15,16</sup> An estimation of cardiac risk is intended to supplement the eval-

TABLE 19-3 Determination of the Cardiac Risk Index

Criteria	Multivariate Discriminant-Function Coefficient	"Points"
<b>History</b>		
Age >70 years	0.191	5
MI* in previous 6 mo	0.384	10
<b>Physical examination:</b>		
S-3 gallop or JVD	0.451	11
Important VAS	0.119	3
<b>Electrocardiogram</b>		
Rhythm other than sinus or PACs on last preoperative ECG	0.283	7
>5 PVCs/min documented at any time before operation	0.178	7
<b>General status</b>		
PO <sub>2</sub> <60 or PCO <sub>2</sub> >mm Hg, K <3.0 or HCO <sub>3</sub> <20 mEq/L BUN >50 or CR >3.0 mg/dl, abnormal SGOT, signs of chronic liver disease or patient bedridden for non-cardiac causes	0.132	3
<b>Operation</b>		
Intraperitoneal, intrathoracic or aortic operation	0.123	3
Emergency operation	0.167	4
<b>Total Possible</b>		<b>53 Points</b>

Class	Point	No or Only Minor Complication (%)	Life-Threatening Complication† (%)	Cardiac Deaths (%)
I	0-5	99	0.7	0.2
II	6-12	93	5	2
III	13-25	86	11	2
IV	26	22	22	56

\* MI denotes myocardial infarction; JVD, jugular-vein distention; VAS, valvular aortic stenosis; PACs premature atrial contractions; ECG, electrocardiogram; PVCs, premature ventricular contractions; PO<sub>2</sub>, partial pressure of oxygen; PCO<sub>2</sub>, partial pressure of carbon dioxide; K, potassium; HCO<sub>3</sub>, bicarbonate; BUN, blood urea nitrogen; Cr, creatinine; and SGOT, serum glutamic oxalacetic transaminase.

† Documented intraoperative or postoperative myocardial infarction, pulmonary edema, or ventricular tachycardia without progression to cardiac death.

SOURCE: Adapted from Goldman, et al (*see* references 15, 16), reprinted by permission of *N Engl J Med*.

uation of surgical and anesthetic risk. Computations of the index requires only a bedside evaluation, an ECG, and routine laboratory investigations. Although not specifically addressing variations in risk among groups of elderly patients, determination of the cardiac risk index is the most reliable and readily obtainable estimation of postoperative mortality rates. Any older patient who is considered for an elective surgical procedure would benefit from a calculation of the cardiac risk index. Results indicating that a patient is at high risk suggest the need for further preoperative evaluation.

In addition to this basic screening for all elderly patients, some authorities recommend including a routine pulmonary function test for all patients over 65<sup>17</sup> or 70<sup>18</sup> years of age. Indeed, within hours of surgical procedures, consistent changes in lung functioning can be demonstrated in all patients. These alterations are more profound in cases of thoracic or upper abdominal surgery. This impairment coupled with a decreasing baseline pulmonary status with advancing age,<sup>19</sup> (*see* Volume I, Chapter 10), supports those who advocate routine pulmonary testing. Preoperative screening of lung functioning demonstrated an impairment in elderly patients without a prior history or physical findings that were suggestive of pulmonary disease.<sup>20</sup> Pre-existing lung disease ranks as one of the most serious risk factors, and patients with chronic obstructive lung disease have at least a 4-fold increase in the incidence of postoperative complications.

Less clear-cut is the need for additional tests of pulmonary functions in this population, unless a lobectomy or pneumonectomy are being considered.<sup>21,22</sup> Very high-risk patients are readily identified by multiple spirometric functions (VC <1.85, FEV 1 <1.2 liters or FEV 1% <35%, maximal voluntary ventilation <28 liters/minute). However, patients at moderate risk often are better detected by employing a battery of studies.

Invasive, hemodynamic preoperative assessment<sup>23</sup> is indicated if an older patient is demonstrating high-risk parameters at bedside, is determined to be a high-risk patient on the basis of anesthesiologic assessment of physical status, or is being scheduled for a major cardiothoracic procedure. A physician is well-advised to carefully plan a logical progression of investigations

with particular attention to the timing of these studies. The tests should be scheduled so that a frail patient is not fatigued or made catabolic by fluid or nutritional restrictions that are required for many invasive procedures. Conversely, it is necessary to proceed with some deliberateness, so that an older patient does not dwindle while hospitalized. Lengthy hospitalization can lead to poor nutritional status and a severely decreased activity as the result of immobility and bed rest.

Surgical risk is greater for an emergency procedure than for an elective one.<sup>24</sup> However, the mortality rate from emergency surgery also is a function of the type of procedure. For major emergency procedures in patients over 70 years of age, the mortality rate may be as great as 50%; but, the mortality rate without surgery is 100%.<sup>25</sup> Good preoperative care to maximize the health status of a patient before elective surgery reduces the risk of complications.

## Preoperative Maneuvers

### Improvement of Pulmonary Function

The detection of pulmonary abnormalities before an elective procedure allows an intervention that may improve the postoperative course. Most important is discontinuing cigarette smoking. Many clinicians believe that a smoking habit in a 70 or 80-year-old patient is irremediable. This belief fails to take into account the improved quality of life that an older person may experience without smoking. This is particularly true if a patient has limited exertional capability or has complained of anorexia that is based solely on impaired taste sensation, and also if a physician carefully points out that the benefits (improved stamina and an enhanced palate) are obvious after only several months. Smoking also may be the major symptom of loneliness or depression; its recognition and treatment may facilitate a patient's withdrawal from tobacco.

Other preoperative maneuvers that are designed to enhance pulmonary function include bronchodilators, chest physiotherapy, antibiotics, and deep breathing/cough instruction. A history of daily activities may determine that a patient is entirely sedentary. This can be modi-

fied by an exercise regimen that is adapted to a patient's baseline capacity (*see* Volume II, Chapter 13).

While weight loss is controversial in very elderly persons, optimal nutritional status is clearly important. Clinical dietitians can offer expertise regarding specific dietary needs for maintaining adequate protein intake for postoperative wound healing, and also for monitoring a patient's progress (*see* Volume II, Chapter 12). Frequent visits encourage diet compliance and hasten meeting the preoperative goal.

### Antimicrobial Prophylaxis

Although perioperative antibiotic regimens lower the incidence rate of infection following some surgical procedures, routine antimicrobial prophylaxis also can create some degree of hazard for a patient. The guiding principle should be to select antibiotics only against likely pathogens for a given operation (*see* Table 19-4). For example, antistaphylococcal drugs have been shown to decrease the incidence of postoperative wound infections for both hip replacement<sup>26</sup> and internal fixation of a fractured femur.<sup>27</sup> In some instances, the fact that a patient is old is, in itself, an indication for antibiotics, as in biliary tract surgery.<sup>28</sup> Obviously, surgery on an infected individual demands appropriate antibiotics for treatment rather than for prophylaxis.

Any antibiotic that requires renal clearance must have its dosage adjusted appropriately (*see* Volume I, Chapter 37). In addition to the widely recognized adverse effects of antibiotics, it should be noted that certain antibiotics also interfere with neuromuscular transmission. Clindamycin, colistin, kanamycin, lincomycin, neomycin, streptomycin, and tobramycin all have been associated with postoperative respiratory depression. In addition, certain antibiotics (colistin, kanamycin, streptomycin, tetracycline, gentamycin, neomycin, and polymycin B) have been associated with drug-induced myasthenic syndromes or exacerbations of myasthenia gravis.

Antibiotic prophylaxis to prevent infectious endocarditis does not change with age. If a valvular heart disease is present, the prophylaxis should be undertaken before surgery in the same manner as for a younger adult.

## Postoperative Care of a Surgical Elderly Patient

### Medical Problems

An elderly patient differs from a younger patient who is undergoing surgery in the increased likelihood of developing complications subsequent to the procedure. This phenomenon is the result of both the limited reserve capacity with which elderly patients function and the probability that a patient has other multiple, chronic disease processes, in addition to his or her surgical illness. However, if the physicians caring for a patient in the postoperative period are vigilant, many postoperative complications can be detected at a point at which they are reversible.

The greatest difficulty in an early diagnosis of postoperative complications in older patients is the capability of appreciating that a change in a patient's status has, in fact, taken place. This difficulty is heightened if different physicians assume responsibility for the preoperative and postoperative periods. Without continuity throughout the entire surgical period, subtle changes in a patient's condition may not be appreciated. Financial reimbursement that disallows payment for more than one physician treating a patient for a given problem, thus, complicates this issue. The absence of a patient's internist during the postoperative period may result in a patient's mild lethargy being attributed to sedation, when (in fact) there is an early pneumonia that becomes florid by the time a patient mounts a febrile response. Early pneumonia is readily treatable in elderly persons; florid pneumonia is life-threatening and, at best, will greatly increase the number of hospital days needed for treatment and rehabilitation.

### Postoperative Pain Control for a Geriatric Patient

The alleviation of suffering in the postoperative period is an attainable ideal for all geriatric patients who are undergoing surgery, if a few basic principles are considered. First, "routine" postoperative pain orders must be avoided when ordering analgesia for patients over 65 years of age. A routine dose regimen often

TABLE 19-4 Prevention of Wound Infections and Sepsis in Surgical Patients

Nature of Operation	Likely Pathogens	Recommended Drugs	Adult Dosage Before Surgery*
Clean Cardiovascular Prosthetic valve	Staphylococcus aureus  Staphylococcus epidermis, Diphtheroids, enteric gram- negative bacilli, fungi	A penicillinase-resistant penicil- lin† or A cephalosporin‡ or Vancomycin A cephalosporin‡	1 g IV  1 g IM/IV
Arterial reconstructive sur- gery involving a prosthesis or a groin incision Orthopedic	Staphylococcus aureus Enteric gram-negative bacilli		1 g IV 1 g IM/IV
Total hip replacement, inter- nal fixation of proximal femoral fracture	Staphylococcus aureus Staphylococcus epidermis	A penicillinase-resistant penicil- lin† or A cephalosporin‡ or Vancomycin	1 g IV  1 g IM/IV
Clean-Contaminated Head and neck surgery enter- ing oral cavity or pharynx	Staphylococcus aureus, strepto- cocci, Klebsiella oral anaer- obes Enteric gram-negative bacilli, gram-positive cocci Enteric gram-negative bacilli, Group D streptococci Clostridia	A cephalosporin or Aqueous penicillin G (High-risk patients only) A cephalosporin (High-risk patients only)	1 g IV 1 g IM/IV  1 million units IV
Gastrointestinal Biliary tract		A cephalosporin	1 g IM/IV 1 g IM/IV

Colorectal	Enteric gram-negative anaerobic bacteria, Group D streptococci	(Oral) Neomycin plus erythromycin base	1 g of each at 1 PM, 2 PM, and 11 PM the day before the operation 1 g IV
		Cefoxitin (Parenteral) or Clindamycin plus gentamicin or tobramycin A cephalosporin	600 mg IV 1.5 mg/kg IM/IV 1 g IM/IV
Vaginal or abdominal	Enteric gram-negative bacilli, anaerobic bacteria, Group B and D streptococci		
Dirty Ruptured viscus	Enteric gram-negative bacilli, anaerobic bacteria, Group D streptococci	Clindamycin plus gentamicin or tobramycin or Cefoxitin with or without gentamicin or tobramycin A penicillinase-resistant penicillin <sup>†</sup> or A cephalosporin <sup>‡</sup>	600 mg IV Q6H  1 g Q4-8H IV 1.5 mg/kg Q8H IM/IV 1 Q4H IV  1 g Q4-8H IM/iV
Traumatic wound	Staphylococcus aureus Group A streptococci Clostridia		

\* Parenteral prophylactic antimicrobials for clean and clean-contaminated surgery can be given as a single dose just before the operation. For prolonged operations, additional intraoperative doses should be given Q4-6H for the duration of the procedure. For dirty, surgery therapy usually should be continued for 5-10 days. IM = intramuscularly, IV = intravenously.

<sup>†</sup> Methicillin (Celbenin, Staphcillin), nafcillin (Nafcil, Unipen), or oxacillin (Bactocill, Prostaphlin).

<sup>‡</sup> Cefazolin (Ancef, Kefzol), cephalothin (Keflin), or cephapirin (Cefadyl).

SOURCE: Antimicrobial prophylaxis for surgery. *Med Letter* 23:80, 1981, used by permission.



results in a patient who is lethargic, somnolent, or confused. Conversely, age does not obliterate nerve fibers that carry pain sensation (*see* Volume II, Chapter 18); therefore, the treatment of pain is mandatory, as it should be in any age group.

Information that is obtained preoperatively offers helpful guidelines in determining an appropriate regimen for obtaining comfort in the postoperative period. A patient's cognitive level is of great importance. Not only must a surgeon know whether or not a patient will be able to remember instructions to ask for medication if in pain, but a knowledge of his or her mental status will be of great help in monitoring excessive narcotics if a patient's postoperative mental status deteriorates. It is also useful to know whether or not a patient receives chronic medication (e.g., aspirin, acetaminophen with codeine, and so on), and whether or not it is effective in relieving pain.

In some respects, an elderly patient responds differently than a younger patient to analgesia in the postoperative period. In a study that used standard doses of morphine and pentazocine (10 mg and 20 mg, respectively), there was increased relief with increasing age. There are correlations of pain relief with several other factors (e.g., height, weight, body surface area, surgical site, and severity of initial pain), but age has been the most consistent, important variable in determining the degree of pain relief. The influence of age probably is not simply due to alterations in pharmacokinetics, because there was no greater number of side effects in the older population versus the younger population. For example, sedation correlated with dosage, but not with age.<sup>29</sup>

The approach to pain control in a terminally ill patient also offers useful guidelines for managing postoperative pain in elderly patients (*see* Volume II, Chapter 23). Once an adequate amount of analgesia has been determined, regular dosing intervals rather than dosage on an "as needed" basis allow for a somewhat lower overall dose. Patients are noted to be less sedated and more alert when using this treatment strategy. The implications for surgical geriatric patients are obvious; regular dosing can be helpful in decreasing the incidence rate of confusion and additionally can allow the initiation

of rehabilitation earlier in the postoperative course.

Untoward side effects of analgesia deserve careful monitoring. Confusion requires a reassessment of a patient's general status, as well as heralding pain in itself. When attempting to encourage an early ambulation of an older surgical patient, side effects may ensue secondarily to pain control drugs. Narcotic analgesics may cause hypotension. Narcotics frequently cause nausea and vomiting, which often are treated with antiemetics. Many of the antiemetics have potent anticholinergic properties that may additionally exacerbate postural hypotension and sedation.

Constipation may interfere with attempts to hasten postoperative convalescence. In addition to an altered gastrointestinal motility that results from surgery and anesthesia, analgesia and bed rest are significant etiologic factors. Fluid status plays an important role. The psychological implications to a generation that generally is convinced of the toxic portents of constipation also must be considered. Careful attention to a bowel program is indicated.

### Postoperative Confusion

The fundamental key to a diagnosis of postoperative confusion is knowledge of a patient's preoperative mental status and documentation of the change. Without this crucial information, it is impossible to adequately assess postoperative confusion. Acute confusion is a treatable and usually reversible phenomenon that must be distinguished from long-standing dementia (*see* Volume I, Chapter 4, 35). If an emergency surgical procedure is required on an unconscious patient, a physician should contact family or friends to ascertain a patient's preoperative cognitive level. Additional attention must be paid to a prior history of mental status alteration. Not only is it helpful to document prior reversible confusional episodes and their etiologies, it is important to record any previous psychiatric history, because the stress of surgery may exacerbate symptoms or cause a recurrence. This is even reported in a routine pacemaker insertion.<sup>30</sup>

Postoperative confusion is a common phenomenon among elderly patients. Libow in-

cludes postsurgical dementia as part of the differential of "acute possibly reversible mental changes in the elderly."<sup>31</sup> Of all patients over 60 years of age undergoing surgical repair of a fractured femur, 64% demonstrated some evidence of confusion during hospitalization.<sup>32</sup> The content of the confusion may take different forms, varying from disorientation and lethargy to frank anxiety, paranoia, aggressive behavior, visual hallucinations, or a profound limbo-like state from which it is difficult for a patient to respond. The confusion frequently occurs only at night. Family members may detect a subtle deterioration that is not noticeable to hospital personnel.

The approach for a confused elderly patient during the postoperative period differs from the approach for acutely confused older persons in the community only with respect to the priorities of the differential diagnoses. In the postoperative setting, surgically related etiologies should be considered first. (*see* Table 19-5).

When a diagnosis of acute postoperative confusion is made, a physician should undertake a rapid review of environmental factors that are liable to be implicated. Is a patient in an intensive care unit? The technologic environment can be frightening and confusing. Repeated explanations may be necessary and they should include basic information, as well as straightforward explanations of the meaning of sophisticated apparatus.

Restraints are to be avoided unless absolutely mandatory for a patient's safety. Side rails often are misinterpreted by elderly patients, and grave injuries ensue when patients attempt to climb over them. The nurse-call button's function needs repeated explanation and must be rapidly accessible.

Sensory deprivation can be an easily remedied factor. Patients readily become separated from their appliances of survival (e.g., eyeglasses, hearing aids, walkers, or dentures) as they are transported from the ward to the operating room and recovery room. Furthermore, for patients who are undergoing surgical procedures that will diminish sensory input (e.g., cataract extraction), behavioral and cognitive cues from the nursing staff have been shown to expedite recovery.<sup>33,34</sup>

A review of both routine and PRN drugs in

TABLE 19-5 Common Causes of Postoperative Confusion in Elderly Persons

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Environmental
Intensive care unit
Intubation
Restraints
Isolation
Traction devices
Sensory deprivation
Decreased auditory acuity
Marginal visual acuity
Bandages and dressings
Untoward drug reactions
Anesthetic agents
Narcotics
Hypnotics
Antiemetics
Tranquilizers
Vascular
Myocardial infarction
Stroke
Pulmonary embolism
Hemorrhage
Shock
Congestive heart failure
Metabolic
Hypoxia
Acid-base disturbance
Hyponatremia
Hyperosmolar coma
Acute renal failure
Infection
Sepsis
Pneumonia
Urinary tract infection
Wound infection
Meningitis

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relationship to the onset of confusion should be undertaken. Large doses of narcotics and the simultaneous administration of antiemetics are notorious offenders. However, all drugs and (secondarily) drug interactions are suspect.

Following a rapid review of environmental, sensory, and pharmacologic possibilities, a thorough physical examination and laboratory investigation should, of course, be done. Treatment is directed at the rapid recognition and specific treatment of the underlying causes for a confused patient. Even in instances where environmental and sensory alterations are not etiologic factors, every effort must be made to enhance alertness. All personnel working with a

confused patient should be made aware of the altered mental status and be alerted to institute persistent orientation cues.

## Carcinoma of the Breast

Breast cancer is a disease that frequently occurs in old age, and in which major aspects of treatment involve surgical decisions. The overview discussion that follows is included here for that reason and to focus some of the general surgical issues on a specific clinical problem.

As with many other tumors, cancer of the breast increases in incidence with age. It occurs in approximately 5% of all females. Aside from those women who are younger than 30 years of age with positive nodes and those who are pregnant or lactating, breast tumors may be more aggressive in elderly women. Certainly, they tend to present at a more advanced stage.<sup>35</sup> This implies a benefit for an elderly woman from a breast self-examination and mammogram.

Breast cancer usually presents as a mass or with a nipple discharge, as the eczematoid appearance of the nipple of Paget's disease. About 15% of all patients with nipple discharge have carcinoma of the breast. Cytologic studies of smears of this discharge are not sufficient to rule out cancer, and there is serious doubt that they are worth doing. In Paget's disease of the nipple, the only evidence of a carcinoma usually is the eczematoid skin change, so that any eczematoid lesion of the nipple requires a biopsy procedure.

An examination of the breast should be done twice, with a patient both erect and supine. The size and character of the lesion is noted, as well as fixation, either deeply or to the skin. Skin retraction (frequently most obvious with a patient sitting), nipple retraction, skin edema, and deformity of the contour of the breast as compared to the other breast (again, best seen with a patient erect) are sought. The supraclavicular and axillary nodal areas are carefully examined. These findings are recorded as accurately as possible, since staging is based on physical findings. Although there has been controversy about mammography, its regular use in elderly women is probably easier to justify because of the greater risk of positive findings. Routine, periodic screening should employ both

a careful physical examination and radiologic examination. In the Capital Health Insurance Plan Study,<sup>36</sup> a high percentage of cancers found by one modality alone had no axillary nodes that were positive for a tumor. Of those study subjects who were found to have tumors on mammograms alone, 79% had negative axillae; 75% of those with tumors only on physical examination had no axillary nodes, but those with both examinations that were positive for a tumor, over 50% had positive nodes.

The clinical staging of breast cancer is based on physical findings. A mass that is 2 cm or smaller without an evident node metastasis is stage I ( $T_1N_1M_0$ ). A mass that is less than 2 cm, but with evidence of nodal involvement or a mass 2–5 cm with or without nodes, is stage II ( $T_1N_1M_0$ ,  $T_2N_0M_0$ , or  $T_2N_1M_0$ ). Lesions greater than 5 cm or those that have skin or chest wall extensions are stage III.<sup>37</sup>

A tissue diagnosis from a biopsy specimen is mandatory. It has been demonstrated that several days delay between a biopsy procedure and surgical treatment does not influence survival.<sup>38</sup> Some means of making a tissue diagnosis, atraumatically and without general anesthesia, allows time for preparation of often fragile patients. Needle aspiration often suffices if a pathologist is experienced with this technique. At times a Tru cut® needle biopsy procedure may be used. Either of these may be done as an office procedure. A thin-needle aspiration cytology procedure is gaining in popularity; in some settings, this appears to be superior to the Tru cut® technique.<sup>39</sup>

Both fine-needle aspiration and Tru cut® biopsy procedures have significant numbers of false-negative results. False-positive results are rare.<sup>40,41</sup> It follows that if a definitive diagnosis is not made by these means, an open biopsy procedure is mandatory.

An open biopsy as an outpatient procedure using local anesthesia is effective, avoids some psychological trauma, and reduces the cost compared with the traditional inpatient biopsy procedure using general anesthesia with a frozen-section diagnosis and immediate mastectomy.<sup>42</sup>

After establishing the tissue diagnosis, discussion with a patient of the therapeutic implications should be undertaken. Time is available for preoperative attention to other medical

problems, so that a woman is in the best possible condition for the procedure. In the Johns Hopkins series, only 1.8% of all stage I and stage II carcinomas of the breast had positive bone scans, so a routine preoperative bone scan was not cost-effective. However, an elevated alkaline phosphatase level in the presence of normal bilirubin and serum glutamic oxalacetic transaminase (SGOT) indicates the need for bone and liver scans (*see* Figure 19-1). A liver scan is not indicated in otherwise operable breast cancers in the absence of an elevated alkaline phosphatase level. In stage III breast cancer, both liver and bone scans are in order (*see* Figure 19-2). Chest x-ray films and serum alkaline phosphatase testing should be routine in all preoperative evaluations for carcinoma of the breast.<sup>37</sup>

An occasional patient may prefer the traditional approach with general anesthesia, frozen-section diagnosis, and immediate definitive surgery. This is an acceptable alternative and one that is preferred by some authorities.

The surgical treatment of carcinoma of the

breast is in a state of change. For many years, a radical mastectomy (which involves removal of the pectoral muscles) was standard treatment. It still has adherents and may be a better choice in cases where the operative risk is greater, since it can be done with more dispatch than the modified radical procedure. The latter currently is the most widely used procedure in the United States. It implies a total mastectomy (complete removal of all breast tissue) with an in-continuity dissection of the axillary contents and preservation of the pectoralis major muscle. Other procedures that are used include a simple mastectomy with or without radiation and a partial mastectomy with or without axillary dissection.<sup>43</sup> A local excision with primary radiation treatment has been used with good results.<sup>44</sup> The choice of procedure by the surgeon is dictated by his or her own experience, as well as the status of an individual patient.

Nodal metastases are as common in elderly patients as they are in younger patients. Therefore, some authors recommend complete axillary dissection with a radical mastectomy in pa-

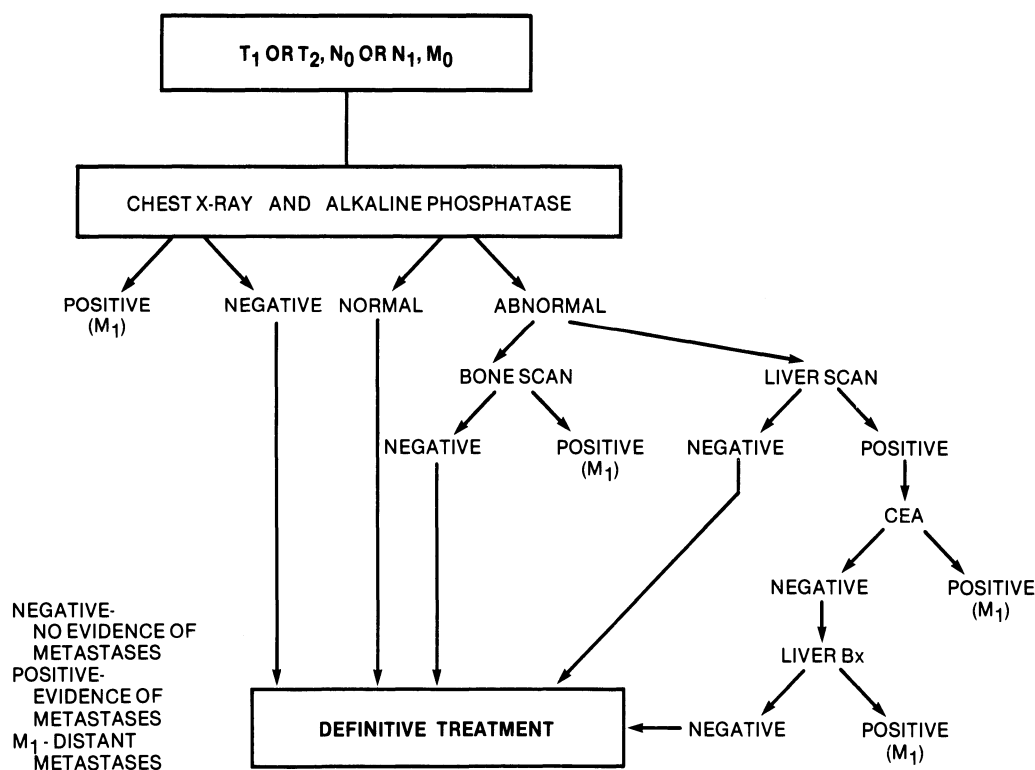


FIGURE 19-1 Clinical assessment of patients with stages I and II breast cancer. (Adapted from Baker RR: Preoperative assessment of the patient with breast cancer. *Surg Clin North Am* 58:689, 1978, used by permission.)

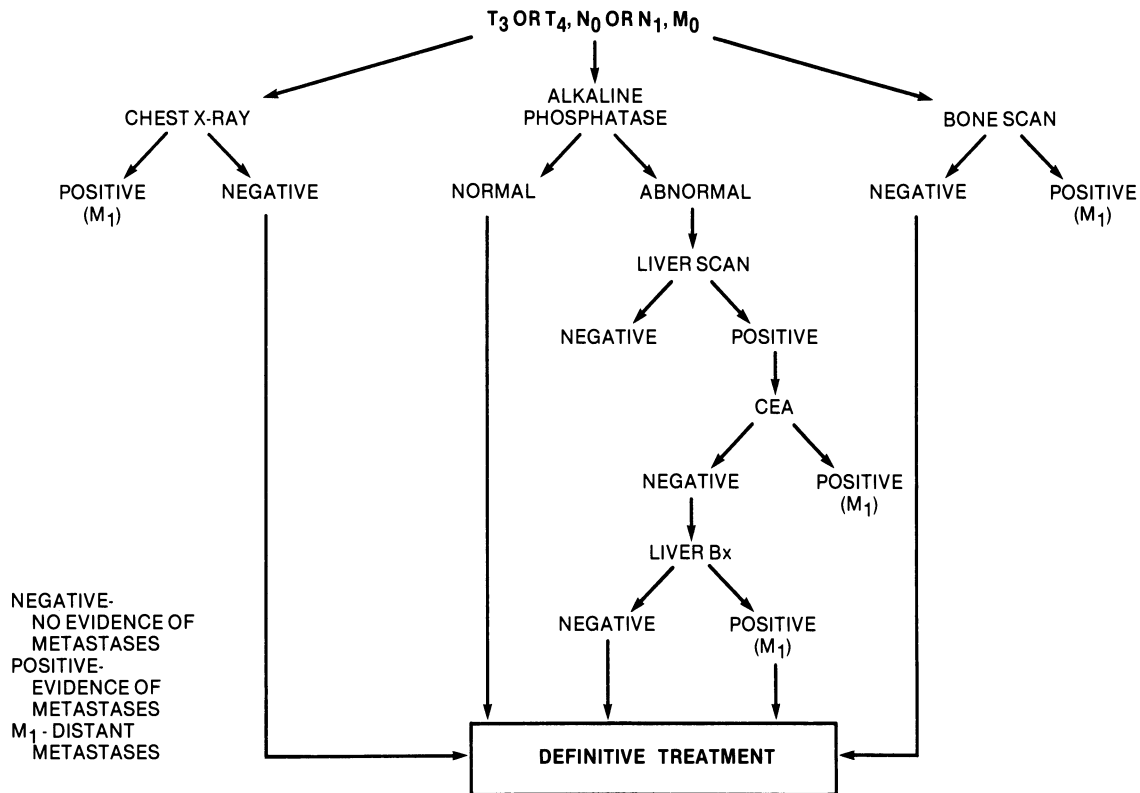


FIGURE 19-2 Clinical assessment of patients with stage III breast cancer. (Adapted from Baker RR: Preoperative assessment of the patient with breast cancer. *Surg Clin North Am* 58:689, 1978, used by permission.)

tients younger than 80 years of age who are in good health, a total (simple) mastectomy with axillary sampling in patients under 80 years of age who are poor risks or who have minimal lesions and local procedures, or a total mastectomy in those women over 80 years of age. The risk for surgery is low and essentially is the risk for anesthesia. In a series from New York University of patients 70 years of age or older, there was 1 death in 82 patients.<sup>45</sup> The general rule is to perform lesser procedures on patients with significant risk or with a life expectancy that is less than 8 years.

The estrogen receptor status is an important factor in the management of breast cancer. There are detectable receptors in about 67% of all primary breast cancers. Receptor-negative tumors are unlikely to respond to hormone manipulation and have a poorer prognosis.<sup>46</sup>

Adjuvant chemotherapy prolongs the disease-free interval in both postmenopausal and premenopausal women, if they receive 75% of their calculated dosage. There are many trials

that use a variety of chemotherapeutic drugs, as well as hormonal agents (e.g., the antiestrogen drug, Tamoxifen). Some form of adjuvant therapy should be part of the treatment for a stage II disease in the absence of a contraindication.<sup>47</sup> There is no evidence that age per se is a reason to lower chemotherapy dosage, although the presence of a coexisting disease may be.<sup>48</sup> The treatment protocol should be coordinated by an oncologist in this rapidly evolving area. Many oncologists do not like to subject fragile elderly women with a limited life expectancy to any toxic chemotherapy unless there is good reason to expect a substantial benefit.

The treatment of a recurrent or disseminated tumor may be chemotherapy, hormone manipulation, radiotherapy, or occasionally surgery.

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# Rehabilitation Medicine

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Rehabilitation is the process of helping an individual with a significant disability to achieve his or her highest potential from physical, psychological, social, and vocational/economic standpoints. Since its earliest years, rehabilitation medicine has relied on interdisciplinary team management for patients with complicated or extensive disabilities. Meaningful rehabilitation requires active efforts of the patient—instructed, guided, and supported by the team. Rehabilitation is, in many ways, an educational process; if it is to be effective, a patient must be physically and mentally capable of learning and must desire a rehabilitation goal sufficiently to work diligently at achieving it.

Significant disabilities that require the efforts of rehabilitation workers are disproportionately common in older people. This is due to two related factors. First, many disabling conditions are age-related: 1) The largest number of amputations occur in the 7th decade<sup>1</sup>; 2) Almost 75% of all strokes occur after the age of 65<sup>2</sup>; 3) Degenerative joint diseases show increasing frequency with aging; 4) Hip fractures are most common between 65–75 years of age; 5) Visual impairment is particularly common in elderly persons due to cataracts, macular degeneration, and glaucoma; and 6) Similar relationships exist for cardiac and pulmonary disabilities, those related to malignancy, degenerative changes of the central nervous system, hearing loss, and many others. The second factor is the relatively high survival rates that now exist for specific disabling conditions compared to those of a few decades ago: head injuries, spinal cord injuries, diabetes, and cardiopulmonary diseases are common examples.

## Evaluation of a Disabled Patient

Evaluation of a patient for rehabilitation purposes is a complex process that must include not only an assessment of the presenting disability and its effect on function, but also interrelationships with other pathologic conditions and consideration of pertinent features regarding home environment, social and family relationships, employment, and recreational activities. In other words, it is necessary to establish the effect of the given disability on that particular individual who has lived in a specific environment.

In dealing with geriatric patients, the importance of including coexisting physical and psychosocial features in the evaluation cannot be overemphasized. As an example, impairments in mental status, special senses, cardiac and pulmonary reserves, and peripheral circulation in the remaining lower extremity all may be of equal importance to the postsurgical condition of the residual limb in determining the eventual function of a lower extremity amputee.

The assessment must include the home, alternative available living arrangements, and the strengths and attitudes of one's family and other helpers in the community. A modification of the home environment and improvement of skills and attitudes of members of the support system often are the factors that make it possible for a patient to return to his or her home rather than to a health care facility.

An evaluation by all team members should include not only objective physical assessments (e.g., strength, balance, joint flexibility, and so on), but also functional assessments (e.g., abil-



ity to sit, stand, transfer, walk, perform specific self-care activities, and so on). A description of a patient's ability to comply with a therapist's instructions during the evaluation also is of value.

The initial evaluations by appropriate members of the rehabilitation team are presented and discussed jointly at a team meeting, which leads to the development of goals, methods of achieving those goals, and estimates of the time required for attaining them. It is important for a patient to accept the same goals. Preliminary discharge planning should be commenced at this time. The team members will periodically re-evaluate a patient to determine progress towards the established goals, to estimate his or her potential for further progress, and to change methods or goals if a patient's course indicates it. Joint re-evaluation by the team ordinarily will be scheduled every 1–2 weeks, although occasional 4-week intervals will be adequate for extremely chronic conditions that are changing slowly. A home evaluation by appropriate members of the team often is of great value, with recommendations for structural alterations, rearrangements of facilities, and adaptive equipment.

When all feasible goals have been achieved, or when progress towards goals no longer is occurring in spite of all therapeutic efforts, the time has arrived for a discharge from rehabilitation therapy. All necessary adaptive equipment, ambulation aids, and home evaluation and modification should have been obtained before this time. If all other medical needs have been met, a patient should now be ready for a smooth transition into the community with appropriate instructions or provisions for maintenance and follow-up.

## Physical Modalities

### Therapeutic Heat and Cold

The theory and application of therapeutic heat and cold to geriatric patients basically is the same as for the general population. However, thresholds for noxious thermal stimulation, which remain constant during adolescence and middle-age, increase dramatically after the late 50s. This indicates a loss of cutaneous pain sensitivity with later aging.<sup>3</sup> In addition, the fre-

quent presence of impaired peripheral circulation and diminished cardiac and respiratory reserves may render older patients less able to tolerate thermal changes. Therefore, additional precautions should be taken while treating elderly patients with these modalities.

Since prehistoric times, local applications of heat and cold to the body have been known to have numerous beneficial effects.<sup>4</sup> Current knowledge of physiology permits us to understand many of these effects on the basis of local tissue reactions and body reflex responses. The important effects of analgesia and sedation, although well-documented,<sup>5–7</sup> are poorly understood; but, they probably are the results of local effects on free nerve endings and peripheral nerves. Both heat and cold act similarly in producing temporary relief of muscle spasms. This may be related to a direct effect on gamma nerve fibers, which provide motor supply to muscle spindles.<sup>8</sup> In patients with rheumatoid arthritis, the use of heat results in a reduction of joint stiffness (as determined by viscoelastic measurements) that is correlated with subjective relief. Therapeutic levels of heat markedly affect the viscoelastic properties of collagenous tissue, so that the viscous flow becomes prominent and tension relaxes considerably.<sup>9–11</sup> This leads to an increase in extensibility of these tissues. If heat is used in conjunction with prolonged passive stretching using a low load, a residual elongation of therapeutic benefit can be obtained. This is used clinically in the treatment of joint contractures.

Reflex arteriolar and capillary dilatation with an increase in local blood flow also is produced by heat. This effect is dose-related<sup>12–14</sup> and is helpful in the resolution of chronic inflammatory processes.<sup>15</sup> Local heat applied to one extremity may produce a consensual response of lesser intensity in the other extremities.<sup>7</sup>

There are clearly identifiable, differing physiologic effects with heat and cold applications<sup>10</sup> (see Table 20-1).

The deep-heating modalities that are used for diathermy application (short-wave, microwave, and ultrasound) may produce non-thermal effects; but, any therapeutic significance is poorly understood. Current knowledge is inadequate to provide a rationale for any clinical use at this time.<sup>10</sup>

Neither heat nor cold should be applied to

TABLE 20-1 Physiological Effect with Hot and Cold Applications

	Heat	Cold
Blood flow	↑	↓
Inflammatory response	↑	↓
Edema	↑	↓
Viscoelastic mobility	↑	↓
Post-traumatic hemorrhage	↑	↓

obtunded patients or those with impaired sensation, since pain is the warning signal indicating that the tolerance level has been exceeded. Heat is contraindicated in cases with hemorrhagic diathesis or immediately after trauma, since the increased blood flow aggravates the bleeding tendency. In an area of arterial insufficiency, the application of heat or cold may cause severe tissue ischemia and lead to necrosis. Arterial insufficiency is an important and common contraindication to thermal therapy in elderly persons. A malignant growth should not be heated, because it may increase the rate of growth and the likelihood of metastasis<sup>16</sup> due to the increase in blood flow and vascularity; however, recent studies have shown evidence that local heat potentiates the beneficial effects of radiotherapy on tumor cells because of selective thermal sensitivity.<sup>16,17</sup> Certain modalities, especially those of diathermy, have specific technical contraindications, as described subsequently. Cold therapy also is contraindicated in patients with Raynaud's phenomenon, a cold allergy with urticaria, cryoglobulinemia, and paroxysmal cold hemoglobinuria.<sup>18</sup>

The specific goals of the treatment, areas to be treated, and patient factors should determine which form of treatment is most appropriate and whether mild heating, vigorous heating, or reflex heating is desired. The rate and degree of temperature elevation and the duration of application will determine the clinical effect of the heat exposure.

Mild heating produces therapeutic effects by working on secondary, rather than primary, areas of involvement. It often is helpful in resolving symptoms of more acute inflammatory processes. In the case of acute low-back pain, for example, the local application of superficial heat may produce muscle relaxation and sedation without directly influencing an inflammatory process of the nerve roots.

For vigorous heating of deep tissues, a rapid elevation of temperature to 42°–45°C (108°–113°F) is required for 3–30 minutes. It most often is used in chronic disease processes, such as the treatment of joint contracture and the resolution of chronic inflammation. Conversely, vigorous heating may aggravate a pre-existing acute inflammatory process, even to the extent of resultant tissue necrosis.<sup>19</sup> Thus, mild forms of heat generally are used for acute conditions; vigorous heat is used for chronic conditions.

The heating of deeper tissues can be produced by one of three types of diathermy: 1) Short-wave, which uses high-frequency electric currents; 2) Microwave, which uses electromagnetic radiation similar to radar; and 3) Ultrasound. The frequencies of therapeutic short-wave are sufficiently high that electrolytic dissociation of tissue does not occur. The energy is applied to a patient by either condenser plates or induction coils, which depends on the configuration of the part to be treated. This produces a therapeutic temperature elevation in the subcutaneous tissue and superficial musculature, but it cannot heat deeply situated joints, such as the hip or shoulder.<sup>10</sup> Dosimetry relies on a patient's subjective feeling of warmth, since there is no method available to measure the energy that is received by the body. Special contraindications for short-wave diathermy include metallic implants, cardiac pacemaker, pregnancy, and over laminectomy sites.

Microwaves can produce therapeutic heating in superficial musculature, but highest temperatures occur at fat-muscle interfaces. Because of the selective absorption of microwave energy, special caution must be used over body prominences, fluid accumulations (including abscesses), and surface sweat.<sup>20</sup> Cataract formation has been reported,<sup>21</sup> so the eyes must be protected. Special contraindications include cardiac pacemakers and metallic implants.

Ultrasound is capable of the deepest tissue penetration of available forms of diathermy, and it is the only modality that can heat an adult hip joint. Because of the physical property of ultrasound, selective heating of superficial joints and periarticular structures can be easily achieved.<sup>20,22</sup> It frequently is used in conjunction with prolonged stretching to overcome joint contractures that involve periarticular

structures and capsular tissues.<sup>11,20</sup> It is safe to use over metal implants,<sup>20</sup> but there is no information regarding its safety over methylmethacrylate fixation of prosthetic joints. It often is used in the treatment of calcific bursitis, tendonitis, and peri-arthritis, although it may increase discomfort in very acute conditions. It has been suggested for use in reflex dystrophy and for painful neurofibromas that form in residual limbs after amputation. It should not be applied to the eye, over laminectomy sites, or malignant lesions.

Superficial forms of heating usually are used for mild therapeutic responses, but superficial joints (e.g., those in hands and wrists) may undergo relatively vigorous heating and responses because of the minimal soft tissue cover. Previously mentioned general precautions and contraindications to heating must be observed.

Infrared radiation is a convenient method of applying superficial dry heat via radiation from a lamp. The highest temperatures are produced in superficial tissues, which can be vigorously heated; 30-minute periods of application are commonly used. The skin can be observed during the treatment for evidence of overheating. A problem that is sometimes encountered is undesirable drying of the skin.

Conductive heating is available through a number of devices. Hydrocollator packs, moist air cabinets, Aqua-K pads, electric heating pads, and hot water bottles all can provide mild superficial heating. Hydrocollator packs, which are available in several shapes and sizes, are the form most commonly used in physical therapy clinics; home models also are available. Hands, wrists, feet, and ankles can be heated by dipping in paraffin diluted with mineral oil and melted in a thermostatically controlled tank. This often is useful for arthritic conditions. Paraffin also can be used in home programs with adequate precautions.

Hydrotherapy can be used for heating, as well as for the additional effects of both debridement and activity, with gravity counteracted by buoyancy of the water. It usually is applied through whirlpool baths and hot tubs.

Therapeutic cold can be applied in the form of cold wet packs, ice massage, cold sprays (ethyl chloride or fluoromethane), or cold baths. Cold therapy is used for analgesia or anesthesia, for reduction of post-traumatic

edema, and the relieve muscle spasms and spasticity.<sup>23-25</sup>

## Electrical Stimulation

Electrical stimulation has several clinical uses. A pulsating direct current at the optimal frequency of 25 Hz or lower and a pulse duration of about 100 ms has been used to stimulate denervated muscles. The purposes of this type of galvanic stimulation are to retard the progression of muscle atrophy, to diminish intrafascicular and interfascicular agglutination and sclerosis of areolar tissues, and to improve the local circulation and nutrition of muscle. A strong muscle contraction should be produced, since the development of tension in the muscle correlates with the retardation of atrophy. Faradic stimulation of innervated muscles by way of their nerve supply may be helpful in relieving painful, post-traumatic "muscle spasms," but no studies of its efficacy have been made. Electrical stimulation also can be used to facilitate muscle re-education after trauma, tendon transplants, and in some neurologic disorders. Other examples of recent clinical applications are "electrolung" and "electrophrenic respiration."<sup>26,27</sup> Properly phased electrical stimulation of the peroneal nerve has been useful in hemiplegic patients to control footdrop during the swing phase of the gait.<sup>28,29</sup>

## Transcutaneous Electrical Nerve Stimulation (TENS)

First employed as a method of selecting patients who would benefit from implantable dorsal column stimulation (DCS),<sup>30</sup> transcutaneous electrical stimulation (TENS) was found to have significant value of its own in the treatment of chronic<sup>31,32</sup> and postoperative<sup>33</sup> pain. The placebo effect may be significant during the early use of TENS, but this rapidly disappears and does not appear to be a factor in those patients who obtain good long-term relief.<sup>34</sup> A further discussion of TENS can be found in Chapter 18.

## Massage

Massage probably is the oldest method of relieving musculoskeletal pain and tension, since the earliest-known account of massage was re-

corded by the Chinese at least 3,000 years ago. Therapeutic massage techniques include: 1) Stroking (effleurage), superficially for soothing effects and deeply for muscular relaxation; 2) Compression (petrissage), as a means of kneading tissue to relax muscles, stretch adhesions, and mobilize edema; and 3) Percussion (tapotment) to create a stimulating vibration or more vigorous, percussive counterirritant effect. The reflex effects produced by the stimulation of peripheral receptors in the skin cause a relaxation of muscles and sedation, as well as constriction or dilatation of vessels. The mechanical effects of massage assist the return circulation of lymph and blood with a mobilization of fluid accumulation and stretch intramuscular adhesions. Since massage does not increase muscle strength, it should never be used as a substitute for exercise. It is contraindicated in cases of communicable skin diseases, infections, burns, and thrombophlebitis.<sup>35,36</sup>

### Manipulation

Because of the lack of objective controlled studies, the therapeutic application of joint manipulation is somewhat controversial and has not received serious consideration by the mainstream of medical professionals. However, this modality has been used in the management of several musculoskeletal disorders (e.g., cervical and lumbosacral discogenic diseases, “frozen” shoulder, and lateral epicondylitis of the elbow). The technique requires careful patient positioning to achieve relaxation and mechanical disadvantage of the muscles, so that a forceful and abrupt “thrust” stretches tight muscles and distracts the joint. This maneuver often is accompanied by an audible sound, which possibly is due to a reduction of joint “subluxation” or to a realignment of displaced fibrocartilaginous material. Joint manipulation is regarded as a reasonably safe treatment modality by a number of physicians who use these techniques.<sup>36-39</sup>

### Biofeedback

Biofeedback is a biologic system in which the feedback is artificial and mediated by man-made detection, amplification, and display instruments—rather than a loop that is inherent within the biologic system.<sup>40</sup> The concepts that

are basic to the use of this method are the detection of normally unrecognized data and their transmittal to the subject, a patient’s involvement in response, and the mechanism of human learning. Recent developments in sophisticated electronic devices have significantly expanded the capabilities for data accumulation and display. Several physiologic functions (e.g., muscle activity, brain wave activity, electrodermal activity, and certain metabolic and vasomotor responses) have proven responsive to self-regulation through biofeedback.<sup>41-46</sup> Electromyographic (EMG) feedback<sup>41</sup> monitoring provides a technique for muscle re-education in conditions that manifest insufficient motor unit activity (e.g., the paresis resulting from upper motor neuron diseases). It also can train a patient to relax muscles in some cases of excessive motor unit activity (e.g., hypertonicity that is associated with stress and anxiety, spasticity of upper motor neuron disorders, and muscle spasms with pain). Self-regulation of skin temperature has been an efficacious therapeutic technique in the managements of Raynaud’s phenomenon and migraine headaches.<sup>44,46</sup> A further discussion of biofeedback applications for pain management can be found in Chapter 18.

### Maintenance, Therapeutic, and Exercise Programs for Older People

Physical inactivity is common in the elderly population; both well and infirm persons. This results in many extremely unfortunate (and usually unnecessary) deconditioning effects of virtually all body systems.<sup>47</sup> Disability due to immobilization was considered one of the 10 leading preventable health problems in the United States according to the Public Health Service in 1960. They further concluded that, with the knowledge existing at that time, such disabilities could be reduced by 50–75%.<sup>48</sup>

Periods of inactivity that are associated with disease or injury will rapidly produce disabilities. In an elderly patient, reversing these complications is difficult, expensive, and time-consuming; it even may be impossible if adequate corrective management is delayed. If the force of contractions of any muscle each day is less

than 20% of its maximum, strength will be lost; if the muscle is not used at all, the loss will be approximately 3% per day.<sup>47</sup> Endurance will be even more severely affected than strength. A loss of flexibility of the joints due to shortening of the connective tissues can occur in less than 1 week of disuse. These contractures result in postural problems, less efficient ambulation or standing, undue stress and wear on joints and supportive tissues, and it even may result in a complete inability to perform certain basic functions. Progressive deconditioning of the cardiovascular system will result in corresponding changes in pulse rate, cardiac stroke output, ability to adapt blood pressure to orthostatic changes, and other parameters. A loss of calcium from the skeleton through disuse is a particularly significant change that can contribute to fractures in elderly persons.<sup>49</sup> Neurologic deficits and psychological changes are reported as the result of prolonged physical inactivity.<sup>50</sup> General principles of exercise and maintenance programs for the elderly population can be found in Volume II, Chapter 13.

Exercise programs for older or infirm patients must be initiated only by prescription of a physician who is familiar with a patient, so that it may be correlated with other aspects of treatment and so appropriate medical precautions can be observed. An exercise program can be directed at any or all of the following goals for maintenance or improvement.

1. Joint flexibility;
2. Muscle strength;
3. Muscle endurance;
4. Cardiovascular and pulmonary endurance;
5. Bone mineralization;
6. Posture; and
7. Psychological benefits.

Although exercises may be designed primarily toward a single goal, most active exercise programs will produce gains in all of these areas. Exercises for elderly patients usually are programs of light-to-moderate intensity with simple equipment. Active (isotonic) exercises generally are most useful. In arthritic or orthopedic conditions for which immobilization is indicated, isometric exercises must be used. The latter produces a disproportionate elevation of blood pressure; caution must be observed in its use.<sup>51</sup>

For a bedridden patient, careful attention to bed posture and programs of active, active-assistive, or passive range of motion through the full joint range (twice daily to each joint) will maintain flexibility. For acute joint lesions or acute conditions of the adjacent bone (e.g., a healing fracture), range-of-motion activities should be performed only by an experienced therapist. In other cases, regular programs of range-of-motion activities can be provided by suitably trained nursing personnel or by specially instructed family members. Printed material is available to assist in teaching these techniques to a patient's family or other lay attendants.<sup>52,53</sup> Particular emphasis must be given to the frequency of treatments and to moving the joint through its full range. Three repetitions during each treatment period is considered adequate for maintaining flexibility. As early as possible, with supervision, a patient should perform these activities him- or herself. Resistant exercise, through the use of manual resistance by a therapist, elastic cables, light weights, or isometric techniques can be used for a bedridden patient to maintain muscle functioning and provide benefits to other organ systems. For a patient who cannot exercise certain body parts due to the need for immobilization, a program must be designed to treat other joints and musculature, with isometric techniques often being useful for an immobilized limb.

When elective surgical procedures are planned for older patients, a preoperative program is valuable for advance teaching of exercises, transfer techniques, use of ambulation devices, and so on, and also for achieving the best possible physical condition before a period of reduced activity.

As soon as a patient can tolerate being transported to therapy clinics, additional equipment for individual exercise can be used and group exercises can be used. Group activities often are psychologically and socially stimulating for a patient, and they make more efficient use of a therapist's time.

## Gait Training and Ambulation Aids

A knowledge of the biomechanics of normal human locomotion is a prerequisite for the management of gait problems. To produce the

smoothest and most energy-efficient gait, the center of gravity of the body (located just ventral to the S2 vertebra in an adult) must be moved through a smooth sinusoidal pathway with movements in vertical and horizontal planes not exceeding a 2-inch (5 cm) total excursion. To maintain this smooth course with little deviation from a straight path, humans use six basic determinants: 1) Pelvic rotation in a horizontal plane; 2) Pelvic tilt in a frontal plane; 3) Knee flexion; 4) Foot-ankle motion; 5) Ankle-knee interaction; and 6) Lateral displacement of the pelvis toward the weight-bearing side.<sup>52-54</sup> Deviations from this pattern require greater energy expenditure.

The most comfortable walking speed of normal adults averages 110 steps per minute (about 3 miles per hour). At such velocity, the energy expenditure is approximately 4.3 kcal/minute.<sup>55</sup> The adult gait pattern may begin to appear as early as 2 years of age,<sup>56</sup> but the highly energy-efficient gait of a young adult is developed during the 2nd decade. Thereafter, it is relatively stable well into old age.<sup>57</sup> A healthy young adult uses gravity and inertia to propel his or her body. He or she allows him- or herself to fall forward and recapture balance by hyperextending the trunk; however, an elderly person with a relatively stiff, flexed attitude while walking is unable to use such mechanisms. Elderly persons tend to have a slower cadence, shorter and broader stride dimensions, decreased swing-to-stance time ratio, increased foot-to-floor distance, decreased vertical oscillation of the head, and less transverse rotation of the pelvis and sagittal rotation of the hips.<sup>58</sup> Such restrained characteristics of ambulation in elderly persons are clearly an attempt to secure maximum safety. The rigid flexion attitude of an elderly individual probably is related to an involuntional process of the extrapyramidal system.<sup>59</sup>

A number of other conditions that are unrelated to the musculoskeletal system commonly impair gait in aging. A hemiplegic elderly patient's difficulty in relearning to walk independently and safely may be related to a deficit in his or her perception of vertical and horizontal positions.<sup>60,61</sup> This disorganized concept of position in space may cause him or her to feel that the body is vertical when it is really leaning backward or laterally. After prolonged bed rest, the cardiovascular system may lose its ability to

respond to an upright posture, with hypotension producing difficulty with ambulation. In elderly persons, the recovery of the cardiovascular system is more delayed even after shorter bedridden periods.

Patients with hemiplegia, paraplegia, or a lower extremity amputation will expend significantly greater energy than normal adults who walk at the same speed.<sup>55</sup> However, energy expenditure and walking velocity can be improved by gait training and proper application of orthoses and ambulation aids when indicated. By contrast, wheelchair mobility requires no more energy expenditure than normal walking.<sup>62</sup>

Patients with many types of gait disorders often choose to walk at a slower speed to expend the same energy per unit of time as normal, although energy per unit of distance traveled is significantly greater. This frequently is seen in disorders such as polymyositis, neuropathies, and parkinsonism.

Before an ambulation training program begins, the gait pattern should be analyzed. This must include walking at different velocities, standing up, sitting down, walking on tiptoes and on heels, and climbing stairs, all in an attempt to clearly demonstrate all of the abnormalities of a subject's gait. Visual functions, equilibrium, and proprioception should be tested. In addition to the usual physical examinations, it is necessary to perform additional assessments, such as measuring the length and joint motion of the lower extremities, evaluating the strength of pertinent muscles, and evaluating pain or discomfort factors.

Gait training for elderly persons may require some modification of the techniques that are used for a younger age group. A more gradual training program often is necessary, beginning with measures to improve sitting balance and tolerance, tilt table, progressive standing, balancing exercises while standing, stretching of contractures, progressive-resistive exercise to strengthen specific weak muscles in both upper and lower extremities, and reinforcement of proprioception by visual training. The program will include measures to protect a patient from falling, such as judicious close supervision and assistance by a therapist, use of parallel bars, appropriate orthotic and prosthetic devices, and various types of ambulation aids (e.g., canes, crutches, or walkers). A patient with

apraxia of the lower extremities can walk automatically only when he or she is not concentrating on the movement of the leg; but, if made to concentrate, he or she quickly resumes small shuffling steps. Therefore, gait training often is not effective.<sup>63</sup>

### Selection and Measurement of Ambulation Aids

#### *Canes*

Conventional canes come in many forms (see Figure 20-1). They can be manufactured from

tubular aluminum, other metal, or of wood, to combine light weight with ample strength. When used for unilateral lower extremity disorders, a cane should be held in the hand opposite the involved side, unless there is a disability of that upper extremity. Held in the opposite hand, a cane can reduce the weight borne by the involved lower extremity by 20–25%.<sup>64</sup> Due to torque forces that compress the hip joint, pressures on the femoral head can be reduced even more (to less than 50%) by this use of the cane.<sup>65,66</sup> The four-legged “Quad-cane” and “Hemi-walker” both provide additional stabil-

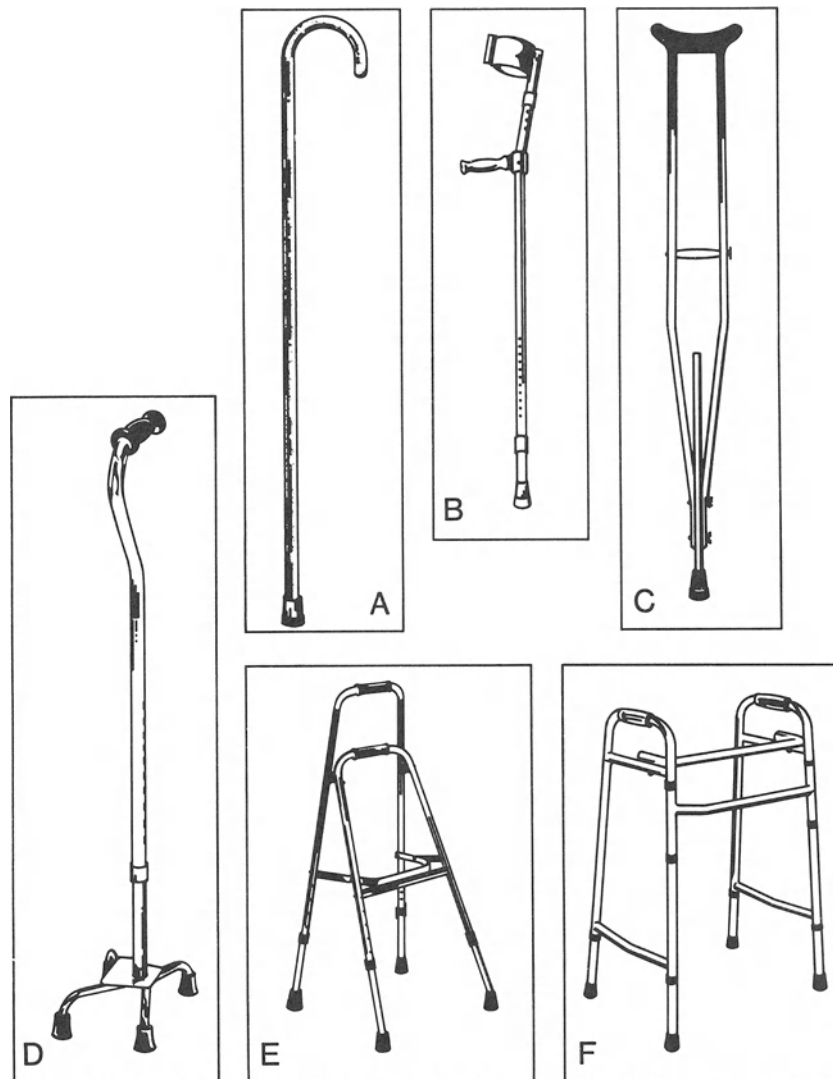


FIGURE 20-1 Ambulation aids: (A) cane; (B) forearm crutch; (C) axillary crutch; (D) quad-cane; (E) hemi-walker; (F) folding walker.

ity and are particularly useful for hemiplegic elderly patients (*see* Figure 20-1D,E). A correctly fitted cane will have its grip at the level of the tip of the greater trochanter when the cane is vertical at one's side, which will cause the elbow to be flexed 20°–30°. At this length, extending the elbow will permit proper pressure on the cane during those periods of gait when it and the stance leg are behind or in front of the torso.

During gait training, if only one cane is used and held in the contralateral hand, a patient should be taught to advance the cane and the affected leg simultaneously (a two-point gait). With two canes, a patient may walk with the two-point alternate gait, three-point gait, or four-point gait, as described below in crutch walking.

#### *Crutches*

There are two basic types: forearm and axillary crutches (*see* Figure 20-1B,C). Either type can be made of wood or tubular aluminum.<sup>64</sup>

#### *Forearm Crutches*

The most popular type is the Lofstrand crutch that has a forearm cuff and a padded hand-grip. The cuff helps to stabilize the connection between the upper extremity and crutch during weight-bearing and allows a patient to free his or her hand for tasks such as opening a door, grasping a stair rail, or adjusting one's clothes without the need to release the crutch. The "Canadian crutch" that has an extension and second cuff above the elbow is useful for patients with triceps weakness.

#### *Axillary Crutches*

The standard type has double uprights with a padded axillary bar and hand-grip (*see* Figure 19-1C). While patients can briefly lean on the underarm piece to free a hand for activities such as opening doors, they should be warned against supporting the axilla on the bar for prolonged periods, because this may lead to "crutch palsy"—a radial nerve paralysis due to compression. Because walking with forearm crutches requires good trunk balance, better arm strength, and confidence, axillary crutches often are preferred by elderly patients. A properly fitted axillary or forearm crutch should have the hand-grip adjusted so that a patient's

elbow is flexed approximately 25°–30° when the tip is beside the toe and the wrist is held in extension. During the stance phase, the shoulder should be in a neutral position, neither elevated nor depressed.

Platform crutches with or without the optional velcro straps around the forearm are useful for patients with pain and deformities of the hand and wrist, triceps weakness, or elbow flexion contractures. Safety rubber tips always should be attached to the feet of canes or crutches to prevent slippage and to absorb shocks. A retractable metal-spiked tip is available for walking on ice.

Learning to walk with crutches requires significant strength and skill. When selecting a walking pattern for a patient, the following factors must be considered: 1) General physical ability; 2) Equilibrium; 3) Ability to maintain the body erect; 4) Weight-bearing ability of the lower extremities; and 5) Mobility and strength of the upper extremities.<sup>67</sup> Before ambulation begins, a patient often must be prepared by exercises to improve trunk balance and to strengthen the key muscle groups of the upper extremities (e.g., shoulder depressors, triceps, shoulder flexors and extensors, wrist extensors, and finger flexors).<sup>67</sup> For older patients, particularly those who have been inactive, it is important to commence this exercise program as early as possible and to provide ample time for the development of the necessary strength, skill, and exercise tolerance. Mat and bed exercises can be started before a patient is capable of advanced strengthening activities.

#### *Crutch Gaits*

There are two general types of crutch gaits: the point gaits and the related tripod and swing gaits.<sup>67</sup> The tripod and swing gaits are most commonly used by paraplegics and unilateral lower extremity amputees without prostheses. For these gaits, the crutches are advanced simultaneously and the leg(s) is (are) then dragged or swung forward.

In the point gaits, which are used for many unilateral or bilateral disabilities of the lower extremities, weight-bearing is distributed between the ambulation aid(s) and the involved lower limb during the stance phase for the latter. In the two-point variation, the aid (held in the opposite upper extremity) is advanced with



the impaired lower extremity and can reduce weight-bearing on the extremity by 20–25% with a cane or 40–50% with forearm or axillary crutches.<sup>64</sup> Much greater reductions occur in hip pressure because of related torque forces.<sup>65,66</sup> The two-point alternate gait is merely a bilateral extension of this technique that uses two canes or crutches and alternates from one side to the other.

The three-point gait is used when it is necessary to relieve weight-bearing on one lower extremity to an extent greater than that possible with the two-point gait. For this, the two ambulation aids and the involved lower extremity are advanced simultaneously, and weight-bearing is divided between the three points during the stance. It has been shown that pressures within the hip joint are least when the pressure permitted on the foot equals the weight of the leg. This gait, with the foot touching, is more easily learned and more stable than when the leg is held completely off the ground. Any greater amount of weight-bearing on the lower extremity can be achieved by less pressure on the crutches in the three-point gait.

The four-point gait provides maximum stability and safety, is low in energy demands, but is quite slow. This gait can be used for general weakness, balance problems, low-level paraplegics (cauda equina lesions), multiple joint disabilities, and some ataxic problems. For this gait, the basic position is with the two ambulation aids and both lower extremities on the ground, sharing weight, and providing stability. Then, one-at-a-time, these four units are advanced: left crutch, right foot, right crutch, left foot, and repeat; therefore, three points of support are present at all times.

Whenever possible, two crutch gaits should be taught; one for speed, and one for safety. If a patient's ability permits, the gait training program should include ascending and descending stairs, ramps, and curbs, and walking on uneven surfaces. The goals of each gait-training program should be realistic. Heroic efforts to restore walking ability in severely disabled persons may be inappropriate. It is sometimes preferable to use a wheelchair that requires lower energy expenditure, provides greater speed and safety, and better ability to carry objects. The rehabilitation professionals should

educate a patient to the available options and their relative merits.

#### *Walkers*

Walkers are made of tubular aluminum or other metal, with plastic hand-grips and rubber-tipped legs (*see* Figures 20-1E,F). The folding model with adjustable telescopic legs is most commonly used. Non-folding models are of limited use, since storage or transportation in cars is much more difficult. Walkers often are preferred to crutches or canes by elderly patients, because they provide greater stability and support during ambulation; but, the gait is slow and standard walkers cannot be used in climbing stairs. The "rolling walker," with wheels on the front legs, may be useful for patients with weakness and non-coordination of the upper limbs and trunk. To push this walker, a patient has only to raise the back legs off the floor. For patients with ataxia, weights or sandbags may be added to the cross-bar of the walker to provide better stability. The reciprocal walker, with swivel joints, allows each side to move alternately. This provides a more physiologic gait with a longer stride. This also may benefit a weak or uncoordinated patient, since for each step only one side of the walker is lifted and advanced while the other can continue to provide support. The height of the walker should be adjusted so that a patient will have his or her shoulders relaxed and elbows flexed at about 20° while standing straight.<sup>68</sup> The platform type of forearm support that is attached to the walker is useful for patients with triceps weakness, pain, weakness or deformity of the wrist and hand, or flexion contracture of the elbow.

#### *Wheelchairs*

Some patients may require wheelchairs for only a short period of time (e.g., during healing of an injury or surgical procedure); some will require them only for limited use, with walking being possible under some circumstances. For these two groups of patients, standard wheelchairs with minimum features usually are suitable and relatively inexpensive. However, an estimated 650,000<sup>69,70</sup> persons in the United States (the majority of whom are in the geriatric age group) are considered to be wheelchair-confined; they spend most of their waking hours in this de-

vice. For such an individual, detailed characteristics of the wheelchair are of importance in determining mobility through each day, comfort, and the quality of life. The size of the chair, weight, design of components, and presence of optional features, all can be critical factors for many older patients.<sup>71</sup> It is disappointing that the great majority are obtained without the prescription of a skilled health care provider.

Wheelchairs are available in several sizes, weights, and grades. Special frames should be provided for lower extremity amputees to avoid tipping backward when ascending slopes. Special features facilitate sliding transfers to the sides, back, or forward. Other features permit elevation of the lower extremities, reclining of the torso, one-hand propulsion, and other special functions.

For patients with insufficient strength in their upper extremities to propel a wheelchair, electric-powered chairs are available in a number of different designs. These are controlled by a single joystick if hand strength is inadequate, or by chin control where this is lacking. Electric-powered chairs generally are very expensive and very heavy. Although some can be partially disassembled for loading into a car, a van with a wheelchair lift is the only practical means of transport. Maintenance costs are relatively high. However, they do provide independence in moving about for a patient who otherwise would require an attendant; they are accordingly valuable for some patients.

## Home Evaluation and Adaptive Equipment

### Home Evaluation

Since the optimal goal of rehabilitation is to return a patient to living independently, it is important to evaluate both the physical features of the planned residence and the support system that will be available. The best assessment occurs with a personal home visit and evaluation by experienced rehabilitation workers; especially those who are personally familiar with a patient's abilities and needs. A patient and the attendants who will be working with that pa-

tient should be present to contribute information, to permit actual trials of activities, and to participate in planning for alterations or special equipment.

The evaluation must include access to the home itself, with attention to steps, ramps, doors, elevators, and parking areas or public transportation. Consideration can be given to providing ramps (portable or fixed) or wheelchair elevators, altering door widths and sills, covering entry-ways, insuring adequacy of dimensions of porches, platforms, vestibules, and halls, installing curb cuts, constructing walkways from parking areas, and other similar architectural features. Professional advice should be given to a patient's family and to contractors to assist them in providing optimal structural alterations where indicated.

Access must be evaluated within the dwelling to all areas that a patient will need to enter. As a minimum, this will include the bedroom, bathroom, dining area, and living/recreational areas. If a patient will be responsible for meal preparation and laundry, access to these areas also must be considered. The actual movement of a patient via wheelchair or ambulation aids in these areas should be carefully studied. In multilevel homes, it often is possible to rearrange the use of rooms so that a patient can remain on the ground floor. If this is not possible, and a patient cannot use stairs, a stair-elevator can be considered. Sometimes, after the evaluation and consideration of alternatives, the involved family will decide that moving to a structure that will require fewer modifications is the better solution; this often is the case with rented dwellings. However, older patients who live alone (or older couples) often will choose to remain in far less suitable accommodations, rather than moving further away from the individuals and institutions that are important in their support systems.

Modifications often are necessary within bathrooms to permit patients to use wash bowls, grooming areas, toilet stool, and tub or shower. Safety during transfers for bathing and using a toilet stool is one of the most important considerations in the evaluation, since many accidents occur during these activities; careful planning must be given to the installation of grab-bars, transfer seats, non-slip surfaces, ele-

vated toilet seats, toilet arm rests, or occasional use of a commode chair. In rare cases, a hydraulic lifter may be necessary. Training patients and attendants in the use of this equipment in clinic areas and a supervised trial in the home are vital to safe and efficient use. Testing for maneuverability of wheelchairs within a bathroom should be done.

For wheelchair patients who will be preparing meals, major alterations in the kitchen may be necessary, with varying degrees of change required for lesser disabilities. Sinks, work areas, shelving, and appliances all must be arranged for safe and easy use by a patient. When appropriate, similar changes may be required in laundry areas.

In the bedroom, bed heights may require change, light controls should be conveniently located, and the position of the furniture changed to improve movement patterns. The storage of bedding and clothing should be easily accessible; often, the clothing pole for hangers in closets must be lowered for patients who will be in wheelchairs.

Information to assist in planning the construction or modification of homes for disabled individuals is widely available in the current literature.<sup>72-75</sup>

#### *Adaptive Equipment*

Often, patients with physical disabilities require special equipment or modifications of standard equipment for activities of daily living, work, and recreation. There are almost countless devices available.<sup>76-79</sup> Examples of conditions that often are helped by adaptive equipment are: 1) Hemiplegics who require one-handed activities; 2) Quadriplegics or others with significant upper extremity weakness; 3) Rheumatoid arthritics with impaired joint function in the hands; and 4) Those patients with sensory loss (e.g., blind persons). Adaptive equipment can be as simple as a long-handled shoe horn (for those who are unable to flex the hip for donning shoes), or as complex as the electronic environmental control systems used for multiple functions by high-level quadriplegics. Special equipment should be selected by a therapist after a careful analysis of the disability and residual function, the expected duration of the disability, a patient's attitudes, desires, and economic feasibility. Usually, a trial of one or several possible

devices or modifications is an important part of the process, with a patient playing a major role in the final determination. Most devices can be classified as feeding aids, dressing aids, hygiene aids, home-making aids, and recreational aids.

#### *Feeding Aids*

For a hemiplegic patient who must eat with one hand, two major problems are difficulty in cutting meat or other large pieces of food and pushing food off the plate while attempting to get it onto a spoon or fork. For the first problem, a rocker knife often is used, with a sharp, curved blade that can be used to cut food by applying it with a rocking motion. A fork with a cutting edge on one side sometimes is used instead. For the second problem, attachable plate guards often are used. These stainless steel devices can be attached to any plate of the appropriate size quickly and easily, and they can be removed as readily for cleaning (*see* Figure 20-2).

For a patient who has difficulty holding an eating utensil because of an impaired flexibility of the hand, a number of types of built-up handles (some expandable) are commercially available. Many arthritic patients find these extremely useful. If diminished wrist movement or pronation-supination is a problem, utensils with a wide variety of angulated handles can be used. Also, self-leveling swivel spoons are sometimes useful; the bowl remains horizontal as the handle is turned. For a patient with a very weak or absent grasp, utensils can be inserted into the pocket of a universal cuff utensil holder, which is easily attached to the palm of the hand with velcro (*see* Figure 20-3). With other tools inserted into the pocket of the universal cuff, it can be used for grooming, writing, typing, and a number of recreational activities. Cups or other utensils are available with large "c"-shaped handles into which a hand can be inserted.

#### *Dressing Aids*

Specially designed clothing often is of major benefit to disabled persons. A hemiplegic with one non-functional upper extremity often is able to position his trousers more easily if he has an elastic waistband instead of buttons and belts, which sometimes are difficult to fasten while holding the trousers up. Zippers along the inseam of the trouser leg and crotch often are

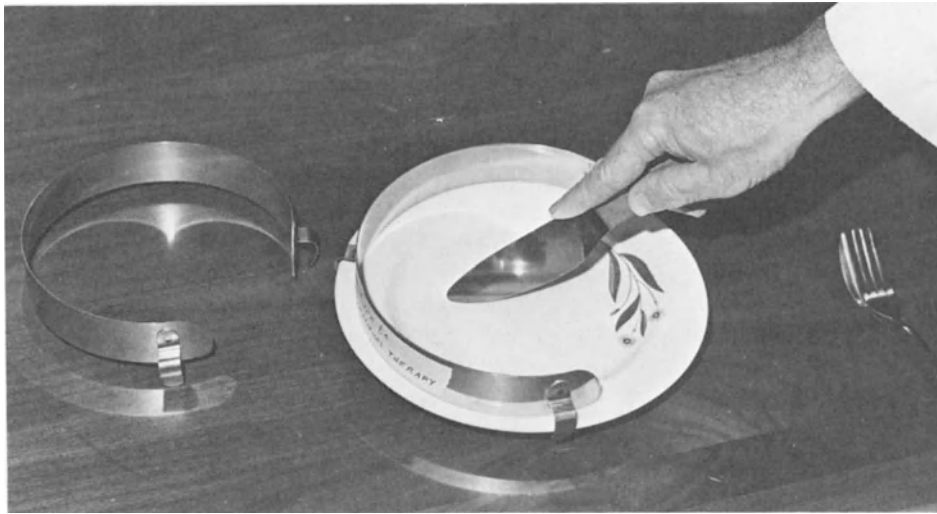


FIGURE 20-2 Adaptive eating devices for a patient with only one functional hand; plate guards, rocker knife, and fork with cutting edge.

helpful for those wearing prosthetic legs or urinary drainage equipment. Large loops attached to zipper pulls enable a patient with an impaired hand function to manipulate them. A number of methods of fastening shoes are available for a patient with only one functioning hand. Some involve modifications (e.g., closure by velcro

straps or zippers), while others use elastic shoe laces or devices to hold the laces by wrapping or clamping. Long-handled shoe horns are useful for patients with an impairment of flexion of the trunk or lower extremity. Button hooks (or button aids) can be used by a hemiplegic, or clothing can be modified for velcro closure.

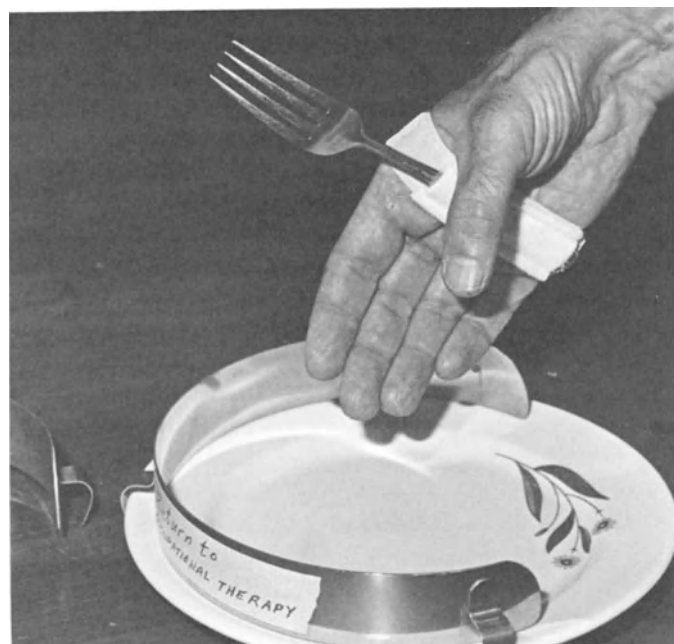


FIGURE 20-3 Universal cuff with fork.

Several types of sock pulls are available for donning hose without bending at the hips or waist.

#### *Hygiene and Grooming Aids*

Special straps or holders can be constructed for electric razors to be used by persons with an impaired grip. For persons with impaired shoulder function, combs and brushes are available with long adjustable handles. Velcro straps on the handles are useful for persons with a weak grasp. A number of adaptations are available for the application of cosmetics and hair rollers for women with upper extremity disabilities. Transfer bathtub seats and shower seats facilitate bathing. For many, using a hand-held shower head on a flexible hose while sitting in a bathtub or shower is the easiest and safest technique. Brushes with suction cups on the handles can be attached to the side or top of a sink and used for cleansing dentures or fingernails by persons with only one functional hand. Modifications of the handle of a toothbrush often is necessary.

Elevated toilet seats are one of the most frequently used devices. These are helpful in weakness or joint impairments of the lower extremities, as well as in generalized weakness. They also can permit perineal wiping while sitting for those with instability in standing.

#### *Home-Making Aids*

A great multitude of devices are available for kitchen activities.<sup>74,80,81</sup> Modified equipment and techniques are necessary for persons with only one functional hand, with an upper extremity weakness or joint disease, with impaired motor control, and for those persons who must work in a wheelchair. Often, modifications of kitchen structure and utensils are necessary, whereby meal preparation can become a useful and gratifying activity for many men and women with major physical disabilities.

#### *Communication Aids*

Devices are available to assist a patient with a hand dysfunction to hold a pen or pencil or to type. Several varieties of page turners and book holders can be obtained to aid in reading for those persons with a severe upper extremity disability. Telephones are modified in many

ways: 1) Amplifiers and speakers for those who are unable to hold a receiver to their ear, as well as for those with hearing impairments; 2) Many devices for automated or modified dialing; 3) Answering systems; and 4) Devices that transmit visual displays for those persons with severe deafness. For visually impaired persons, depending on the degree of disability, one may use large-type printing, talking books, projectors, or closed-circuit TV for greatly enlarging printed or written material.

#### *Recreational Aids*

A number of devices (e.g., ball holders, ball pushers, and ramps) are available for wheelchair bowlers, and a rail guide is available for blind bowlers. Shuffling machines, card holders, and large-print and braille cards (both in regular and pinochle decks) assist in this group of games. A harness to hold a pole and to permit fishing with only one hand is available. A one-handed individual also can embroider, crochet, or knit with special holders. Spring-loaded pool cues can be used by a person with impaired upper extremity function. Many other games and craft activities can be modified for participation by persons with a variety of handicaps.

## Driver Training for an Older Disabled Person

Operating an automobile is an important part of the life of many older Americans; about 10% of all American drivers are 65 years of age or older. It has been estimated that these older individuals drive an average of 5,600–7,000 miles per year.<sup>82</sup> For older patients who live alone in relatively remote or rural areas without public transportation, the ability to drive is essential for them to return to their residences. Driving records of older drivers are relatively good. An Oregon study in 1975 showed that 10.6% of all drivers were 65 years of age or older, but they were responsible for only 6.72% of all accidents and 3.4% of all violations.<sup>83</sup>

Attempting to retrain disabled older patients to drive motor vehicles safely is often an important aspect of rehabilitation. A recommended sequence for the program is: 1) Medical clearance from a physician; 2) Establishment of legal eligibility for training; 3) Appropriate sensory

and motor testing; 4) Driver simulator; 5) A dual-control car with progressively more challenging conditions; and 6) Relicensure by the state. In one typical handicapped driver-training program, 72% of all drivers over 60 years of age with physical disabilities became capable of successfully operating motor vehicles.

## Common Specific Disabling Conditions of Older Patients and Their Management

### Stroke

Despite evidence that the incidence rate of stroke has declined significantly in the United States during the past 30 years,<sup>84,85</sup> it still remains the third most common cause of death and the most common condition requiring comprehensive rehabilitation efforts.<sup>86,87</sup> The annual total cost of strokes in the United States, direct and indirect, recently was estimated at \$11.2 billion.<sup>88</sup>

The intervention of comprehensive rehabilitation efforts in a stroke patient is cost-effective, significantly improves the outcome of this condition; and, improvement is maintained following discharge from a rehabilitation facility.<sup>89</sup> This is particularly important, since these patients usually live several years with residual disabilities from their strokes, averaging 51.2 months.<sup>87</sup>

Evaluation of a stroke patient for rehabilitation planning includes detailed neurologic and general medical assessments. Evaluation of specific functional areas should include the ability to arise from a recumbent to a sitting position, to maintain sitting balance, stand, walk, dress, perform activities of daily living, control bowel and bladder, and so on, with attempts to identify causes for limitation in performance. For example, is a failure to stand independently the result of weakness, dysequilibrium, ataxia, contractures, impaired sense of verticality, other factors, or a combination of these? Therapy will be directed at the appropriate deficit.

Evaluation of emotional and psychological factors is important and includes looking for depression, fear, anger, passivity, and other fac-

tors that may influence both the attitude toward rehabilitation and the ability to profit from it.

Evaluation of social and economic features must be included; prior living arrangements, the potential for assistance from family members or friends, and economic resources are important in planning discharge arrangements.

Following evaluation by members of the rehabilitation team, individual goals are established and therapy plans are developed. General goals that usually are accepted for stroke rehabilitation are<sup>90</sup>:

1. The prevention of deformities and complications, whenever possible;
2. The treatment of complications and deformities that do occur;
3. Retraining elevation and ambulation activities;
4. Development of independence in activities of daily living (one- or two-handed), with attention particularly directed at use of the unaffected arm and hand;
5. Retraining the affected upper extremity to its maximum;
6. Treatment of speech and language problems;
7. Compensation for sensory loss;
8. Development of full social participation;
9. Establishment of independent living after discharge;
10. Achievement of maximum patient motivation; and
11. Providing vocational placement, where applicable.

During the earliest phase of rehabilitation, general goals are the prevention of complications (e.g., contractures, pressure ulcers of the skin, and deconditioning of many organ systems that results from inactivity), while spontaneous improvement is supported. Assistance with bowel and bladder patterns are important at this time. Both helping a patient and his or her family to understand the problems and rehabilitation plans and providing emotional support are necessary.

During this phase, a program of range-of-motion activities should be commenced and applied to both the hemiplegic and uninvolved extremities, and should include as much active muscular activity as possible. Active and even resistive exercises are used for the normal side,

while active-assistive or passive ranging is used for the paretic side. Self-ranging, which uses the normal extremities to move the paralyzed ones, should be used as soon as a patient can perform this in a satisfactory manner.

The bed should be arranged so that a patient is approached from his or her uninvolved side; bedside equipment also is on this side. This will prevent hemianopsia or hemiagnosia from impeding the reception and recognition of important sensory input, and also permits use of the uninvolved upper extremity in using the equipment.

Progressive periods of sitting up develop tolerance for later increased therapy activities. Management of bowel and bladder dysfunction is extremely important, and medical and nursing measures can be vital in preventing later complications. The avoidance of in-dwelling catheters, if possible, is particularly significant in this regard.

Communication of an understanding attitude and emotional support by the entire staff is invaluable during this time, when a patient is in a strange environment, may become confused and distracted, probably does not understand what has happened to alter his or her function and appearance so abruptly, fatigues easily, and may have a significant impairment of communicative ability (both in output and reception). Staff members must avoid assuming that a patient understands more of what he or she is told than is actually the case, or that a severely aphasic patient cannot understand any comments about his or her condition or prognosis. Discretion in discussions within hearing range of a patient obviously is crucial. Patients often are aware of facial expressions and body language of members of the staff; attention must be devoted to the messages that are transmitted through these mechanisms.

As soon as a patient can sit comfortably for periods of 30–60 minutes, the program is advanced to include unsupported sitting balance, standing, transfer training, and wheelchair navigation. The occupational therapist provides evaluation of upper extremity sensation and motor functioning, and also of spatial and perceptual functioning. This is followed by evaluation of activities of daily living and by training.

A number of special techniques for neuromuscular facilitation and inhibition may be em-

ployed.<sup>91–94</sup> Electromyographic biofeedback techniques are increasingly used in certain aspects of retraining muscle functioning.<sup>95,96</sup>

For stroke patients with speech or language deficits, an early evaluation by a speech/language pathologist should be provided. Initially, no formal therapy may be indicated, but a therapist can provide advice and support for a patient, his or her family, and rehabilitation staff, and can work with a patient sufficiently to avoid the development of maladaptive habits. As the acute phase subsides and some spontaneous improvement is occurring, a structured therapy plan is developed to fit an individual's needs. Recently, objective evaluation tools have been developed, such as the Porch Index of Communicative Ability,<sup>97,98</sup> which may be used to determine the effectiveness of treatment and to estimate the value of further treatment with a prognosis for eventual language functioning. For some dysarthric patients, speech can be improved by devices such as the palatal lift orthosis,<sup>99</sup> which can be manufactured with the assistance of dentists. Communicative performance deteriorates with physical fatigue in a stroke patient<sup>100</sup>; therefore, scheduling of speech therapy periods should be planned accordingly.<sup>101</sup>

As a patient's condition improves, the therapy progresses from parallel bar ambulation to ambulation outside of the bars by using Hemiwalkers, Quad canes, and canes. Temporary bracing initially may be necessary to stabilize the knee and ankle, but it usually can be quickly shortened to support only the ankle. The type of brace selected is determined by the degree of motor function, spasticity, and mediolateral stability of the ankle; trials of temporary bracing usually are the best method of evaluation. A knee extension weakness or a tendency towards genu recurvatum usually can be controlled adequately by an ankle-foot orthosis with an adjustment of stops for an appropriate foot position. From walking on smooth and level surfaces, a patient is assisted in progressing to rugs, uneven surfaces, curbs, steps, and ramps. Arising from the floor following a simulated fall is an important advanced activity that is included for patients who achieve independent ambulation.

Training for activities of daily living proceeds from feeding and simple grooming to dressing the upper body, more advanced

grooming, hygiene, lower body dressing, and (when appropriate) meal preparation and household tasks. Special adaptive equipment for one-handed activities of daily living often is necessary.

Suitable leisure activities for a stroke patient establish a better quality of life after discharge from a rehabilitation center. A patient who remains idle or who engages only in passive activities at home tends to become depressed, preoccupied with symptoms, and (often) less functional. A patient who has active leisure pursuits at home and in the community does much better. A patient should visit restaurants, theaters, lodge halls, bowling alleys, athletic arenas, and swimming pools, and also should participate in fishing trips, picnics, or similar recreational activities before discharge from a rehabilitation program. In this way, he or she gains actual experience in access techniques and adaptive methods that help to eliminate concerns and fears regarding the resumption of these forms of recreation. Programs that are based in senior centers or stroke clubs in the community can be used. A patient's family must be involved in planning to maximize their understanding and compliance.

Evaluation by a social worker of a patient's family strengths, weaknesses, attitudes, and financial resources is vital to planning for the future. Home evaluations by physical and/or occupational therapists before discharge (as described previously in this chapter) should be provided for all patients who will be returning to their homes with a significant residual disability.

With adequate rehabilitation, 80–89% of all stroke patients have been able to return to their previous living situations, while 70–80% have been completely independent in ambulation (including stairs, with or without a brace and ambulation aid) and completely independent in self-care.<sup>102</sup> A number of the remainder have required only minimal assistance in ambulation or in dressing the lower extremities, so that little physical care was required.

### Lower Extremity Amputations

A common disability among the geriatric population is an amputation of the lower extremity. The incidence of this disability has increased dramatically throughout the Western World,

more than tripling since 1940.<sup>103,104</sup> This is partially due to the increase in numbers of older people, but additionally to the improvement in survival of patients with ischemic necrosis of the lower extremities via better diabetic control, antibiotics, and improved surgical management. By far, the major cause of a lower extremity amputation is peripheral arterial disease, with or without diabetes mellitus. The peak incidence rate is between 60–69 years of age.<sup>1</sup>

A rehabilitation program should be commenced preoperatively for elective amputations. At present, a patient can be familiarized with the surgical and rehabilitation procedures; exercises can be commenced to maintain or increase muscle function and joint range of all extremities and to develop skills with ambulation aids. An evaluation can be made of physical factors that will influence rehabilitation.

Not all older amputees are suitable candidates for prosthetic fitting. Prostheses are relatively expensive (approximately \$950–\$2,200 for a below-the-knee prosthesis and \$1,900–\$3,500 for an above-the-knee one), the time required for preprosthetic training is long, and the physical efforts of learning the skill and walking with the new limb are arduous for many older individuals. It is important that every amputee who may have the physical capability of using a prosthetic limb, and who desires the limb, be given an ample trial and be provided a prosthesis if it proves feasible. Conversely, some patients clearly will not be capable of using a prosthesis, and some do not really have much desire for one. For those patients who are manifestly not prosthetic candidates, it is better to work positively toward realistic goals to provide mobility using a wheelchair. For a patient who does not desire a prosthesis, it is more satisfactory to accept his or her goals than to provide a prosthesis that will remain unused. Any doubts regarding physical ability can be resolved through trials with a walker or crutch and/or a temporary prosthesis. It should be emphasized that independent active living from a wheelchair is possible with rehabilitation efforts for many patients who are not capable of walking with a prosthetic limb.

In general, those patients who were able to walk shortly before amputation will be able to walk with a prosthesis if they desire, at least for



limited distances and possibly with the help of ambulation aids. Chronologic age itself should not be considered a limiting factor in the decision for prosthetic fitting. Patients who are not suitable candidates for prosthetic fitting include those who had not walked before the amputation due to an impaired neurologic or mental status, an advanced cardiac or pulmonary disease, in those who do not desire to expend the energy or time necessary for prosthetic fitting, patients with severe contractures, and the bilateral above-the-knee amputee for whom energy costs of prosthetic walking are unrealistic for older patients. In contrast, most older bilateral below-the-knee amputees are capable of prosthetic walking. Adequate healing of the surgical site obviously is a prerequisite for prosthetic fitting. Patients and families should be advised that prosthetic use does not increase the risk of a further impairment of health or the remaining lower extremity.<sup>105,106</sup>

Walking with a prosthesis will be different from a normal gait in several ways. A person with either a normal or impaired gait naturally attempts to select a walking speed that is most efficient in terms of energy cost, but disabled persons frequently decrease speed so that the energy expenditure per unit of time approaches the normal range. Energy measurements indicate that patients with amputations due to vascular reasons (generally older amputees) walk more slowly and require more energy consumption per unit distance than patients with amputations at the same level due to trauma.<sup>62</sup>

Postoperative management can follow either a technique that employs immediate (or early) postoperative prosthetic fitting,<sup>107,108</sup> or the older method with elastic bandaging or "shrinkers" for eliminating edema and shaping. With either method, a patient should be out of bed and as active as possible soon after surgery.

For aging patients, special considerations for the prescription for a prosthesis are: 1) Ease in donning; 2) Extra stability during stance; and 3) Lightness in weight.<sup>107</sup> Total contact sockets should be used<sup>109</sup> and meticulous attention to fit and alignment is necessary in fabricating all limbs for the geriatric group.

When the permanent prosthesis is available, a period of gait training is commenced, beginning with the parallel bars and advancing as an individual's progress permits. Some older pa-

tients will require ambulation aids for prolonged periods or even permanently.

Certain functional activities are particularly difficult for amputees, and therapy should be directed at these activities. Problem areas include bathing (50% of all amputees have difficulty with this), ascending and descending curbs (24%) and stairs (41%), arising from the floor (30%), use of all types of public transportation (35%), ramps (20%), and dressing (10%).<sup>110</sup> In virtually all areas, below-the-knee amputees are more functional than above-the-knee ones. Patients often can be helped by adaptive equipment or by home modifications as described previously in this chapter.

The psychological reactions of an older patient who is faced with a loss of limb can be quite profound and may significantly affect the rehabilitation process. The severe alteration of body image and the foresight of diminished activities leads to varying degrees of sense of loss, mourning, denial, and reactive depression. Some older patients will require considerable time for adjustment. Providing a patient with realistic information, with timely repetition to allow for complete understanding, patience, and the earliest possible participation in an active rehabilitation program, all are helpful in facilitating the adjustment.<sup>111,112</sup> The early resumption of standing and walking that is part of the immediate postoperative prosthesis program appears to reduce psychological problems.<sup>107</sup>

The prognosis for geriatric lower extremity amputees is relatively good, at present, and probably is improving. One large study that covered county hospital and Veterans Administration hospital patients during a 10-year period prior to 1967 reported that between 55–67% of all geriatric amputees were alive at the end of the first postoperative year; thereafter, survival approximately paralleled the general population for that age group.<sup>113</sup> Another study from a private institution that reflected a slightly more recent period, reported a 55.3% 5-year survival rate in a group with a mean age of 70 years.<sup>105</sup> A loss of the second leg has been reported in 10–15.5%<sup>105,106,114</sup>; it is much higher in diabetics who were followed for 5 years postoperatively (46–66%).<sup>113</sup>

Between 72–85% of all elderly amputees are able to make functional use of prostheses.<sup>105,114</sup>

Of below-the-knee amputees, 65–69% became completely independent; of above-the-knee amputees, 30–48%.<sup>105,115</sup> In a report of bilateral below-the-knee amputees over 50 years of age with a mean age of 61, 96.8% were able to walk satisfactorily with prostheses.<sup>116</sup>

### Spinal Cord Pathology

Spinal cord disorders result from a variety of etiologies. Trauma accounts for 50% or more, while others are due to congenital, neoplastic, metabolic, degenerative, demyelinating, or infectious processes, as well as to vascular accidents that involve the arterial supply to the cord. The level of the lesion and the degree of involvement are more significant than the etiology in rehabilitation management, although the latter (of course) affects the long-term prognosis. Of all traumatic spinal cord lesions, an estimated 5% in the United States occur in people 60 years of age or over and 9% in those 45–59 years of age.<sup>117</sup> Older individuals particularly are prone to cervical cord lesions<sup>118</sup> following a relatively minor injury (often, falls with hyperextension of the neck), possibly because of degenerative spondylitic changes of the vertebrae. Often, no bony injury can be demonstrated radiologically.<sup>119</sup> The central spinal cord syndrome of quadriplegia is common in this group.<sup>120</sup>

Rehabilitation of a spinal cord-injured geriatric patient is closely related to the prevention and management of complications that can occur at any phase. The immediate and continued use of range-of-motion activities and turning schedules is imperative to prevent contractures and pressure ulcers. The appropriate management of the neurogenic bowel and bladder, respiratory impairment, and spasticity all are integral parts of rehabilitation. Strengthening partially innervated muscles, transfer training, wheelchair navigation, ambulation with aids as necessary, activities of daily living training with appropriate adaptive techniques and equipment, and psychological and social work support all are essential to the restoration of independence.

Extensive rehabilitation and long-term follow-up are of significant value for a spinal cord-injured patient. Of those who survive the acute phase and who were 50 years old at the time of

injury, the expected survival for incomplete paraplegics is 18 years; for incomplete quadriplegics—16 years, complete paraplegics—12 years, and complete quadriplegics—5 years.<sup>120</sup> In one series, with proper rehabilitation, 73% of all spinal cord-injured patients who were 60 years of age or over at the time of injury were able to return home.<sup>118</sup> Rehabilitation reduces the cost of care for a significant number of years, and it supports the humanitarian approach in improving the quality of life for patients and their families.

### Arthritis and Related Conditions

Joint diseases as a group comprise one of the most common causes of limitation of activities for older people. Radiologic evidence of degenerative joint disease (DJD) of the extremities is found in 85% of those patients who were 75–79 years of age.<sup>121</sup> Probable rheumatoid arthritis, as defined by criteria of the American Rheumatism Association, is found in more than 10% of those patients who were 65 years of age and older.<sup>122</sup> Mortality is low, but chronic morbidity is extremely high in joint diseases. This results in increasingly large numbers of individuals with varying degrees of permanent disability.

In most forms of joint disease, the exact etiology remains obscure, and there is no effective cure. The goals of general management, accordingly, are to minimize symptoms and preserve functioning. Rehabilitation medicine goals for all types of joint disease can be summarized as: 1) To prevent complications of joint contractures, muscle atrophy, joint deformity, and disuse osteoporosis; 2) To reverse those complications as much as possible when they occur; 3) To alleviate symptoms of pain and stiffness; 4) Where irreversible disability exists, to provide compensatory equipment and techniques; 5) To assist in maintaining maximum independence in all areas of self-care, vocational, and community activities; and 6) To educate a patient, his or her family, and attendants in the nature of the disease process, the need for long-term management, and specific self-administered home programs.

The comprehensive management of severe joint disease requires the team efforts of an internist or rheumatologist, physiatrist, (often) orthopedic surgeon, a physical therapist, occu-

pational therapist, rehabilitation nurse, vocational counselor, social worker, and the patient and attendant. Since therapy must be prolonged and benefits may not be readily apparent, it is vital to maintain good communication with a patient; also, to remain enthusiastic, interested, and realistically optimistic, as well as to continue patient education through the entire period of involvement.

The prevention of contractures can be carried out by daily range-of-motion exercises. These can best be performed when pain, muscle "spasms," and viscoelastic stiffness are minimized; therefore, preliminary heating is customarily employed.<sup>123</sup> Active exercises are used to prevent muscle atrophy. The stimulation that is produced by musculotendinous pull on periosteal attachments, weight-bearing, and other stresses of activity help in the prevention of disuse osteopenia. Heating modalities and exercise, discussed previously, are briefly summarized: 1) For extremely acute inflammatory processes, cold may be superior to heat; 2) For active inflammatory joint disease, superficial forms of heat should be used for analgesia and reduction of stiffness and spasm; 3) Vigorous deep-heating modalities are used only for inactive chronic joint changes, where it is combined with slow stretching to reduce contractures. Exercise must be prescribed with care for an acutely inflamed joint to avoid damage to weakened supportive structures and to avoid increased deformity. This is particularly true in weight-bearing joints and articulations of the hand. Various forms of ambulation aids should be used to reduce strain on weight-bearing joints of the lower extremity when they are acutely inflamed. Devices to maintain alignment of the metacarpophalangeal joints during exercise of the longer finger flexors and extensors will counter forces that tend to produce ulnar deviation.<sup>124</sup> Hydrotherapy can combine the benefits of superficial heating with the opportunity to exercise body parts supported by the buoyancy of the water. Isometric strengthening often is useful for maintaining muscle strength without increasing joint traumatization.

For the prevention of upper extremity complications that often result from the stresses of daily activities, special training in joint protection and energy conservation techniques by oc-

cupational therapists are of singular value and always should be included in the rehabilitation program of a patient with rheumatoid arthritis.<sup>125-127</sup>

Rest, in the form of bed rest or local immobilization of a joint, is recognized as having therapeutic value in inflammatory joint disease. This reduces stresses in an acutely inflamed joint, reduces pain, and appears to help combat the inflammation.<sup>128-130</sup> However, prolonged immobilization will result in loss of joint flexibility, strength, and bone density; also, there are hazards of prolonged bed rest. Therefore, it appears that complete local immobilization of a joint should be limited to a relatively short duration to permit the inflammatory process to be reduced by medication, and then ranging activities should be resumed with part-time immobilization. Modified forms of bed rest appear to be as effective as complete bed rest,<sup>130</sup> are more easily followed, and would appear less likely to produce complications. Periodic rest periods during the day often are beneficial, thus reducing fatigue and joint strain.

Pain is an important problem from the standpoint of a patient. The value of the analgesia that can be produced with heating or cold modalities should never be underemphasized. At times, TENS may help in the management of joint pain.

Local splints and other supports often are useful in joint diseases. Splints are of three major types: static, functional, and dynamic.<sup>131-133</sup> Static splints produce complete immobilization of a joint, and are used primarily for joints that are tending to undergo deformity. For this purpose, they often are applied as night-resting splints, frequently to the hand and wrist, or posteriorly to the knee. This is particularly helpful for maintaining a joint in its most functional position if mobility cannot be retained (*see* Table 20-2).

Functional splints allow motion and activity while reducing stress or deformity of the joint to which they are applied. The functional wrist splint is commonly used, which stabilizes the wrist while permitting use of the thumb and fingers. Functional hand splints may permit flexion of the metacarpophalangeal joints, while preventing ulnar deviation. A double ring or spiral splint for the thumb permits flexion, but prevents hyperextension of that digit. Swan

TABLE 20-2 Functional Positions for Ankylosed Joints

Joints	Positions
Shoulder	45° abduction, 20° flexion, and 20° internal rotation
Elbow	70° flexion (if bilateral, one should be in 150° extension for reaching)
Wrist	15° extension (if bilateral, one in 15° extension, one in 5° flexion)
Fingers: MCP and PIP	35° flexion
Thumbs: CMC	20° internal rotation, 50° abduction
MCP	20° flexion
IP	Straight
Hip	25° flexion, 5° abduction, 5° lateral rotation
Knee	15° flexion (commonly splinted in nearly full extension)
Ankle	Neutral

neck and boutonniere deformities of the fingers are notoriously resistant to splinting or exercise therapy, as is an ulnar deviation of the metacarpophalangeal joints, once it has developed. For "trigger finger," a 1-inch elastic sleeve over the proximal interphalangeal joint will prevent the last 30° of flexion, thus minimizing or eliminating the "triggering."<sup>134</sup>

Dynamic splints use springs or elastic bands to prevent or correct joint deformities, with motion permitted. A major application, at present, is the Swanson dynamic splint, which is used following silastic arthroplasties of the metacarpophalangeal joints.<sup>135</sup> These prevent postoperative ulnar deviations, facilitate the development of a tight capsule radially, and assist the flexion-extension range.

Several shoe modifications often are useful. Metatarsal pads in a shoe with a wide forefoot last and a high soft toe often will relieve metatarsalgia. Metatarsal bars also can be used to shift pressure away from painful metatarsal head areas. For a severely deformed foot, extra-depth shoes with plastazote insoles may be adequate. Also, they are less expensive than the space shoes, which can be reserved for those cases that are unresponsive to simple measures. SACH heel, rocker bottom, and/or long steel sole insert minimizes stress on the hindfoot and ankle, and provides better gait in patients with ankle fusion. Pain beneath the calcaneus (from spurs or an inflammation at tendinous insertions) may be relieved by padded relief areas in the heel of the shoe, cushion heels, heel cups, or UC-BL shoe inserts. Occasionally, it is necessary to shift weight from the foot by a patellar tendon-bearing orthosis. Ambulation aids and wheelchairs often are helpful

in managing a joint disease of the lower extremities.

Studies of the effectiveness of long-term rehabilitation programs for arthritis<sup>136-138</sup> have concluded that: 1) Long-term comprehensive programs lead to an increased function and vocational success; 2) Short-term hospitalizations are valuable during acute exacerbations, in maintaining function, and in avoiding deterioration of social and psychological supports; and 3) Long-term home exercise programs significantly contribute to the preservation of muscle strength and joint function.

## Cancer

With the improved prognosis for cure or control of many types of cancer, aggressive rehabilitation management is appropriate to improve many aspects of the quality of life for those persons with this condition.<sup>139</sup> For some patients (e.g., those for whom amputation is necessary, with hemiplegia as a result of brain tumor, or with paraplegia or quadriplegia due to a spinal cord involvement), rehabilitation is similar to that for patients with those conditions due to non-malignant causes. However, there are certain disabilities in cancer patients that require specific techniques that are not otherwise encountered.

A radical mastectomy will result in impaired shoulder functioning; these women should receive maintenance of the range of motion with strengthening and retraining of the muscles that will substitute for the missing or denervated ones. Postoperative edema of the upper extremity often is encountered. Also, positioning tech-

niques and intermittent compression treatment with elastic sleeves and gauntlets can be helpful. Carefully selected prostheses are very important in restoring appearance. Psychological counseling for patients and their husbands can facilitate many aspects of adjustment.

Head-and-neck cancer surgery often results in a need for the help of speech pathologists; glossectomy, mandibulectomy, and laryngectomy patients are notable examples. A number of maxillofacial tumors require skilled prosthetic fabrication to preserve the very important facial appearance. Dysphagia may require special programs by rehabilitation nurses, occupational therapists, speech pathologists, and dietitians. Many of these patients will require a radical neck dissection, and specific therapy programs have been outlined to minimize neck and shoulder discomfort and to restore shoulder functioning.<sup>140</sup> A patient also should be cautioned in methods to avoid trauma and burns to the large skin areas that have lost the protection of sensory innervation. The disturbance in body image and communicative ability, along with anxieties regarding their malignancy and acceptance by others, often lead to the need for the assistance of knowledgeable counselors.<sup>141</sup>

### Parkinsonism

Although recent advances in the medical management of parkinsonism have done much to reduce the physical disability that is associated with this condition, there frequently is still a need for intervention by a rehabilitation team.

Goals of therapy are directed at retardation of functional loss in all areas. Parkinsonism is variably associated with rigidity, postural changes, gait disturbances, tremor, and inactivity. Consequently, therapy is directed at: 1) The prevention of contractures and disuse atrophy of muscles; 2) Optimal posture, gait, and speech; and 3) Maintenance of self-care capability. Since this is a permanent condition that can cause progressive disability throughout its course, continuous treatment by professional therapists is not practical. Education of a patient and his or her family or other attendants to achieve a suitable home program, with supervision and occasional intervention by a therapist, is the optimal plan for management.

Range-of-motion exercises with stretching of tight muscles is of the greatest importance in maintaining motion in shoulders, forearms, wrists, and hands; also, in preventing flexion contractures of hips and knees and hip adduction contracture. Exercises are necessary to maintain cervical mobility, minimize thoracic kyphosis, keep the shoulder adductors and protractors stretched, and keep the thoracic cage mobile. Heating modalities can be helpful in some patients with tight musculature. Continued active exercise to maintain muscle strength is vital. Gait training, emphasizing lifting the feet high to avoid shuffling, and maintaining arm swing are most helpful. Special exercises for equilibrium and for maintaining trunk flexibility should be included. A wide-based gait often is necessary for stability, and ambulation aids may become necessary. Special techniques to assist standing from a chair and the institution of walking should be taught.<sup>142</sup>

Occupational therapy can assist in improving hand coordination and in maintaining self-care activities. Sometimes, adaptive equipment is helpful, particularly for toileting, bathing, or transfers. A speech pathologist often can be helpful in improving the dysarthria that may be troublesome to both a patient and his or her family. There is definite evidence that such forms of therapy diminish the progression of a disability.<sup>143</sup>

### Amyotrophic Lateral Sclerosis (ALS)

In this form of motor neuron disease, which occurs most commonly in the geriatric age group, a relatively rapid progression of disability and a short life span (mean duration, 3 years) must be anticipated. Goals, accordingly, in the early phases are to prolong functioning and independence as long as possible; thereafter, to facilitate nursing care.<sup>144</sup> Exercises for maintaining joint motion and strength should be continued throughout the course. Ambulation aids, minimal bracing, adaptive equipment, and training a patient and attendants in transfer techniques should be employed as needs develop. In final stages, maintenance of joint motion is continued to facilitate hygiene and dressing with special nursing care for dysphagia and respiratory problems.

## Peripheral Neuropathy

Neuropathies that involve the peripheral nerve to affect motor, sensory, and/or autonomic functioning can result from a wide variety of conditions, and many types are common in aging patients. One nerve or many may be involved.<sup>145-149</sup>

The prevention of deformities and complications, and the attainment of maximum functioning are the goals of rehabilitation. Range-of-motion activities and splinting often are used to prevent joint contractures in cases of muscle weakness and imbalance. Special orthoses are available to support a weak wrist in a functional position, to dynamically assist extension of wrist and fingers in radial nerve palsy, to stabilize the scapula in long thoracic nerve or brachial plexus injuries, to support the ankle in peroneal palsies, and to provide support with numerous other sites of involvement. Biofeedback and other facilitation techniques are used for muscle re-education. Anesthetic and hypesthetic skin must be protected from pressure, heat, and cold. As the neuropathy stabilizes, progressive-resistive exercises for muscle strengthening should be employed cautiously, thus avoiding damage to partially denervated areas. Assistance in activities of daily living, adaptive equipment, home evaluation, and ambulation aids are used as indicated for individual cases, since chronic functional limitations often are seen in older patients with peripheral neuropathies.<sup>150</sup>

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## Spiritual Care of the Hospitalized Elderly Patient

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At the outset, it is necessary to draw a distinction, however tentative and inexact, between “spiritual” and “religious” care. One may define religious needs as those which religious institutions—churches and sects, congregations and communities—exist to satisfy. Therefore, to care for someone from a religious perspective would, perhaps, require the provision of opportunities or possibilities for that person to somehow participate in services of prayer and worship, to engage in various rites and rituals, to confess and to be given absolution, and to receive the sacraments or share in certain symbolic acts; this all depends on what the religious institution to which a person belongs considers important, necessary, or obligatory.

Spiritual needs are more universal. They often may be expressed and satisfied within the context of an organized religious institution. They also may be expressed and satisfied independently of any religious institution. Spiritual needs principally have to do with the human quest for meaning (the faith question), the human yearning for a good future whether in time or in eternity (the question of hope), and the human longing to care and to be cared for (the need to love and be loved).

There are persons who apparently have no need for religion. They are able to get along happily and well, and to lead fulfilling lives, without reference to religion as it is organized within society. Yet no human being can live happily or well or find fulfillment without reference to the spiritual dimension. Apart from an underlying sense of the ultimate meaningfulness and purposefulness of life (faith), of there being something ahead that is worth hoping for, and

of loving and being loved (as well as being affirmed as loveable), there is little incentive (as Viktor Frankl learned in the Nazi concentration camps<sup>1</sup>) for any of us to either choose life over death or be willing to fight for life instead of surrendering to disease and our consequent demise.

Advancing age in general and hospitalization (which occurs more frequently and lasts longer with advancing age) in particular cause both “religious” and “spiritual” needs to be experienced and to be made manifest more acutely and directly. Disease, disability, and the prospect of imminent death can be the occasion for religious needs, which may have lain dormant for decades, to come to the level of conscious expression. A hospitalized elderly patient, therefore, may very well communicate a desire to “make his or her peace” with God, with the church or synagogue, to make confession and to receive absolution, to have a rabbi, priest, minister, or chaplain read sacred scripture to and pray with him or her, to receive Holy Communion or the Sacrament of the Sick (formerly called “the last rites”), or to be promised a decent burial by the religious institution to which he or she belongs. These matters, which have not been given serious attention before the onset of the aging process and the occurrence of a life-threatening accident, illness, or disease, may now assume fresh immediacy and importance.

Spiritual needs are likely to manifest themselves under such circumstances in an even more poignant fashion. An accident, illness, or a disease and the prospect of imminent death (or at least a sense of the fragility of one’s ten-

ure on earth) can present faith with an existential challenge of the utmost magnitude. One's sense of the ultimate meaningfulness and purposefulness of life can be gravely affected by the advent of such untoward and unwelcome visitants. The question, "Why?" is not as Kübler-Ross would have us believe, merely an expression of anger.<sup>2</sup> It also may be a question that is wrung from the heart about the faithfulness of God and the tenability of the faith position. Can one's view of the universe, as ultimately ordered after some grand divine design, sustain a blow such as that delivered by the experience of hospitalization for severe illness and even one's impending death?

In the same way, hope is confronted with questions that cannot be evaded. What is there to look forward to when immediately ahead lies only increasing debilitation and dependency, which is aggravated by more and more pain, isolation, and loneliness, with death as the inevitable eventual outcome?

As the outward appearance of a hospitalized elderly patient visibly and steadily deteriorates, it becomes progressively more difficult for that person to love him- or herself, and to affirm him- or herself as a person of unique and irreducible value. As that person's immediate family members and friends or erstwhile companions become less accessible or available (because of distance) or unable (by reason of their own limited physical mobility or emotional security) to surround him or her with a loving, supportive community, the question of how important he or she is to others and to God becomes inescapable. Only a most deeply rooted sense of self-identity and self-worth will be able to survive such a progressive falling away of opportunities to love and to be loved, and also to know him- or herself as loveable.

This brings us to the main topic of this chapter, which is the spiritual and religious care of a hospitalized elderly patient.

## Guidelines for Religious and Spiritual Care

Three general guidelines may be suggested: 1) Listening actively to what a hospitalized patient is saying (both verbally and non-verbally); 2)

Identifying his or her primary religious or spiritual concerns; and 3) Responding to those concerns either directly or by referral.

Much has been written about the importance of health care professionals developing skills in active listening. There also is extensive available literature that is concerned with methods and techniques in this area.<sup>3</sup> Therefore, I shall not argue the importance nor expound on the practice of active listening. I take it as an a priori assumption that every health care professional—whether nurse or physical therapist, physician or chaplain, social worker or x-ray technician—ought to be constantly in the process of learning to actively listen to what patients are attempting to say to her or him either directly with words or indirectly with body language, physical signs, and gestures. Essential to this listening process is the awareness that a hospitalized elderly patient will invariably have some religious or spiritual concerns, that these are legitimate, and that responding to them appropriately is a valid ingredient in caring for human beings comprehensively in the totality of their being.

As one actively listens to what a hospitalized elderly patient is saying, it will be possible to identify more specifically what his or her religious or spiritual concerns are. Sometimes, these will be expressed openly and directly. However, many patients are either physically or emotionally unable to do this. Their communication is perforce oblique: tears welling up in their eyes when they receive an act of kindness, a look of wistfulness when they see a priest or rabbi ministering to a patient in an adjacent bed or room, a turning toward (or away from) a television set when a religious program is being screened, a compulsive crying out for forgiveness or for help from God, or a Bible, rosary, or prayer book at their bedside that is lovingly handled. A sensitive health care professional will be constantly on the lookout for signs and symptoms of religious or spiritual need. When some clue is presented that such needs are being expressed, it is perfectly appropriate openly to explore these matters with the patient concerned so one can identify exactly what his or her wishes are. This can be done without probing by means of open-ended questions; it must be done without moralistic or judgmental attitudes or actions.

Gently and caringly, a patient's religious or spiritual needs should be more specifically identified.

Once identified, these needs have to be appropriately met, either directly or by referral. As a general principle, it is safe to say that religious needs are most appropriately met by someone representing the religious community to which a patient belongs. A Roman Catholic priest alone can hear confession and provide absolution to a Roman Catholic, a Jew (rabbi or lay person) must recite the Kaddish for a Jewish patient, or a Southern Baptist minister may be the most appropriate person to talk with a former member of that denomination who has concerns about "heaven" and "hell," about his or her eternal destiny. In hospitals that are enlightened enough to provide a chaplaincy service for patients, there often are in-house chaplains who are able to respond directly to the religious concerns of many patients. When they cannot do this (because a patient's denominational affiliation or religious allegiance is not represented within the chaplaincy department and no one else would be acceptable to a patient except someone from his or her own religious group), or where no chaplaincy service exists, it is imperative that a referral network of community clergy be developed. In the community, there are ministers, rabbis, and priests who are only too willing to become involved in meeting the religious needs of hospitalized patients. What is necessary for this resource to be deployed is that community clergy be cultivated, encouraged, welcomed, and accepted as colleagues in caring by those who administer and staff a hospital.

It is commonly thought that spiritual needs may most appropriately be met by chaplains or other professional clergy. However, this is not necessarily the case. Because spiritual needs (as we have already pointed out) have to do with broad questions about life's meaning (faith), the future (hope), and loving and being loved, an aware health professional may (in the first instance) be the most suitable person to respond to the spiritual needs being presented. Initially, responding requires only that a patient be "given permission" to express whatever feelings have been occasioned by the present

loss of faith, hope, or love. The most important service that any human being can render another, in such circumstances, is simply that of allowing him or her time and emotional space to communicate what feelings are being experienced in relation to a loss (actual or potential), of God, life, the future, other human beings, and oneself. To stifle a patient's flow of feeling—whether by appearing too busy to be bothered or by seeming to be condescending or critical, irritated, or impatient—represents the gravest disservice that one can render.<sup>4</sup>

In addition, responding appropriately to the spiritual needs of patients does not require of any of us that we tell them, from our own perspective, why life is meaningful, why they may look to the future with hope, or how loveable they are. Instead, it requires the far more difficult task of enabling them to discover or rediscover and to affirm for themselves those things that may make life seem purposeful once more, that may allow them to look to the future with confidence and with courage, and to feel that they are both loved and loveable—as well as having love yet to give.

It might seem that doing this is the special prerogative of spiritual counselors—whether in-house chaplains or community clergy. One hopes that such persons will, by reason of their professional training and experience, be more adept than other health care providers in this particular area. However, it is important to encourage all who work in a hospital setting to be open to working in the spiritual dimension, at least initially, for at least two reasons. The first is that a nurse, physician, social worker, therapist, or technician may have developed a very special and personal relationship with a particular patient. If it is within the context of that relationship that a spiritual concern has been communicated, then it would represent something of a betrayal if the responsibility for responding to it were passed on at once to someone else. Second, someone else might not be immediately available; by the time a chaplain or member of the community clergy could be summoned, the right moment for responding might have been irrevocably missed.

To encourage health care professionals who may not describe themselves as "religious" to

be open to the spiritual dimension in relationships with their hospitalized elderly patients, let me share an axiom of my own work that I discovered in my reading of Paul Tillich. Tillich, one of the foremost Twentieth Century theologians, was concerned (among other things) with the problem of communicating spiritual truth to secular people. One way he found of doing this was by speaking of the “depth dimension.” In one book he writes:

The depth of thought is a part of the depth of life. Most of our life continues on the surface. We are enslaved by the routine of our daily lives, in work and pleasure, in business and recreation. We are conquered by innumerable hazards, both good and evil. We are more driven than driving. We do not stop to look at the height above us, or to the depth below us. We are always moving forward, although usually in a circle, which finally brings us back to the place from which we first moved. We are in constant motion and never stop to plunge into the depth. We talk and talk and never listen to the voices speaking to our depth and from our depth. We accept ourselves as we appear to ourselves, and do not care what we really are. Like hit-and-run drivers, we injure our souls by the speed with which we move on the surface; and then we rush away, leaving our bleeding souls alone. We miss, therefore, our depth and our true life. . . . the name of this infinite and inexhaustible depth and ground of all being is *God*. That depth is what the word *God* means. And if that word has not much meaning for you, translate it, and speak of the depths of your life, of the source of your being, of your ultimate concern, of what you take seriously without any reservation. Perhaps, in order to do so, you must forget everything traditional that you have learned about God, perhaps even that word itself. For if you know that God means depth, you know much about Him.<sup>5</sup>

Responding appropriately to the spiritual needs of others in the end means being willing to “speak of the depths of your life, of the source of your being, of your ultimate concern, of what you take seriously without any reservation.” These things are the fabric of the spiritual dimension. An awareness of these matters is not limited to those persons who have had the benefit of a seminary education; it is available to all who are content to live not merely on the surface. Sharing your depths with a patient, and being willing to have a patient share his or her depths with you, is to be involved in spiritual care. It is to speak of God—whether or not the name God is ever invoked or mentioned.

## Religious and Spiritual Care: The Challenge to a Hospital, to Medical Education, and to Religious Institutions

Responding appropriately to the religious and spiritual needs of a hospitalized elderly patient thus presents challenges to a hospital as an institution, to those persons who are responsible for medical, nursing, and ancillary health care education and continuing education programs, and to the various religious institutions. It is worth addressing, in turn, the challenge to each of these institutions or agents.

The challenge to the hospital is, in the first instance, to be aware that comprehensively caring for patients (especially elderly patients) requires that provision be made to meet their religious and spiritual needs, as well as their physical and emotional ones. Of course, this is not (in the short run) “cost-effective.” Providing for the religious and spiritual needs of patients is not, as yet, reimbursable by either third-party carriers or by the federal or state governments. Therefore, it does represent a gratuitous service. In times of economic recession, the value of such a service might well be questioned. However, it is my contention that caring comprehensively for the whole person is, in the long run, an economy rather than an extravagance. The healing process only can be set forward or gentle dying only can be experienced when a person who is being treated has a positive and peaceful outlook on life. To the extent that appropriate religious and spiritual care can foster this positive and peaceful attitude, it, therefore, is an integral element in effective or even “cost-effective” long-term management of a hospitalized patient.

Second, the challenge to a hospital is not only to be aware of the importance of including the religious and spiritual dimensions in caring comprehensively for hospitalized patients, it is also to provide for the highest possible level of excellence in the religious and spiritual care afforded. It is widely recognized by hospitals in the United States that the Clinical Pastoral Education (CPE) program provides hospitals with the best possible religious and spiritual caregivers.<sup>6</sup> In this program, interns are appointed

for periods of 3, 6, or 12 months and work under close, competent, and continuous supervision in a hospital setting. In a way that is analogous to the training of medical interns, chaplaincy interns learn about the art and science of pastoral care while serving on the various hospital units. The learning experience stems from exposure to patients and their families, nurses and other ancillary health care personnel, physicians (including attending residents, interns, and medical students), their own peers, and their clinical supervisor. There also can be a rigorous academic component to the program. Major religions and denominations—whether Roman Catholic, Protestant, or Jewish—now require their candidates for ordination to have spent at least 3 months, and often more than that, in a CPE program in a hospital setting. The advantages of the CPE program accrue to the hospital, as well in terms of increased chaplaincy coverage and the possibility of completely integrating spiritual care of the highest quality into the overall care that is provided to patients and their families.

The challenge to those who are responsible for medical, nursing, and allied health professions education programs is to expose their students not only to the latest scientific work in their respective fields of activity and interest, but also to the ramifications of responding to the religious and spiritual needs of patients and their families within the context of a comprehensive approach to health care. That this is happening more and more in seminars, conferences, and workshops across the country is, in large part, due to the impetus of recognizing the importance of the spiritual dimension that is provided by the hospice movement.<sup>7</sup> Whereas in a hospital setting the need to provide technologic services typically takes precedence over any concerns to minister to people spiritually, this ranking of values is reversed in a hospice setting. When caring for dying patients, technologic services become secondary, rather than primary. What is primary is ensuring the comfort of a patient, companionship with him or her (rather than allowing a patient to be isolated or abandoned), and making it possible for that person to bring his or her inner journey to creative completion. Therefore, within a hospice setting, religious and spiritual counselors have a crucial front-line role to fulfill. The benefits that

stem from the fulfillment of this role—to patients and their families as well as to health care providers—have been obvious to all who have witnessed a hospice-type program in action. It has awakened the medical, nursing, and allied health professions in general to the importance of good spiritual care. However, momentum must be maintained and education and continuing education restructured accordingly.

The challenge to religious institutions, perhaps, is 3-fold. First, as already mentioned, education for the ministry must include a significant amount of time learning pastoral skills within a hospital setting. The CPE program makes this possible, and the fact that many of the major religious institutions are insisting on at least a minimum of 3 months of CPE training is evidence that advantage is being taken of this opportunity. It is hoped that this will happen more and more. Further, education for the ministry must include exposure to the new and rapidly evolving field of biomedical ethics. The moral dilemmas that continue to compel our attention in medicine and the life sciences provide a unique meeting place for those persons who are trained in medicine and the sciences on the one hand, and those who are trained in theology and philosophy on the other. Few contemporary areas of applied ethics are more relevant, exciting, or demanding than this. Without a basic exposure to the issues in biomedical ethics, no seminarian's education can be considered complete these days. The benefits of the interaction between clergy and physicians, and consequently to patients and their families, are inestimable.<sup>8</sup>

Second, the appointment system of the religious institutions is challenged. In the past, chaplains were considered to be less capable than those who worked in the parish ministry. The short-sightedness and unwisdom of this attitude has now become woefully apparent. A hospital ministry requires people with the best minds, the most highly developed pastoral skills, the least inflexible and dogmatic attitudes, and the most compassionate hearts that our religious institutions can attract and appoint. A hospital ministry, therefore, must be given a greater priority in the profession than in the past.

Third, the challenge to the religious institutions is at the level of the local congregation—

with its human and material resources. Lay persons should be trained to serve as “friendly (and competent) visitors” to a hospitalized elderly patient. The support system of an elderly patient, which deteriorates in extent and quality with the passing of each succeeding year, can be supplemented with lay members of local congregations. After adequate training, they can provide invaluable ongoing spiritual care to elderly persons in fulfillment of one of the central mandates of the Judeo-Christian tradition that we learn to love our neighbors as ourselves. The facilities that are owned and operated by local congregations make this kind of training both practical and possible, as well as training in other health-related areas (e.g., nutrition, exercise, stress reduction, weight control, how to stop smoking, and so on). If churches and synagogues were to use their resources—both human and material—on behalf of ministering to persons in general and to hospitalized elderly persons in particular, the effects could be quite revolutionary. One can only trust that the day will soon come when the comprehensive approach to caring will cause hospitals to arrive at a new appreciation of the importance of meeting the spiritual needs of people and local congregations to broaden their concerns to include the physical well-being of the persons they serve.

### Barriers to Communication

The final cluster of issues that need to be addressed in this chapter has to do with barriers to communication. Meeting the religious and spiritual needs of a hospitalized elderly patient requires effective communication with that person. However, barriers to communication abound. Some are concomitant to the aging process itself (e.g., deafness or other sensory deprivation). Some are consequent to the disease process that is afflicting an elderly person (e.g., a stroke destroying that person’s ability to speak or Alzheimer’s disease destroying the victim’s cognitive capacity). Some barriers are ethnic and cultural (e.g., patient’s inability to speak or to understand English when he or she is in a predominantly English-speaking environment, or cultural values that are not well-appreciated or understood by the dominant majority).

Also, some barriers are caused by technologic interventions that are performed in a hospital setting: (e.g., a tracheostomy, which makes it highly difficult for a patient to speak). It is worth noting that even skilled lip-readers are only able to understand about 33% of all attempts to verbalize with mouth movements alone. Few of us who endeavor to communicate with a tracheostomized patient are skilled in lip-reading. It should not surprise us then that what we are able to understand, by following the movements of the mouth alone, usually is minimal.

Some of these barriers to communication are insurmountable. When brain damage has occurred, full communication is almost impossible to achieve. A care-giver can and should speak to a brain-damaged patient as if he or she is still able to comprehend what is being said; we cannot know what communication registers at some deep level of consciousness. However, we must not expect nor be disappointed by lack of a response. What communication there is will perforce be essentially one way.

However, much can and ought to be done to surmount some of the other barriers that have been mentioned. With proper therapy, those patients who have lost the ability to speak after having sustained a cerebrovascular accident can be trained again to verbalize their thoughts and feelings; but, this process usually is painfully slow. Those patients who have been dismissed as senile, but who in fact suffer from a reversible confusional state, can be brought back into contact with the outside world with the appropriate stimuli, and communication with them can be restored. Notes can be written to those who are deaf or by those patients who are tracheostomized. Braille or more simple forms of sign language can be developed for communicating with blind patients. Linguistic and cultural barriers can be overcome by using translators and those persons who share a patient’s cultural values. At last, in all cases, much can be accomplished when a spiritual care-giver has been trained to listen for non-verbal forms of communication and to articulate on behalf of a patient who is unable to speak what that patient is attempting to express.

There may be formal courses in non-verbal communication. However, I have found com-



passion and experience to have been my two best teachers in this regard. I have learned to look for the slight opening or twitching of an eye, a tear, a gesture or grimace, the squeeze of a hand, or the shrug of a shoulder as vital clues to what a person with whom I am attempting to communicate is wanting to say. Then, I have had to learn something of the frustrating art of articulating on behalf of a patient what I believe he or she is trying to communicate, and always checking with a patient the accuracy of my perceptions. Where difficulties are experienced, I have found it useful to admit these openly and to suggest that the attempt to communicate be temporarily abandoned and resumed later as soon as possible. This is preferable to allowing tension to build and frustration to rise to a point where communication is altogether blocked.

One incident that illustrates this last point, as well as the difficulty of communicating with a hospitalized elderly patient (and the consequent joy when the barriers to communication can be overcome) is worth recounting. I had gone into an intensive care unit to visit for the first time an elderly man, who had undergone a coronary artery bypass graft, who was tracheostomized and on a ventilator, and who was quite unable to speak. As I entered the room, it was clear that both the nurse and the patient were highly agitated. The nurse was holding up an alphabet chart and was trying to get the patient to spell out what he wanted to say. This was not going too well and the patient was as distressed as the nurse was flustered. Breathing a sigh of relief to see me enter the room, the nurse was only too glad to make way for me and to move away from the patient's bedside. I took the elderly man's hand and asked him what it was he was trying to say. He immediately began to move his mouth furiously in an attempt to verbalize his feelings, but he was unable to speak. Simultaneously, two things happened to me. One was that I could not follow the rapid movements of his lips and lost what he was attempting to express. Concurrent with this was a rising feeling of panic within me, which I am sure was very similar to the anguish that the nurse had been experiencing moments earlier. Then, at the same time, wondrously and incredibly, I absolutely knew what this old man wanted to say. How I knew, I cannot explain. Perhaps, it was intuition or inspiration (are these but two words

for the same phenomenon?); perhaps it was experience or compassion—my ability in that moment to identify with his plight. However, it happened, I knew. “You’re feeling frightened because you have tubes down your throat and nose, and because you are unable to speak, and you would like someone to tell you what is going on and why. Right?,” I said to him. The man heaved a sigh of relief (as did the nurse at the other end of the room) and settled back on his pillow, a smile of gratitude spreading over his face. I said, “Your nurse is the best person to explain to you what is going on, why you have all these tubes, and when they are likely to be taken out. Let me ask her to come back to you.” Then, I left the room. I had spent no more than 2 minutes at that man's bedside. Yet those 2 minutes represented a crucial spiritual intervention.

This incident highlights many important truths: 1) How tension within oneself can exacerbate whatever other barriers of communication there already are (in the case of the nurse when I entered the room) and how (conversely) a relaxed and peaceful frame of mind can facilitate communication; 2) How difficult it is to rely on lip-reading alone to understand what a person is trying to say; 3) How a variety of communication techniques must always be attempted (e.g., the alphabet chart, which often is an invaluable tool); 4) How much depends on intuition, inspiration, or innate sensitivity on the part of a “listener”; and 5) How the recipient of what has been communicated must verbalize this on behalf of a patient, checking out whether it (in fact) represents what he or she is trying to say.

There are ways to surmount many of the barriers to communication so that the religious or spiritual needs of a patient may be met adequately. However, apart from genuine compassion and sensitivity, one other indispensable factor is necessary if this is to happen: willingness on the part of a counselor or care-giver to take and spend as much time as is required for communication to occur. Unless we are willing to invest our time in attempting to surmount whatever barriers to communication there are, we will aggravate—rather than alleviate—the existing problems. Making time for, taking time with, and spending time on the spiritual concerns of elderly patients is costly. Only as we

are prepared to meet this cost will our caring bear fruit in terms of lives being transformed. Transformation really does occur when people find anew (or for the first time) a sense of meaning in their lives (faith), reaffirm that there are good things ahead to which they may indeed look forward (hope), and rediscover that they are loved (and, therefore, loveable) and can give love in return. If this is the ultimate goal of all effective spiritual care, surely whatever time it takes to reach it will have been well-spent. The fact that physicians and nurses, in general, are unable to find the time that is needed for continuing spiritual care ultimately is the most compelling reason for integrating religious and spiritual counselors into the comprehensive health care team.

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"When the first stage (incidentally, the whole concept of "stages" of grieving is now in disrepute) of denial cannot be maintained any longer, it is replaced by feelings of anger, rage, envy, and resentment. The next logical question becomes: 'Why me?' " (p 50)  
While this sometimes may be an accurate interpretation of what is happening, my own experience with persons who are dying suggests that this question (Why?) is more commonly a question about the ultimate meaningfulness of life, with its strange and even bizarre twists and turns. See Kübler-Ross, E: *On Death and Dying*. New York, MacMillan Publishing Co, 1969, p 50.  
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  1. An inability or unwillingness to confront the reality of the loss; and
  2. An inability or unwillingness to express the normal range of emotions occasioned by the loss.

To the extent that a spiritual counselor enables a patient freely to express whatever feelings are evoked by the actual or impending loss, he or she is facilitating a healthy and creative response and a successful resolution of the grieving process. To the extent that a spiritual counselor inhibits or blocks the flow of feelings that are associated with the loss, he or she retards this process. To cut short a patient's flow of feeling, especially by resorting to platitudes such as "It could be worse," or "If you think you have troubles, let me tell you about . . .," is especially detrimental.
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# Deciding About Life-Sustaining Therapy

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Every geriatric patient will face death, and every physician who cares for an elderly patient should be able to help patients confront death, make decisions about their dying, and live fully even while dying. This chapter deals with decisions about the goals to be achieved and the therapies that should be used. The following chapter concerns the therapies that physicians and other care-givers should be able to offer to dying patients (*see* Volume II, Chapter 23).

Only a few generations ago, dying (especially among older people) was an event that had more family and religious significance than medical attention. A physician or nurse might visit as a friend, but family and neighbors did most of the care, narcotics and alcohol were available without prescription, and nearly everyone who had a home and did not die suddenly died at home. No one felt that the time and manner of death was greatly in human control.

At present, however, new technologies and capacities have made it possible to intervene to change the time and manner of almost all deaths. Also, most persons with illnesses that are likely to be fatal are cared for in institutions (hospitals or nursing homes) where the interventions are readily available. In one study, 65% of all patients who were dying of cancer died in a hospital and 15% died in a nursing home.<sup>1</sup> Also, more deaths follow long-term chronic illnesses. Death due to infections or trauma used to be common and swift; now, death due to malignancies, heart disease, and strokes are both more common and more protracted. The average time from the diagnosis of

a terminal disease to death may be well over 2 years.<sup>2</sup> Thus, many forces have made it more common for health care professionals to be involved in deciding about whether to undertake a life-sustaining therapy. However, practitioners have varied greatly in their resolution of the issues; especially, in how much control of the decision is the province of a patient.

Many interventions can be life-sustaining, such as respirators, antibiotics, surgery, nasogastric feeding, intravenous (IV) hydration, and even turning in bed. For geriatric patients, human contact and concern, which are important parts of foster grandparent programs, Meals on Wheels, or sheltered housing, can be life-sustaining. This chapter will consider the full range of efforts in determining how decisions should be made about sustaining life; not just those efforts that use dramatic and complex technology.

For most people most of the time, prolonging one's own life is very important. Under ordinary circumstances, to seriously risk one's life (as one might do in war or in dangerous sports) is thought by others to require some justification; this underscores the widely shared presumption in favor of prolonging life. Some of the trust that the public places in the medical professions is rooted in medicine's commitment to this goal. However, some of the concern that the public directs toward medicine today is rooted in a perception that the commitment of medicine to prolonging life sometimes is inflicted unreflectively on patients who thereby do not benefit. What is at issue in this controversy is this: what justifies a decision to forego

a life-sustaining therapy? There are two kinds of answers. First, society legitimately can decide that some therapies will not be made available, because they are so costly (in terms of finances, human effort, or other limited resources) that their provision would severely limit the general welfare or would be seriously inequitable in precluding a response to other greater needs. Second, a life-sustaining therapy that is available may not be warranted for a particular patient, because its use does not improve the well-being of a competent patient in his or her own view or of an incompetent patient in the view of those who decide on his or her behalf.

### Societal Decisions to Limit Choices

Very few interventions that physicians control are presently completely inaccessible to geriatric patients because of their cost. Medicare has largely ensured that geriatric patients can get needed surgery, intensive care, and diagnostic tests. The only discrete category of life-saving interventions for which efforts have been made to curtail access to because of costs was heart-transplant surgery. When a federal regulation was proposed that would have restricted access to heart transplantation, the public and professional outcry led to providing heart transplants under a research protocol, rather than under Medicare's regular provisions.

However, many life-sustaining therapies are, in fact, inaccessible to large numbers of patients because of less direct and obvious societal policies. For some patients, the direct cost of drugs is prohibitive. For some patients, adequate nutrition and shelter are unobtainable. Community services, such as visiting nurses, home health aides, occupational and physical therapy, and day care centers, are regularly unavailable to many elderly persons. For many patients, these services are life-sustaining; their unavailability is, in effect, a societal decision to remove certain life-sustaining interventions from the options that a patient and provider can consider.<sup>3</sup>

Whether or not individual patients should be made aware of these foreclosed choices by their health care providers, and if so how they

should be told, are difficult and complex questions whose resolution depends on individual circumstances and political philosophies. However, the medical professions, as a whole, do bear a responsibility to ensure that these societal decisions are debated responsibly and with careful accounting for the competing values of patient and professional autonomy, patient well-being, societal well-being, and social justice. Physicians fail to meet this obligation when they use their collective power to ensure that costly hospital interventions are readily accessible, but fail to be concerned about the other programs and practices that similarly affect the length and quality of their patients' lives.

### Individual Patient Decisions

When one or more therapeutic options that would prolong a patient's life are available, the question for a patient and physician (and often a patient's family, nurses, and others who are concerned about that patient) is whether such an intervention serves a patient's interests well. Usually, deciding this is fairly straightforward—all concerned agree that the therapy is beneficial. Sometimes, however, the therapy is risky, uncertain, and quite burdensome, or a patient's life even with successful therapy will be quite brief or painful. Such situations may well justify deciding to forego the therapy. Decisions of this sort are a specific application of the principles of medical decision-making in general<sup>4</sup>:

1. A patient can make a final choice at least among medically acceptable options and the option of no medical intervention, provided that a patient meets three conditions; that he or she:
  - a. Has adequate decision-making capacities;
  - b. Is deciding without coercion; and
  - c. Has understood his or her situation and the likely effects of the options.
2. Decision-making capacities are presumed to be sufficient to the decision that is facing a patient unless evidence disproves the presumption; merely the choice to turn down a physician's recommendation is not conclusive evidence.

3. Providers of care have an obligation to improve their patients' capacities to be decision-makers on their own behalf through the careful use of drugs, counseling, encouragement, and training.
4. Providers of care are obliged to limit the degree to which their actions and words coerce or manipulate their patients' choices.
5. Providers of care, especially physicians, have an obligation to ensure that each patient understands the relevant facts about his or her medical conditions, their likely outcomes, the available interventions that might be beneficial, and the risks and benefits of each.
6. If a patient does not have a sufficient capacity to understand the decision, to reason about it, or to make it, then a surrogate decision-maker should take on a patient's role in making the decision.
7. A physician has an obligation to ensure that a surrogate is the appropriate person to speak for a patient and to ensure that questionable decisions made by surrogates receive appropriate intrainstitutional or judicial review.
8. Surrogate decision-makers should try to decide as a patient would, if that can be known, or in a patient's best interests if his or her preferences are not known. Directives that were made previously by competent patients who are now incompetent for the decision at hand (e.g., Living Wills) should give substantial guidance as to a patient's preferences and should be over-ruled only by evidence.

## Competent Patients

For the usual patient who is competent to determine the course of his or her life, once well-informed, a patient's preference is nearly always binding. Certainly, a patient can choose among all options that are acceptable to the medical profession (e.g., either diet or insulin for diabetes, either surgery or drugs for coronary artery disease). Furthermore, such a patient always can choose to forego all medical intervention. Not only is this range of choices a significant sign of respect for a patient's self-determination, but it also is sanctioned by laws

that concern informed consent, battery, or malpractice. A physician (or other health care provider) who disagrees strongly with a patient's choice may withdraw from that case after appropriate notice to that patient. However, a patient cannot insist on a therapy that a physician is unwilling to provide. How willing a health care provider should be to provide therapies that are of doubtful benefit (e.g., laetrile) is predominantly a matter of an individual's conscience, balancing the value of a patient's self-determination and welfare against a health care provider's commitments to medical orthodoxy, the risks and benefits, and his or her professional integrity. Professional associations could help to arbitrate this issue by debating and publishing standards of care in troublesome areas.

Providers of care have an obligation to adequately inform competent patients of their conditions and therapeutic options; provided this is done with tact and empathy, it can be quite beneficial to patients.<sup>4,5</sup> This obligation is not fulfilled by informing a patient's family, unless that patient has indicated that he or she prefers that family members make the decision. Even then, providers should be wary of allowing a competent patient to waive involvement in serious decisions that affect the length of his or her life and the way that the remaining life can be led.<sup>4</sup>

## Incompetent Patients

The problems become much more complex when a patient is of dubious or inadequate competence. In this case, a wise physician must balance a concern to protect his or her patient's interests with a concern to honor that patient's values and goals. Also, a physician must identify and involve appropriate surrogate decision-makers without harming them or damaging a patient's well-being or privacy interests. Obviously, dilemmas can arise. However, usually a family member or long-term and intimate friend is available to be a surrogate decision-maker and can collaborate with a physician (and others) in deciding on a plan of care.

However, a surrogate's choices are more properly confined than those of a competent patient. For example, competent patients may freely consider the effects of a decision on the

society or the family; but, a surrogate should be quite circumspect about considering anything but a patient's own self-serving interests. Thus, it is completely proper for the providers of care to refuse to comply with the decision of a surrogate, and to insist on formal judicial proceedings, even though the same providers would have accepted that decision from a similarly situated competent patient. This is true in both directions. One should be less willing to inflict a predictably futile therapy on an incompetent patient and one should be less willing to forego a substantially burdensome therapy that offered a substantial chance for cure or improved living.

Whether a patient is competent and whether the right decision is being made for an incompetent patient often are difficult decisions. Institutions such as hospitals and nursing homes should have explicit policies and procedures for settling these questions, and providers should ensure that they are established.<sup>6</sup> Some institutions have found advisory "ethics committees" to be a useful mechanism. Ordinarily, it will be extremely costly, time-consuming, and frustrating to rely on the judicial processes of guardianship and probate court review for any but the most difficult cases.

## Special Situations

### Orders Against Resuscitation

With one exception, medical therapies in hospitals do not begin until an order to do so is written. With cardiopulmonary resuscitation (CPR), the presumption is reversed; cardiac arrest leads to resuscitation attempts unless a countermanding order has been written. This forces patients who are seriously ill and their physicians to make a decision in advance, as to whether resuscitation efforts are desirable in case the need arises. There are few interventions on a hospital ward that are more dramatic, aggressive, and intense. Sometimes, CPR is dramatically successful; it can return heart attack victims to a nearly normal life and can buy very important time for an elderly person with drug-induced arrhythmias. However, neither short- or long-term success is often achieved with patients who are dying, principally be-

cause their diseases are more than a match for available therapies. Short-term success often is marked by substantially burdensome morbidities (e.g., broken ribs, need for respiratory support, neurologic damage, kidney failure, and so on). Thus, an elderly patient who is dying may be harmed rather than helped by resuscitation efforts. Therefore, not to have examined the issue with a patient or a patient's surrogate is a serious failure on the part of a physician.

Resuscitation decisions should be documented on a patient's chart, and orders not to resuscitate should be written along with the therapeutic orders so that their existence and authority are not misunderstood.

### Severe Dementia and Permanent Loss of Consciousness

A few geriatric patients will have irreversibly lost consciousness, usually due to cerebrovascular accidents. Many more will have severe and permanent dementia. For those patients, all of whom will require surrogate decision-making, ascertaining their best interests will be difficult. In no other area is it so important to have adequate and explicit lines of authority and institutional mechanisms for review.

Patients with a permanent loss of consciousness seem not to suffer, so the goals of therapy will be difficult to define. The insights and preferences of a patient's family are sufficient guides for decision-making. However, the range of therapies that a family can choose can be quite broad, including foregoing or insisting on artificial feedings.

Severely demented patients can suffer and feel pleasures, and this must be considered in assessing their interests. In the case of *Superintendent of Belchertown State School versus Saikewicz*,<sup>7</sup> the Massachusetts Supreme Court decided that a severely retarded adult's interests were best served by not treating his leukemia, because the treatment would be so upsetting and the patient could never understand the rationale for enduring such travail. Others have disputed this conclusion.<sup>8,9</sup> The issue is very perplexing, and one in which a procedural resolution may be better than a uniform rule. If a course of therapy is clearly in a demented pa-

tient's interest, such as removing a foreign body to stop pain or turning in bed to prevent decubitus ulcers, then a surrogate and the practitioners should provide it. When it is ambiguous as to whether a therapy is beneficial, then those persons who are most concerned for a patient (usually family) should have reasonable discretion.

### Living Wills and Other Advance Directives

Patients can maintain some control over their care during a period of incompetence by giving directions in advance while still competent. The most well-known "advance directive" is the "living will," which is given some legal force in 14 states.<sup>6</sup> These documents direct that a patient with an incurable and terminal condition be allowed to die without "artificial" or "heroic" means to "delay the moment of death" or "prolong the dying process." As a legal document, "living wills" are distressingly vague and ambiguous and probably unenforceable. However, as a means of communicating to health care providers and family members, they are potentially important indices of a patient's preferences.

More flexible and powerful means for a patient to direct his or her own care despite incompetency are "durable powers of attorney." Usually, powers of attorney lose their force as soon as the writer becomes incompetent. However, all states have made provision for persons to write a power of attorney that continues during, or even begins with, incompetence.<sup>6</sup> These have been seldom used for health care, but there is no legal barrier. Through this device, a patient could designate a proxy to make decisions on the patient's behalf and could instruct that proxy or a physician as to what choice should be made. With a durable power of attorney, the need for judicial proceedings would arise only if someone felt that a patient's instructions were being wrongly interpreted or were unreasonable.

Both of these formal mechanisms for advance directives have great potential for use in health care. However, using these or more informal mechanisms depends on competent patients having their future options explained in anticipation of the possibility of incompetence.

Physicians, nurses, social workers, and religious counselors could do much to encourage advance directives for the great benefit of patients. For example, a patient with early Alzheimer's disease could be asked about future involvement in research<sup>10</sup> or a patient with meningioblastoma could give instructions as to who among his or her family and friends should make decisions when the patient cannot.

If this procedure were commonly used, courts would come to find it expected behavior. Courts already have demonstrated their willingness to rely on such evidence.<sup>11,12</sup>

### Homicide, Suicide, and Foregoing Life-Sustaining Therapy

It is part of the practice of medicine to make decisions that may reduce the length of a patient's life. It is part of the practice of law to enforce the societal prohibitions against the taking of human life. The task that faces the legal system and the public, in general, is to ensure that the awesome powers of medicine are not used improperly to shorten life without thereby making health care providers liable for the fact of mortality. While this is a very difficult conceptual task in that no succinct, principled distinction exists that would make it completely clear as to which deaths are wrongful and which are morally acceptable, the present system seems to work well. Providers of care have fair discretion in deciding on therapy with patients and families, even when some choices risk or hasten death. Nevertheless, the threat of legal sanction keeps all concerned very cautious. There have, in fact, been very few prosecutions of physicians, and then only for very overtly lethal actions. Even these did not result in imprisonment.<sup>6</sup> Prosecutors, juries, physicians, and patients seem to be in fair accord as to the acceptability of most kinds of decisions to forego life-sustaining therapies. If prosecutors started to bring charges in cases, despite the fact that an earlier death (without therapy) was an acceptable choice because of the suffering to be endured with slightly prolonged life (with therapy), then physicians and the public might have to consider additional defenses against charges of homicide or assisting suicide.<sup>13,14</sup> A strong and concerted approach by physicians



and others to protect the range of discretion for patients and families seems sufficient to maintain the present equilibrium and to continue reliance on a tradition that is serving well.

### Ordinary and Extraordinary

Many discussions center on the claim that patients must receive "ordinary" treatment, but that they might forego "extraordinary" treatment. Commonly, this distinction is used to reflect either the statistical frequency of use (e.g., "penicillin is ordinary treatment for pneumococcal pneumonia" or "respirators are usual treatment for ventilatory failure") or the artificiality of the procedure ("a respirator is an extraordinary intervention while range-of-motion exercises are ordinary"). Neither of these meanings is stable, clear, or morally important.<sup>6</sup>

If the distinction conveys a morally important consideration, it is when these terms are used to express a conclusion regarding a particular patient about the proportionality of the benefit to be gained and the burden to be borne in pursuing a life-sustaining therapy. Thus, a therapy that only offers to prolong great suffering at extreme cost is extraordinary, even if it is as mundane as antibiotics or tube feeding. Also, a therapy that offers to prolong a substantially rewarding life at a reasonable cost is ordinary, even if it is as unusual or artificial as dialysis or mechanical ventilation.

Since the terms have been used in such confused and misleading ways, discussions of these issues between patients, families, and health care professionals probably should rely on the significant underlying meanings rather than the codified conclusion that is expressed by the term "ordinary" or "extraordinary."

### Withholding and Withdrawing Therapy

Many providers feel that it is different and a much more serious moral issue to stop a therapy that has been started. Thus, many who would not start a respirator for a particular patient also would not remove the respirator once it was started. This distinction is difficult to make and is not of moral relevance; maintaining it can have adverse effects on patients.

In medicine, many interventions actually are a series of events (e.g., giving insulin at regular

intervals, giving induction and maintenance chemotherapy sequentially, or doing multistage colonic resections). If one stops partway through a series, is one stopping (the series) or not starting (the next element in the series)? If the power fails to a mechanical ventilator and a bystander physician does not intervene, is the therapy (machine ventilation) stopped or the therapy (exogenous ventilation, as could be done by a hand-operated Ambu bag) not started?

Even where the distinction is clear, its moral relevance is not. What should matter is whether a therapy is presently of benefit to a patient; not whether it was, or was thought to be, previously. If one gives high-dose dexamethasone to a patient with an intracranial tumor to try to improve mental status and that fails, the moral warrant to continue the treatment is gone. Likewise, if one puts a severely brain-injured patient on a ventilator to allow time for some recovery to take place and that does not happen, the moral warrant to continue the treatment may be gone.

To the extent that a patient or his or her family have come to expect a therapy, that expectation can raise certain obligations that should be honored. However, these usually are obligations for providing honest information about the futility of the therapy, rather than for its continuation.

To the extent that practitioners feel that it is more difficult to justify stopping a therapy than not starting it, therapies that might have been effective might be erroneously foregone. One would want to keep the threshold for initially aggressive therapy quite low, so that possibly beneficial (but low-yield) therapies will be tried. If practitioners feel that they cannot stop the trial even when it has failed, they may be less inclined to start.

For these reasons, decision-making should focus not on whether a stopping or not starting is involved, but on whether any of various courses of action and inaction that might be available to a patient would be more beneficial to that patient than his or her current status.<sup>6</sup>

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# Care Near the End of Life

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In few areas of health care are people's evaluations of their experiences so varied and uniquely personal as in their assessments of the nature and value of the processes that are associated with dying. For some people, every moment of life is of inestimable value; for others, life without some desired level of mental or physical ability is worthless or burdensome. A moderate degree of suffering may be an important means of personal growth and religious experience to one person, but may be only frightening or despicable to another. Helping patients whose very definitions of what counts as health and disease are so varied requires the utmost sensitivity and wisdom of health care professionals.

Dying has many common symptoms and manifestations; the medical treatment of these is considered in this chapter. However, it is first important to remember that dying is not principally a "disease" that calls for medical "remedies." Primarily, dying is the extinguishing of a human life. Those persons who provide medical care while patients are dying cannot effectively treat symptoms without caring for a patient as a person. Patients and their families commonly will be feeling great stress. A practitioner will have to be careful to accommodate a patient's priorities. Finding some meaning in death or saying farewell to family and friends may well be more important for a person than having a bowel obstruction treated or a dressing changed.

The goals for those persons who provide care for a dying patient include:

1. Competent diagnosis, therapy, and prognosis. Medical skill and clinical acumen are extremely valuable as a patient's medical condition deteriorates, and compassion and respect for a patient should never be allowed to substitute for competent care;
2. Symptom control to allow a patient to live as fully as possible;
3. Advancing a patient's life goals and making available those experiences that a patient values;
4. Personal loyalty and reliability. Trust is very important to a patient's peace of mind, and it is undercut by unreliability, dishonesty, evasiveness, arrogance, or abandonment by significant others;
5. Help for family and friends during a patient's dying and during bereavement;
6. Comprehensive attention, which involves an appropriate team of care-givers and an appropriate institutional or home setting. With such support, people who prefer to do so usually can die at home.

## General Management

A skillful evaluation of a patient's history and physical examination and a frequent review of the care plan will save dying patients more trouble than any drugs and tests could. Often, getting a definitive diagnosis of a complication would entail rehospitalization or distressing invasive procedures. However, a knowledge of the natural history of a patient's diseases, the

careful taking of a patient's history, and a skillful physical examination, in many cases, can make a presumptive diagnosis sufficiently certain to warrant the initiation of appropriate ameliorative therapy. Sometimes a diagnosis may be uncertain, but all of the remediable etiologies respond to fairly simple and acceptable therapies; therefore, one or more treatment trials can be undertaken without a definitive diagnosis.

Often, people who are dying have multiple organ failures that make the deleterious side effects of drugs and therapies even more common than in their general application. Drugs that are cleared through the kidney almost invariably require reduced dosages, either in the amount per dose or frequency.

The goals of medical practice should not be limited to improving a patient's health; they also must include enhancing his or her self-respect and self-determination. For dying patients who are, in fact, losing control over their lives in the most central way, control over the decisions that are still to be made often is very important. Some physicians deny this benefit through simple inattention or a rationalization that they are protecting a patient. Although patients expect tact and sympathy from their physicians, all available evidence indicates that they want to be included in decision-making regarding their care. Physicians and others who care for dying patients need to develop skills in communicating with patients and families, so that most decisions about resuscitation, aggressive care, institutional arrangement, and symptom control remain the patient's decisions.

## Symptom Control

Nearly all dying patients have symptoms that can be relieved by judicious medical intervention. The symptom that is most feared in advance is pain; but mental function disturbances, nausea, diarrhea, constipation, infections, skin sores, and respiratory difficulty also are very distressing and often are remediable as well.

Controlling symptoms sometimes requires relatively aggressive therapies. The fact that a patient has only a few weeks or months to live is relevant to the decision to use palliative ra-

diotherapy or a diverting colostomy—but, a brief prognosis should not be meant to preclude these aggressive treatments. Instead, an individual's situation and likely course with each of the various interventions should be considered carefully by a physician, other health care providers, a patient, his or her family, and friends. Sometimes, not only aggressive treatment of current symptoms, but also aggressive treatment to forestall likely future symptoms is justified. Making the decision to undertake aggressive or risky treatments often will be unavoidably difficult, since it forces decision-makers to confront the ambiguities of a prognosis and the uncertainty of therapeutic effects.

## Pain

Only a minority of dying patients (e.g., fewer than 50% of those with malignancies) have substantial problems with pain,<sup>1</sup> yet many people fear pain while dying more than death itself. Acute pain (e.g., due to injury) is a healthy body's way of protecting the injured part and taking steps to repair it. Conversely, chronic and progressive pain often serves no useful function; instead, it wastes a patient's strength and resolve and destroys whatever value he or she could have found in living. Fortunately, the chronic pain of dying patients almost always is possible to control.

First, the care-givers should seek a remediable cause. For instance, pathologic fractures usually deserve a specific intervention rather than drugs.<sup>1</sup> In fact, pathologic fractures may be averted by prophylactic nailing. Radiation therapy or chemotherapy for tumors can prevent or relieve symptoms even when a cure is not possible.

Second, anxiety and fear must be mitigated. Pain is extremely subjective. A standard painful stimulus is perceived as much worse if a patient is tired, afraid, isolated, or depressed.<sup>2</sup> Although some psychological problems warrant specific therapy (as discussed in the next section), surprisingly effective results can be obtained with a calm, competent, and reassuring approach by care-givers. A nurse or physician who can say with assurance that a patient need never (or never again) feel overwhelmed by pain, and who proceeds to demonstrate the

truth of that assertion, greatly eases a patient's mind and reduces his or her attentiveness to the pain. Conversely, the most potent stimulus to the fear of pain, and thus to increased pain, is inadequately treated pain. Patients who obtain short periods of relief with a narcotic followed by periods of pain while waiting for a next dose become trained both to fear the expected onset of pain while pain-free and to actively seek the drug constantly.<sup>1</sup> This behavior commonly alienates a hospital staff and leads to increased isolation. Adequate treatment of the pain can break this cycle (*see* Volume II, Chapter 18).

### Narcotics

If a patient's pain is uncontrolled, the primary aim is to control it; risking a period of sedation usually is not a contraindication to fully effective doses. For rapid and flexible initial control, intramuscular (IM) or subcutaneous morphine is unsurpassed. The effectiveness and time course for narcotics is approximately equal for IM and subcutaneous administration. In a patient who has not been on narcotics, 2–5 mg of morphine parenterally (using a higher dosage with younger and heavier patients who are in better general condition and a lower dosage in frail, thin, and elderly patients or those with a reduced respiratory reserve) given every 15–30 minutes with constant observation is uniformly effective. For patients who have been taking narcotics without sufficient relief, giving 1 1/2 to 2 times the previous dose usually is an effective alternative initial dose. Once a patient is untroubled or asleep, a care-giver can judge how sensitive that patient is and how severe the pain is, and a regular regimen can be started. If control was achieved with one or two low doses, non-opioid analgesics with or without codeine (30–60 mg given orally every 3–6 hours) may be sufficient. If more was needed, the initial use of oral hydromorphone or morphine probably is better.

Control of pain with narcotics involves continual experimentation to keep the dose in the zone between oversedation (on the one hand) and recurrence of pain (on the other), so that a patient stays fairly alert but pain-free. Most patients have a substantial "therapeutic window," although the doses that achieve it and the frequency both change over time.<sup>3</sup> For a

few patients, especially when death is close, there is no such zone; therefore, a physician, with a patient's or family's concurrence, must be willing to accept sedation if pain is to be avoided.

Oral medications are preferred to parenteral medications whenever possible. Of course, patients demonstrate substantial variability in their oral-parenteral ratio with each drug and a similar variability in their individual ratio between drugs. However, all narcotics are less potent orally, sometimes dramatically so (*see* Table 23-1). Oral administration gives more constant blood and cerebrospinal fluid levels than intermittent parenteral dosing. Furthermore, parenteral administration to a dying patient often becomes difficult as the muscle mass wastes and the superficial circulation is reduced. A patient also has more control over the oral route. Many patients find liquid preparations easier to take than tablets and capsules. A few patients benefit from the availability of narcotic suppositories (e.g., morphine, hydromorphone [Dilaudid, 3 mg], or oxymorphone [Numorphan, 5 mg]), but bioavailability is variable. Suppositories sometimes can permit home care when a patient's family cannot administer parenteral medications.

Physicians should become very familiar with a small number of narcotics, rather than using each of the numerous preparations only occasionally. Codeine for moderate pain, morphine or hydromorphone for moderate or severe pain, and methadone (Dolophine) or levorphanol (Levo-Dromoran) for fairly stable and severe pain are sufficient for almost all narcotic needs. Codeine in usual doses has a moderate efficacy, lasts 3–6 hours when given orally, and has few side effects except constipation and occasional nausea.

Morphine and hydromorphone usually are effective for about 3–4 hours, and the dosage can be increased sufficiently to overcome almost any severe pain. With higher doses, morphine is thought to be more reliable than hydromorphone, but it may cause nausea more often. However, hydromorphone is easily abused and, therefore, is sometimes difficult to obtain from outpatient pharmacies. The volume of a narcotic for IM use or the number of tablets for oral use can become unsettling to a physician or nurse and unacceptable to a patient. A health

TABLE 23-1 Approximate Equianalgesic Doses of Narcotics When Used for Chronic Pain\*

Drug	PO (mg)	IM or SQ Dose (mg)	Usual Effective Interval (Hrs)
Codeine	200	130	3-4 im and sq, 4-6 po
Morphine	40 <sup>†</sup>	10	3-4 im or sq, 4-6 po
Hydromorphone	7.5	1.5	3-4 im or sq, 4-6 po
Methadone	20	10	Longer <sup>‡</sup>
Levorphanol	4	2	Longer <sup>§</sup>

\* Lynn DJ: Supportive care for dying patients: An introduction for health care professionals. In, President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. *Deciding to Forego Life-Sustaining Treatment*. Washington, DC, United States Government Printing Office, 1983, pp 284-297.

<sup>†</sup> There is substantial uncertainty as to the correct oral-parenteral ratio for morphine. In single doses, the ratio is conventionally given as 6:1 (oral:parenteral). However, in chronic use, the ratio seems to be lower. RG Twycross (The Brompton cocktail, in Bonica JJ, and Ventafridda VV (eds): International Symposium on Pain of *Advanced Cancer*. *Adv Pain Ther* 2:291, 1979.) postulates a ratio with a morphine solution of 3:1 (oral:parenteral). Others feel it may well be as low as 2:1 (Henteleff PD, Fingerote E: *Clinical Study of Relative Effectiveness of Narcotics*. The Fifth Annual Meeting and Eight Symposium of the National Hospice Organization, Washington, Nov 9, 1982.

<sup>‡</sup> See text, pp 335-336.

<sup>§</sup> Twycross RG (Relief of pain, in Saunders CM (ed): *The Management of Terminal Disease*. London, Edward Arnold Publishers, Ltd, 1978, pp 66-98) gives this interval for levorphanol. Its pharmacokinetics and existing research base parallel methadone, although its structure is different and its plasma half-life is shorter. It may be similar in having a relatively brief analgesic effect, especially in the first few days of use, and a tendency to accumulate with detrimental mental effects unless the dosage is reduced.

care professional should be reassured to know that some patients have required over 300 mg of morphine orally every 3 hours and over 200 mg intramuscularly every 2-3 hours. As long as a patient is awake and in pain, the dose is not too high. However, such high doses may entail many tablets or unacceptably large or frequent parenteral injections. To reduce the volumes for parenteral administration with commercially available solutions, crushed hypodermic morphine sulfate tablets can be dissolved in warm sterile water. At some point, intravenous (IV) morphine may be better. Morphine can be added to dextrose or to an electrolyte solution in whatever concentration is necessary; usually, 1 mg/ml initially. To prevent an accidental overdose, either an automated rate control device or a 1-2-hour infusion volume (as in a Soluset) should be used. These high doses are the only time when diamorphine (heroin) offers an advantage, since its potency and solubility are so much higher that parenteral volumes remain

low. Hydromorphone is comparably soluble, but concentrated solutions are not commercially available; they must be made up from the powdered drug and filtered by a pharmacist.

For patients who seem to be stable for a period of weeks or months, a longer-acting narcotic sometimes is helpful. Either methadone or levorphanol can be given, at times, orally two or three times per day, thereby allowing a patient to sleep all night and to go about daily tasks without constantly attending to the next drug dose. Some patients use one of these most of the time, but they take a shorter-acting agent as a booster shortly before activities that are known to worsen pain, such as taking a bath or transferring from a bed to a chair. Methadone is reported to have a tendency to accumulate and to induce oversedation or confusion. Methadone often is effective in pain control for only 3-5 hours when first used, even though the plasma half-life is 15-30 hours. With chronic use, methadone might be given every 4 hours

initially, then the interval increased or the dose reduced.<sup>4-8</sup>

A physician should know approximate equivalences of the most common narcotics preparations and delivery routes so that switching among regimens is as smooth as possible (*see* Table 23-1). Cross-tolerance is fairly great, but not complete. Thus, it is wise to use about 25% less than the predicted dose of a new narcotic for the first dose, possibly with a supplement in 1 hour if needed.

All narcotics should be given on a fairly regular schedule that is aimed to anticipate the recurrence of pain by having each dose take effect just as the last one is waning. Sometimes, patients who are getting adequate pain relief for too short a period respond better to an increased frequency than to an increased dosage. In settings where a nurse or other person who is directly caring for a patient understands the pharmacology involved, writing orders "prn" is reasonable, as it is interpreted to mean "as needed to prevent recurrence of pain without undue sedation." In a usual hospital setting where "prn" might be interpreted to mean "when pain recurs," narcotics should be given on a regular schedule and adjustments should be made on the basis of frequent observation by a physician.<sup>9,10</sup> When a previously adequate dosage schedule becomes inadequate and no remediable cause is found, a patient often will need either a potentiating drug or to have the total dose of the current narcotic nearly doubled to regain good effect.

Whenever narcotics are used, certainly with dying patients, flexibility and confidence are increased by always having naloxone (Narcan, 0.4 mg/ml) available. A 1-ml dose (intravenous, intramuscular, or subcutaneous) usually will substantially reverse oversedation and respiratory depression; also, that dosage may be repeated every 2-3 minutes until 3 ml have been given. Usually, just letting a patient sleep until a mild overdose is metabolized is appropriate. However, using naloxone allows for more diagnostic certainty and protection against a drug-induced respiratory insufficiency. More tolerant and drug-dependent patients paradoxically are more sensitive to naloxone. Therefore, the standard naloxone preparation might be best diluted and administered in fractionated doses to reduce the risk of inducing withdrawal and se-

vere recurrent pain. For patients with tolerance, naloxone reversal will likely have to be repeated over the ensuing few hours.

Narcotics commonly cause or worsen constipation and nausea, but these effects can be prevented and treated. Pharmacologic agents to counteract the constipation that is exacerbated by narcotics often are effective only at two to three times their usual dosage.

Concerns about dying patients becoming addicted to narcotics are both mistaken and, in any case, irrelevant. Few patients develop problems because of a physical dependence. Furthermore, if the cause of pain is relieved, narcotics can be discontinued over a few days without untoward effects.<sup>11</sup> Furthermore, physical and psychological addiction (when it occurs) is not particularly troubling to a patient who is dying, nor should it be to care-givers.

#### Other Analgesics and Potentiators

Acetaminophen, aspirin, and the group of non-steroidal anti-inflammatory drugs (NSAIDs) (including indomethacin and phenylbutazone) often are adequate for the control of pain. They act by different mechanisms than narcotics, with additive or supra-additive effects, thus allowing a reduction in narcotic dosage in many cases.<sup>1,12</sup> Also, their anti-inflammatory effects may directly relieve some sources of pain, such as arthritis, contractures, or wounds. Of course, the risks of side effects, such as gastritis or gastrointestinal bleeding, must be considered.

Agonist-antagonist drugs such as pentazocine (Talwin), butorphanol (Stadol), and nalbuphine (Nubain) are potent analgesics, although they do have ceiling effects and tend to cause psychotomimetic effects with high doses. However, butorphanol and nalbuphine are only available for parenteral use, and they have not been well-evaluated for chronic pain in dying patients. Pentazocine causes many adverse reactions, especially in elderly persons, and is not especially flexible. A weaker tendency to cause addiction is not especially advantageous in dying patients. Also, because these drugs are narcotic antagonists, they cannot be used in an integrated program with narcotics; one that relies on the increasing efficacy of drugs as pain worsens or tolerance develops. Thus, pentazo-

cine and other agonist-antagonist drugs, at this time, have little use in managing the pain of dying patients.

Other drugs (e.g., hydroxyzine [Vistaril, Atarax]<sup>13</sup> and tricyclic antidepressants<sup>14,15</sup>) may potentiate narcotics. Usually, patients with pain have reason for one or another of these, and the benefit of potentiation of narcotic effect is welcome. Theoretically, a narcotic overdose could be induced by starting a potentiating drug, but this rarely is a problem. Benzodiazepines and phenothiazines probably do not potentiate narcotics.

Steroids, most commonly prednisone or dexamethasone, help to control pain that arises in osseous metastases or fractures. Usually, the maximum effect is with fairly low pharmacologic doses; about 2–4 mg/day of dexamethasone or 10–20 mg/day of prednisone.<sup>1,14</sup>

### Neurosurgical and Anesthetic Methods

Localized pain, especially due to pain fibers in the lower spinal cord or in a limb, sometimes are accessible to temporary or permanent pain tract disruption. Short-term blocks are useful for a diagnosis, but they usually are counterproductive for long-term pain control. However, some initial testing of epidural morphine shows promise.<sup>16</sup> Determining whether the destruction of a nerve, spinal cord tract, or brain center is warranted requires consultation with an experienced anesthesiologist and/or a neurosurgeon. A patient who is considering an ablative procedure should be well aware of the likelihood and seriousness of the possible loss of additional neurologic functions. A patient ordinarily should have had a trial of vigorous non-destructive pain control. A mixture of 50% nitrous oxide (NO<sub>2</sub>) and 50% oxygen (O<sub>2</sub>) may be useful for patients with short-lived severe pain, as with dressing changes or movement.<sup>1</sup>

## Mental Function

### Pre-existing Disturbances

Patients who are dying are not all the same; severe depression, alcohol abuse, psychosis, dementia, and personality disorders are as prevalent among these patients as among

others. Treatment of the symptoms of these disorders as a patient is dying usually will entail the same types of methods that are used with healthier patients (e.g., drugs, behavioral modification, environmental control, and so on). The care-givers for dying patients must be especially careful, however, to set reasonable goals and limits, and also to focus more on accepting these patients than on changing them.

### Primary Central Nervous System Disease

The changes in mental functions experienced by patients who are dying of strokes, dementias, or space-occupying intracranial lesions often are more disturbing to family members and care-givers than to the patients themselves, since they often are unaware of their situations. When these lesions cause distressing behavior, antispasmodic drugs or tranquilizers may be useful. For increased intracranial pressure, dexamethasone (2–32 mg/day in 4–8 doses) may be tried, although it has a number of potential side effects. The best dosage is not yet well-established, but 16 mg initially and 4 mg every 6 hours (tapering to lower doses as tolerated) has been suggested.<sup>17</sup> If dexamethasone is successful, the dosage can be reduced to its lowest effective level. If the intracranial process is enlarging, symptoms will recur and high doses may be warranted again. When dexamethasone is no longer significantly beneficial, rapidly tapering it to baseline adrenal replacement (about 2 mg/day) or lower often is warranted, because this allows the terminal phase to be mercifully brief.

### Drugs and Metabolic Abnormalities

Hypercalcemia is a particularly common concomitant of malignancies and can cause myriad symptoms; the most common are confusion, disorientation, and sedation. If this occurs as a patient is close to death anyway, it may be best to accept hypercalcemia without therapy, because few deaths are more gentle. However, if calcium rises when a patient might have a few weeks or more of valued life left, therapy may be warranted (*see* Volume I, Chapter 28). Increased fluids and furosemide (Lasix) often suffice; adrenocortical steroids and oral phosphates also are often effective. Sometimes



mithramycin (Mithracin), is effective, even at as low a dose as 1–2 mg intravenously once or twice a week. Calcitonin (Calcimar, 50–100 Medical Research Council units (MRC)/day or on alternate days) might be used instead.

Since dying patients often are cachectic, vitamin-deficient, acidotic, hypo-osmotic, uremic, hypoalbuminemic, or hypoxic, they are likely to experience mental changes from drugs that do not usually have such effects. Sedatives and tranquilizers obviously are common culprits, but so are cimetidine, digoxin, tricyclic antidepressants, theophylline, steroids, and other “medical” drugs. Narcotics rarely cause confusion without concomitant severe sedation, although some patients find all narcotics to be dysphoric. When changes in a patient’s mental status interfere with a patient and family living as fully as possible, each drug that could be causing the mental change should be reduced as much as possible to test whether or not mental function is improved.

Metabolic abnormalities (e.g., hypoxia, hepatic failure, renal failure, acidemia, hypokalemia, hypomagnesemia, and dehydration) are not uncommon causes of mental disturbances and might be remediable.

### Anxiety and Depression

Some anxiety and depression are normal in dying patients. Most of what is truly troublesome to an individual is best relieved by simple psychological support, pain control, attention to legal, social, and financial problems, and so on.<sup>18</sup>

Free-floating anxiety or persistent depression can have crippling effects on some patients. Fortunately, both commonly respond to fairly mild pharmacologic agents and to supportive psychotherapy.<sup>19</sup> Many patients benefit from fairly low doses of tricyclic antidepressants.<sup>20</sup> A dose as low as 20–30 mg of doxepin (Sinequan) or nortriptyline at bedtime often encourages a good night’s sleep, reduces anxiety, and improves appetite.

Numerous other anxiolytic agents can be used (e.g., antihistamines, benzodiazepines, phenothiazines, and so on). Often, one or another is indicated for a separated reason; prochlorperazine (Compazine), for example, is used to reduce both nausea and anxiety. Benzo-

diazepines are somewhat risky, as they have a long half-life and a fairly high incidence of causing confusion or sedation.<sup>21</sup> Hydroxyzine (Atarax, Vistaril, 10–25 mg every 6–8 hours) has some advantages in that it potentiates narcotics, reduces nausea, can be given orally or parenterally, is fairly effective, and has few sedative or anticholinergic side effects even in elderly or debilitated patients.

## Gastrointestinal Symptoms

### Anorexia and Dysphagia

For a patient to find him- or herself uninterested or averse to food can be quite disconcerting for that person, and often even more so to his or her family members. However, substantial anorexia is almost the norm in the later stages of a terminal illness. Sometimes, counseling both the family and patient to accept a loss of appetite is helpful. An altered sense of taste or smell sometimes is part of the cause of anorexia. Stronger flavors, careful menu selection, and good mouth care may help.

Other interventions include a little of a patient’s favorite alcoholic beverage (or Gevra-bon, which contains vitamins dissolved in sherry) 30 minutes before meals, small and attractive-looking meals on a flexible schedule, a vitamin and mineral supplement, high-calorie milk shakes or prepared dietary supplements, low-dose steroids (e.g., 1 mg of dexamethasone or 5 mg of prednisone three times daily), or tricyclic antidepressants.<sup>22</sup>

Only in rare instances should a dying patient be fed via a tube or intravenously. When a neurologic or structural disease of the mouth or esophagus precludes the swallowing of food, tube feeding may be warranted if chosen by an individual on a well-informed basis. When initiating any sort of artificial feeding with a dying patient, the practitioner would do well to talk with that person and/or family about indications that would warrant its discontinuation.

In the unusual case where dysphagia is due to candidiasis or is avoidable by the justified use of a feeding tube, dysphagia is remediable. More commonly, a feeding tube is not warranted and the cause is not correctable; sedation and pain relief may be all that is indicated.

### Problems with the Mouth

Much avoidable distress arises from a lack of attention to the mouth.<sup>23</sup> Early in the course of a predictably terminal illness, patients should be encouraged to have dental care. Abscesses, exposed roots, and ill-fitting dentures are likely to be more of a problem as a patient loses weight and fights infections less successfully. Dentures should be used as long as possible despite receding gums, especially since patients often feel ashamed to be seen without them. Regular brushing of the teeth and cleaning of the mouth often can improve a patient's self-image greatly. Candidiasis usually is easy to diagnose and treat, using nystatin (Mycostatin) either as a suspension or as oral tablets (5 ml to swish or one oral tablet to suck and swallow 3–4 times per day).

Dehydration, head-and-neck surgery, radiation to the face and neck, mouth breathing, narcotics, and anticholinergics make dry mouth a common problem. Frequent tooth brushing and mouth rinsing help, as do sipping liquids, sucking on ice, or sucking on hard candies. Commercial artificial saliva (Moi-Stir) or a specially prepared mixture of methylcellulose and glycerin or lemon essence also can be helpful.

The inability to speak or to speak clearly often is distressing to patients, families, and care-givers. The usual methods of speech therapy (e.g., sign boards, typewriters, note pads, and lip-reading) generally suffice to restore some communication. Often, however, care-givers must be even more willing than normal to try to guess a patient's concerns and to initiate the relevant conversations.

### Nausea and Vomiting

Many seriously ill patients have nausea and vomiting. Sometimes, the cause can be corrected. If not, prochlorperazine (Compazine) or a related phenothiazine usually is the most effective therapy. Doses can be clustered (e.g., 5 mg every 20 minutes up to 4 doses, to repeat every 6 hours as needed) in response to intermittent symptoms, or it can be scheduled (e.g., 10–20 mg orally or intramuscularly every 8 hours or 25 mg per rectum every 6 hours) in response to more continuous symptoms.

Delta-9-tetrahydrocannabinol (THC) is a

component of marijuana that is showing promise in early investigations concerning nausea and vomiting that are associated with chemotherapy.<sup>24</sup> Oral metoclopramide (Reglan) may be useful to treat nausea and vomiting if gastric atony and reduced intestinal motility are contributing causes.<sup>25</sup> Sometimes, an antihistamine such as dimenhydrinate (Dramamine) also can be helpful.

### Intestinal Obstruction

Some nausea and vomiting originate with an intestinal obstruction. If the obstruction is due to a fecal impaction, then cathartics, enemas, manual disimpaction, and hydration may solve the problem. With other causes, abdominal surgery will have to be considered. In addition to nausea and vomiting, an intestinal obstruction can cause pain, infection, dehydration, and malnutrition.

However, one does not have to always try to relieve an obstruction. When an obstruction is unifocal and low, and a patient could otherwise live for some weeks or months, a diverting colostomy may be a helpful palliation. However, when an obstruction is multifocal or high, or when a patient has at best only a few weeks to live, it may be best to treat only the symptoms. The pain and hyperperistalsis usually will respond to adequate use of narcotics. Antiemetics and frequent small feedings allow for some absorption, and most patients remain quite comfortable until death—often without nasogastric suctioning or IV fluids.

### Constipation and Diarrhea

Decreased bulk in the diet, inactivity, abdominal disease, metabolic imbalance, dehydration, anticholinergic drugs, and narcotics all combine to make constipation the norm for dying patients. Untreated, constipation can cause a bowel obstruction, diarrhea, fever, pain, and confusion. Obviously, bowels should receive close attention. Stool softeners such as dioctyle sodium sulfosuccinate (Colace) or psyllium hydrophilic muciloid (Metamucil) should be given regularly. Stimulants such as casanthranol (as in Peri-Colace), senna derivatives (Senokot), cascara sagrada, or bisacodyl (Dulcolax) should be added as needed. Mineral

oil, milk of magnesia, or other agents may be preferred by some patients.

If no stools are passed for 3 days, a rectal examination is in order. If stool is present but not impacted, the digital exam, glycerin suppositories, bisacodyl suppositories, and prepackaged enemas should be used—probably in that sequence. No stool by the 4th day should elicit the same response, with the addition of vigorous enemas (e.g., soap suds, warm oil, or high volume). With assiduous attention and vigorous efforts, nearly all patients can avoid the complications of constipations.

Diarrhea is a less common problem, but it may be caused by diabetes, antibiotics, underlying malabsorption, and fecal impaction. If it is due to a pancreatic insufficiency, diarrhea can be dramatically relieved by replacement enzymes.<sup>26</sup> If the cause cannot be removed, the diarrhea usually can be stopped with diphenoxylate with atropine (Lomotil, one or two tablets after each stool, up to eight per day) or loperamide (Imodium, 2–4 mg after each stool, up to 16 mg/day).

### Ascites

Ascites often is asymptomatic despite being dramatic. When troubling, cirrhotic ascites may respond to the usual diuretics or the less usual shunting. Malignant ascites often is well controlled by the installation of chemotherapeutic agents or by frequent paracenteses, both of which are well-tolerated.

## Skin Problems

### Decubitus Ulcers

Cachectic, immobile, and bedridden patients are at great risk for developing pressure sores. Prevention, or at least a delay in their onset, is much more satisfactory for patients than efforts to heal an established decubitus ulcer (*see* Volume I, Chapter 32). Frequent turning, skin massage, padding around prominent bones and ears, and redoubled efforts if the skin starts to redden, all are the hallmarks of prevention. Immobile patients should have heel protectors and one of the various special mattresses (e.g., eggcrate, water bed, air mattresses, and so on). For

some patients, an overhead trapeze is an invaluable encouragement to make frequent position changes.

Few decubiti in dying patients will heal. Once the skin breaks, usually all that can be done is to keep infection from being serious and to keep the lesion from enlarging. Usually about once a month, cellular debris needs to be cleared with a week of wet-to-dry dressings or sharp dissection. Various local therapies are promoted, although none has been shown to be distinctly superior in controlled trials.<sup>27,28</sup>

### Other Open Lesions

Some patients have fistulas or sinuses whose care presents a problem. Sometimes an excision, amputation, or diversion of the contents of the originating viscera are beneficial. Otherwise, local care of the affected skin often will require creative efforts. Sometimes a de facto stoma can be created.

Extensive malignant ulcerations pose another nursing challenge. The goals should be to reduce cosmetic distress, to keep the lesion clean and odor-free, and to avoid a serious infection or hemorrhage. There is no substitute for gentle thorough cleansing and dressing, usually twice per day. Half-strength hydrogen peroxide or Dakin's solution seem to be well-tolerated and mildly bactericidal. If odor is a problem, powdered tetracycline (from a capsule) is effective when sprinkled over the lesions before dressing. If minor bleeding occurs, then pressure, gelfoam, or powdered thrombin may help. Suture material should be available for efforts to tie major middle-size arteries that bleed, although a rupture of a major artery often is best-managed with an abundance of towels, since repair or ligature is so likely doomed and a patient becomes so rapidly unconscious. If a patient is frightened, then parenteral morphine, hyoscine, or diazepam (Valium) will provide rapid tranquilization and also fairly reliable amnesia, if a patient survives.<sup>29</sup> Some attention should be given to making all dressings cosmetically acceptable, especially on the neck, face, and hands. Creative applications of dressings can mask the absence or distortion of a cheek, jaw, or eye, thereby keeping it easier for visitors to see a patient and for a patient to see a mirror.

### Pruritus

The itching that is associated with a malignancy usually has no definite treatable origin. Pruritus of a biliary obstruction sometimes responds to cholestyramine (Questran). Some pruritus is caused by drugs, soaps, and lotions, or other allergens. If no specific cause can be remedied, then antihistamines such as hydroxyzine (Vistaril), phenothiazines such as trimeprazine (Temaril), or topical or systemic steroids all may be of some help.<sup>30</sup> Relief is reported to last 1–2 days after IV use of local anesthetics.<sup>31,32</sup>

### Fever

A history and physical examination are especially helpful in distinguishing among the very different possible etiologies of fever—especially dehydration, constipation, central nervous system lesions, urinary infections, or pneumonia. The causative etiology generally can be treated. Furthermore, usually a patient benefits from antipyretics, increased fluid intake (if possible), and alcohol sponge baths. If a fever probably results from an overwhelming bacterial infection, with falling blood pressure and obtundation, treatment appropriately may be withheld, which includes not giving antibiotics, IV volume expansion, or pressors. A symptomatic urinary tract infection rarely is overwhelming, but it can be quite distressing; thus, it nearly always warrants antibiotic therapy.

### Weakness

Most dying persons feel weak; oddly, many persons need to be reassured that weakness is acceptable. The appropriate use of antidepressants and pain control drugs sometimes helps to ameliorate weakness. Transfusions for profound anemia sometimes are dramatically beneficial. Steroid effects, uremia, hepatic encephalopathy, hypercarbia, and hypoxia often are partially treatable. Anabolic hormones (e.g., nandrolone decanoate [Deca-Durabolin] or fluoxymesterone [Halotestin]) or adrenocortical steroids (e.g., prednisone or dexamethasone [Decadron]) sometimes are beneficial. Central nervous system stimulants such as methyl-

phenidate (Ritalin) have been reported to benefit a few patients, but the incidence of confusion is fairly high.<sup>1</sup>

### Respiratory Symptoms

Few symptom groups are so frustrating as hiccups, cough, and dyspnea. Patients with a serious disease rarely respond to the “first-aid” measures to stop hiccups. Amphetamines, phenothiazines, haloperidol, or metoclopramide sometimes are effective.<sup>22,26</sup> A phrenic nerve block usually is effective, but it sometimes fails and always compromises respiratory reserve.

Coughing might arise from treatable causes (e.g., pleural effusion, pulmonary embolus, dehydration of the bronchi, pneumonia, or thick sputum). Often, however, humidifiers, potassium iodide, chest physical therapy, and other remedial measures do not help. A cough might be suppressed by terpin hydrate with codeine, hycodan, or with stronger narcotics. Using viscous lidocaine (Xylocaine) and other local anesthetics as a gargle or sucking on hard candies may help for a short time.

Whether or not to treat pneumonia with antibiotics depends on a patient’s situation. Pneumonia sometimes may be an “old man’s friend,” as it often is called, and it could be acceptable with coughing and dyspnea controlled by morphine. Sometimes, however, even in a patient who is expected to die soon, antibiotics, chest physical therapy, and oxygen are better from a patient’s point of view.

No symptom is so terrifying as dyspnea. Usually, any remediable cause should be sought, such as pleural fluid, congestive heart failure, anemia, and bronchospasm. Positioning a patient in a semirecumbent position, blowing cool air over his or her face, and the judicious use of oxygen often help. Radiation to the mediastinum and dexamethasone (4 mg every 6 hours) may help if the etiology is a mediastinal tumor. Even if pain is not a problem, low-dose narcotics help either by reducing anxiety, by reducing pulmonary vasocongestion, or by dulling the medullary reflexes. A few milligrams of morphine every 3–4 hours or about 5 mg at bedtime can greatly add a patient’s comfort without causing any deleterious effect on respiratory ef-

fort. Dyspnea as a terminal event is discussed in the next section. When a dying patient is on a respirator, rather rapid and controlled weaning sometimes is indicated; such weaning should proceed with symptom control, but without trying to maintain respiratory function.<sup>33</sup>

## Agonal Symptoms

The symptoms that have been discussed thus far generally apply to patients who are within a few weeks or months of death. Sometimes, the last few hours and minutes present some additional symptoms that can be treated.

### Agonal Respiratory Insufficiency

No death is more agonizing for an aware patient and all around him or her than one due to a respiratory insufficiency. Untreated, a patient will struggle for air until exhausted, when carbon dioxide narcosis and progressive hypoxia finally bring death fairly quickly. A patient must sit, can barely speak, and can continue in this way for hours or even a few days. In this situation, a care-giver must be certain that no specific remedy (e.g., diuretics, oxygen, thoracocentesis, and so on) is warranted to relieve the respiratory insufficiency. Then, with the appropriate consent by a patient and family, morphine can be given intramuscularly in small doses (for a patient who has not developed any tolerance, 3–5 mg in each dose) every 15–20 minutes until some relief is obtained. Usually, a patient's breathing will slow slightly and become a little deeper and the terror will subside. No more morphine may be needed. If a patient is already exhausted, the slowed respirations will induce hypercapnia (which will perpetuate the sedation), and a patient will die in the ensuing sleep. If a patient has more reserve, the severe dyspnea probably will recur, and can be treated again with morphine. Although this approach is far from perfect, it does allow a physician to improve on what is otherwise a singularly terrifying and agonizing final few hours.

### Aesthetic Considerations

Even when a patient is beyond caring about how others remember his or her last hours, this period can have serious effects on his or her

family, friends, and care-givers. Usually, it is important to keep the "death bed" as aesthetic as possible. This entails considering the sensory impressions that are presented by a patient and the surroundings.

The visual impression should, as far as possible, be one of peace and privacy. Attentive nursing can minimize any disruption caused by emesis or bleeding. Agonal seizures or muscle twitches usually are minor and brief, but respond to IM diazepam (Valium) if needed. Emaciation, artificial tubes, and various wounds can be disguised with the skillful use of sheets and bedspreads.

Masking unpleasant odors by putting extra sheets over wounds and incontinence, ensuring good air circulation, and using pleasant odors helps family members to stay with a patient.

Some patients develop a noisy bronchial congestion or relaxation of the soft tissues shortly before death—the well-known "death rattle." If this is distressing to the family (it never seems to be present in patients awake enough to be distressed by it), then scopolamine or atropine (0.4 mg of either via injection) added to a narcotic usually is sufficient to make a patient sound better.<sup>26</sup>

Patients, care-givers, and family members seem to benefit from maintaining physical contact as the end of life nears. Family members may need to be asked if they would like to hold a patient's hand or wipe his or her forehead, as they are commonly uncertain about what they can or should do.

## Bereavement

The responsibilities of those persons who cared for a patient who died do not end with that person's death. The death of a loved one is a stressful event that can lead to premature death, increased morbidity, and psychological difficulties for survivors. Health care professionals who cared for a patient often will have come to know that person's family during that patient's illness. Therefore, they are well-situated to observe behavior patterns, emotional reactions, and social circumstances that may signal difficulty during bereavement.

Although the majority of people grieve "normally" and return to adequate levels of functioning within a reasonable period, many people

need support during bereavement; some people (variously estimated at 10–20%) will be unable to resolve their grief on their own and will benefit from professional help. People who lack social supports, whose relationships with the deceased involved ambivalent feelings, who suffered a completely unexpected loss, or who have pre-existing physical or psychological disorders are at high risk for pathologic grief.<sup>34–36</sup> Furthermore, the circumstances that surround the death itself and the particular person who dies may render the survivors especially vulnerable. Health care professionals are likely to learn of these circumstances while they are caring for a patient, and this should trigger a professional's attention later on to signs that the survivors are encountering difficulties that may warrant help.

Although the health care professionals who cared for a patient also do not need to assume full responsibility for the care of survivors, it is their responsibility to be aware of signs of pathologic grief, to have enough contact with survivors to detect the need for further help, and to be knowledgeable about community resources and professional services so that they can refer survivors to these resources if needed. In addition, part of the role of health care professionals and institutions is to respect, insofar as possible, the needs of a culturally and religiously diverse population. Thus, a family's wishes regarding an autopsy, disposition of the body, and possible funeral arrangements should be sought out and respected.

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PART III

Legal Issues in Geriatric Medicine



## Protective Services and the Medical Professions

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A physician who cares for an elderly patient treats the whole patient, rather than the condition alone. This maxim is more true of the elderly population as a group than of other classes of patients, since the life styles of elderly persons both affect and are affected by their physical condition. Many elements of an elderly person's life style, including food, shelter, and medical care, relate directly to legal issues which intersect that patient's physical and mental condition and medical care. Therefore, to effectively and compassionately meet the medical needs of an elderly patient, a physician should be aware of legal issues affecting both that patient's medical care and the context in which a physician provides it.

Perhaps more than any other group, the elderly population rely on complex public and private institutions for their daily subsistence. Therefore, their legal problems frequently relate to the policies and actions of governmental agencies and private corporations, both of which often present bureaucratic mazes that many younger persons find difficult to manage.

Superimposed on the lives of low-income and frail elderly persons is a vast array of complex statutory, regulatory, and decisional law. Shelter may be provided or secured under federal and state public and subsidized housing laws, relocation laws, environmental protection laws, and zoning laws. Health care often is dependent on Medicare, Medicaid, laws that regulate nursing homes, and laws that relate to the

advertisement of prescription drugs. Nutrition often is secured by the Food Stamp program and nutrition programs established by other federal laws. The source of their income may be Social Security, Supplemental Security Income, civil service or other retirement programs, or private pensions. Their personal freedom and control of property are subject to the vagueness of the law of guardianship, conservatorship, involuntary commitment, and other types of protective services intervention.

Since they enter into contracts, own property, and have family relations, elderly persons have many of the same legal concerns as the rest of the population. In addition, elderly persons (particularly low-income, minority, and frail elderly persons), often confront legal problems that are particular to their age and status. It is exactly the special conditions of age and status that make it more difficult for them to use even the relatively meager legal and advocacy assistance that is available.

The primary method by which attorneys receive their fees (especially in the kinds of cases that might result from the abuse of elderly persons, primarily the area of personal injury, either by friends, family, physicians or by institutions) is the contingent fee mechanism. This is a system by which an attorney, after assessing that the case has a likelihood of being victorious and recovering a substantial amount of damages, decides to take a percentage of the recovery (usually 25–35%) as his or her fee. Thus, an

attorney is taking the chance that the case will prove victorious for his or her client; if it is not victorious, both a client and his or her attorney have invested their time and effort to no avail.

The major problem in this regard is that the largest part of the damages recovered often is for loss of future earnings. Thus, unless an older individual is still in the work force and has an actuarially long life expectancy, it is extremely unlikely that he or she will be losing future earnings—no matter how drastic the abuse and personal injury he or she has suffered. The result is that the possible damages award will be limited to medical expenses that have been incurred and, perhaps, something for pain and suffering. In other words, the fact that there is not a great likelihood of receiving damages for the loss of future earnings may well have a tremendous impact on the size of the damages award and the resultant size of an attorney's contingent fee, which is a disincentive for an attorney to take the case.

The broader social result of this inability to receive the assistance of attorneys may be that various oppressive and injurious social institutions (many that have a special impact on the elderly population) do not receive appropriate judicial review and reform, because they are never brought into the courtroom. Thus, the policing effort, which is carried out over public institutions by lawyers and the judicial system, does not even come into play.

The physical, mental, and societal factors that affect elderly persons can operate in concert to deprive them of the autonomy they possessed as younger adults. This diminution or loss of autonomy is particularly severe with regard to handicapped, weak, and institutionalized elderly persons. They are especially reliant on government benefits and the labor of health care providers for their daily needs; they are subject to special guardianship and conservatorship laws that may take away or severely limit their civil rights. In addition, they may be dependent on physicians, lawyers, social workers, board and care homes, nursing homes, hospitals, and other institutions for basic needs and protections. Two legal topics in constant relationship with medicine covered in this and the following chapter are particularly pertinent to the care of an elderly patient: 1) The structure of protective services; and 2) Physicians' legal duties (*see* Volume II, Chapter 25).

## Protective Services: Basic Concepts

A physician who treats many elderly patients undoubtedly will encounter the concept of protective services. Protective services that are imposed as a result of legal proceedings are commonly referred to as guardianship. Guardianship is a legal relationship that authorizes one individual to become a substitute decision-maker for another. The term guardianship traditionally refers to the protection and care of an individual, and the term conservatorship refers to the protection and care of a person's property and estate.<sup>1</sup> The terms often are used interchangeably. However, a physician must be aware of the differences when attempting to meet the particular needs of a patient because: 1) A person may have a conservator, but not a guardian, or vice versa; 2) The positions of conservator and guardian for one individual may be filled by two or more different individuals or entities; and 3) The powers of the guardian of a person differ from the powers of the conservator of an estate. The term plenary guardianship is commonly used to indicate that a person is both a guardian and conservator; or, in other words, that the decisions regarding both a person and an estate are being made by another.<sup>2</sup> The term ward is applied to the person for whom a guardian has been appointed, and a conservatee is one for whom a conservator has been appointed.

The term trustee also may arise when a patient has a guardian or conservator. Although a trustee may, in fact, be appointed as a guardian or conservator for a trustor or beneficiary of a trust, the term trustee is not synonymous with either guardian or conservator. The responsibilities of a trustee extend only as far as the corpus or body of the trust. The legal duty imposed on a trustee is to manage the corpus of a trust that has been drawn up or created by a trustor and agreed to by a trustee. A trustee is a manager of property only and has no power inherent in his or her position to make decisions that affect a beneficiary's person or property outside of the trust.<sup>3</sup> For example, an executor or administrator of an estate also lacks the authority and power to make decisions about an incompetent spouse or a spouse's separate estate.<sup>4</sup> A court may appoint an executor or administrator of an estate as a guardian or conservator, but the

powers that accompany such an appointment in no way are automatically granted along with the title of executor or administrator.

Guardian ad litem is another term that may be confused with the concepts of guardianship and conservatorship. Guardians ad litem are appointed by a court to represent a minor or incompetent person in a particular legal action (e.g., such as the probate of a will when a person is beneficially interested in an estate).<sup>5</sup> The powers of a guardian ad litem to make decisions for his or her ward are limited to acting in the best interest of that ward for the duration of the court proceeding; those powers terminate on the termination of the legal action.

### The Triggering Status

Guardianship is imposed by a court when a person is "alleged to be no longer able to function as a self-reliant individual."<sup>1</sup> Ideally, the court should examine the functional behavior of an individual that gave rise to the alleged inability to be self-reliant. The court then should make a decision as to whether such behavior evidences an inability on an individual's part to adequately care for him- or herself. If a court should determine from the evidence presented that an individual has lost his or her ability to be self-reliant, the court may then appoint a guardian. In reality, however, this is not the procedure that courts follow. Most state guardianship statutes require that a person must be adjudged "incompetent" or "incapacitated" before a guardian can be appointed.<sup>6</sup> However, those same statutes define "incompetent" and "incapacitated" in vague terms, and the modern focus is more on sanity than self-reliance.<sup>7</sup> Many of the guardianship statutes list "old age" as one of the reasons for which a person may be deemed incompetent.<sup>8</sup> It is small wonder that "four out of five persons for whom guardianship is deemed appropriate are over the age of 60."<sup>9</sup> Chronological age should not be used as a guide for an individual's mental capacity.<sup>1</sup> There is a wide range of variability in mental capacity in a population as age increases; therefore, generalizations that are based on age are unsubstantiated.<sup>10</sup>

The emphasis on sanity rather than on self-reliance for determining incompetency also has been criticized, and it has been blamed on the "close historical ties between guardianship pro-

ceedings and involuntary commitment of the mentally ill."<sup>11</sup> Although the two concepts of guardianship and involuntary commitment are fundamentally different and arise from different sources of the state's power, "substantial confusion exists between mental illness requiring involuntary hospitalization, and mental incapacity requiring the assistance of a guardian in caring for oneself or in managing one's financial affairs."<sup>6</sup> Part of the confusion between the two concepts may derive from the emergence of "the medical model" and its increasing importance in incompetency hearings today.<sup>12,13</sup> "The medical model essentially is that behavioral variances are analogous to disease in the physical body. The implication of the analogy is that there is a distinct discontinuity in the continuum of behavioral differences which can be objectively discerned, measured and labeled 'pathological.'"<sup>14</sup> One author has stated that insanity and incompetency "have become psychiatric terms of art and (t)he identification of them lies more and more within the diagnostic sphere of the medical expert. Thus the issue of whether guardianship is appropriate becomes a medical rather than a legal question."<sup>15</sup>

An effective diagnosis of mental disease by a medical practitioner obviously is of crucial importance in this context. If the mental state of a proposed ward is determined to be treatable or temporary rather than "irreversible," a court may decide not to impose plenary guardianship. It also is critical that the functional significance of the mental disability in question be carefully considered. Because a physician's evaluation often is a key element in these proceedings, it is regrettable that medical training offers little specific preparation for this task.

The definition of incompetency in guardianship statutes may be vague or based on ambiguous or non-medical determinations,<sup>16</sup> but the ramifications of guardianship and conservatorship are very clear. A court can expand on or limit the petition requesting that certain rights of an individual be removed. However, in most states, a finding of legal incompetence restricts or removes an individual's right to: 1) Make contracts; 2) Sell, purchase, mortgage, or lease property; 3) Make gifts; 4) Travel or decide where to live; 5) Vote or hold elected office; 6) Initiate or defend against suits; 7) Make a will or revoke one; 8) Engage in certain professions; 9) Lend or borrow money; 10) Appoint agents;

11) Divorce or marry; 12) Refuse medical treatment; 13) Keep and care for children; 14) Serve on a jury; 15) Be a witness to any legal document; 16) Drive a car; 17) Pay or collect debts; or 18) Manage or run a business. Obviously, the consequences can be dire—tantamount to a total loss of “self.”

### Procedure

Guardianship and conservatorship proceedings are initiated in a similar fashion. The statutes of each state set forth the procedural requirements for a state. However, in all states, the procedure is begun either by filing a petition for a finding of incapacity or incompetency,<sup>17</sup> or by the will of a spouse or parent of an incapacitated person.<sup>18</sup> Who may file the petition differs somewhat from state to state. Usually, the statute provides that a petition must be filed by an “interested person.”<sup>19</sup> An interested person is defined in most states as the person to be protected, a spouse, parent, adult child, or custodian. In some states, the definition of an interested person includes creditors and the state itself.<sup>19</sup> In one case, a tenant brought a petition to have a conservator appointed for his landlord.<sup>20</sup> The standard for bringing a petition is lower than the standard of proof required by a court to establish a conservatorship or guardian, so it usually is easier to obtain a hearing date than to prove a person is incompetent.<sup>20,21</sup> This lower standard may be due to the underlying assumption that petitions are brought in the best interest of an alleged incompetent person.<sup>21</sup>

A petitioner in some states “need only allege that a person is old and incapable of managing his estate or is unable to provide for himself and his dependents.”<sup>21</sup> Following the filing of a petition, almost every state requires that an individual allegedly in need of a personal guardian or conservator be given notice of the date of the hearing on the petition.<sup>17,22</sup> Before the hearing, most states provide for an examination of the person with most requiring an examination by at least one physician.<sup>17</sup> During the proceeding, the examining (and usually court-appointed) physician gives testimony in person or by letter about the incompetency of an individual. A court also may require that the alleged incompetent person be visited and interviewed by an

other court-appointed person, such as a social worker.

Most states entitle a person to representation by an attorney or guardian ad litem,<sup>17,23</sup> although this does not necessarily mean that an attorney is provided free as a matter of right. The presence of an alleged incompetent person, however, usually is not required at the hearing; in fact, “a substantial body of medical opinion objects to exposing those allegedly of unsound mind to the rigors of an adversary hearing because of the resulting ‘traumatic shock.’ ”<sup>24,25</sup> A petitioner may, in most circumstances, procure the absence of an alleged incompetent person by submitting a physician’s letter “to the effect that such an appearance would be emotionally harmful to the proposed ward.”<sup>25</sup> The arguments in favor of the absence of an alleged incompetent person at an incompetency hearing are: 1) The hearing may aggravate certain mental illnesses; 2) “The time involved impedes and delays treatment”; and 3) That “a full adversary proceeding similar to a criminal trial forces many to believe they are being incarcerated and stigmatized rather than hospitalized.”<sup>26</sup> However, a physician should be hesitant to request an alleged incompetent person’s absence at an incompetency hearing (especially when the absence is requested by the petitioning party) when arguments favoring an alleged incompetent person’s absence at a hearing due to a possible detriment to that alleged incompetent person’s health are weighed against: 1) The extreme nature of the possible loss of all decision-making abilities; 2) The (perhaps) questionable motive of the petitioner; and 3) The abrogation of an individual’s right to due process. When a potential ward is absent from a hearing, the only persons present typically are the judge, the petitioner, and the petitioner’s attorney.<sup>27</sup> A recent survey showed that the proposed wards were present in only 7.8% of all guardianship cases that were brought by a third-party petitioner.<sup>28</sup> The allegedly incompetent persons who were absent from their hearings had no opportunity to present evidence as to their competency or to question the examining physicians’ findings. Critics of the present system that allows a declaration of incompetency without the presence of the alleged incompetent person argue that to admit a physician’s findings when the physician is not present in a civil

commitment proceeding where an individual's liberty is at stake is a violation of fundamental constitutional rights.<sup>27</sup>

## Alternatives to Plenary Guardianship

Physicians cannot make proper decisions regarding their patients and guardianship without knowledge of the alternatives to plenary guardianship. Acting in a patient's best interest may require a thorough examination of less restrictive options.

### Limited Guardianship or Conservatorship

Several states have statutes that allow guardianship and conservatorship to be limited in scope or duration.<sup>17</sup> A limited guardian may be authorized to make only certain decisions for a ward; decisions that will have been specified by a court during a guardianship hearing.<sup>17,29</sup> A limited guardianship or conservatorship also may last a short period of time, such as the duration of a patient's stay in a hospital, (1 year, 3 months, and so on).<sup>29</sup> This type of an arrangement is less drastic than plenary guardianship, because it does not strip away all of a patient's rights indefinitely and may be just as adequate in meeting a patient's needs.

### Durable Power of Attorney

A power of attorney may be the fastest, simplest, and least expensive legal mechanism for managing the property of another.<sup>30,31</sup> It is a written document that empowers another person (agent) to perform certain acts on behalf of a person giving the power (the principal). The principal may specify the extent of the authority and also may terminate the arrangement at any time. This may provide an older person with a means of remaining in control, while providing for substitute management.<sup>30</sup>

Since the standard power of attorney terminates at the death or disability (including mental incapacity) of the principal, some jurisdictions have developed a durable power of attorney.<sup>32</sup> A durable power of attorney remains effective despite the death or disability of the principal.<sup>33</sup>

The Uniform Probate Code discusses the

creation of a durable power of attorney. Thus, the instrument that creates a durable power of attorney may expressly provide that the power will continue despite the disability of the principal or, alternatively, that the power will not become effective until the principal becomes disabled.<sup>34,35</sup>

The durable power may be drafted so that many personal desires of an elderly individual also are followed. For example, a person who is entering a hospital might want to provide for substituted judgment in the event of incapacity during or subsequent to surgery. As a means of providing substitute management of property, as well as providing for the personal wishes of an individual, a durable power of attorney is a flexible and inexpensive alternative to guardianships.

### Trusts

Trusts may be the most appropriate and least personally restrictive means for surrogate management of a person's property. Trusts often are created specifically for the purpose of caring for the needs of an incapacitated elderly person.<sup>36</sup>

### Joint Accounts and Joint Tenancies

Joint tenancies and joint checking or savings accounts with close family members of an elderly person are another means of assisting an individual with economic management. There are, of course, disadvantages to such arrangements—each party owns a share of the account and the survivor will receive all of the account.

### Representative Payees

The various agencies that provide payments to the elderly population have a system of representative payees, whereby the Social Security Administration, Civil Service Commission, Railroad Retirement Board, Veterans Administration and the Department of Defense:

. . . are authorized by law to appoint substitute payees for recipients of funds disbursed by those agencies. The general practice is that once the agency learns of the beneficiary's suspected incompetence, payments are suspended until a determination of the competency issue is made by an agency official or

board. If the beneficiary is found to be incompetent, the agency tries to select as substitute payee a person who is genuinely concerned for the well-being of the beneficiary and willing to serve, make accountings, and inform the agency of other significant events in the life of the beneficiary.<sup>37</sup>

### The Living Will

It has been suggested that the concept of a "living will" might be expanded to allow for the best alternative to guardianship.<sup>38</sup> Thus, an individual could plan for his or her health care and property management before incapacity by executing a document that would make the necessary appointments and lay out preferences of treatment and life style before actual incapacity. A more complete discussion of the living will can be found in Volume II, Chapter 25.

### Protective Services Spectrum

Many states have programs to assist elderly persons with meal preparation, home-making, and errands. These programs allow many patients to remain in their homes longer than they otherwise would be able to. Although it is not a physician's job to seek out such programs, a physician should be aware of the existence of such programs and be prepared to recommend to patients who wish to remain at home that they seek out information about these programs. A patient who remains self-sufficient with some assistance can postpone nursing home care and the guardianship or conservatorship proceedings that often follow. Many local resources are available to a concerned physician who wishes to provide assistance to his or her needy patient. Contacts with local legal aid societies, area agencies on aging, senior citizen organizations, and human service agencies may well prove to be helpful in this regard (*see Appendix*).

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# Medical Treatment and Physicians' Legal Duties

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An alternative that goes hand-in-hand with limited guardianship and conservatorship is medical treatment. In the past, behavioral symptoms that are associated with aging evoked "therapeutic nihilism."<sup>1</sup> The attitude that nothing could be done for an elderly person with symptoms of mental illness led to custodial care in hospitals and nursing homes, rather than to effective treatment programs. A growing body of medical opinion, however, disagrees with the belief that mental disorders associated with old age are untreatable.<sup>2</sup> If many such disorders are treatable, then the need for plenary guardianship should be dramatically limited, or at least postponed for a seemingly incompetent patient until after a treatment program is administered. However, in the context of treating an elderly person with symptoms of a mental disorder, a physician will encounter situations in which he or she is required by law to act. Even when no legal compulsion may be present, the law may offer a physician options for action that may be of benefit to his or her patient.

## Duty to Report Incompetence

A physician who has independently diagnosed a patient as incompetent or incapacitated probably has based his or her opinion on that patient's symptoms of mental disease. As stated above, the medical model of incompetency has

been adopted by most courts to the point where it has all but replaced the legal standard of self-reliance as a measure of both incompetency and the need for guardianship. Thus, if a physician has diagnosed a patient as suffering from mental illness, the chances are high that the patient could be declared incompetent at a guardianship proceeding. A physician is under no legal duty to see that guardianship proceedings are initiated for that patient. However, if that patient is truly unable to protect him- or herself and property, a physician may have a legal duty to report that fact to an authority. Several states have enacted adult protective services legislation that requires certain individuals, including health care providers, to report incidents of elderly abuse and negligence that are caused by another or by a patient him- or herself to the proper authorities.<sup>3</sup> Most states that have enacted protective services legislation have made the failure to report such abuse and negligence a misdemeanor.

## Duty to Arrange for Protective Services

A physician is not required to arrange for a guardian for a patient who is about to be committed, hospitalized, or placed in a nursing home. In most states, before a person can be involuntarily committed, a competency hearing



must be held. If a person is committed after such a hearing, then that person was found to be incompetent and the court will have appointed another person or entity to care for that individual. A patient may initiate guardianship proceedings on his or her own behalf,<sup>4</sup> and a physician may wish to recommend to a patient that he or she consider this option (if available by statute) before entering a nursing home or hospital for a mental illness. An individual who initiates his or her own proceedings will have more control over who is appointed, for what responsibilities, and for how long.<sup>5</sup> However, a physician who is about to recommend that a patient seek treatment for mental illness may not believe a patient is capable of making such decisions. The patients who are of sound mind, yet who are unable to get around well enough to care for themselves, should be informed that it is a common occurrence for a family member or other "interested person" to initiate guardianship and conservatorship proceedings just before or after a person is placed in a hospital or nursing home.<sup>6,7</sup> In light of the rights that are taken from a patient on appointing a guardian and the less restrictive alternatives available, a physician who arranges or initiates guardianship for his or her patient may be acting contrary to that patient's best interests.

Although a physician could be appointed as his or her patient's guardian, such an occurrence is both unlikely and discouraged. Most guardianship statutes include a list of persons who should be appointed as a guardian and the order of priority that a court should consider when deciding who should be appointed.<sup>5</sup> A spouse has the highest priority, followed by close family members such as adult children or parents. Even when a patient has no living spouse or relatives, some authorities agree that a guardian should not be someone who is providing services or treatment to the proposed ward due to possible conflict of interest problems.<sup>5</sup> The time and effort that are required of a good guardian alone should be prohibitive to a physician in contemplating the idea of becoming his or her patient's guardian.

As stated above, if a physician suspects that his or her patient is being neglected or abused, in some states that physician has a duty to report such neglect or abuse to the proper authorities.<sup>3</sup> If such abuse or neglect is caused by a

patient's guardian, the guardian probably will be removed and replaced.<sup>5</sup> In states that do not have adult protective services laws, a physician still should report abuse and neglect to the public health and welfare and law enforcement authorities.

Guardianship also may be terminated when the disability that precipitated the guardianship proceedings diminishes or disappears.<sup>5</sup> Several states require a periodic court review of private guardianships and conservatorships to determine if the powers of a guardian/conservator should be expanded or restricted. Most states authorize the ward or other interested persons to initiate a termination proceeding.<sup>5</sup> A physician may wish to make this information available to his or her patient who has overcome the mental or physical disability for which a guardian was appointed.

## Duty of Confidentiality

The legal and ethical duty of confidentiality that is created by a physician/patient relationship may be breached if a physician informs that patient's family of that patient's alleged incompetency. A physician is under a duty to inform authorities if a patient presents a danger to others. Therefore, if a physician has diagnosed a patient as incompetent and believes that patient's threats to harm another, then that physician is under an obligation to alert both authorities and those threatened.<sup>8</sup>

There are times when a physician is under no legal obligation, yet has an option to breach the confidential relationship to discuss a patient's condition with his or her family.<sup>9</sup> When a physician decides that disclosing information about a patient's incompetency would be in the best interest of that patient, the choice whether to make the disclosure is left to that physician's judgment. If a patient can no longer care for or protect him- or herself, a physician's disclosure of that fact to a patient's family generally would be in a patient's best interest.

A physician also may have an ethical obligation to inform a patient and that patient's closest family members about his or her concern for that patient's ability to care for him- or herself and to make decisions concerning his or her property.

## Physicians' Testimony and Standard of Proof

When a physician is asked to examine an allegedly incompetent person and to either draft a report for the court or testify in person as a medical expert, he or she should be aware of the standard of proof that will be applied to his or her testimony. At present, this is an area of debate. Some persons in the legal community believe that "in theory, medical testimony should be useful only to identify the underlying causes of the 'legal condition' or, if possible, to etiologically explain how their physical and mental condition operates to impair management ability."<sup>10</sup> However, physicians often are called on to testify as to whether, in their opinion, a subject is competent to manage his or her own affairs.<sup>10</sup> A testifying physician, therefore, must be prepared to identify and explain the underlying cause of the alleged incompetency, to conclude that a patient is unable to manage his or her affairs, and to show how the former results in the latter. The standard of proof in an incompetency hearing most likely will be the standard that is used in most civil cases. A petitioner must prove by a preponderance of evidence, or that it is more probable than not, that an allegedly incompetent elderly person is incompetent and unable to care for him- or herself.<sup>11,12</sup> However, some legal authorities argue that, given the severity of the deprivation of liberty that is inherent in guardianship, a standard of proof more similar to that in a criminal trial should be used (i.e., "beyond a reasonable doubt.")

## Duty to Obtain Informed Consent to Treatment

This discussion of informed consent to treatment will focus initially on the general liabilities and privileges of physicians in obtaining a patient's informed consent to treatment. The remainder of the discussion will outline modifications to the general doctrine of informed consent that practitioners should apply when treating elderly patients.

## Consent and Medical Treatment

During the past several years, there has been a great deal of attention directed toward autonomy and an individual's right of self-determination. This change in public attitude is clearly reflected in the area of physician-patient relationships. The health care-seeking public, once willing to rely unquestioningly on the skill and judgment of their physicians, now seek a more active role in the decision-making process that affects their health care. The court's recognition of this change in public attitude is manifested in the expansion of the doctrine of informed consent. Simply stated, consent is a "willingness in fact that an act or an invasion of interest shall take place."<sup>13</sup> That a patient's consent to a medical treatment must be obtained has long-been recognized by the courts. Justice Cardozo, in 1914, stated that: "(e)very human being of adult years and sound mind has a right to determine what shall be done with his own body."<sup>14</sup> Cases in recent years have expanded, to a large degree, this very basic notion of consent.

In general, legally valid consent to a medical treatment must be voluntarily given,<sup>15,16</sup> must be given by a "competent" person,<sup>17</sup> and must be "informed."<sup>18</sup> Consent may be either express or implied from the circumstances surrounding the treatment.<sup>19</sup> A physician's failure to obtain a patient's consent may constitute a battery, or it may constitute negligence. Where a patient does not authorize the treatment that is given or the treatment given is substantially different from that authorized, a physician's act usually will constitute a battery. Where a patient authorizes the treatment, but is not "informed," a physician usually will be liable under a negligence theory.<sup>18</sup>

The difference between an action that is brought in battery and one brought in negligence is of more than academic significance. The procedural and substantive differences between the two may strongly affect the outcome of the case. In a battery action, a plaintiff does not need to present any expert testimony concerning the alleged unauthorized treatment.<sup>18,20</sup> A physician's mere treatment of a patient, without a patient's consent, constitutes a battery. In a negligence action, however, many jurisdic-

tions require expert testimony as to whether a physician's conduct conformed to the standards of the medical profession.<sup>21</sup> In addition, under the negligence theory of informed consent, a plaintiff always must prove that if informed of all the material risks he or she would not have undergone the treatment.<sup>18,22</sup> As a consequence, a plaintiff can bring an action in battery at less cost and with less proof than if brought in negligence.

The measure of damages that are awarded by a judge or jury may be substantially greater if the action is successfully brought in battery rather than in negligence. A physician who is liable in battery may be required to pay punitive damages in addition to compensatory damages,<sup>23</sup> although some states have statutorily limited the award amount in medical malpractice actions in an effort to curb the rising cost of malpractice insurance.<sup>24</sup> Because battery is an "intentional tort," however, malpractice insurance may not cover such a liability.<sup>25</sup>

Another aspect in which actions in battery and negligence may differ is in the length of time between the date a plaintiff discovers the putative infraction and the date on which a plaintiff files suit. In many states, the so-called "statute of limitations" is longer for negligence actions than for battery actions.<sup>26</sup> A number of courts in only a few jurisdictions have held that a physician who fails to disclose adequate information to a patient on which that patient can give an informed consent to treatment is liable in battery.<sup>20,27</sup> Those courts have reasoned that a physician's failure to disclose all pertinent information vitiates any consent that a patient may have given, and that a physician, therefore, is liable in battery.

The majority of courts hold that a physician's failure to obtain a patient's consent is a battery only where consent to the treatment is totally lacking or where a patient consents to a treatment that is substantially different than the one in fact given.<sup>18,28</sup> These courts hold that when a physician has obtained some consent, that physician's failure to obtain legally proper "informed" consent constitutes negligence.<sup>18,28</sup> Negligence, in a general sense, is a failure to act as a reasonable person would under all of the circumstances.<sup>28</sup> Negligence, as applied in the area of medical malpractice, means a physi-

cian's failure to act as a reasonable member of the medical profession would under all of the circumstances.<sup>29</sup>

In the context of negligence, a physician's duty to disclose information to a patient is measured by one of two standards. Some courts use a professional standard; the scope of a physician's duty to disclose is determined by what other members of the profession in good standing would disclose.<sup>30</sup> Other courts use an objective standard; the scope of a physician's duty to disclose is determined by what a reasonable person would deem "material" in deciding whether to undergo the treatment proposed by a physician.<sup>18,22</sup> The trend among courts in the United States is to follow the latter view.<sup>31</sup>

Under either the professional standard view or the objective standard view, and in all jurisdictions following the negligence theory in cases that arise from a lack of informed consent, a plaintiff-patient must prove that had he or she been given all "material" information he or she would not have submitted to the treatment.<sup>18,22</sup> To preclude the possibility that a plaintiff-patient may testify out of bitterness and hindsight, courts have adopted an objective standard for determining whether a plaintiff-patient would have submitted to the treatment had his or her physician disclosed all material information.<sup>18,22</sup> Only if a reasonably prudent patient would have refused the treatment is a physician liable in negligence—the fact that one unique patient would have refused treatment is legally insufficient. Of course, even this description of the information that must be provided is subject to the exceptions discussed below—the therapeutic privilege, the emergency rule, and the extension doctrine.

#### *"Informed" Consent*

"Informed" consent refers to the information regarding a medical procedure or treatment that a physician must disclose to a patient. A physician's failure to disclose relevant information to a patient may vitiate any consent that a patient may have given and subject a physician to liability in either battery or negligence. A physician must disclose information that pertains to all aspects of the medical treatment. He or she must disclose information concerning the diagnosis of a patient's condition, which includes

any significant possibility that the diagnosis is incorrect. He or she must explain in simple, non-technical terms the nature and purpose of the proposed treatment. He or she must disclose all consequences of the treatment and disclose any risks that he or she knows or reasonably should know are important to a patient in deciding whether to undergo the proposed treatment. In addition, the health care provider must give to a patient a realistic assessment of the probability that the proposed treatment will be successful, feasible treatment alternatives (including risks and consequences appurtenant to each), as well as a probable prognosis should a patient decide not to undergo the treatment.<sup>32</sup> A physician may be subject to liability should he or she fail to disclose any pertinent information to a patient. The quantum of information that must be disclosed to elderly patients may be different than that required to be disclosed to younger patients.

There are exceptions to the general rule of information disclosure. When an emergency exists and a patient is incapable of giving an informed consent, a physician may have a privilege to provide necessary care without disclosing pertinent information. Consent is deemed to be implied in cases that arise under the "emergency rule."<sup>33</sup> Another exception is the "therapeutic privilege." A physician may be privileged to omit a disclosure of information where a disclosure might so upset a patient that the needed treatment might not be efficacious; or, it might upset a patient to such a degree that a patient would not be able to make a rational decision concerning treatment.<sup>22</sup> The "extension doctrine" is another exception to the general rule of disclosure. The extension doctrine arises most frequently in the context of surgery. The extension doctrine allows a surgeon to remedy abnormal or diseased conditions in the area of the original incision if, in a surgeon's professional judgment, the circumstances dictate the need to extend the surgery that was originally contemplated.<sup>34</sup> Courts carefully scrutinize applications of the emergency rule, the therapeutic privilege, and the extension doctrine, and judge the propriety of such application by a professional standard.<sup>34,35</sup> Expert testimony is required to establish whether a physician's conduct conformed to the expectations of the medical profession.

### *Voluntary Consent*

Consent to medical treatment generally is not legally valid unless it is voluntarily given.<sup>15</sup> Most cases that question the voluntariness of consent involve patients who are incarcerated in mental or penal institutions or patients who have been judicially declared incompetent. In many of those cases, the question of whether consent is voluntary is inextricably related to the question of whether a patient is competent to consent. However, voluntariness of consent need not be related to competence. Any environment or set of circumstances that exerts undue influence on a patient may prevent that patient from voluntarily consenting to treatment. Consent is voluntary only if it is given without any direct or subtle inducement, without fear of reprisal, without fear of deprivation of alternative treatments, and (to the extent they are avoidable) without social pressures.<sup>36</sup> Although, as a general rule, apparent consent constitutes valid consent,<sup>19,37</sup> consent that is given by a patient who is subject to undue social pressures, fears of reprisal for refusing to consent to the treatment, or fears of being unable to obtain alternative treatments, should be carefully scrutinized to determine if (in fact) consent is voluntarily given.

### *Competency to Consent*

The law presumes that an adult person is competent to manage his or her own affairs. However, the presumption may be rebutted, and a person may be judicially declared incompetent to manage his or her person, estate, or both.<sup>38</sup> A patient who has been adjudicated as incompetent to manage his or her person may not give legally valid consent to a medical treatment, and a treating physician must obtain authorization for the treatment from a court-appointed guardian.<sup>39,40</sup> Guardianship and conservatorship statutes, however, vary significantly from state to state. A health care professional should familiarize him- or herself with the applicable legislation in the state in which he or she practices.<sup>39,40</sup>

There is no distinct line that separates those who are competent to consent to a medical treatment and those who are not competent to do so. A patient may be incompetent to consent because of mental illness, unconsciousness, in-

fluence of drugs or intoxicants, or any other impairment of reasoning power.<sup>41</sup>

When a patient is not an adjudicated incompetent, a treating physician may be required to make a determination of whether or not a patient is competent to give an informed consent to treatment.<sup>41</sup> The determination should be based on whether a patient has "sufficient mind to reasonably understand the condition, the nature and effect of the proposed treatment, and the attendant risks in pursuing the treatment, and not pursuing the treatment."<sup>42</sup> A patient, although not an adjudicated incompetent, may nevertheless lack "sufficient mind" to give an informed consent to treatment.<sup>41</sup> A physician's duty to obtain informed consent necessarily encompasses the duty to determine whether or not a patient is competent to consent. Of course, if an incompetent patient is threatened with imminent death or great bodily harm, a physician may have a privilege to treat that patient without obtaining consent.<sup>22,35,43</sup> The emergency rule discussed above applies to such cases.

### Informed Consent and Elderly Patients

The information concerning a treatment that must be disclosed to elderly patients may be different than that required to be disclosed to younger patients. As noted earlier, the trend in the courts today is to require a physician to disclose all information that a reasonable person would consider to be material in deciding whether to undergo a treatment.<sup>31</sup> Physicians should disclose all information to the patient that a reasonable patient would consider to be material in deciding whether to undergo the treatment. In addition, the information should be provided to a patient in a way that he or she will be able to understand. Thus, the objective standard is necessarily subjectivized to the extent that it takes into account the age of a patient.

Decreased hearing ability and vision may affect a patient's ability to give informed consent to treatment.<sup>44</sup> Obviously, if a patient cannot clearly hear what a physician is saying, that patient cannot be expected to fully understand the information the physician has tried to convey; thus, a patient's consent may not be properly informed. Similarly, a patient with impaired vi-

sion will have a difficult time trying to comprehend a written informed consent form. Physicians should take care not to overlook hearing and vision impairments in their elderly patients when they provide them with the information necessary to make medical decisions.

The physical deterioration of various organ systems that often accompanies aging may make certain information regarding a treatment more or less "material" (i.e., significantly relevant) to an aged patient who is deciding whether to undergo treatment.<sup>45</sup> For instance, a very small chance of permanent vision impairment may be less material to an 80-year-old patient with already faltering vision than to a healthy 28-year-old. Similarly, risks of a proposed treatment that manifest themselves only after 20 years of latency may be insignificant to an octogenarian, but highly material to a young patient. A physician always should consider the physical effects of aging when deciding whether information regarding a treatment is material to his or her elderly patient.

If a physician knows or should reasonably know that certain information regarding a treatment is material to a particular patient, he or she should disclose that information regardless of the disclosure that is dictated by a reasonable patient objective standard.<sup>22</sup> This subjectivization of the objective standard flows from the premise that every adult of sound mind has the right to determine what shall be done to his or her body.<sup>14</sup> A physician may be subject to liability if he should fail to disclose information that he knows or should reasonably know is material to a particular patient.<sup>22</sup> Of course, a physician will not be required to take into account subjective qualities of a particular patient of which he or she is unaware or could not reasonably be aware.<sup>22</sup>

There are situations where a full disclosure to an elderly patient is not medically sound and is not legally required. These situations may arise when a full disclosure would so upset a patient that he or she would be unable to make a rational decision concerning treatment, would cause psychological damage to a patient, or would hinder the efficacy of the treatment.<sup>22</sup> However, use of this therapeutic privilege should be carefully limited, "for otherwise it might overwhelm the disclosure rule itself."<sup>22</sup> A physician should not omit disclosure of material

information simply because the disclosure might prompt a patient to forego therapy that the physician feels is necessary.<sup>22</sup> Elderly citizens, although often subjected to society's paternalism, should not be treated differently as patients with regard to the therapeutic privilege (*see* Volume II, Chapter 11). Courts carefully scrutinize a therapeutic privilege defense to an informed consent suit, and a physician who invokes the therapeutic privilege is well-advised to carefully document a patient's sensitivity, which justifies the use of the privilege. In no case will advanced age itself justify the use of the therapeutic privilege.

### Voluntariness of Consent and Elderly Patients

Elderly patients as a group may be more vulnerable than younger patients to factors that influence voluntariness of consent.<sup>36,46</sup> Perhaps the factor that most influences voluntariness of consent is the loss of autonomy that often accompanies aging. Many factors may contribute to the loss of autonomy that is experienced by elderly persons. Mandatory retirement, Social Security, Medicaid, and other government programs that are directed at providing for the needs of the elderly population all contribute to diminish an elderly person's power of self-determination.<sup>36,46</sup> Additionally, the physical deterioration in aging may lead an elderly person to increasingly depend on the expertise of medical professionals.<sup>47</sup> An elderly person may suffer psychological consequences as the result of his or her diminished autonomy. An elderly person may perceive him- or herself as powerless to change the course of his or her personal affairs and may acquiesce to what others (who may fulfill important needs or provide services) want even though the elderly person himself or herself wants something different.<sup>47</sup> Apparent voluntary consent to a medical treatment that is obtained from an elderly patient may simply be acquiescence. This elderly patient, not wishing to offend physicians, social workers, and family members may "consent" to a proposed treatment only to please others or because he or she is conditioned to having others make his or her decisions.<sup>48</sup>

It should be noted, however, that the age cohort to which an individual belongs also may have an impact in this regard. Thus, people who

are now in their 30s may be more assertive and less acquiescent in medical matters than persons who are now over 65 years of age.

The effect of diminished autonomy on giving truly voluntary consent is greatly exacerbated when a patient is institutionalized.<sup>49</sup> In most nursing homes and hospitals, an elderly patient is stripped of what little autonomy he or she may have had previously. Meals and visiting hours usually are at set times, and nurses make most decisions about a patient and his or her environment. In addition, the so-called "dining room effect" creates heightened peer pressures and interdependency among patients.<sup>49</sup> Consequently, an institutionalized elderly patient's autonomy is eroded to such a degree that a patient is extremely vulnerable to fears, inducements, pressures, and the "salesmanship" of a health care provider.<sup>50</sup>

Whether a person is institutionalized or non-institutionalized, the treating physician should carefully scrutinize consent that is given by a patient to determine if it is, in fact, voluntarily given consent or merely acquiescence. Should the physician determine that consent or refusal would not be voluntary, he or she should do everything possible to remove or to diminish the influence that produced the involuntariness. From the outset, a physician should stress to a patient that it is that patient who has the right<sup>51</sup> to decide whether or not to undergo treatment. A physician should be as objective as possible when presenting information concerning the treatment and its alternatives to a patient. A physician who is tendering advice should be careful not to substitute his or her own values for those of a patient's and should examine his or her own motives for advising a patient in a particular manner.<sup>52</sup> Most important, a physician should bear in mind that consent which is not voluntarily given is not legally valid consent. If a physician knows or should reasonably know that a patient did not voluntarily consent to treatment, then treatment of that patient may subject a physician to liability in negligence, in battery, or both.

### Competency to Consent and Elderly Patients

A physician who is treating an elderly patient faces special problems in determining whether that patient is competent to consent. There is

evidence that certain specific cognitive abilities diminish with "normal" aging.<sup>53</sup> However, such evidence does not lead to the conclusion that all or even most elderly patients are not competent to give an informed consent. An elderly patient, although not able to process complex information as swiftly and efficiently as a younger patient, may nevertheless be able to understand the complexities of a proposed treatment if given enough time to fully process the information.<sup>54</sup> Health care professionals should be aware that elderly patients may need more time to process complex information regarding treatment and accordingly should not equate the speed with which an elderly patient processes information with the level of competency of that patient.<sup>54</sup>

Another problem facing a physician who is treating an elderly patient is the increased likelihood that an elderly person may suffer from senile dementia; especially senile dementia of the Alzheimer's type, which may be clinically latent in its early stages.<sup>53</sup> Symptoms of senile dementia vary widely and often may be mistaken for, or confused with symptoms that are indicative of other disorders<sup>55</sup> (*see* Volume I, Chapters 35, 36).

In many cases, the interplay between the dementia itself, any associated illness, and the influences of medications that a patient may be taking, will cause the severity of the mental confusion to fluctuate.<sup>45</sup> An elderly patient may be lucid and able to comprehend information concerning a proposed therapy on Monday, and then on Tuesday be quite unable to comprehend the same information. In such cases, consent that is obtained from a patient while competent will be legally valid, notwithstanding the fact that a patient is incompetent the next day. A treating physician should carefully document such cases to protect him- or herself from potential future claims.

A diagnosis of senile dementia carries with it many implications concerning the ability of a patient to give informed consent to medical treatment. Obviously a severely demented patient will not be competent to consent to treatment. When the dementia is chronic, a treating physician must obtain proxy consent or obtain a court order that authorizes treatment as discussed in the following section. However, a patient who is suffering from reversible cognitive impairment may recover from the conditions

that render him or her incompetent. Thus, when treatment not related to a patient's incompetency is purely elective in nature, a treating physician should not attempt to obtain consent for the treatment from either a patient or alternative sources. Proxy consent might not relieve a physician from liability to a patient if that patient regains competency and wishes to bring suit against his or her physician for that physician's failure to obtain informed consent directly from that patient.<sup>56</sup> When treatment is necessary regarding conditions that render a patient incompetent to consent, proxy consent or a court order authorizing treatment may be required.

An elderly patient's goals, values, and perspectives should not be confused with his or her capacity to make rational decisions. Many physicians and lay persons assume that an elderly person's non-conformity to behavioral patterns that are defined by society as being "normal" is *prima facie* evidence of that person's incompetence. This assumption does not take into account differing values, goals, and perspectives of senescence. An elderly patient who chooses short-term comfort over long-term health may not be acting irrationally, even though the same decision made by a younger person would seem irrational. A treating physician should recognize that an elderly patient may be acting not incompetently, but within the framework of goals, values, and perspectives that are different than those of his or her physician. A patient's refusal to consent to treatment that a physician deems advisable or even essential is not, in itself, evidence of a patient's incompetence.<sup>42,57</sup> The trend in the courts today is to recognize an individual's right of self-determination.<sup>57,58</sup> A treating physician always should respect a competent patient's right to choose, even though that patient's exercise of autonomy may not be "correct" in medical terms.

When a patient is not an adjudicated incompetent, a physician may have to make a competency determination alone or in consultation with a psychiatrist. In making such a determination, the health care professionals must take into consideration a variety of factors, which include: 1) The values, goals, and perspectives of an elderly patient; 2) The possible effects of senile dementia and other mental illnesses on a patient's competency; 3) The effects of medica-

tion on a patient; and 4) Physical impairments of hearing and vision that a patient may suffer.

### Proxy Consent and Elderly Patients

If a patient cannot give legally valid consent because a physician has not disclosed enough information to sufficiently inform him or her, the situation may be remedied simply by informing that patient. If a patient cannot give legally valid consent because consent given under the circumstances would be involuntary, the deficiency may be rectified by removing the coercion. If a patient cannot give legally valid consent because he or she is incompetent to do so, proxy consent (consent given by some other person on behalf of a patient) may be substituted for actual consent under certain circumstances.<sup>59</sup>

While there is no common law support for the notion that a family may make health care decisions for incompetent patients, that custom has become so well-accepted over the past few decades that it has achieved some legal recognition. Indeed, it is hard to imagine a court failing to recognize the good faith consent of the close family of an incompetent elderly patient, at least when that family is attempting to do what the patient (if competent) would choose to do. The President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research recently explained the reasons that this doctrine has subtly, and without much discussion, slipped into the law:

In nonemergency situations, the proper presumption is that the family, defined to include closest relatives and intimate friends, should make health care decisions for an incompetent patient. There are several grounds for this stance:

1. The family is most generally most concerned about the good of the patient.
2. The family will also usually be knowledgeable about the patient's goals, preferences, and values.
3. The family deserves recognition as an important social unit that ought to be treated, within limits, as a single decision maker in matters that intimately affect its matters.<sup>60</sup>

One legal commentator has pointed out that this practice "is so well known in society at large that any individual who finds the prospect particularly odious has ample warning to make

other arrangements better suited to protecting his own ends or interests."<sup>61</sup> Although case law on the subject is scant, the order of preference appears to be a spouse, parent, adult child, sister or brother, uncle, aunt, and grandparent.<sup>41</sup> With elderly patients, the nearest living relative who can give legally valid proxy consent usually will be either a spouse or adult child. This area of the law is developing slowly, and very few courts actually have addressed the authority of a patient's family. While it can be expected that courts will adopt a rule that authorizes a family to make decisions (at least when a family is unanimous and appears to be acting in good faith), there is certainty in proxy consent for an adult only if the consent comes from a judicially appointed guardian.

Problems in obtaining proxy consent may arise if there is disagreement among eligible family members as to whether consent should be given. This situation most often arises where an incompetent elderly patient has no spouse, but does have more than one adult child capable of giving consent. If differences of opinion among coconsentors cannot be reconciled, a treating physician may be required to seek a court order that either authorizes treatment or appoints a temporary guardian or guardian *ad litem* authorized to consent to the treatment. When no proxy consentor can be found, a physician may need to obtain a court order to treat that patient.

All rules that govern consent apply where proxy consent to treat an elderly patient is obtained. The proxy consentor must, of course, be competent. The consent must be voluntarily given, and a treating physician must disclose all information to the proxy consentor that a reasonable elderly patient would consider material in deciding whether or not to undergo the proposed treatment. The emergency rule applies to situations where treatment cannot be delayed to obtain proxy consent without causing great bodily harm to a patient. When a physician has acted reasonably and in good faith, he or she will not be subject to liability. If a physician should otherwise fail to properly obtain consent from the proxy, that physician may incur the same liabilities to which he or she would be subject if he or she failed to properly obtain consent from a competent patient. The therapeutic privilege generally is not applicable to



proxy consent. A health care provider will not be excused for failing to disclose relevant information to a proxy on this ground.

If a patient is temporarily incompetent, a physician should not attempt to obtain proxy consent for a treatment that can be safely delayed until a patient regains competence. For example, proxy consent to remove a gangrenous leg from a patient who is confused on the basis of medication toxicity will not be legally valid consent. The amputation could be safely delayed until that patient regains competence. A physician who is undertaking such a procedure may be subject to liability in battery for failing to obtain consent in the absence of an emergency.

Although many guardianships, in fact, occur because a physician withholds medical treatment "for fear that the recipient is incompetent to give an informed consent,"<sup>42,57,58</sup> a physician should keep in mind that a patient is not formally incompetent in the eyes of the law until a legal proceeding has taken place at which that individual is declared by a judge (in most cases) to be incompetent or incapacitated. A physician should not behave toward a patient as if he or she were already declared incompetent, and a patient who can articulate a set of desires should not be ignored.

When a patient has a conservator and does not have a guardian, the assumption is that this patient was found to be capable of caring for him- or herself, but not for his or her property. Each state's statutes vary as to whether a person may have a conservator without having a guardian also appointed. A physician who is aware that such a situation exists for a patient does not have to obtain consent for that patient's treatment from a conservator. A physician may assume that a patient may make decisions regarding his or her own treatment.

When a physician obtains a patient's consent to treatment without being aware that this patient has had a guardian appointed, an invalid consent question is raised. A physician, in such an instance, may be liable for unauthorized treatment.<sup>35,43</sup> However, if a physician's lack of knowledge was reasonable (i.e., a patient did not appear to be incompetent) and neither a patient nor a guardian indicated in any way that this patient had a legal guardian, then that physician's treatment may be excusable.

There is no concrete answer as to what a physician should do when he or she cannot locate a patient's guardian. If a physician has not tried to locate a patient's guardian, the unauthorized treatment liability remains; a physician may have a difficult time proving to the court that a patient's guardian could not have been reached regardless of any attempts made. However, when a physician does make a reasonable effort to reach a patient's guardian to obtain consent for treatment and is unable to locate him or her, that physician's liability is less clear. If the situation presented involves emergency or life-saving treatment, or if a patient has shown a willingness to receive such treatment, then a physician's treatment (although unauthorized) may be justified.<sup>62</sup> If there is time, a physician may go to court and receive an order from the court allowing treatment.

### Right to Die and Living Will Legislation

Thirteen states and the District of Columbia have promulgated right-to-die or "living will" legislation.<sup>63</sup> These statutes generally permit a competent patient to declare that he or she is not to be kept alive by the use of "maintenance medical treatment" in the event that he or she should become terminally ill. While there is a substantial variation from state to state, these statutes generally permit "living wills" to act as recommendations to physicians and to insulate the health care providers from liability that would arise from the failure to provide maintenance medical care in the absence of the directive.

Some of the statutes require that a physician who is unwilling to honor the "living will" transfer a patient to a physician who will; failure to effect the transfer may constitute an unethical practice. In addition, the statutes generally provide that an exercise of the right to make a living will and the actual use of that document will not constitute suicide for any purpose, and it will not affect life or health insurance benefits that otherwise are due. A summary of the provisions of the currently effective statutes is found in Table 25-1.

There has not been any judicial construction of any of the "right to die" or "living will" statutes; as long as they remain infrequently

TABLE 25-1 Comparison of Existing Natural Death Statutes\*

	Ala	Ark	Calif	Del	Washington, DC	Idaho
Is directive† limited to patients who will die very soon even with treatment?	Yes	No	Yes	Yes	Yes	Yes
May form of directive be varied?	Yes	Yes	No	Yes	Yes	No
May proxy be named in directive?	Possibly	Possibly	No	Yes	Possibly	No
May directive be written for a child or an incompetent adult?	No	Yes	No	No	No	No
Is directive said to be nullified by pregnancy?	Yes	No	Yes	Yes	No	No
Are penalties specified for physicians who refuse to follow a directive?	No	No	Yes	No	Yes	No
Does the statute specify that a physician must inform a patient (if competent) of the terminal prognosis before the directive is binding?	No	No	Yes	No	Yes (2)	Yes
Is directive binding only if patient knows of terminal condition?	No	No	Yes	No	(3)	No
Is a waiting period imposed after patient is informed before directive is binding?	No	No	Yes	No	No	No
Must a directive be periodically reaffirmed?	No	No	Yes	Yes	No	Yes
Must terminal conditions be confirmed by consultation and certified in writing?	Yes	No (1)	Yes	Yes	Yes	No

\* A natural death statute is one that establishes a way for patients while competent to direct that treatment at the end of their lives, if they are not then able to make decisions, shall not include artificial interventions that prolong dying. Other states may have enacted statutes since this volume went to press.

† "Directive" means the written instrument implementing a natural death statute for a particular patient.

(1) Except, a directive may be made by a legally appointed guardian on behalf of an incompetent adult.

(2) A physician probably is given an affirmative duty to inform all patients whose directives thereby become binding.

(3) If a patient is able to comprehend, then the directive is binding only if a patient is informed. If a patient is unable to comprehend, the directive is binding when the terminal condition is certified.

(4) Except that the desires of a qualified patient at the time are always governing, and a patient probably must be informed if the desires are to have this force.

(5) Must be "substantially" the form given in the statute.

(6) Procedures are specified for comatose incompetent patients.

(7) Does not specify written certification.

(8) Directive is binding only if a patient is "qualified" at the time it is executed. The statute does not state that informing a competent patient is essential to qualifying, but it would be reasonable to interpret the statute as entailing this requirement.

used, the courts will have little opportunity to construe them. Despite ambiguities in the phrases that are employed throughout the statutes (e.g., phrases such as "maintenance medical treatment") a signed living will provides concrete evidence of some of the values that a patient wishes health care providers to recognize. Thus, patients may be well-served if they are encouraged to consider the execution of living wills while they are competent, even if those living wills are not strictly enforceable. In any case, they will provide valuable information to

those who are called on to make health care decisions for that patient.

Of course, the question of whether to continue life-sustaining treatment arises most frequently when no living will has been drafted or when a living will would be inapplicable (e.g., when a patient is in an irreversible coma, but not terminally ill). Courts generally have held that a competent patient may choose to discontinue active medical treatment of any sort if that treatment does not cure or significantly benefit that patient. The fundamental common

Kan	Nev	NM	NC	Ore	Tex	Vt	Va	Wash
Yes	Uncertain	Yes	No	Yes	Yes	Yes	No (10)	Yes
Yes	No (5)	Yes	Yes	No	No	Yes	Yes (11)	Yes
Possibly	No	Possibly	Possibly	No	No	Possibly	Possibly	Possibly
No	No	For child	Yes (6)	No	No	No	No (12)	No
Yes	Yes	No	No	No	Yes	No	No	Yes
Yes	No	No	No	Yes	Yes	No (9)	No	No (9)
No (4)	No	No	No	Yes	No (4)	No	No	No (4)
No	No	No	No	Yes	(8)	No	No	(14)
No	No	No	No	Yes	No	No	No	No
No	No	No	No	Yes	No	No	No	No
Yes	No	Yes	Yes (7)	Yes (7)	Yes	No	Yes (13)	Yes

(9) Statute specified that a physician has a duty to inform a patient or actively assist in selecting another physician, but it does not specify penalties for failure to do so.

(10) The definition of a terminal condition requires that death be imminent, but does not specify whether it must be imminent even with the proposed treatment.

(11) Directive may be made orally if done after a diagnosis of a terminal condition.

(12) A procedure is given for foregoing life-sustaining procedures on behalf of adult incompetent patients.

(13) Where a patient is competent, certification need only be made by an attending physician.

(14) If a patient is competent, the statute's requirement that the decision be reaffirmed would seem to entail assuring that a patient knows the terminal prognosis.

SOURCE: From *Deciding to Forego Life-Sustaining Treatment*. By The President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, March 1983.

law right of a patient to choose what is to be done with his or her body implies a right to reject, as well as to accept, medical treatment.

All of the courts that have considered the issue have concluded that the right to discontinue life-sustaining medical treatment extends to incompetent, as well as competent, patients.<sup>64</sup> There has been serious disagreement among the courts as to who is entitled to make the decision for incompetent patients. The especially significant nature of a decision to discontinue life-sustaining treatment has caused

some courts to conclude that a procedure is needed that is more complex than that employed in making other health care decisions for incompetent patients. Most courts, however, have concluded that even a decision to discontinue life-sustaining treatment can be made by either the close relatives of a patient or (in the alternative) a guardian who is appointed by the court. In only one state, New Mexico, has the court hinted that there is no proper way of discontinuing life-sustaining medical treatment for any incompetent patient.<sup>65</sup>

## Informed Consent and Research on the Elderly Population

The extraordinary increase in the size of the population that is most subject to Alzheimer's disease and to related diseases has given rise to a great amount of interest in research in this area. In general, the class of patient that is most likely to ultimately benefit from the research also is that class from which the subjects must be chosen. In the case of Alzheimer's disease, that class includes cognitively or emotionally impaired persons, elderly persons, and those who are institutionalized in nursing homes. Because the condition that is shared by its members renders each of these classes vulnerable to abuse,<sup>66</sup> it is especially important that a patient's consent to participate in the research is truly competent, voluntary, and informed. While the precise requirements for competent, voluntary, and informed consent will vary from protocol to protocol and subject to subject, consent is more likely to be legally and ethically sound if: 1) Those study subjects with less severe dementia and thus greater competence are preferred to those who are more severely cognitively or emotionally disabled; 2) The research protocols are not limited to the elderly population if others also could be employed as subjects without threatening the scientific integrity of the research; and 3) Those subjects outside of nursing homes are preferred to those who are residents of nursing homes as research subjects.<sup>54</sup>

While the nature of consent required for treatment that also can be defined as research is no different from that required for treatment alone, many investigators have suggested that a higher standard must be applied when the research has no therapeutic content. Truly "pure" research, with no potential therapeutic value for a human subject, may have to be conducted using human subjects who are competent, who can act voluntarily, and who can be informed. It simply may be impossible to perform any non-therapeutic research on incompetent patients. Of course, these are considerations to be weighed by the institutional review board at United States Government funded institution that is called on to approve research employing elderly persons as study subjects. Since virtually all significant research is likely

to be carried on at those institutions, it is likely that virtually all research involving questionably competent, difficult to inform, or easily coerced elderly persons as human subjects will be evaluated by some board experts in making these determinations.

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PART IV

# Health Care Systems and Geriatric Medicine

# Social Justice in Chronic Illness and Long-Term Care

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“To me, no other aspect of primary care so challenges the skills, both scientifically and personally, as the medical management of chronic diseases in the elderly . . . Few other disciplines require the judicious utilization of community resources and other health professionals as does management of the elderly patient.”<sup>1</sup>

This statement, by a second-year medical student, highlights the awe that many health professionals experience when they are first confronted with the task of treating chronically ill elderly persons. In a similar fashion, health policy makers are perplexed when faced with the claims on health care resources that grow out of a rapidly increasing fraction of older persons in our society.

In other chapters of this volume, the reader will have found ample demographic data that reveal the numbers, needs of, and costs of providing high-quality medical care to older members of society (*see* Volume II, Chapters 1, 4, and 27). This chapter reaches beyond the inchoate instances to focus on the underlying distributive principles that guide policymakers when they are trying to make allocation decisions regarding the treatment of chronically ill elderly persons. The first section in this chapter presents the reader with three possible principles for deciding allocations within health care; each one represents a time-honored notion of justice. The second section focuses on the specific situation of an older person who requires long-term care insofar as the situation is relevant for deciding on one principle of distribution as being more appropriate than others. The third section suggests that a notion of justice

based on a needs assessment best serves chronically ill or disabled older persons. In the final section, some trade-offs and cautions are addressed. Throughout this chapter, an elderly person who needs long-term care provides the backdrop against which the more theoretic discussion takes meaningful shape.

## The Principles of Justice

The idea of justice is as old as Western philosophical thought itself. Justice often is described as “giving to each person what is due him.” Although few would argue with this definition, it is too general to be of much help as an action guide. Recognizing this, Aristotle suggested that it would be helpful to divide it into several “species” concepts, among them compensatory justice (which deals with repayment for harms rendered) and distributive justice (which deals with the allocation of resources.<sup>2</sup>

In health care, distributive justice considerations directly affect many policies and practices. The goal of distributive justice is to limit arbitrary distinctions among individuals or groups, thereby assuring a proper share to each party who has a legitimate claim to the thing that is being distributed. For example, it has great bearing on who should have access to the health care system and the types of qualifications that are required for receiving services within it. It helps to determine the proportion of the total services, treatments, and other resources that a patient should receive and the price to be exacted for those benefits. There-



fore, while justice is not the only value that is related to assuring a humane system of health care, it certainly is an important one.

In the United States, as in many parts of the world today, distributive justice considerations theoretically are based on the assumption that persons are "fundamentally equal." Within the health care context, the assumption of fundamental equality supports the idea that each patient should be treated as inherently worthy of a health professional's considerations. Therefore, at this level of thinking, the idea of justice supports a humanized form of care.

Nonetheless, a medical practitioner often observes that policies and practices flowing from legislation based on justice considerations do not always support a high quality of care. At times, it appears that the very patients who are most affected by justice-related decisions get the "shortest end of the stick." A health care provider is left with the unhappy prospect of "bending" policies to bring practices into accord with what a patient's situation requires.

What steps should be taken to help prevent a gap between policy and high-quality medical care? Common sense tells us that justice based on a notion of fundamental equality does not require that treatment has to be identical for all. Instead, justice as an eliminator of arbitrary decisions must provide the basis for justifying an unequal distribution that will be acceptable to all parties involved. In short, what policymakers who are sensitive to the moral demands of the situation really seek is not a radically equal distribution, but one that is "fair" or "equitable."

Three commonly accepted criteria for achieving an equitable distribution of health care resources are:

1. Special merits of some persons;
2. The ability of some persons to make greater societal contributions than others; and
3. Special needs of some persons.

1) A merit notion supports the allocation of resources in accord with either how hard a person tries or the kind of results that he or she is able to achieve. Giving proportionately more to those persons who have a greater chance of success (i.e., recovery and return to the work force) often is justified on the basis that, in the end, the resources investment will pay off—

thereby benefiting all. When interpreted this way, it is very similar to providing unequal shares on the basis of "societal contribution"; 2) However, societal contribution sometimes is interpreted to include past contributions, as well as promised future ones; 3) Basing distribution on relative degrees of need is quite a different approach from the other two. In this case, the explicit goal is to help diminish the difference in well-being among persons. The means of achieving this is to compensate a person who has the deprivation. These notions of justice will be addressed more fully after the next section, when the situation of a chronically ill elderly person has been described.

## Justice and the Chronically Ill Elderly Person

Since the characteristics of individuals and groups help to determine which notion of justice is appropriate for a given allocation decision, it is necessary to describe the situation of chronically ill elderly persons in society.

The governing observation regarding this group is that to have a disabling chronic condition in old age is to have a stigma attached to one's social identity. A stigma is a type of information that a person conveys about him- or herself (often unwillingly), and by which others can make judgments about him or her. The presence of stigmatizing qualities reduces a person in the minds of others from being a whole person to being a tainted discounted one.<sup>3</sup> Therefore, stigmatizing qualities are deeply discrediting ones.

A discrediting quality often becomes the most influential basis for the way that a person is treated in all avenues of his or her life; that is, one's status as defined by the discrediting quality becomes the master status overriding all others.<sup>4</sup> For example, a person who has had a stroke often is referred to as simply as "a stroke case" or "a hemiplegic" no matter what else he or she is; society looks to the discrediting qualities to judge what a person is capable of doing and being.

In his treatment of the subject, Goffman stresses the relational aspects of stigmatized to

non-stigmatized persons. He contends that a person is treated literally as a "marked man," and the most general social manifestation of the response is ostracism from the full life of the community.<sup>5</sup>

A chronically ill elderly person often has at least four stigmatizing qualities, each of which would be sufficient to make him or her a "marked" person. Together, they create a highly stigmatized position. The qualities are a person's: 1) Visible symptoms; 2) Possible mental dysfunction; 3) Old age per se; and 4) Minority group status.\*

### Visible Symptoms

Bodily appearance is a significant factor in determining the kind of judgments that are made about persons. Visible deviations from a society's vague notion of "normal" bodily appearance are especially instrumental in determining that a demeaning judgment will be made. In most cases, being "ugly" results in a demeaning judgment, but being "deformed" or "crippled" results in an even more demeaning one.<sup>6</sup> An effect of these types of demeaning judgments on chronically ill persons is that a medical condition that causes a mild physical dysfunction can become an actual condition of a great physical handicap.<sup>7</sup> Using again the example of a stroke, both the dysfunction and the handicap are great:

The mark of cerebral vascular disease is usually obvious: a sagging face, a dangling arm, a wobbly gait, and all too frequently a speech impediment which interferes with usual communication. The individuals so afflicted often are condemned to live in relative isolation neglected by all but those most devoted to them.<sup>8</sup>

Therefore, on the basis of visible symptoms alone, the person with a chronic illness often becomes stigmatized and tends to be excluded from the full life of the community.

\* For a more thorough description of a chronically ill person's position, and the health policy implications that follow, see Purtilo RB: *A Just Medical Care Delivery and the "Permanent Patient": The Severe Stroke Patient as a Test Case*. Ph.D. Dissertation, Harvard University Graduate School of Arts and Sciences, Cambridge, Massachusetts, 1979.

### Mental Dysfunction

Some chronic conditions in elderly persons result in disorders of cognition, perception, and/or language ability. Among laypersons, such a person sounds incoherent and often is written off as one who has "lost his mind."

Viewing a person's incoherent responses as a type of "rule-breaking" can help one to understand the stigma that is attached to a person who has a mental dysfunction; in society, individuals abide by an unwritten "rule" that a certain number and range of clues will be given out to persuade other persons that one is involved in what is happening in the immediate environment.<sup>9</sup> Scheff further observes that if a person is not involved (i.e., is unable to continue a line of thought initiated by others) or ceases to be involved without giving an acceptable clue (i.e., falls asleep without warning during a conversation) that person is deemed a violator of a number of rules that he or she terms "residual" rules.<sup>10</sup>

A demeaning response to a residual rule-breaker grows out of an image of mental disorders that many people learn early in childhood. As children, most persons learn that persons who are mentally ill, mentally retarded, or who otherwise appear mentally disoriented to the immediate situation are "dangerous," although their threat rests only on their unpredictability. An unreasonable fear of anyone who appears to be mentally ill subsequently is internalized, and any mental dysfunction is a sign that a person is a potential danger to society.<sup>10</sup> Moreover, a judgment that is made about mentally disordered persons is not limited to the conviction that they are dangerous. Once a person is judged to be mentally disordered, that type of person often is stereotyped as not only dangerous, but also dirty and/or insincere.<sup>11</sup> Thus, the characteristic of mental dysfunction alone discredits an individual in the eyes of many.

### Old Age

Throughout these volumes it has been shown that the incidence of chronic disability requiring long-term care increases dramatically with increasing age. Thus, the majority of chronically ill persons are relatively elderly members of society.

A large body of available literature in recent years has revealed the extent and varieties of discrimination against older members of society. "Ageism" remains an ugly blemish on the American complexion.

Novelist John Updike caricatures how old persons are treated as "relics," in his novel of a group of elderly persons who live in the local poorhouse. Once a year, the residents sponsor a "poorhouse fair." He says of the townspeople who come to the fair:

They came to the fair to be freshened in the recollection of an older America, the America of Dan Patch and of Senator Beverage exhorting the Anglo-Saxons to march across the Pacific and save the beautiful, weak-minded islands there, an America of stained glass lampshades, hard shell evangelists, flag-days, icemen, plug tobacco, china trade . . . opportunism, church-going and well-worded orations in the glare of a cemetery on summer days . . .<sup>12</sup>

This attitude of treating an old person as a "relic" creeps into the available medical literature about old people as well. An article, *Stroke in the Geriatric Patient*,<sup>13</sup> largely is sympathetic to the special problems of treating older stroke patients. However, in the presentation of the "facts" about stroke treatment programs for elderly persons, the author states, "for the elderly patient surviving a completed stroke, who cannot benefit from (many of the usual) interventions, the prognosis is often not dire." Why does the author make this judgment? He reasons, that "while there is a high frequency of occupational disability following stroke, most patients in the group we are considering are already retired." This statement, benign on the face of it, suggests that it is justifiable to withhold treatment, in some cases, because basic skills that are needed for an occupation are not needed by an elderly person. The problem with this position is that it is hard to imagine which of these skills would not also be fundamentally useful for other aspects of daily living for elderly persons.

These examples are simply reminders that, in concrete ways, stigmatization tends to be greater for persons who are old and chronically disabled than it is for young disabled persons.

## Minority Group Status

Finally, viewing elderly persons who have chronic illnesses as a minority group further helps one to understand their stigmatization. Within a minority, treatment towards persons is poorer and differential in spite of the fact that they are qualified equally as well as others. Allport discusses the issue of minority groups from the perspective of "in-groups" and "out-groups".<sup>14</sup> A major characteristic of an in-group is that the presence of a threatening common "enemy" will cement an in-group's identity out of the need for security.

In the context of this discussion, the out-group members in this configuration are persons with chronically disabling conditions; the in-group are able-bodied persons. However, for most chronically ill persons, a second configuration exists alongside the first in which the out-group members also are elderly persons and the in-group also are the more youthful members of society. In short, the majority of persons with a chronic illness are members of at least two minorities or out-groups.

Belonging to more than one minority group tends to increase the total amount of poor differential treatment that is received by a person. This summation effect has been noted in the "double whammy" situation of an old female, and the "triple whammy" of an old black female.<sup>15</sup> Therefore, the basic stigmatization that is associated with being a member of a disabled minority is added to that of being a member of the elderly minority, a racial minority, or another type of minority. The overall result is a highly stigmatized position.

To summarize briefly, we have described four discrediting or stigmatizing qualities that are associated with chronically ill elderly persons; each is sufficient to create problems of acceptance by the larger society: 1) Visible symptoms; 2) Mental dysfunction; 3) Old age; and 4) Minority group status.

Such elderly persons who are ostracized often are termed "marginal," insofar as they do not have an opportunity to exercise a fair voice in decisions that affect their lives and well-being.<sup>16</sup> Because of their vulnerability, a whole body of literature has developed to address the moral, social, and legal responsibility of the

larger society to protect the reasonable interests of vulnerable groups.<sup>17</sup> While policymakers find their presence to be perplexing, still the plight of chronically ill elderly persons remains “a datum of tenacious relevance”<sup>18</sup> in a society that extols itself as humane.

Vulnerable groups are not characterized as having merits that are desired by the larger society, nor do they capture the imagination of most health care professionals. As Butler reflects:

Professionally, physicians are uninterested in . . . the care of chronic conditions . . . Dramatic conditions which respond to fast cures are exciting and quickly satisfying. Slower, less spectacular . . . chronic care is considered boring, tedious, uninteresting, and unproductive. Since chronic conditions are by nature irreversible (though nonetheless treatable), doctors tend to view them with despair and even nihilism. There is almost a Peter Pan sense that medicine should be immediately gratifying and not spoiled by situations which defy the doctor’s ability to “make it all better” . . .<sup>19</sup>

Chronically ill and disabled elderly persons do not, as a group, present themselves as individuals who will be able to make a positive contribution to society in terms of becoming economically and functionally “useful.” Among the many studies that support this position is Anderson and Kottke’s findings that medical rehabilitation decisions in relation to severely chronically ill persons do not include homemaking, leisure, or other avocational activities—only labor force-related ones. This greatly diminishes the number of persons who are deemed reasonable candidates for medical rehabilitation.<sup>20</sup>

Vulnerable groups are viewed, therefore, primarily as non-meritorious and non-contributing members of society. Instead, they are relatively deprived members of society who are losers in the natural lottery of life’s assets.<sup>21</sup> In the policy arena, their basis for having a claim on cherished and limited resources is simply that they have basic needs that will not be met without the intervention and assistance of those who are more empowered. Therefore, of the three principles of justice that were introduced at the outset of this chapter, the appeal to one’s needs represents the most feasible approach. In the next section, the reader is introduced to some of its potentials and shortcomings in cre-

ating health policies that can be considered “humane” for all parties involved, while being morally sensitive to the chronically ill elderly population.

## Justice According to Need

A principle of justice that is based on need entails the idea that society has an obligation to take care of its own. It is based on an anthropologic assumption that when allocation decisions are made, some persons must be given the advantage of a “handicap” at the outset to make up for certain deprivations that they experience:

Equality means that where nature has created great and fundamental differences in abilities, these must not be allowed to determine the individual’s chances in life, but rather that society should restore the balance. These differences, in the form of physical or intellectual handicaps, can never be eliminated, but they can be reduced in a generous social climate, and one can work against their leading to social discrimination. Disadvantages inflicted by nature should not be accepted as something we can do nothing about.<sup>22</sup>

In a recent evaluation of the Swedish approach to long-term care for elderly persons, it was noted that Bror Rexed, then Director General of the Swedish National Board of Health and Welfare, took “need” as his point of reference time and again.<sup>23</sup> When asked about the effects of soaring inflation on care for chronically ill elderly persons, he responded:

Even in a depression I don’t think we could cut them (the services) out. We might have to reduce the use of equipment and some types of expensive services . . . but we have to give them contact with somebody—the nurse, the doctor, if they are in great need.”<sup>23</sup>

In the development of United States federal health policies’ attention to this “needs-based” type of reasoning often is discernible as well. For example, the idea of “medical indigence,” which was introduced with the original Medicaid legislation, advances that no one should become indigent because of medical expenses. However, another competing theme is pervasive in federal health policy. An illustration of this is the United State Surgeon General’s report that identifies the major focus for the

1980s, as “disease prevention and health promotion,” with one aim being a measurable and achievable “*improvement in health, mobility, and independence for older people to be achieved largely by reducing by 20% the average number of days of illness in this group*”<sup>24</sup> (italics, the author). Although these goals are laudable, there is little doubt that an emphasis on healthy persons rechannels attention away from chronically ill members of society of all age groups who require extensive health-related services.

### Challenges and Trade-Offs: The “Need” Criterion Analyzed

While both types of reasoning that were outlined above are observable in our pluralistic society, nevertheless most policymakers probably would agree that “need” is a reasonable criterion to work from when cherished health care resources are available; it could make a positive difference in the lives of chronically ill elderly persons.

Clearly, an interpretation of justice that begins by considering need creates a favorable environment for assisting disabled persons. The governing attitude is the conviction that a person has a claim to realize the highest level of functioning possible, given his or her disabling circumstances. Since independence is an overriding American value, a disabled person must be provided with appropriate props so that he or she can exercise it. The question is not “does it cost too much,” but rather, “how shall we assure funds for so vital a dimension of societal well-being?” This position does not necessarily include a positive attitude of affection or equal respect. It often is a protective, paternalistic attitude that might degrade a disabled person. Nonetheless, since the tension is in favor of helping to assure the basic life and liberty requirements of all persons, it is a position that is far preferable to one that includes no such tension; that is, the opportunities created by material supports increase the potential for an impaired person to minimize unnecessary dependence on others. The more this approach is realized, the more likely that a person will be favorably accepted by younger, healthy, and able-bodied persons. Probably, few would ar-

gue against the moral soundness of this approach. However, we run into a snag here.

In an approach that rests on an underlying ideal of equality and that allocates according to need, a social minimum below which no person should fall is logically entailed.<sup>25</sup> Assuming that a more equal life situation for all is an ultimate value to be realized in such allocation decisions, those who are financially better off in society will lose liberty to the extent that resources they would use for realizing a greater degree of life style options are redirected at helping to meet the basic needs of those who are less well-off financially.

Therefore, in the policy chambers, liberty (expressed as life choices for the better off) and justice are uncomfortable bedfellows. Briefly following is a discussion of three attempts at dealing with the ideal of maintaining liberty while realizing justice; they show how each attempt involves a compromise of one or the other.

First, consider the possibility of setting the social minimum high, so that everyone can realize a relatively full life (insofar as physical resources foster it), of allocating sufficient funds for the demands of the situation, and then imposing strict government regulation to help assure that resources are distributed according to need. While the demands of justice are protected, the totalitarian overtones of such an arrangement suggest that liberty is jeopardized. Indeed, to the extent that controls have been implemented in the United States, such intervention has met sustained resistance. Within the health care system, the value of self-determination or “liberty” so far has created an effective barrier to attempts to impose heavy controls of: 1) Physicians to market their services according to their professional discretion; 2) Patients to purchase services; and 3) Manufacturers to provide a wide range of products.

The impingement on life style options among those who are better off take many subtle forms, in addition to the obvious financial ones. A Swedish social worker related the following story: In Sweden, old persons with handicaps are provided by law with public transportation as one means of allowing them to participate in the normal flow of societal activity. Anyone who cannot walk, take a bicycle, or ride a bus is given priority taxi service on the basis of their

greater need. This social worker had, in fact, been instrumental in helping such legislation to be passed. On Christmas Eve day, the social worker (who lives alone on the outskirts of Stockholm) telephoned for a taxi so that she could get to her sister's home, which was further in the suburbs and inaccessible by any other form of transportation. After numerous busy signals she finally reached one firm. The man who answered laughed at her and said, "we have been fully booked for today and tomorrow for over 3 weeks, providing transportation for the old, handicapped people in Sweden. All our help is working overtime. If you are disappointed about not being with your family, you are not alone. So is every cab driver in the City of Stockholm. God jul," and he hung up. She spent Christmas Eve alone and finally found a friend who drove her to her sister's on Christmas day.

A second approach is to lower the social minimum to the subsistence level. This would increase the life style options of those who are better off, but decrease it substantially for those who require services. The requirements of responding to a need are met, although the underlying ideal of equality becomes empty rhetoric; that is, the need may be attended to, but there is no guarantee of an impetus to create more equal life choices for all. The motivating concept of "restoring a balance," is dormant. What is desirable from the moral point of view is a middle way.

With this in mind, and given the ethical trade-offs that are inherent in the two above approaches, Harvard philosopher John Rawls introduced the notion that the "maximin" or the "maximum of the minimum liberty" should be available to everyone.<sup>26</sup> He defends equal basic liberties for everyone and provides a fairly expansive notion of what liberty involves. At the very least, he wants each person to be able to work out a life plan that is reasonable for him or her. Each should experience the maximum amount of freedom that everyone else also experiences (thus, the "maximin").

However, he also believes that the exercise of liberty for all entails that some persons require more help than others in obtaining the resources that are prerequisites for exercising life options. He begins by assuming that natural advantages, talents, and strengths do not (in them-

selves) create a claim for larger shares of basic social and economic goods. Natural talents are a common asset to be distributed justly. A second assumption is that desirable resources are not necessarily distributed justly by means of giving equal amounts to everyone. However, unless inequality is shown to be more just, equality is preferred. Inequalities permitted are those that benefit everyone.

A key feature of the principle is that it singles out a particular position from which inequalities in resource priorities can be judged. The greater amount of resources that are given to those better-off persons is justified if, and only if, they work as part of a scheme that raises the expectations regarding the opportunity for both equal liberty and an attainable amount of cherished social and economic goods among the lesser advantage members of our society (i.e., more can be given to those who are better off if there is assurance that those who are deprived will thereby benefit. One obvious benefit suggested by Rawls is that resources sometimes serve as incentives for those who are better off.

Proponents of Rawls defend the approach as a reasonable theoretical framework for developing policies that could meet the health care needs of the most needy groups, while assuring that some incentives for high-quality programs will be built into the overall system of health care.<sup>27</sup> However, other investigators raise doubts regarding the possible degree of difference in resources that would actually exist between those better- and less well-off persons in his scheme.<sup>28</sup> At the very least, it should be viewed as one promising approach for working out a golden mean between a totally equalized society and one in which the needs of some are ignored, while others reap undue benefits.

Even if the Rawlsian approach should provide a workable theoretic model for ascertaining the overall allocations in a society, still—at the level of health policy for chronically ill elderly persons—at least two critical issues remain unanswered or only unsatisfactorily so.

First, from both the theoretic and practical viewpoints, the notion of "need" must be more fully delineated if it is to work as a starting point for deliberation. At present, most attention is being given to distinguishing "needs" from "wants" and "basic" from "felt" needs.<sup>29</sup> Moreover, the difficult task of trying to catego-

size various types of need according to their effects on the well-being of individuals who are involved has been attempted<sup>30</sup>; it continues to be an issue of discussion in health policy circles.<sup>31</sup>

Second, the amount of disability that is actually experienced by elderly persons who have chronic illnesses must be ascertained more fully than it has been to date to gain an accurate picture of the situation of the chronically ill or disabled elderly population. Early investigations in this area suggest that the magnitude of social disability that results from an impairment may be overestimated,<sup>32</sup> but further studies are desperately needed. Until more accurate data is in, the plight of elderly persons who need long-term care will be unduly jeopardized.

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# Long-Term Care: Policy and Reimbursement

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This chapter is designed to acquaint geriatric practitioners with that amorphous field referred to as long-term care. The term confuses as much as it clarifies. As with many such labels, it is defined by exclusion; in this case, it implies a distinction from the acute services that are available in a hospital and in physicians' offices. However, the division is not clear. For instance, when a patient who is receiving long-term care (e.g., in a nursing home) has an acute illness, is the care considered acute or long-term? Such questions become relevant only when they affect the care that is available or the resources to pay for it. As will be discussed in this chapter, these are both major issues for long-term care.

As might be expected, there is no uniform definition for long-term care. We prefer the following description to most, because it highlights important aspects of the problem:

**Long-Term Care:** A range of services that addresses the health, personal care, and social needs of individuals who lack some capacity for self-care. Services may be continuous or intermittent, but are delivered by sustained periods to individuals who have a demonstrated need, usually measured by some index of functional incapacity.

This statement emphasizes the common thread of most discussions of long-term care: the dependence of an individual on the services of another for a substantial period of time. The definition is carefully non-specific about who provides those services or what they are. Long-term care is certainly not the exclusive purview of the medical professions; in fact, most long-term care in this country is not provided by

professionals at all, but by a host of individuals who are loosely referred to as informal support. These persons may be family, friends, or neighbors.

Thus, long-term care lies in an indefinite no-man's-land between professional and non-professional support. For many years, this was undisputed territory that was more noted for avoidance than for competition to enter it. Recently, however, there has been a growing interest in the plight of the elderly population and signs of recognition that dependent elderly persons represent both a need and a market for a variety of services.

To illuminate the current state of long-term care, five major questions are addressed: 1) Why is long-term care such an issue? 2) Who is at risk? 3) How do nursing homes figure in the picture? 4) How did we get where we are? and 5) What can be done about it?

## Why is Long-Term Care Such an Issue?

The growing concern about long-term care can be traced to the confluence of two forces: the growth of the elderly population and the cost of care—particularly the public cost of care. Both are, to some extent, the source and the product of social policies. Although the demographics have been known for years, they suddenly are a cause for alarm. In part, at least, the sense of crisis can be attributed to the perception that the growth within the population over 65 years of age is occurring in that group which dispropo-

portionately consumes health services. In part, this concern focuses on that cohort moving through time from the post-World War II baby boom; the disruption of social institutions that it creates will be magnified when this cohort becomes elderly after the turn of the next century.

Even at present, with only about 11% of the population over 65 years of age, financial problems are being encountered. Figure 27-1 looks at the funds that are going to medical care for the elderly population in terms of where they come from and where they go to. Elderly persons consume a disproportionate share of the health care dollar, especially the public part of that dollar. In 1978, elderly persons spent just

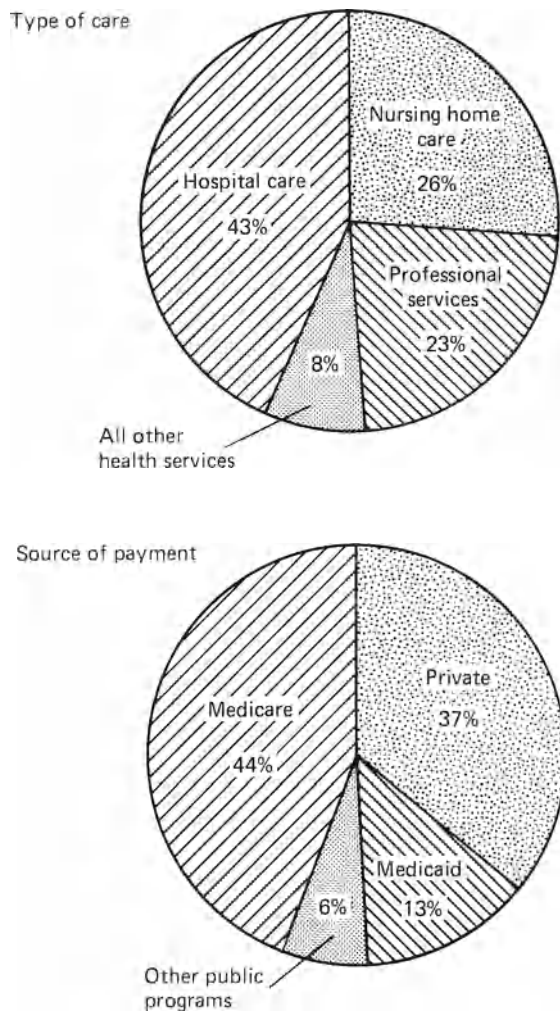


FIGURE 27-1 Per capita health care expenditures for the elderly population by type of care and source of payment: United States, 1978. (From Federal Council on Aging.<sup>48</sup>)

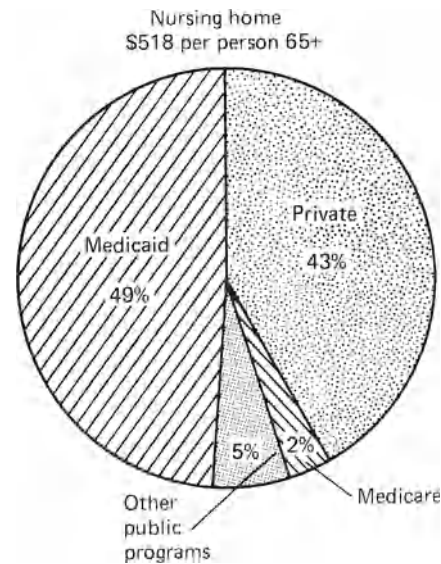


FIGURE 27-2 Sources of nursing home expenditures. (Adapted from U.S. DHHS.<sup>49</sup>)

over \$2,000 per capita on health care (compared with \$765 for younger adults and \$285 for youths); moreover, 65% of the health care dollar for the elderly population came from public funds.

For long-term care expenditures, the picture is less clear because so many sources are involved. In the major locus of expenditure—the nursing home—we can draw several contrasts with overall health care expenditures. As seen in Figure 27-2, the largest source of long-term care funding comes from Medicaid, which is a welfare program; Medicare contributes surprisingly little, and the role of private sources is larger. Because Medicare and Medicaid are open-ended funding sources (i.e., their budgets essentially are determined by the demands placed on them; they have no fixed ceilings), they are prime targets for growing expenditures. Despite the complaints of care providers about the parsimony of federal and state programs, since Medicare and Medicaid were introduced, the per capita expenditure for both hospitals and physicians (after adjusting for inflation and population growth) has increased more for the elderly age group than for those under 65 years of age.

Thus, long-term care represents a growing expense for both private and public sources.

The demographic forecast suggests that as the baby boom cohort ages by the early part of the next century, there will be more dependent elderly persons and fewer young working people to depend on. When we add to this picture the changes in social mores (less stable marriages, more working women, and a decreased birth rate), this dependency forecast becomes even more grim. Finally, it must be acknowledged that we are not very pleased with what we can buy with our long-term care dollars. Nursing homes are shunned by professionals, patients, and families. There is no reason to expect things to improve unless health care providers make some very serious commitments toward that goal. Thus, it is scarcely surprising that so many people are actively pursuing alternative forms of long-term care.

## Who is at Risk?

Before discussing how to avoid nursing homes, one has to better understand who is at risk for such care. The answer depends on how one asks the question. At the most simple level, it can be reported that, at any given point in time, 1 of 20 persons 65 years of age or older is in a nursing home. But, this 5% figure is very misleading on several counts. The use of age 65 to signal the onset of old age is arbitrary and capricious. As one social program beget the next, the definition was handed down from the time of Bismarck's social insurance scheme in the Nineteenth Century. Unfortunately, the term "65 and older" hides important differences.

For example, take the rate of nursing home use, which is 5% of the population 65 years of age and over. This figure must be disaggregated to be understood. Of those persons 65–69 years of age, only about 1% are in nursing homes; of those persons 75–79 years of age, only about 6%. However, of those persons 85 years of age and older, more than 20% are in nursing homes. In fact, the average age of nursing home residents is over 80 years.

The 5% figure is misleading in another sense as well. It is static; it counts people at only one point in time. When more dynamic data is noted to estimate the total risk of nursing home placement over a lifetime, the figure rises considerably. Simply by using the proportion of deaths

among those persons over 65 years of age that occur in nursing homes, estimates of about 25% are seen.<sup>1,2</sup> The studies that have followed an elderly cohort over time report that 25–40% of all 65-year-old persons will spend some time in a nursing home before their deaths.<sup>3,4</sup>

Another simple approach toward identifying the risk factors is to simply contrast those persons in nursing homes with those who are in the community. Table 27-1 does just that. It can be seen that those persons in nursing homes are older, less likely to be married, and more likely to be female and white.

How important is physical health? Butler and Newacheck<sup>5</sup> argue that social support is more critical than disability in determining the likelihood of nursing home admission. Using cross-sectional data, they have shown that those who are unmarried and living alone or with relatives are at the greatest risk. This does not mean, as some commentators have suggested, that we are living in an age when children abandon their parents. Brody<sup>6</sup> and Shanas<sup>7</sup> have shown that children continue to provide strong support for older persons, but there is some reason to suspect that fatigue sets in. Egger, et al<sup>8</sup> described the archetypal situation, wherein the family that can no longer cope with repeated illness and its disruption turns to a nursing home as a last resort. Callahan, et al<sup>9</sup> suggest that families might be encouraged to do more. They urge more incentives to support families in providing more care for dependent elderly relatives.

The use of nursing homes should not be interpreted as a lack of informal social support. Studies such as the one by the United States Government Accounting Office<sup>10,11</sup> suggest that family and friends provide the bulk of non-medical services to dependent older persons who are living in the community. Looked at another way, 9 of 10 such individuals had someone to rely on for such help. This help may be the critical factor in avoiding nursing home placement. Using a multidimensional rating scale, which totals disabilities along five dimensions (physical, mental, social, economic, and activities of daily living), researchers found that 87% of a nursing home sample were at least mildly or moderately impaired in all five areas; 14% of a community sample of elderly persons was equally impaired.<sup>12</sup>

TABLE 27-1 Number of Nursing Home Residents and the Non-Institutionalized Population 65 Years of Age and Over and Percent Distribution, by Age, Sex, Race, and Marital Status: United States, 1977

Age, Sex, Race, and Marital Status	Nursing Home Residents	Non-Institutionalized Population*
	Number	
All residents	1,126,000	22,100,000
	Percent distribution	
Total	100.0	100.0
Age		
65-74 years	18.8	64.0
75 years and over	81.2	36.0
Sex		
Male	26.1	41.3
Female	73.9	58.7
Race		
White†	93.3	90.6
Black and other	6.7	9.4
Marital status		
Married	12.1	53.2
Widowed	69.3	36.4
Divorced or separated	4.5	4.2
Never married	14.2	6.2

\* Data are from the U.S. Bureau of the Census: Marital status and living arrangements: March 1977. *Current Population Reports*. Series P-20, No 323. Washington, DC, United States Government Printing Office, Apr. 1978.

† Includes persons of Hispanic origin.

SOURCE: United States Department of Health and Human Services,<sup>18</sup> Table D.

NOTE: Figures may not add to totals due to rounding.

If one uses the rough 5% estimate of nursing home prevalence, then a crude estimate of the ratio of the total number of impaired elderly persons in the community compared to the number in nursing homes is:

$$\begin{aligned} & (0.14) \times (0.95)/(0.87) \times (0.05) \\ & = 0.13/0.04 \\ & = 3.33 \end{aligned}$$

Thus, it at least can be estimated that there are about three disabled elderly persons in the community for every one in a nursing home. One may still argue that those who are in a nursing home are more disabled, because the measure is not sensitive enough to distinguish that end of the spectrum; but, the ratio holds, at least up to a dramatic threshold.

What, then, are the factors that allow those three persons to remain in the community, and

how malleable are they? It already has been acknowledged that the role of social support is critical, especially family and friends. If one is to plan rationally for a long-term care program, better data is needed to identify those persons who are at the highest risk for institutionalization. Table 27-2 summarizes some of the reports of various investigators who have looked at this question.

Vicente, et al<sup>3</sup> used data from the Human Population Laboratory Longitudinal Study to follow those persons 55 years of age and over for 9 years to assess their rate of nursing home use. Factors that were more common in those persons with at least one admission were advanced age, low income, female gender, white race, and lack of social supports. Health status, measured as a chronic limitation of activity, did not differentiate users from non-users.

TABLE 27-2 Risk Factors for Nursing Home Admission

Source	Sample	Risk Factors
National Center for Health Statistics <sup>41</sup>	Survey of nursing home residents in 1977 (compared to those age 65+ living in the community)	Age, female, white, unmarried
Vicente, Wiley, and Carrington <sup>3</sup>	Nine-year follow-up of residents age 55+ in Alameda County, California	Age, poverty, white, lack of social supports
Palmore <sup>4</sup>	Twenty-year follow-up of residents age 60+ in Piedmont, North Carolina area	Unmarried, white
Weissert, et al <sup>28</sup>	One-year study of day-care recipients and controls in six sites	Primary diagnostic conditions, impairment prognosis, hospital outpatient, or other ambulatory use
Weissert, et al <sup>29</sup>	One-year study of homemaker recipients and controls in four sites; patients were hospitalized for at least 3 days during the 2 weeks before the study	Primary diagnostic conditions, ADL* prognosis, bed disability prognosis, hospital outpatient, or other ambulatory use
McCoy and Edwards <sup>14</sup>	National sample of welfare recipients age 65+	Age, functional impairment, white, living alone or with non-relatives, lack of social supports

\* ADL = activities of daily living.

Palmore<sup>4</sup> followed a group of 207 elderly persons in North Carolina for 20 years. He found the probability of spending some time in a nursing home was greater for women, those who were white, those never married, those without living children, and those with 6 or less years of schooling.

Weissert's<sup>13</sup> analysis of a day-care experiment over a study year suggested that the patient characteristics that were significantly associated with entering institutions were being white, having fewer social activities and more bed disability days, having a diagnosis of a circulatory disorder or an injury, and having functional limitations as measured by the Katz ADL (activities of daily living) scale (a six-item measure of independence in feeding, bathing, dressing, toileting, transferring, and a measure of continence). A similar analysis on those persons who were from the homemaker portion of the experiment showed no significant associations. However, this lack may be explained by the requirement that all participants had to have been hospitalized for at least 3 days during the 2 weeks immediately before their entry into the study.

McCoy and Edwards<sup>15</sup> used data from the

1973 Survey of Low-Income Aged and Disabled to predict 1974 institutionalization rates among welfare recipients who were 65 years of age and over. They found the probability of institutionalization to be increased with functional impairment (measured by a modified Katz ADL scale), advanced age, household isolation, a presence in the household of non-relatives, and being white. Institutionalization was decreased in association with measurable social support, which included frequent contact with friends and relatives and the propinquity of children.

Risk factors are intimately associated with social support and social resources. However, a problem in targeting services on that basis, is that social support levels are unpredictable and subject to change. Little work has been done to assist in targeting those individuals with "thin" social support systems. Kulys and Tobin<sup>15</sup> studied a population of community-based elderly persons and pointed to a group whose support system was "one deep." This meant that if the current assistant was not available, no obvious back-up could be identified.

Katz and Papsidero<sup>16</sup> have proposed a social functioning index (SFI), which is composed of varying combinations of items that covering

five principal categories: 1) Social living environment (living alone or with others); 2) Activities of daily living (ADL); 3) Diagnosis (life-threatening or not); 4) Mental status; and 5) Age. These have been used to predict 1-year survival rates.

## How Do Nursing Homes Figure in the Picture?

Although Chapter 28 in this volume looks at life in a nursing home, we need to examine it here to appreciate its role in long-term care. A nursing home is indeed the touchstone of long-term care; all other modalities seem to be compared to it.

Table 27-3 presents data on nursing homes in terms of both the number of homes and of beds; because larger homes are different from smaller ones, this distinction is useful. As seen in table 27-3, over 75% of all nursing homes are run for profit; non-profit homes tend to be larger. The level of care is traditionally divided into skilled and intermediate, which reflects the amount of professional nursing care provided. However, only those patients who are covered by public funds need to be classified in this way. Therefore, those homes that choose not to become certified to accept public patients do not need to

be rated. Over two thirds of all nursing homes have less than 100 beds, although the trend is toward larger homes.

75% of all nursing homes are over 10 years old; almost 40% are over 20 years old.<sup>17</sup> Over 60% were purpose-built; converted hospitals are rare. Most homes are a mixture of private and semiprivate rooms. Less than one third of all nursing homes reporting in the 1977 survey identified themselves as part of a chain. Another 13% were tied to a health care or retirement facility. Interestingly, a substantial number of nursing homes offer services to nonresidents, which suggests a possible role for nursing homes as a locus of varied modalities of long-term care in a community.

Nursing homes are not staffed the same as hospitals. Whereas a community hospital maintains a staff of almost 300 full-time equivalents (FTEs) per 100 beds, a nursing home has less than one sixth of that ratio. Table 27-4 demonstrates that staff in general and especially skilled nursing staff drops with lower levels of care.

A nursing home remains a relatively cheap form of care. In 1976, the average cost per patient day was almost \$24. Proprietary homes cost somewhat less than non-profit or government homes. Skilled facilities cost substantially more than intermediate care (\$30 versus \$19.50).<sup>18</sup>

In discussing nursing home patients, one must be very careful to distinguish between data that is based on a study of those residents in a facility at a given time and those who are entering or leaving a facility. The former is equivalent to a point prevalence measure; the latter represents a type of incidence data. The conclusions reached about nursing home patients may be quite different, which depends on the source. Keeler, et al<sup>19</sup> have identified two streams of patients entering a nursing home—one group will leave fairly quickly (within 3–6 months), the other will stay several years. These two groups had rather distinct characteristics. The short-term residents tended to be younger, had more physical problems, and entered from a hospital. The long-term residents were more likely to be older, confused, and incontinent. At admission, the patients were about equally distributed between short-term and long-term, but a study of residents found

TABLE 27-3 Characteristics of Nursing Homes

Characteristic	Homes (%)	Beds (%)
Ownership		
Proprietary	76.8	69.3
Voluntary non-profit	17.7	21.1
Government	5.5	9.7
Level of care		
Skilled	19.2	21.0
Skilled and intermediate	24.2	39.2
Intermediate	31.6	27.9
Other (not certified)	25.0	11.9
Bed size		
Less than 50	42.3	13.0
50–99	30.8	29.8
100–199	22.3	39.0
200+	4.6	18.2

SOURCE: United States Department of Health, Education, and Welfare,<sup>17</sup> Table 43.

TABLE 27-4 Staffing Characteristics of Nursing Homes (Full-time equivalents per 100 beds)

Employees	Level of Care			
	Skilled	Skilled and Intermediate	Intermediate	Not Certified
Total	52.7	51.8	40.7	29.2
Administrative, therapeutic, and medical	5.9	4.9	4.7	29.2
Nursing	46.8	46.9	36.0	24.1
RN*	(7.1)	(5.9)	(2.4)	(2.8)
LPN	(6.6)	(6.5)	(6.3)	(3.0)
Aide	(33.1)	(34.6)	(27.3)	(18.4)

\* RN = registered nurse; LPN = licensed practical nurse.

SOURCE: United States Department of Health, Education, and Welfare,<sup>17</sup> Table 8.

about 9 times as many long-term residents.

Table 27-5 compares selected characteristics of patients who were discharged from nursing homes to those of residents. As expected, residents were more likely to be female, older, and unmarried. Discharged persons had higher rates of impaired mobility and incontinence. Residents evidenced more dementia and less somatic illness.

Nursing homes experienced higher rates of patient turnover than may be expected.<sup>20</sup> Over 50% of the discharges occur within 3 months of admission. The median length of stay is 60 days for live discharged residents and 130 days for those which end in death. Of those residents who were discharged, 25% had died, and at

least another 3% were known to die in a hospital. However, over 25% of all discharged nursing home patients returned to the community; the shorter the length of stay, the better the chance of returning to the community.

Nursing homes present yet another paradox and dilemma. Although physicians are reluctant to enter them, a physician's signature is required for payment under Medicaid and Medicare. One might readily predict a pattern of perfunctory physician visits that comply with regulations, but that do not necessarily lead to careful patient assessment.<sup>21-23</sup>

A nursing home itself can be a depressing environment, which imposes the worst features of institutional care on those who are least able to resist. A series of fictionalized autobio-

TABLE 27-5 Comparisons of Selected Characteristics of Nursing-Home Discharges and Residents

Characteristic	1976 Discharges (%)	1977 Residents (%)
Female	63.5	71.2
Age 85+	29.7	34.5
Married	23.5	11.9
Bedfast/chairfast	50.0	37.3
Incontinent of bladder or bowel	48.9	45.3
Chronic brain syndrome/senility*	38.7	56.9
Congestive heart failure†	5.0	4.0
Stroke†	12.5	7.9
Cancer†	8.2	2.2
Arteriosclerosis†	17.6	20.3

\* Listed as chronic condition or impairment.

† Listed as primary diagnosis.

SOURCE: United States Department of Health and Human Services,<sup>18</sup> Tables 5, 8, and 10. United States Department of Health, Education, and Welfare,<sup>17</sup> Tables 3-5.

graphic works provides some insight into what living in a nursing home means to an individual.<sup>24-26</sup>

## How Did We Get Where We Are?

We are now in a situation in which there are enormous investments in institutional long-term care. Not only are there buildings, but the programs and policies have been developed with nursing homes in mind. New proposals are offered in terms of how they will affect the demand for nursing home care. Many of the payment schemes and eligibility criteria encourage nursing home use over other forms of long-term care.

We already have noted some of the highlights of long-term care. Its major public funding comes from a welfare program to support medical care for needy and indigent persons. One obvious incentive, thus, is to create need and indigency. The spend-down necessity of the latter leaves a client without resources and, thus, threatens his or her chances of returning to the community once he or she has been institutionalized. The question of need becomes one of defining eligibility in sufficiently medical terms, even though much of the basis for the need is social.

The medical basis for a long-term care program puts a physician in an awkward position. As society's gatekeeper, he or she must certify a patient's need for services. As a patient's advocate, he or she must seek ways to assure that a client gets those needed services. To the extent that the critical difference in the need for long-term care is determined by social rather than medical factors, a concerned physician may well lack the requisite skills and knowledge to make an informed judgment about the most appropriate care resources. If physicians are less interested in dependent elderly patients, they are still less likely to make good decisions; hence, the frequently heard criticism that we have medicalized a social phenomenon. Physicians may react with discomfort at the need to identify physical limitations to legitimize the need for social care.

The current shape of resources for long-term care is, in large measure, the result of public programs. The growth of the nursing home in-

dustry can be traced to the initiation of vendor payments, which antedate Medicaid. The fiscal payment (per diem) system tied to the level of care creates incentives to skim the patient pool—to admit those persons who are just over the threshold of eligibility in a care level and to reject a heavy-care patient who costs more, but is reimbursed at the same skilled rate. Unfortunately, the science of assigning patients to a level of care is imprecise,<sup>27</sup> but only those decisions that are adverse to a nursing home are likely to be challenged. Fearing the further evolution of Medicaid mills, Congress has been unwilling to authorize reimbursement under Medicare Part B for non-physician providers (physician assistants and geriatric nurse practitioners) without on-site supervision, thus eliminating a potentially effective and efficient source of primary care for institutionalized and home-bound elderly persons. Although mandated to assure the quality of care under federal programs, government officials and their designees have had difficulty finding an appropriate technology to assess quality.<sup>28</sup> The regulatory approach has not worked very well.<sup>29</sup>

Long-term care is primarily supported under four public programs: Titles XVIII, XIX, and XX of the Social Security Act, and Title III of the Older Americans Act. The first two can be thought of as medical programs and the latter two as social programs, although this distinction often is imprecise. The benefits under these programs are summarized in Table 27-6. Title XVIII (Medicare) essentially is a medical program that places major emphasis on hospital care. Its coverage of long-term care was intended to encourage the use of less expensive non-hospital care for patients who are still convalescing. Recent shifts indicate a move to allow the use of benefits without prior hospitalization. Part B of Medicare funds medical care, including some ancillary services. Specifically excluded are preventive services, drugs, eyeglasses, and hearing aids (items that may be critical to effective functioning in an elderly patient). Both parts of Medicare have used "reasonable cost" reimbursement. For physician fees, this becomes "usual, customary, and reasonable," which is a normative approach based on a percentage of the average fee for a physician class in a given area. Medicare hospital care is converting to prospective payment,



TABLE 27-6 Summary of Major Federal Programs for the Elderly Population

Program	Eligible Population	Services Covered	Deductibles and Copayments
Medicare (Title XVIII of the Social Security Act)			
Part A Hospital insurance	All persons eligible for Social Security and others with chronic disabilities such as end-stage renal disease plus voluntary enrollees age 65+	Per benefit period, "reasonable cost" for 90 days of hospital care plus 60 lifetime reservation days; 100 days of skilled nursing facility (SNF); home health visits; hospice care.	\$356* deductible and copayments of \$89/day for hospital days 61-90; \$178/day for lifetime reserve days; \$44.50 for SNF days 21-100.
Part B Supplemental medical insurance	All those covered under Part A who elect coverage. Participants pay a monthly premium of about \$15.	80% of "reasonable cost" for Physicians' services; supplies and services related to physician services; outpatient, physical and speech therapy; diagnostic tests and x-rays; surgical dressings; prosthetics; ambulance; home health visits.	\$75* deductible and 20% copayment.
Medicaid (Title XIX of the Social Security Act)	Persons receiving Supplemental Security Income (SSI) (such as welfare) or receiving SSI and state supplemental or meet lower eligibility standards used for medical assistance criteria in 1972 or eligible for SSI or were in institutions and eligible for Medicaid in 1973. Medically needy who do not qualify for SSI but have high medical expenses are eligible for Medicaid in some states; eligibility criteria vary from state to state.	<i>Mandatory services</i> for categorically needy Inpatient hospital services; outpatient services; SNF; limited home health care; laboratory tests and x-rays; family planning; early and periodic screening, diagnosis, and treatment for children through age 20. <i>Optional services</i> vary from state to state Dental care; therapies; drugs; intermediate care facilities; extended home health care; private duty nurse; eyeglasses; prostheses; personal care services; medical transportation and home health care services. (States can limit the amount and duration of services.)	None, once patient spends down to eligibility level.
Title XX of the Society Security Act	All recipients of Aid to Families with Dependent Children (AFDC) and SSI. Optionally, those earning up to 115% of state median income and residents of specific geographic areas.	Day care; substitute care; protective services; family counseling; home-based services; employment, education, and training; health-related services; information and referral; transportation;	Fees are charged to those with incomes greater than 80% of state's median income.

TABLE 27-6 (Continued)

Program	Eligible Population	Services Covered	Deductibles and Copayments
Title III of the Older Americans Act	All persons 60 years and older. Low-income minority and isolated older persons are special targets.	day services; family planning; legal services; home-delivered and congregate meals. Homemaker; home-delivered meals; home health aides; transportation; legal services; counseling; information and referral plus 19 others. (50% of funds must go to those listed.)	Some payment may be requested.

\*Dollar figures are for 1984. Hospitals were paid "reasonable costs," now shifting to Diagnosis Related Groups prospective payment.

SOURCE: Kane RL, Kane RA: A guide through the maze of long-term care. *West J Med* 135:504, 1981, updated.

which means fixed payments per admission. The incentives thus favor doing as little as possible.

Medicaid is a welfare program that is authorized under Title XIX of the Social Security Act. This program is jointly operated by federal and state governments. The federal government provides between 50–78% of a state's costs of underwriting health services to the poor. Federal guidelines set minimum standards; a state has the option to build on these to increase benefits or eligibility. The principal targets of the program are those persons who are covered under categorical welfare programs (e.g., families with dependent children, elderly persons, or blind, permanently, disabled and medically needy persons). The categorically needy components of blind and disabled elderly persons were combined under a federally sponsored program, Supplemental Security Income (SSI), in 1974. Thus, elderly persons are identified as being either SSI recipients or medically needy persons. Because Medicaid is a program designed to serve persons with inadequate financial resources, there are no deductibles or copayments. However, many critics of the program have pointed out that it imposes a burden of poverty as a condition of eligibility. A person is required to divest him- or herself of his or her own resources (the so-called spend-down requirement) before becoming eligible for Medicaid assistance. The program consists of two groups of services: mandatory services and a larger set of optional services that are pro-

vided at the discretion of the state, which can set limits on the amount and duration of such care. In fact, even the mandatory services can be expanded or contracted at the option of a state government. The states also have the ability to set payment levels that cannot exceed what is paid for private care. At present, approximately 40% of the Medicaid budget goes to nursing homes.

In contrast to the two programs that were just described, the next two primarily are social service programs with some medical components. Under Title XX of the Social Security Act (known as the Social Service Amendments), federal funds are paid to state government agencies as block grants based on state populations. The states are paid 75% of social service program costs up to their respective Title XX ceilings (90% for family planning costs). The eligible population includes those persons who are covered under categorical welfare programs and (at the state's option) other groups that are identified on the basis of income or special needs. A wide variety of services are available under the program. General mandates of the program can be summarized under five broad goals: 1) To help people become or remain economically self-supporting; 2) To help people become or remain self-sufficient; 3) To protect children and adults who cannot protect themselves from abuse, neglect, and exploitation, and to help families stay together; 4) To prevent and reduce inappropriate institutional care as much as possible by making home and

community services available; and 5) To arrange for appropriate placement and services in an institution when this is in a person's best interest.

Title III of the Older Americans Act mandates a series of services that are targeted at older persons (defined here as those who are 60 years of age or older). This program is supported by federal grants to state agencies and then to local agencies to comprehensively plan and coordinate services for older persons. There are no income criteria, although some payment can be requested for those with income that exceeds a threshold set by a local agency.

Under recent legislation, states can apply for federal waivers to allow more discretion in the use of Medicaid funds for long-term care. Such waivers require a statewide plan that includes case management to assess the needs

of clients and to match them with appropriate sources.

Unquestionably, the pattern of long-term care in the United States has evolved around institutions, primarily nursing homes. Over 90% of federal expenditures for long-term care go to nursing homes. As shown in Table 27-7, Medicare and Medicaid, the two largest federal long-term care programs, spent only 2% and 1% of their respective budgets for home care. Much discussion has focused on the need to redress the balance. Unfortunately, the unplanned evolution of home care coverage has created a number of inconsistencies across programs. Table 27-8 portrays the variation in services and eligibility for the four major federal programs that support home care. Even a well-motivated broker of services would have difficulty assembling a package of services in the face of such a diverse collection of rules.

TABLE 27-7 Resources for Home Care in Four Federal Programs

Program	Expenditures for Home Care (\$ millions)	Total Program Budget (%)	Time Period
Title XVIII (Medicare)	600	2.1	CY* 1979
Title XIX (Medicaid)	211	1.2	FY 1978
Title XX	530	16.0	FY 1980
Title III (Older Americans Act)	43	15.0	FY 1980

\* CY = calendar year; FY = fiscal year.

SOURCE: United States General Accounting Office.<sup>44</sup>

TABLE 27-8 In-Home Services Provided Under Four Federal Programs

Items	Social Security Act			Older Americans Act Title III
	Medicare Title XVIII	Medicaid Title XIX	Title XX	
Services Authorized				
Nursing	X	X		X
Therapy	X	X		X
Home health aide	X	X	X	X
Homemaker			X	X
Chore			X	X
Medical supplies and appliances	X	X		
Eligibility requirements				
Age	X			X
Income		X	X	
Need for skilled nursing	X			
Home-bound	X			
Physician authorization	X	X		

SOURCE: United States General Accounting Office,<sup>44</sup> Appendix I.

## What Can Be Done About It?

The cry has been heard, but what action should be taken? Reform in long-term care is rife with claims and recommendations, but is bereft of data that demonstrates efficacy. A problem in assessing the cost-benefit ratio of any intervention in long-term care is the possibility that the experimental treatment may reduce the mortality rate of recipients. Even in a truly randomized design, differential attrition due to mortality may leave very different experimental and control groups. The group with the lower mortality rate is likely to have a commensurately higher morbidity rate. Nor is our attitude toward the mortality of long-term care recipients clear. There is some evidence of a willingness to allow such patients to die without dramatic interventions.<sup>30</sup>

The instinctual response against nursing home care is to move the services into the community—into the home or into ambulatory centers. There are several arguments in favor of such a move: 1) People prefer to live in their own homes; 2) People do better in their own homes; and 3) Care is cheaper at home. Weissert, Wan, and Livieratos<sup>31</sup> analysis of the homemaker and day-care experiments call into question the potential cost savings of these alternatives. As noted in an earlier section, those persons who were assigned to day-care showed less deterioration in function, but their use of services was no less than that of the controls persons; those who were receiving homemaker services demonstrated neither functional nor fiscal benefit. Weissert<sup>32</sup> attributes part of this lack of impact on costs to the low rate of nursing home use by control subjects.

The question of how to intervene depends on the goal. There are many points along the spectrum of long-term care toward which interventions can be targeted. Such a spectrum ranges from community to grave and at any point various types of interventions might occur. The further we move in one direction, the more we are dealing with highly functional community-dwelling persons. A strategy that is designed to provide this group with better services could be considered some form of prevention, based on the idea that better service now will protect an individual against the need for institutionalization at some time in the future. The probability

of such a *modus operandi* highly depends on both the extent to which those who are at future risk can be identified and the ability to intervene effectively. As noted earlier, the overall probability of entering a nursing home is about one in four. Thus, any intervention must be able to lower the rate of institutionalization below this 25 percent level. Looked at another way, three of four persons would not enter a nursing home anyway.

The farther one moves in the opposite direction, the greater is the risk of nursing home admission. Several points of intervention are easily identifiable. For example, look at patients who are discharged from an acute hospital, interposing some diversionary activity at the point just before a patient's actual admission to a nursing home, or going into a nursing home and identifying those persons who are more appropriately cared for in the community. Each of these strategies, in fact, has been tried.<sup>33</sup> Table 27-9 summarizes some of the programs that test different approaches to using community alternatives.

Common to many of these programs is the need to assess potential clients to determine their care needs (in terms of both the types and frequency of care needed), to prescribe an appropriate package of services, and to assure that such services actually are provided. This assessment and brokerage function is referred to as case management. Case management comes in various forms. In its most complete state, a case manager controls the resources that are available to a client so that a case manager can purchase services on a client's behalf; also, he or she must authorize any such expenditures. Certainly, an effective case manager must have resources to manage and sufficient influence over how those resources are used.

Despite the enthusiasm for case management, its role is not yet established. Some observers of available data argue that the case for such services is established<sup>33</sup>; others are less convinced. A large-scale national effort has been mounted to test the cost-effectiveness of case management. The National Channeling Demonstration will test two models in several states. One model essentially will coordinate existing resources. The other will be able to draw on new funds to purchase needed services

TABLE 27-9 Examples of Alternative Long-Term Care Programs

Project	Description	Results
Case management Triage <sup>45</sup>	Quasi-experimental design 307 clients from community 195 controls from another community Services authorized by Triage under Medicare waivers	Use of services and costs higher for Triage Mental status outcome better for Triage Physical and social outcomes not different
Access <sup>8</sup>	Descriptive report with comparisons to other counties in New York Preadmission screening of patients referred for institutional care Implemented and monitored service under Medicaid waiver; now Medicare, too	1979: of patients from a hospital, 57% of Medicaid and 20% of self-pay went home; of patients from the community, 96% and 89%, respectively stayed home Costs less than equivalent institutional care, but no real control group
Wisconsin Community Care Organization <sup>46</sup>	Experimental design attempted, 71 of 283 experimentals excluded Used Medicaid waivers to serve clients from hospital and community	Experimentals cost less Rate of admission to hospital and nursing home no different, but total days less
Georgia Alternative Health Services Project <sup>47</sup>	Experimental design 572 experimentals 172 controls one-year follow-up Services included alternative living arrangements, day-care and home care	Experimentals had lesser mortality rate and higher costs, but fewer nursing home days
Multipurpose Senior Services Project	Eight sites in California Clients from community, hospital and nursing home Medicaid waivers used to purchase needed services after extensive assessment Comparison group identified separately	None available yet
Long-term care channeling demonstration	Sites in 10 states Two levels of program—case management only and with additional funds and authorization control Random allocation possible in most places	None available yet
Geriatric evaluation units <sup>34</sup>	Units usually in hospital Most inpatient, but can be ambulatory Usually take patients discharged from acute service, but may come from community	No clear demonstration of efficacy, but reports are very positive Less use of nursing homes New problems uncovered Regimens simplified
Housing Community Housing for the Elderly <sup>38</sup>	Experimental design Clients age 62+, not functionally impaired 24 clients offered and accepted purpose-built community housing Of 63 controls, 22 moved on their own Three-year follow-up	Mortality lower and satisfaction higher among experimental subjects Movers did better than non-movers among control subjects

TABLE 27-9 (Continued)

Project	Description	Results
Highland Heights <sup>37</sup>	228 physically impaired elderly experimental subjects admitted to special housing unit Matched to 228 controls Five-year follow-up	Experimental subjects had lower mortality and lower rate of nursing home entry Generally fewer hospital and nursing-home days 51 clients admitted from nursing home (i.e., deinstitutionalized)
Support services Lifeline <sup>41</sup>	Emergency alarm system linked to emergency response station Matched pairs of experimental subjects and controls drawn from public housing 35 severely functionally impaired and socially isolated (I) 46 severely functionally impaired and not socially isolated (II) 58 socially isolated and moderately functionally impaired or medically vulnerable (III)	30% refused the service Fewer experimentals entered hospital or nursing home Costs of formal and informal community services less for control subjects Benefit-cost ratio highest for group II
Capitation Social HMO	Four demonstration projects just getting underway Single rate covers case management, physician care, home care, hospital, and limited nursing home care plus social services Method of calculating capitation rates not yet fixed Marketing not established	Not yet available

\* HMO = health maintenance organizations.

without the restrictions that usually are imposed by program regulations.

Somewhere between hospital discharge planning and case management is the geriatric evaluation unit (GEU). Such units usually are based in a hospital, but they can be inpatient or outpatient operations. They differ from case management in the thoroughness of their evaluation. Instead of gathering information to simply determine the needed mix of services, they are intended to provide a thorough evaluation of a patient's problems with the goal of identifying remediable conditions, simplifying treatment regimens, assessing function in home-like surroundings, and developing a treatment program to maximize function. The primary target of GEUs are patients who are discharged from an acute hospital and destined for nursing homes; however, such programs also can serve persons in the community who are considered to be at

high risk. The reports from early GEUs are very positive and the first carefully controlled studies have established the cost-effectiveness of these programs.<sup>34</sup>

The logical extension of the case management concept is toward a fully capitated (i.e., prepaid) system that will operate from a fixed budget. Some experimentation along these lines already has been tried; more is underway. Among the several issues to be determined is how broad the coverage can (or should) be. Medicare already provides for purchase of health maintenance organization (HMO) services for elderly clients at a rate higher than that for younger persons who are enrolled in an HMO. However, this type of coverage is restricted to little more than the narrow medical (especially acute medical) package of services under Medicare. Enthusiasts for capitation agree that its real potential will not be tapped until it com-

bines social and medical services, presumably by using savings from expensive medical care to finance effective social interventions.<sup>35</sup> A Social HMO (SHMO) model is now in the early development stage in several areas<sup>36</sup> it is certainly too early to draw conclusions about its feasibility, to say nothing of its effectiveness. Still unsettled are basic questions such as: How should rates be set (by risk level)? Who will be interested in enrolling? How can risks be shared among providers of service, the SHMO, and the consumer?

Where does long-term care end? Once the idea of including all long-term care under a single capitation rate is entertained, one must begin to think seriously about what should be included; this is no easy task. There certainly are good reasons for including various forms of housing (e.g., retirement homes or sheltered housing with general supervision); perhaps, even housing subsidies. Several studies have suggested that housing improvement is associated with decreased mortality rates in the elderly population.<sup>37-39</sup>

An elderly person may well turn out to be much more responsive to a variety of interventions than has been suspected. Each new report of a success raises another candidate for inclusion under long-term care. For example, an experiment with an in-home-emergency call system seems to have had dramatic results in relieving anxiety and reducing the use of health care services for some older persons.<sup>41</sup>

In long-term care there is a lack of a clear method for linking what we hope to achieve to what we are willing to pay. Capitation offers one response to that dilemma. It avoids the common pitfall of the perverse incentives of fee-for-service, wherein the worse a patient gets, the more a provider is paid; it offers a means of flexibility using available resources. However, critics of capitation argue that providers may selectively market their services to those who are least in need, may take shortcuts, and may eliminate or delay important services to save money. Elderly persons, especially dependent elderly persons, may be the consumers least able to choose freely in a competitive market.

We have not articulated our societal goals very clearly. If we can better define the ends we seek to achieve, we can develop appropriate

incentive systems to achieve them. Techniques for outcome-based reimbursement in long-term care are not difficult to envision<sup>42</sup>; more perplexing is the task of elucidating our value preferences for what we are truly seeking from long-term care.<sup>43</sup>

## Afterword

This chapter was originally written in early 1982. In the last two years there have been several important changes in the organization and financing of care for the elderly. The most dramatic shift has come in response to concerns over the mounting Medicare hospital bill. The era of open-ended spending was brought to an abrupt halt in October 1983 when the first phase of prospective payment based on Diagnosis Related Groups (DRGs) went into effect. Hospitals will now receive a fixed sum for each case regardless of the length of stay and the intensity of care. Rates are presently based on primary diagnosis and the performance of surgical procedures.

The DRGs will have profound effects on geriatrics, but the extent and direction of those effects are not yet clear. On the one hand, the incentives to give only the minimum care necessary act in precisely the opposite direction to the teachings of geriatrics. Just as we are sensitizing physicians to the need for comprehensive attention to the geriatric patient and his full gamut of functional problems, the payment system urges us to attend to a single problem per hospital admission. As the value of geriatric evaluation units is becoming established, there is no obvious way to support them.

On the other hand, the pressure to expedite hospital discharge has encouraged hospitals to become actively involved in long-term care. Hospitals are buying, leasing, and optioning nursing home beds to have some place to send their discharges. They are starting home care programs or supporting those already established. The DRGs may prove to be the vehicle to more effectively link acute and long-term care. Geriatricians will have an important role in such a linkage.

The other major development in the last two years has been the rapid growth of corporate

health care. Large corporations are acquiring substantial control of nursing home beds and home care agencies. At the same time that hospitals are expanding their interests in the wake of DRGs, nursing homes are offering day care and sometimes home care. If these early trends hold, long-term care will become an even greater growth industry as the acute hospital activity contracts. But the shape and tenor of long-term care will resemble a business firm more than the familiar health care institution.

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# Physicians and the Care of Nursing Home Residents

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Among long-term care institutions in the United States, nursing homes for elderly persons are predominant; they are most frequently referred to in discussions of institutional care in professional and lay literature, and are most feared by the elderly population. About 1,300,000 persons reside in 18,000 nursing homes.<sup>1</sup> It is estimated that about 20% of all elderly persons will spend some time in a nursing home before dying.<sup>2-5</sup>

In this chapter, the care of elderly persons in nursing homes and the role of physicians in providing medical care to nursing home residents will be discussed. A brief history of the development of nursing homes will be presented, the types of long-term care institutions and the characteristics of both nursing home residents and staff will be described, and the role of a physician in nursing home care, the current lack of physician involvement, and the consequences for the elderly population will be discussed; also, suggestions as to how physicians can improve the quality of care in nursing homes will be made. Throughout this chapter, references will be made to data collected by the author while conducting research in nursing homes during the past 7 years.

## Historical Development of the Nursing Home

Historical antecedents of the nursing home are difficult to trace. It appears that almshouses (the public poor houses of Colonial America) are the historical precursors of present-day nursing homes. In Great Britain and the United

States, the care of elderly persons has been historically intertwined with the care of the poor and the destitute. In the early part of the Eighteenth Century, workhouses were established in England for the employment and maintenance of the poor, and the poor were refused relief if they would not enter the workhouse.<sup>6</sup> By 1732; over 50 workhouses had been built in England, and the larger colonial cities followed the example of the mother country: Philadelphia built one in 1732, New York in 1734, and Charleston in 1735. Even after political separation, in 1788, New York State used the English Poor Law of 1722 as a model for requiring each town to establish an almshouse.<sup>7</sup> The original intent of the Poor Law was to confine able-bodied poor persons. Usually, however, it was cheaper and more efficient to confine all welfare cases, sick persons, orphans, mentally ill persons, and infirm elderly persons, as well as the strangers in the community who had no family and who had suddenly become ill.

As immigrants poured into the United States in the Nineteenth Century, and as the cities became large and crowded, the almshouse seemed the perfect solution to the problems of unemployment and poverty. As cities grew, almshouses grew in number and size. However, the conditions within the almshouses deteriorated rapidly. In 1854, in New York State, a committee investigated every city and county almshouse and reported that most were badly constructed, poorly heated and ventilated, and that inhabitants were crowded together in small, filthy rooms regardless of age, sex, or condition. The investigators told the legislature that

the mass of poorhouses was the most disgraceful memorial to public charity and that domestic animals usually were more humanely provided for than the paupers in some of these institutions.<sup>8</sup>

In time, special institutions were developed to care for various categories of indigent persons who had been housed in almshouses. In New York City, Bellevue Hospital took over the care of acutely ill poor persons in 1848; blind persons were removed from the almshouses in 1831, mentally retarded persons in 1851, children in 1875, and mentally ill persons in 1890. By World War I, the persons remaining in almshouses were elderly, infirm, and chronically ill persons.<sup>7</sup>

Because of deplorable conditions in the public poorhouses, social pressure began to force them out of existence in the early 1900s. Private homes were established by charitable organizations for elderly persons who were poor and without family; proprietary boarding homes emerged at about the same time for elderly persons who were able to pay for their care.<sup>9</sup> The proprietary boarding houses gradually evolved into nursing homes or personal care homes with infirmaries; with the passage of the Social Security Act of 1935, they experienced a rapid growth. Because of strong public reaction to conditions in the public poorhouses, Congress (concurrent with the enactment of the Social Security Act of 1935) prohibited payment of federal old age assistance to any individual who was housed in a public institution. The effect of this legislation was the displacement of thousands of elderly persons from public facilities to proprietary boarding homes. Proprietary homes provided the only means by which welfare administrators could evade the law. Thus, privately owned, profit-making nursing homes were in a seller's market and proliferated; the nursing home industry was born.<sup>7</sup>

The 1935 Social Security Act, therefore, provided the impetus for the beginning development of long-term care facilities. For the first time in United States history, people over 65 years of age had a guaranteed monthly income that enabled them to pay (at least in part) for some type of proprietary living accommodation. This increased the demand for long-term care facilities. By the mid-1950s, the number of homes for elderly persons had grown substan-

tially, but the greatest growth came in 1965 with the enactment of Medicare and Medicaid.<sup>10</sup> Nursing home regulations were established and led to the disappearance of many of the smaller homes and to the subsequent development of larger homes as big business investors, (including several national hotel and motel chains) entered the field.<sup>7</sup> At present, nursing homes are predominantly commercial. In 1973, 74% of all homes and 68% of all beds were proprietary, but only 22% of all beds were in non-profit institutions and only 10% were in government institutions.<sup>11</sup> Within a few years, nursing home enterprises grew into a multibillion dollar industry and presently are the primary institution for the care of chronically ill elderly persons.

## Long-Term Care Facilities

A long-term care facility is any institution in which people live for an extended period of time and receive residential care and/or health and social services. Among the many types of institutional facilities that provide various levels of care are board-and-care homes, residential homes, homes for the aged, personal care homes, foster homes, nursing homes, skilled nursing facilities, and intermediate care facilities.

A definition of the various types of institutions would facilitate appropriate placement of elderly persons; however, these myriad facilities are not clearly defined, and definitions vary from region to region. In general, long-term care institutions fall into two categories: residential care homes and nursing homes.

### Residential Care Homes

Residential care homes (e.g., homes for the aged, board-and-care homes, personal care homes, and foster homes) provide room and board and assistance with personal care in a sheltered environment. The emphasis is on providing protective living accommodations for residents who require minimal assistance with social, recreational, and personal care needs, instead of 24-hour medical and nursing care.

There are about 300,000 residential facilities with perhaps 500,000 to 1,500,000 beds in the United States.<sup>12</sup> In the 1960s and the early

1970s, many states placed elderly patients who were discharged from mental hospitals to residential care facilities.<sup>13</sup>

Residential care homes, as with nursing homes, vary in terms of size, ownership, services, and payment for care. In California, small family-run board-and-care homes with five or six beds are the predominant facility. Residents of board-and-care homes are not eligible for reimbursement under Medicare and Medicaid. Many board-and-care home residents pay for their care from Social Security Income and Supplemental Security Income (SSI).<sup>14</sup>

### Nursing Homes

Although a great range of facilities may be grouped under the classification of a nursing home, strictly speaking, only skilled nursing facilities (SNFs) and intermediate care facilities (ICFs) should be included in this category. Only SNFs and ICFs receive government reimbursement for long-term care; SNFs are remunerated by both Medicare and Medicaid, with ICFs remunerated only by Medicaid.

#### *Skilled Nursing Facilities*

A skilled nursing facility (SNF) provides post-hospital care to persons who need daily skilled nursing care, or it provides rehabilitative services only on an inpatient basis. These services must be ordered by a physician and provided under the supervision of professional personnel, such as registered nurses, licensed vocational nurses, and physical, occupational, and speech therapists.

#### *Intermediate Care Facilities*

Intermediate care facilities (ICFs), which are a less costly alternative, are for persons who require more than just room and board, but less than the amount or degree of care that is provided by a hospital or SNF. An ICF provides care of a less intensive nature to persons who, because of their mental or physical condition, require health care services that cannot be provided in the community.<sup>15</sup>

Although federal regulations distinguish between services that are provided in SNFs and ICFs, the distinction has never worked satisfactorily in practice. First, the health care needs of

disabled elderly persons change quickly and constantly; therefore, a physician's assessment of the necessary level of care may hold for only a short period of time. Second, the Medicaid reimbursement rate is lower for ICFs than for SNFs. It is more profitable, therefore, to operate an SNF; in some states there virtually are no ICFs. Accordingly, patients who could be cared for in ICFs are, of necessity, placed in SNFs. This misplacement, in turn, adds to the increasing cost of institutional care.<sup>16</sup> At present, the nursing home industry is responsible for the fastest-growing portion of the Medicaid budget. In 1980, total expenditures were \$20.7 billion.<sup>17</sup>

### Characteristics of Nursing Home Residents<sup>1</sup>

#### Age, Sex, and Race

Of all nursing home residents, 86% are 65 years of age and older, only 14% are under 65 years of age, and 75% are 75 years of age or older. The average age of residents is 78 years—80 years of age for females, 75 years of age for males. The average age at which residents are admitted to a nursing home is 75 years.

Nursing home residents are predominantly female; about 71% of all residents are women, and the female-to-male ratio increases significantly with advancing age. At 65–74 years of age, there are about two females to every male, whereas at 85 years of age and over there are four females to every male. The predominance of women is largely due to their greater longevity, but also because more women than men use nursing homes. The residency rate in nursing homes per 1,000 population for those persons 65 years of age and older is nearly twice as high for females as for males.

Of all nursing home residents, 92% are white, 6% black, 1% Hispanic, and 1% other races (Asians, Native Americans, Pacific Islanders, or Native Alaskans). The preponderance of whites is partly due to the longer life expectancy of white persons (74 years compared to 69 years for non-whites), and because of a lower use rate by minority persons. The 1977 residency rate in nursing homes for white persons was 50 per 1,000 population compared

to 30 per 1,000 population for non-whites.<sup>1</sup> Minority group elderly persons are more likely to be cared for by their families at home. A 1968 study shows that among the non-institutionalized elderly population over 75 years of age, 17% of non-white persons received home care compared to 13% of white persons.<sup>18</sup> Language barriers, social and cultural differences, and discrimination are other factors that affect the use of nursing homes by minority groups.<sup>19</sup>

### Primary Reason for Admission to a Nursing Home

Nearly four of five residents (78%) are admitted to nursing homes because of poor physical health, 17% because of mental illness and mental retardation, 2% because of behavioral problems, and 9% for social, economic, and other reasons.

Most nursing home residents have multiple chronic conditions, while 99% have one or more chronic conditions; the average resident has 3.9 chronic conditions. The most prevalent condition as documented is arteriosclerosis (48%), which is followed by heart disease (34%), senility (32%), chronic brain syndrome (25%), and arthritis and rheumatism (25%).<sup>1</sup>

### Functional Status, Sensory Impairment, and Behavioral Problems

Although health status is the primary reason for institutionalization, functional and sensory impairment and behavioral problems are contributing factors. Many nursing home residents require assistance with certain activities of daily living such as bathing, dressing, eating, and walking. Of all residents, 80% require assistance with bathing, 69% with dressing, 66% with walking; more than one-half (53%) require help in using the toilet, and 45% suffer from bowel or bladder incontinence.

Many elderly persons have visual and hearing impairments to a degree that interferes with their independent living. Among all nursing home residents, 19% have partially impaired vision, 7% have severely impaired vision, and 3% are blind; 67% have unimpaired vision (i.e., they can read an ordinary newspaper without eyeglasses. As with visual ability, most resi-

dents (69%) have unimpaired hearing, 22% have partially impaired hearing, and 6% have severely impaired hearing. The incidence of both visual and hearing impairment increases significantly with advancing age. For example, the proportion of residents with partially impaired vision increases from 11% of those persons under 65 years of age to 24% of those persons over 85 years of age. The percentage of residents with severely impaired vision increases from 2% for residents under 65 years of age to 10% of residents over 85 years of age. Similarly, the proportion of residents with partially impaired hearing increases from 7% for those persons under 65 years of age to 33% for those 85 years of age and over.

Behavioral problems such as depression, withdrawal, agitation, wandering, and aggressive and abusive behavior, all may precipitate institutionalization. About 66% of all nursing home residents display some type of behavioral problem. Depression and withdrawal (35%) is the most frequently reported problem, followed by nervous or agitated behavior (34%), abusive, aggressive, or disruptive behavior (17%), wandering (11%), and other behavioral problems (10%). According to the National Nursing Home Survey, behavioral problems may be due to developmental disabilities (e.g., mental retardation), chronic illness, or the effects of aging. However, the survey does not disclose whether these behaviors were present at the time of admission or whether the institutional environment has been a causative or contributing factor. For example, persons who are unnecessarily restrained in chairs may become distressed and agitated, and the depriving environment of a nursing home may contribute to withdrawal and depression.<sup>20</sup> An independent person may be labelled by the staff as an "aggressive or demanding patient." Sedative drugs sometimes are used for the treatment of normal, but assertive, behavior; they often are employed more for the benefit of the staff than in the best interest of a resident.<sup>37</sup>

### Sources of Payment for Care (*see* Volume II, Chapter 27)

The primary sources of payment for nursing home care are private income or family support, Medicare (Title XVII of the Social Secu-

rity Act), Medicaid (Title XIX of the Social Security Act), other government assistance or welfare, Veterans Administration funds, religious organizations, and life-care arrangements. A 1977 survey of nursing homes found that 48% of all residents relied on Medicaid for payment of care, 38% paid privately, 6% relied on other government assistance or welfare, and 5% relied on other sources such as volunteer agencies, religious organizations, and Veterans Administration contracts. Medicare was the source of funding for only 2% of all residents.<sup>1</sup>

It often is assumed that because public funds are the predominant source of payment for nursing home care, most nursing home residents are poor. The data, however, do not reveal how many of the present Medicaid residents were former privately paying patients. In one study, 50% of the residents who were on Medicaid were previous privately paying patients. They had paid for their care privately until financial resources were exhausted, and they were then placed on Medicaid. "Between the doctors and nursing homes, they have taken all of our money," lamented one elderly man.<sup>21</sup> Estes<sup>22</sup> notes that over 47% of all nursing home costs in the United States are paid by Medicaid for patients who were not initially poor.<sup>23</sup>

By federal regulations, Medicare will pay the cost of care in an SNF to a maximum of 100 days in each benefit period. In practice, however, few nursing home residents qualify for Medicare coverage. Five conditions must be met for Medicare to pay for care in an SNF: 1) A person must have been in an acute care hospital at least 3 consecutive days, not counting the day of discharge; 2) A person must be transferred to a nursing home because further care is required for the condition that was treated in a hospital; 3) A patient must be admitted to an SNF within 14 days after leaving a hospital; 4) A physician must certify that a patient needs continuing skilled nursing or skilled rehabilitative services on a daily basis; and 5) A facility's Utilization Review Committee or the Professional Standards Review Organization in the area must review each case to determine whether a person is eligible for Medicare coverage.<sup>24</sup>

When these five conditions are met, Medicare will pay the total cost of covered services

for the first 20 days and all but \$15.50 per day for the subsequent 80 days of care. To qualify for Medicare, however, patients must require skilled nursing or rehabilitative services, and it must be verified that their condition will improve. Medicare will not pay for custodial care in an SNF. Care is considered to be custodial when it is primarily for the purpose of meeting personal needs (e.g., help in walking, getting in and out of bed, bathing, dressing, eating, and taking medication).

Medicare guidelines are complex, unclear, and there is a considerable variation in interpretation of the law.<sup>25</sup> Therefore, many physicians have difficulty in understanding the regulations, and they promise elderly persons that their nursing home care will be paid for by Medicare. Frequently, only after transfer to a nursing home, do patients learn that they do not qualify for Medicare; they are disappointed, angry, and some are terrified that they will deplete their financial resources. They may blame their nursing home staff when they learn that they must privately pay for their care. In one 172 bed facility in California, 15 beds had been certified for Medicare (in some nursing homes, only certain sections participate in Medicare), but so few patients ever qualified for Medicare that the administration reduced the number of Medicare beds to nine. Medicare is the source of funding for only 2% of all nursing home residents.<sup>22</sup>

Medicaid does not pay for nursing home care unless one is indigent; therefore, many elderly persons must pay privately for care. In most states, the cost of nursing home care ranges from \$1,000–\$2,000 per month. These high costs can easily impoverish those elderly persons who are on a fixed income and have modest savings, thus adding the indignity of poverty to the burden of chronic illness and institutionalization during the last months or years of their lives.

### Length of Stay in a Nursing Home

Most nursing home residents stay relatively long in a facility; 64% stay 1 year or longer, 24% less than 6 months, and 13% less than 3 months. The data for the length of stay are incomplete and reflect only the time that residents had been in a nursing home rather than the time that

a person will ultimately spend in a nursing home.<sup>1</sup>

### Nursing Home Staff

A typical nursing home resident has multiple chronic physical, mental, and behavioral health problems that require the full range of medical, nursing, rehabilitative, psychological, and social services; however, a resident is cared for largely by a virtually untrained, overworked, and underpaid staff. Only 5% of all nursing home employees are registered nurses (RNs), 6% are licensed vocational nurses (LVNs), fewer than 6% are skilled and professional employees (e.g., administrative personnel, pharmacists, dietitians, physical therapists, and activities directors), and 32% provide ancillary services (e.g., food preparation, laundry, housekeeping, and plant maintenance).<sup>16</sup> Ninety percent of the nursing care is provided by nurse's aides and orderlies, many of whom have no formal education or training; most earn only a minimum wage salary. Some states require minimal training. In California, for example, nurse's aides must be certified. To become certified, they must have 50 hours of classroom study and 100 hours of supervised clinical instruction. Clearly, a 3–4-week training program cannot prepare them to provide high-level care, especially since there may be only one RN to supervise the care of 100 or more residents. Federal regulations require only one RN per shift to be on duty for facilities of 99 beds or more. In 1981, the California legislature passed a law stating that if an RN cannot be hired, an LVN can be substituted. Because of the low salaries and poor working conditions, it is difficult to hire RNs; therefore, it can be anticipated that with the new law, even fewer RNs will be found in nursing homes.

Recruitment and retention of staff is a major problem in nursing homes throughout the United States. The annual personnel turnover rate is about 75%.<sup>16</sup> Staffing problems are due to multiple factors. First and foremost is the poor image of a nursing home. To be employed in a nursing home suggests lack of competence on the part of a nurse; it is a low-status position. Directors of nursing report that two types of nurses apply for positions: those who are dedicated to the care of elderly persons and who are

therefore willing to work at a substandard salary, and those who cannot obtain positions elsewhere. Unfortunately, the latter frequently are predominant.

To add to the problem, working conditions are poor, salaries are low, and fringe benefits are few. A few nursing homes pay competitive salaries, but many do not. In San Francisco, in 1982, a nurse's aide typically earns slightly above the minimum wage (or \$3.70 per hour), whereas the beginning salary for a nurse's aide in an acute care hospital is \$7.24 per hour. In a nursing home, an LVN is hired at \$6.00 per hour, whereas in an acute care hospital an LVN begins at \$7.73 per hour. An RN in a nursing home, regardless of his or her years of experience, earns \$8.00 per hour or about \$1,280 per month, whereas his or her colleague in an acute care hospital in the same city earns \$1,817 per month with 0–6 months of experience and \$1,995 per month with 3–4 years of experience. With such a disparity in salaries (especially at the RN level) and the critical shortage of nurses, it is not surprising that recruitment of a competent staff is a problem.

Because nursing homes pay low salaries, nursing staff frequently hold two full-time positions. "They are so tired when they arrive here from their other job, they do not have the energy to do much," remarked one director of nursing service. However, a tired nurse is better than no nurse, and the regulation for staff requirements have been met—a nurse is on duty.

Whereas low salaries are a pervasive problem and a constant source of discontent among nursing staff in United States nursing homes, in some nations salaries are not an issue. In Scotland, for example, nursing staff who care for geriatric patients receive a salary identical to that of nurses in acute care facilities. Nursing salaries are established by the government and are standard throughout the nation; all nurses are paid the same regardless of their place of employment. Moreover, nurses who work in geriatrics and psychiatry annually receive "lead pay," which is an annual bonus of about \$350. Although it is not a large pay differential, and some say that the additional money does not serve as an incentive to work in geriatrics, several nurses noted that it was a factor in their decision to work in a geriatric facility.<sup>21</sup>

## Role of a Physician in a Nursing Home: Ideal and Reality

The role of a physician is central to the quality of care that is provided in nursing homes. Some commentators believe that physicians are unnecessary, that administrators, nurses, social workers, and ancillary staff can provide the needed care, and that care should be provided under a social rather than a medical model. However, the fact remains that nursing home residents have multiple medical problems and functional disabilities that require continual medical care. Even with excellent administration and a competent and conscientious staff, a physician's services are essential. Elderly residents in nursing homes need ongoing diagnosis, treatment, and rehabilitation to maintain optimal mental and physical functioning.

Ideally, an attending physician would: 1) Be involved in placing elderly persons in a proper long-term care facility; 2) Provide clinical expertise in the treatment of acute and chronic health care problems; 3) Provide leadership as a member of a team in the management of long-term care; 4) Visit an elderly resident as often as necessary throughout his or her stay based on a continuing medical and social assessment of his or her health care needs; 5) Discuss the plan of care, including short- and long-term goals, with a resident, his or her family, and the nursing home staff; 6) Be available for emergency care when necessary; and 7) Be aware that the high cost of institutional care may impoverish a patient and look for possible alternatives. An ideal physician would provide care even when a cure is not possible.

### Lack of Physician Interest in the Care of a Nursing Home Resident

Three brief case histories will illustrate problems that occur when physicians fail to provide continuing care to nursing home residents.

Mrs. E., 90 years old, was transferred from an acute-care hospital where she had been treated for a fractured hip. "My doctor told me that I had to leave the hospital and go to the nursing home. He told me a lot of things to get me out of the hospital; he told me

he would come to see me in the nursing home. He was my doctor for 15 years and I always paid my bills on time. Now they say he has released me to a new doctor, and I do not even know the new doctor," she said. Her physician of 15 years chose to abandon her when she became a nursing home resident. When Mrs. E.'s physician refused to care for her in the nursing home, the nursing staff called a physician who frequently had patients at the nursing home, and he agreed to write admission orders and to be her attending physician. This somewhat fragile, but mentally alert woman, found herself in a new environment, surrounded by strangers; the one person whom she thought was her ally—her physician—had abandoned her. Furthermore, she was terrified over the possibility of losing her home. "Some woman keeps coming in and asking me if I own my home," she confided. "I have a home, but I am not going to tell them. What does that have to do with my being here?" she inquired. Her hands trembled, and she spoke in a hushed voice of her fears: Would the new doctor take good care of her? Would she ever be allowed to leave the nursing home?

The loss of her physician coupled with the intensive questioning about her financial status made Mrs. E. suspicious of the nursing home staff; she refused to talk to anyone. She felt that they were part of a conspiracy to keep her in the nursing home and take all of her money. Her fears were justified; as noted above 50% of the residents of this particular nursing home had been private pay patients on admission; they had depleted their financial resources and were now on Medicaid.<sup>21</sup> An examination of the chart revealed that Mrs. E. had been admitted to the nursing home to receive physical therapy three times a week. Physical therapy was arranged on an out-patient basis, and Mrs. E. was discharged to her home within a week.

Mrs. L., 73 years old, with a diagnosis of cancer of the lung with metastasis to the brain, was first admitted to an acute-care hospital for diagnosis, then transferred to a second hospital for radiation therapy, after which she was admitted to a nursing home for "terminal care." The social worker in the acute-care hospital had noted on the chart: "Patient is very frightened and overwhelmed by her illness and treatment, but is coping o.k."

Mrs. L., a Christian Scientist, had not sought medical care until her disease was far advanced. When she did seek medical advice, her Christian Science practitioner became angry and "washed his hands of her." Since admission to the nursing home, her doctor had not visited her. She, therefore, felt rejected by both her church and her physician. She was separated from her husband and had no children. "That's what makes it so hard," she remarked. She had three cousins who lived in the city and visited her regularly.

Since Mrs. L.'s admission to the nursing home, the nurses had called her doctor's office repeatedly, asking that he come to see Mrs. L.



Although regulations state the physician must visit within 48 hours after admission, the physician did not come until 5 days later.

Three weeks later, Mrs. L.'s cousin asked the charge nurse to call the doctor and to ask him to see Mrs. L. Mrs. L.'s condition had deteriorated considerably; she no longer responded verbally and appeared to be in the terminal stage of her illness. The cousin was very distressed because the doctor had seen Mrs. L. only once since admission. In the presence of the visitor, the nurse called the doctor, explained that the family was concerned, and described the patient's condition. The doctor said that he was required to visit only once monthly. The nurse said she understood but explained that when patients are terminal, the staff try to get the doctor out more frequently. The relative then asked if she could speak with the doctor. To her request for a visit, the doctor replied, "I just don't have time; do you know it is 5 miles for me to come out there?" He said it would be 4 to 5 days before he would be able to come, and further, he told the nurse that if the family members were not satisfied, they could get another physician.

Both the nurse and the patient's relative were very upset by the doctor's attitude. Later the nurse said, "We know there is nothing he can do medically; all we are asking for is a little humanitarianism, but he has none to give. I get this all the time with doctors who have patients in the nursing home; they admit them and just write them off."<sup>21</sup>

Mrs. C., 93 years old, was admitted to a nursing home with a diagnosis of cerebral vascular accident, arteriosclerotic heart disease with congestive heart failure, chronic urinary tract infection, chronic diverticulitis, and cerebral arteriosclerosis; she was virtually blind and somewhat hard of hearing. A childless widow, her only living relative was a 66-year-old niece who lived in a city 50 miles away; she therefore had few visitors. Despite these many physical and functional limitations, she was a gregarious person and found considerable enjoyment in life.

During the 5 years Mrs. C. had been in the nursing home, she had always been a very social person. Recently, however, she would not leave her room, and she refused to participate in social functions. On questioning it was discovered that she had urinary frequency, pain and burning on urination, and pain in her abdomen. She had not been going into the lounge because she was fearful she would not get to the bathroom in time to urinate. She enjoyed socializing with other residents; she was, however, a very proud woman and was highly embarrassed when she was incontinent. Her refusal to go into the lounge for social activities was labelled by the staff as "uncooperative behavior," and they therefore refused to carry refreshments to her in her room. Only residents who were in the lounge received the morning and afternoon nourishments. Mrs. C. had reported her symptoms repeatedly to the nurses, but no action had been taken. A review of the chart disclosed that Mrs. C. had repeated urinary tract infections and had

been on Mandelamine 1 gram twice daily for 5 years; she had only one remaining kidney.

These findings were immediately reported to the DNS who in turn asked the charge nurse to take care of the problem. A call was placed to the doctor, but he did not return the call. Several days later, Mrs. C. was still suffering from the above symptoms and there were no new orders on the chart. "If I had the courage," she said, "I would go to the phone and call the doctor myself. I think maybe he doesn't come to see me because he doesn't get paid enough," she mused. Mrs. C. also had been a private patient, but through the high cost of institutional care had exhausted her financial resources and was now on Medicaid.

The problem was again discussed with the charge nurse, a somewhat timid, not very competent woman who was afraid to call doctors when new orders were needed. She dismissed the matter, saying: "Well, the doctor doesn't come very often, but when he does come, Mrs. C. never tells him what is the matter with her so I don't blame him for not coming." The problem was then discussed with an LVN; she agreed to call the doctor, a culture and sensitivity test was ordered, and more than 5 weeks later, Gantrisin 500 milligrams three times daily was ordered for Mrs. C.\*

These three cases may seem mundane and unimportant to physicians who deal with acute medical/surgical problems and crises in busy medical practices. Nevertheless, the health care needs that have been described are extremely important to elderly persons who are confined to nursing homes. They illustrate some of the predominant problems in nursing home care.

The three cases illustrate the abdication of responsibility by physicians for nursing home patients, which is a widespread problem.<sup>19</sup> Mrs. E. was totally abandoned by her physician and left in the hands of a strange physician, which was a terrifying experience for her. Mrs. L.'s physician refused to make more than the required monthly visit; she was dying and needed palliative, not curative, medical attention. The family needed supportive care. The physician, perhaps not recognizing the importance of supportive care, did not respond to their request for a medical visit. Mrs. C.'s health was in jeopardy because she waited 5 weeks to obtain medication for an acute urinary tract infection.

\* SOURCE: Kayser-Jones JS: *Old, Alone, and Neglected*. Berkeley, University of California Press, © 1981 by The Regents of the University of California, reprinted by permission.

Other nursing home staff and patients who have been interviewed frequently made statements that suggest the residents feel, and probably are, neglected and rejected by their physicians. An RN in one nursing home stated that (on some occasions) when she has suggested eyeglasses or a hearing aid for a patient, a physician refused to accept her suggestions, saying, "Oh, well, she's old anyhow." One patient candidly remarked: "There are too many patients here whom the doctors have rejected or turned away." A speech therapist, who came to that nursing home occasionally to do speech therapy, put it succinctly: "I would rather work in an acute-care hospital. The patients in nursing homes are the ones the doctors have given up on".<sup>21</sup>

Mrs. L.'s care illustrates a recurrent problem in nursing homes, which is the lack of compliance with the Medicare and Medicaid regulation that requires physicians to visit residents in SNFs at least once every 30 days to renew orders. It also points out the inadequacy of the regulation, the difficulty of enforcing it, and the fact that such a regulation makes it difficult for the nurses to request additional visits from a physician when necessary. While some physicians are conscientious and make the required monthly visits, others are unaware of (or fail to comply with) the regulation. When physicians do not visit regularly, the responsibility for contacting a physician falls on the nursing home staff. Repeated calls remind a physician that he or she has not made the monthly visit. If a physician does not respond, a nurse has no authority to enforce the government regulation; also, a nursing home will receive a citation from a state inspection agency for failure to comply. The regulation that patients are to be visited monthly is often inconsistently enforced. A 1971 audit in three states disclosed that the regulation was violated in more than 50% of all the nursing homes that were surveyed.<sup>19</sup>

Even compliance with the regulation does not guarantee adequate medical care; the quality of a physician's visit cannot be legislated. "We don't have a lot of problems with doctors not coming to visit," remarked one nursing home administrator. "Most of them know that they have to come once a month, but sometimes they just come in and look at the chart and they don't even look at the patient. It's a

feeling they convey during their visit, a feeling that says: 'this person should really die because they have no purpose for living.' But," the administrator continued, "the fact remains that they have not died, and even though they are old, they are getting some enjoyment out of life."<sup>21</sup>

It seems that many physicians have abdicated their responsibility in the care for institutionalized elderly persons; numerous reasons have been given for their disinterest. Butler<sup>26</sup> believes that physicians share our society's negative attitude toward old age; they fear, deny, and avoid the issues of aging, dying, and death. Moreover, a physician's emphasis on curing rather than on caring makes the care of an acutely ill person more attractive and rewarding than the care of a chronically ill elderly person who may, in fact, have episodes of acute illness as well. Inadequate reimbursement and the failure of medical schools to include geriatrics in their curriculum are equally cogent explanations that have been offered for physicians' disinterest in caring for institutionalized elderly persons.<sup>19</sup>

## Negative Attitudes Toward Elderly Persons

A recurrent theme in the available literature<sup>27-29</sup> and in our research findings is the negative attitude of physicians toward elderly persons. Few physicians treat chronically ill elderly persons with the same enthusiasm that they would give a younger person with an acute illness. Patients with chronic dementia, for example, are seen as uninteresting problem patients, and sometimes they are abandoned by a physician.<sup>30</sup>

Physicians are particularly disinterested in providing care to nursing home residents. Many physicians either avoid visiting their patients or make only perfunctory visits. As a rule, physicians have little opportunity to interact with healthy elderly persons; therefore, they may believe that most elderly persons are physically and mentally infirm, and that an elderly person will not respond to treatment once a decline begins. The elderly will respond to treatment aimed at the relief of symptoms even though their conditions may be chronic and incurable,

and they must be treated with the same care and attention that is given younger patients.<sup>31</sup>

Chronic disabilities and incurable diseases create psychosocial as well as medical needs. Physicians, however, usually have little theoretic knowledge of the social and behavioral sciences and have minimal clinical training in meeting the psychosocial needs of any patient.<sup>32</sup> Therefore, they often are unaware of, and unresponsive to, these important needs.

Persons in their 70s and 80s often suffer many losses. The death of a spouse, brother, sister, and friends may cause them to feel lonely, isolated, and depressed. Residing in a nursing home may isolate them from friends and family; many feel that they have lost their home forever once they enter a nursing home. They may feel that there is no one in the world who cares for them.

It is important for nursing home residents to feel that their staff and their physician care for them. "My doctor does not really come here to see me," remarked one man. "He stops on his way to another hospital. He passes the door and then stops to see me. The doctor is an awfully nice man, but I very seldom see him—maybe once a month—I never get very much attention. I told the doctor about my eyes, and he said: 'There is nothing wrong with your eyes.' They pay no attention to you".<sup>21</sup>

An expression of concern and care by a physician may be as simple as a pleasant greeting, placing one's arm around the shoulder of an old person, a warm smile, or sitting at their bedside for only a few moments to listen. Taking their complaints seriously and doing whatever is possible to minimize disability also is a gesture of caring.

The human qualities of elderly persons do not fade away with increasing physical and mental impairment; their social manners remain intact and their humanity is preserved. Even the most severely impaired person usually will respond to kindness.

Mr. G., 80 years old, was so mentally impaired that he could not even remember his name; his one joy in life was good food—something of a rarity in the nursing home. A group of local school children came to the nursing home for a Halloween party, bringing small bags of candy and cookies to the residents. A tiny girl walked up to Mr. G.'s chair and

offered him a bag of sweets; to our surprise, he refused to accept the food. The child ran back to her teacher still holding the bag of candy. Her teacher urged: "You must give your candy to an old person; I will have some candy for you when we return to school." The child continued to offer him the candy, but he would not accept. It was suggested that the candy be left with the nursing staff, and after the children left, a nurse offered Mr. G. the candy; he accepted it immediately. Although severely impaired, this man knew that adults give, they do not take, candy from small children.<sup>21</sup>

The social graces that are learned in early childhood still are practiced by elderly persons in their declining years, and (one might add) in an environment where a similar response may not be expected.

### Myths and Stereotypes

Of all the harmful myths and stereotypes that arise out of negative attitudes toward elderly persons, none is more harmful than the belief that all old people are senile and mentally incompetent. There are no hard data to document how many nursing home residents are erroneously diagnosed as senile; however, the harmful effects of such misdiagnoses are immeasurable. When a physician places a diagnosis of "senility" on a chart, whether it is accurate or not, a nursing home staff respond as if that person is, in fact, senile. To many people, this means the person cannot communicate at all. If the staff believe that the elderly residents are senile, they do not engage in meaningful conversation with them. Many residents are dependent on the staff for much of their social interaction.

In an intensive study of one 85-bed nursing home, 42% of the residents had a diagnosis of organic brain syndrome, senility, senile dementia, and chronic brain syndrome. The nursing staff, however, reported that 72% of the residents were confused.<sup>21</sup> In the absence of a proper diagnosis, it is difficult to measure what proportion of the residents are, in fact, mentally impaired. It is not unusual, however, to find that patients who are diagnosed as having chronic brain syndrome are mentally unimpaired. Mrs. S., 93 years of age, who had congestive heart failure also had a diagnosis of chronic brain syndrome. The Mental Status

Questionnaire<sup>33</sup> was administered, and she correctly answered 9 of the 10 questions. Mrs. S. could not read because of her poor vision, but she kept abreast of world affairs by listening to the radio every day. Not only did she keep informed of current news and politics, but she had an opinion on timely issues, such as presidential elections and the care of elderly persons in the United States. One day, she remarked, "I think the governor should walk through some of these nursing homes." "What do you think he would say?" I asked. "I think he would think this is a pretty bad way to treat the old people," she replied. These are not the statements of a mentally impaired person.

Observing the interaction between physicians and nursing home residents provides additional data on physician behavior and beliefs. For example, on medical rounds physicians often do not address patients by name or speak to them about their condition. Elderly persons may be treated in a dehumanizing way, as if they are inanimate objects rather than human beings. One physician said, "geriatrics is like pediatrics; these people cannot think for themselves. We have to think for them."

It sometimes is argued that medicine is not responsible for the regrettable conditions that exist in nursing homes; instead, the conditions are a result of the low status of elderly persons in American society. American society supports negative attitudes toward elderly persons<sup>34,35</sup>; perhaps quite unconsciously physicians have absorbed them. How can physicians be oblivious to and unaffected by the fact that elderly persons are not valued in our society? Their preference for younger patients is, indeed, a reflection of our youth-oriented society. It is important, however, for physicians to know that only 25% of all age-related changes are likely to be due to physical aging; 75% of age-related changes are accounted for by sociogenic aging; that is, the role that folklore, prejudices, and misconceptions about age impose on the elderly population.<sup>36</sup> However, it is the people within a society that determine who and what has value. Physicians can play a key role in raising the value of the elderly population by providing high-quality care and dispelling, rather than perpetuating, myths about old age.

## Toward Improving the Quality of Care in Nursing Homes

For several decades, the problems of institutional care have been investigated, reported, and debated; yet, conditions in nursing homes have not measurably improved. A few excellent facilities strive to meet the needs of their residents, but the remainder range from unsafe, unclear, unhealthy environments where patients are neglected to safe, clean, motel-like facilities where patients sit in silence, withdrawn and apathetic.<sup>37</sup>

Investigators have examined staff-patient ratios,<sup>38</sup> the depersonalizing effects of institutions on the elderly persons,<sup>39</sup> the effects of relocation,<sup>40-42</sup> and the significance of size, spatial arrangement, and the architecture of institutions for elderly persons.<sup>43-45</sup> Despite the relative abundance of studies on the care of institutionalized elderly persons, there are limited data on a major component of institutional care: (i.e., physicians' role in, and responsibility for, the care of the institutionalized elderly population). Faulwell and Pomerantz<sup>46</sup> examined the association of personal and professional characteristics with the rate of institutionalization of the elderly population, and Mitchell<sup>47</sup> described factors that influence physician visits to nursing homes.

The lack of physician involvement has been cited as one of the factors that are responsible for the low quality of care in nursing homes.<sup>19,25,48</sup> The author found a major difference in the quality of medical care in a Scottish institution compared to an American nursing home and concluded that the lack of responsibility for care by professionals (physicians and nurses) will inevitably lead to low-quality institutional care.<sup>21</sup>

### The Need for Professional Responsibility for Care

If conditions in nursing homes are to improve, physicians must begin to take some responsibility for the care of nursing home residents. The authority of physicians in dealing with patients, although increasingly being challenged,<sup>49</sup> is

largely an accepted phenomenon.<sup>50</sup> This authority, which is based on the assumption that physicians have the knowledge and expertise to deal with medical problems, carries with it a commitment and responsibility for service. In the United States, physicians are the dominant professionals in the health care system; the care provided by other professionals and paraprofessionals is subject to their orders.<sup>51</sup> When physicians have authority and power, but abdicate responsibility, elderly persons indeed become vulnerable. Without medical authorization (as in the case of Mrs. C.) little can be done, and a patient's condition can deteriorate rapidly. As the dominant professionals and as experts in health care, physicians are expected to be involved in the continuing care of elderly persons, but they are noticeably absent from nursing homes. "This is not a hospital," observed an elderly resident, "there aren't any doctors here." Physicians and nurses have been associated with nursing homes for years; yet few protests have been heard from them about the deplorable conditions that are found in many facilities.<sup>52</sup>

### Consequences of Physician Disinterest in Care

In the absence of professional responsibility for care, a proprietor of a nursing home has much decision-making power. A proprietor, rather than a physician, sets the standards of care. Ostensibly, the primary goal of a nursing home is the provision of quality care. However, when professionals are not advocates for the elderly population, then profit-making takes precedence; when profit-making becomes the primary goal, the quality of care declines. A proprietor, for example, determines the salary scale. By offering substandard salaries, nursing homes cannot attract highly qualified staff. "I cannot compete for well-qualified staff because of the low salaries we pay," lamented a director of nursing services. Another director reported that she had been offered a bonus from the proprietor if she would agree to reduce the number of staff, thereby cutting staffing costs; she declined his offer. A proprietor also determines how much money will be spent on essentials such as food, utilities, and recreational activities. The poor quality of food is a constant com-

plaint in nursing homes. Selective menus, which is an amenity that would greatly increase satisfaction with food, are not even considered because they would increase the cost of food service.<sup>21</sup>

Although some may argue that a proprietor must comply with stringent federal, state, and local regulations, it is well-known that regulations do not guarantee quality care. Standards for the regulation and evaluation of nursing homes have existed for years, but they are difficult to implement and enforce; enforcement often lags far behind legislation. Moreover, a nursing home may comply with the regulations on paper, but in practice the care it provides may be of low quality.<sup>53</sup> In the United States, efforts to improve nursing home care have focused almost entirely on increased government regulation; however, government regulations are not a substitute for responsible professional care.

Another unfortunate outcome of professional disinterest is the adverse effect it has on the attitude and behavior of a nursing home staff. For example, noting that physicians provide only minimal care, an owner realizes that he, as well, needs to provide only a minimum of care and that he will not be held accountable by physicians or regulatory agencies. The underpaid staff, aware of the low standards of professional care, conclude that they too need to provide little service in exchange for their low pay. The elderly residents are the unfortunate victims of the system, which the nursing home industry because of a lack of professional responsibility and absence of effective government regulations realizes financial gain.<sup>16</sup>

Some readers may argue that too much emphasis is being placed on the role of a physician in a nursing home, and some authorities advise that long-term care be provided under a social or nursing model. The author strongly supports the nurse-practitioner team concept<sup>54,55</sup> and acknowledges that providing quality care requires a multidisciplinary approach. Nevertheless, nursing home residents have multiple medical problems and functional disorders that require continuing assessment and treatment. Therefore, it is imperative that physicians are involved in the planning and provision of care. Physicians are not solely responsible for meeting the multiple needs of residents. However,

they must work cooperatively with a nursing home staff to meet the health and social needs of nursing home residents.

### The Importance of Teamwork in Nursing Homes

Whereas many physicians acknowledge the importance of teamwork in certain spheres of acute care (e.g., coronary care, intensive care, and renal dialysis units), in a nursing home a lack of teamwork is a major barrier to providing quality care. Nursing staff report that physicians virtually never discuss a patient's condition with them or a patient's family. "Nursing homes are set up on a medical model, but in practice the physician is not around. Even though the physician is not present, he does not want to give up the medical model or his authority, and he does not support the nursing model," complained one nurse. "Yet, it is the nurse who is there 24 hours a day. It would be helpful if doctors would get more involved with patients and their families and work together with the nursing home staff as a team to help resolve the patients' problems." An RN in a nursing home has an extremely responsible and difficult role. An RN is seen by some as an inexpensive physician of a nursing home. Since physicians rarely are available, patients and their families look to an RN to diagnose, treat, and resolve many of a patients' problems.

Nursing home residents have many physical illnesses, along with functional and sensory impairment and behavioral and emotional problems, all of which require a multidisciplinary approach. Meaningful work and social and recreational activities, provided through the expertise of a recreational or occupational therapist, may be as important to the residents as is the treatment of their physical illnesses. Residents often comment that their lives are meaningless and that they do not want to live if they are no longer useful. "I know that I am of no use to anyone anymore," an 83 year-old-man remarked. It was a painful realization for him and it expressed an important need. However, such comments often go unheeded; in general, little attention is given to providing meaningful activities. Many residents sit in silence or walk aimlessly up and down corridors. Elderly persons have lived full and productive lives, and it is

painful to them to know that the last days of their lives have no purpose. Psychological distress often exacerbates a medical illness, and both can be treated. Cordiner and Wilson<sup>56</sup> found that group psychotherapy sessions for long-term patients with predominantly physical disorders led by a psychologist and a nurse, decreased anxiety and guilt about their illnesses and increased their self-esteem and self-confidence. After several months, the group went from preoccupation with personal concerns to in-depth communication, care, and concern for each other.

Physical therapists collaborating with a knowledgeable and cooperative physician and nursing staff can effectively manage neuromuscular-skeletal problems and prevent further debilitation. Immobility problems are common in nursing homes and frequently precipitate institutionalization. Some residents who are ambulatory when they enter fear that they will become immobile because the staff refuses to help them walk. There is little planned physical activity, and the injudicious use of drugs and restraints contributes to subsequent immobility.

This is not an exhaustive discussion of all the necessary members of a nursing home team. Podiatrists, dentists, social workers, dieticians, and a resident's family are equally important in providing continuing comprehensive care to meet the needs of elderly persons. British geriatricians, for many years, have stressed the importance of teamwork in geriatric medicine<sup>57,58</sup>; while American physicians, who are trained almost exclusively in acute care hospitals, have not developed an appreciation for the importance of teamwork in geriatrics. Furthermore, they are exposed to minimal geriatric content while in medical school.

### Conclusion

In the United States, despite the rapidly increasing numbers of elderly persons, there is not (as yet) a specialty of geriatric medicine. Also, there is controversy among medical educators as to whether geriatrics should be recognized as a specialty or integrated into each of the relevant medical specialties. Currently, physicians in internal medicine, family practice,

and psychiatry provide the bulk of medical care to elderly persons.

One of the major problems in developing geriatrics, either as a specialty or as a subspecialty in the United States, is the lack of qualified geriatricians. It is estimated that by 1990 the United States will need 7,000–10,000 geriatricians.<sup>59</sup> The 1978 Faculty Roster of the Association of American Medical Colleges, which includes some 49,000 paid medical school faculty who are educating over 57,000 medical students, lists only 7 faculty members with a specialty of geriatrics and only 13 with a secondary specialty of geriatrics.<sup>53</sup> Many young physicians, in attempting to develop their knowledge and skill as geriatricians, take brief or extended trips to Great Britain to work with British geriatricians. A more efficient and satisfactory plan would be to bring British geriatricians to the United States. American medical schools could arrange visiting professorships for British geriatricians who would provide leadership in establishing geriatrics and would serve as role models for medical students and young physicians. The importance of role models for those who are interested in geriatrics must not be overlooked. British geriatricians could serve as role models are both in clinical practice and in an academic setting. Scientific research has become increasingly important in medical schools; however, preparing practitioners to provide medical care according to the needs of society also is an important goal of medical education. Currently, very few physicians and other professionals and paraprofessionals have been trained in geriatrics. We cannot expect to find quality care being given by uneducated professionals.

In the past, nursing homes have not been seen as appropriate settings for teaching and research. The "teaching nursing home," as advocated by Butler,<sup>37</sup> is a step in the right direction. However, if nursing homes are used for teaching and research, the primary objective must be to improve the care of the elderly population. Care must be taken so that exploitation of elderly residents to meet the teaching and research needs of health professionals does not occur.

Physicians, because of their leadership position in health care institutions and because of the respect and status they enjoy in society, can

be influential in social and political spheres. It is hoped that they will be in the forefront in implementing change that is directed toward improving nursing home care. However, although this chapter emphasizes the role of a physician in nursing homes, it is not meant to suggest that physicians alone are responsible for, or can singularly improve, the quality of care in nursing homes. Providing quality care to institutionalized elderly persons is a complex issue that involves historical, social, cultural, political, economic, and ideologic factors. The resolution of such a complex issue will require the concerted efforts of many within and outside of the health professions. Nevertheless, with responsible leadership, concern, and care on the part of physicians, conditions can improve. Conversely, in the absence of responsible physician involvement, nursing home residents will continue to be neglected, and their health care problems will remain untreated.

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# Access to Health Care

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## Access to Health Care for the Elderly Population

Decisions regarding the deployment of scarce health resources to an enlarging elderly population require careful forethought and planning. If a medical care system has been successful in meeting the needs of a newly recognized population in existing settings, it is reasonable to attempt to simply recreate, adapt, or expand the adequate model. However, if a given population has health care needs that currently are inadequately or inappropriately met, the need for a new strategy is apparent.

The key to any strategy of health care delivery for older people is the concept of access. An Institute of Medicine report defined access as “the responsibility of the provider team to overcome temporal, spatial, economic, and psychological barriers to health care.”<sup>1</sup> The emphasis, thus, rests directly on health care professionals to initiate and develop schemes that are able to fulfill these criteria, instead of resting on health consumers or governmental agencies. If careful adherence to these requirements is maintained, medical care that is both pragmatic and humanistic for older patients will be assured.

## Historical Perspective

Before 1960, the need for special health care planning for the elderly population was seldom recognized. There are several reasons for this. Even at present, the majority of the elderly population in the United States are living in rural

settings. Although inadequacies in rural health care were widely recognized, elderly patients were not singled out as a unique part of this dilemma. The presumption was that general practitioners would include elderly persons in their domain of care as part of their routine practice pattern. Until the development of Medicare, the financial ability to pay for health care was a strict limiting factor. This was of particular concern for patients who were in need of acute hospitalization. Even those persons who could afford to pay for health insurance often were denied coverage and benefits on the basis of their multiple chronic illnesses.

Styles of medical practice were dramatically different and, in some ways, much better adapted to the health care needs of elderly persons. House calls were routine. A patient was accustomed to having “a doctor,” who often was described on his or her shingle as being a physician and surgeon. This health practitioner was expected to provide both primary care as well as subspecialty expertise—should the need arise. Thus, in the memories of elderly persons are the expectations of a health practitioner who will tend not only to routine colds, but also to heart attacks and broken hips. A health care provider’s awareness of any stressful situations in a family constellation was inherent in a system in which all family members usually were cared for by the same physician.

## Accessibility

In any system’s evolution, the central point of focus often determines the resultant design. The selection of accessibility as that focus will

tend to influence the subsequent development. Thus, it is important to recognize that the choice of accessibility as the key factor for good health care for the elderly population will shape several constituent parts of a general scheme. Furthermore, it is apparent that the degree to which a health plan's capability meets the needs of its participating links will increase its likelihood of success. A careful examination of those factors that affect access is relevant.

Temporal accessibility to health care has particular relevance to older patients. This requirement usually is parlayed into an inquiry regarding the immediacy of availability to health personnel in an acute medical crisis. Indeed, American medicine presently is increasingly responsible for crisis illnesses. Trauma due to auto accidents is efficiently managed in most densely populated parts of the United States. Mortality rates due to myocardial infarctions decrease as emergency services are deployed with increasing speed. However, elderly persons suffer from multiple chronic illnesses that respond in a leisurely fashion to therapeutic interventions, if at all. Clearly, a metropolitan hospital's emergency room is not the ideal location for the evaluation and treatment of a degenerative joint disease, presbycusis, incontinence, or dementia. Of noteworthy importance in this context is the fact that a single visit to an acute care hospital emergency ward does not allow for appropriate diagnostic investigations of the vast bulk of problems that afflict the elderly population; However a critical health care setting often does act as a port of entry into the intricacies of today's complex health care system. A hospital emergency room is not equipped to sort out multiple medical and social problems. Its role should be realistically limited to recognition and referral for all problems noted in addition to the immediate cause of a critical care visit. The relevance of this is underscored if one recognizes that an older patient's definition of "critical" is quite different from that of medically trained personnel. Nevertheless, elderly persons trust health care professionals to help them in an emergency situation regardless of who is defining the crisis to be urgent.

Spatial accessibility demands both a health care setting and an environment that matches the physical disabilities and needs of elderly pa-

tients, as well as the logistics that are involved in the actual physical move from one's home to a physician's office. An environment that is particularly responsive to the diminishing capabilities of elderly persons must pay particular attention to decreased mobility, cognition problems, and sensation deficits that occur more frequently with increasing age. Not only do doorways and stairs need to be made accessible for wheelchairs and walkers, but also the increased traction of carpeting as an aid to locomotion deserves mention. Diminished auditory acuity often creates difficulties for a frail elderly patient, because he or she is unable to understand directions or hear an interviewer. While curtains at least offer a suggestion of privacy, they do nothing to obscure the background noises that make hearing so perplexing a process. Some patients may not even be able to hear their names being called; public address systems and shouting use high-frequency sound waves that are unintelligible to patients with presbycusis. Furthermore, medical personnel need to recognize the hazards of diminished cognitive function and its inherent short-term memory deficits—especially as it applies to following directions for medications, return appointments, locating the laboratory, or correctly preparing for a radiographic investigation (e.g., a barium enema).

Not surprisingly, older patients miss the days of house calls, which serendipitously fulfilled requirements of spatial accessibility. The difficulties of exiting from one's home, maneuvering transportation, parking, and then finding the appropriate place in a medical facility were obviated. Optimal performance in a mental status examination (MSE) occurs in a setting that is most familiar to a patient.<sup>2</sup> Family and neighbors are available to corroborate or correct information that is necessary for an accurate and complete medical history. Medication compliance can be documented first-hand. A health care team can realistically assess what needs to be accomplished to enable an elderly patient to remain independent in the community.

Despite Medicare and Medicaid programs, financial barriers still prohibit many older persons from fully participating in the health care system. Medicare does not pay for appliances of survival, such as eyeglasses, hearing aids, and dentures. A complex system of reimburse-

ment for ambulatory services, in many ways, creates insurmountable blockades for older persons who live on fixed incomes. Even the practice several decades ago of charging low-income patients lower rates is no longer possible because of the system of physician profiling, which demands consistent billing practices so that physicians can be reimbursed in a fair manner. In brief, a system is evolving whereby elderly patients often are placed in a category in which payment for health care services is second rate; the concern that the quality of care could become equally second rate is an obvious one. Poverty particularly affects women and minority elderly persons. Health care delivery to these groups is inadequate in general, but it is compounded when patients are elderly.

Health care providers need to have an increased sensitivity to the phenomenon of ageism, so that age itself does not serve as a psychological barrier to medical services. Ageism is not a conscious bigotry that is directed toward elderly persons. Instead, it is an unconscious diminishment of esteem for the elderly age group. This phenomenon is particularly pronounced in societies that are new and separated from their cultural roots. In these cultures, societal good was in the young and strong; new settlers were anxious to forget old ways. Elderly persons from "the old country" often were not fit enough to make the arduous journey to the new land. A case can be made for the societal shunning and forgetting of its older citizens, which actually originated at this juncture when it served as a defense mechanism to lessen the pain of parting from a loved one who would never be seen again. Many equate old age and dying, and this perpetuates negative ageism regardless of its origins. It most often is expressed by physicians who are experiencing frustration with diagnostic and therapeutic dilemmas in elderly patients. Thus, elderly persons are told, "What do you expect at your age?" They are too intimidated by the complexities of modern medicine to seek a second opinion, even though they may suspect inadequate or imprecise diagnostic acumen. Cantor and Mayer demonstrated the effect of barriers on the elderly population (*see* Table 29-1).<sup>3</sup>

The psychosocial well-being of elderly Americans is difficult to achieve in some instances because of a reluctance on the part of

elderly persons to partake of available services. Pride is thought to be jeopardized if one accepts charitable gifts only because one is old or infirm; self-esteem may be imperiled. Furthermore, if a psychopathology exists, an elderly person tends to avoid psychological and psychiatric care because of the stigma of mental illness for his or her generation. Few elderly patients are cognizant of the remarkable advances in psychopharmacology and therapy in recent decades; they still believe that mental illness requires lengthy or indefinite hospitalization.

Health care itself provides a seldom-recognized barrier to health care: modern medical technology. Elderly persons more often than not have been healthy for the greater part of their lives. They often go years without seeing a physician and possibly never have been hospitalized. For this sturdy subpopulation, an acute illness that requires hospitalization is a potentially disastrous event. Procedures that are viewed by health care providers as routine (e.g., venipuncture, proctosigmoidoscopy, electrocardiography [ECG], or intravenous [IV] therapy) are foreign and often frightening to elderly patients. Because they are viewed as routine, the indications and results of these procedures are seldom discussed with a patient. Many patients are alarmed that something life-threatening has been discovered in these routine procedures and that they are not being told the results because of the likely mortality. Furthermore, scant attention is paid to hearing aids and eyeglasses to assure the adequate communication of details of these investigations and treatments.

Perhaps, the setting in which modern technology clashes most greatly with elderly patients is a university teaching hospital. Physicians-in-training are understandably anxious about mastering the intricacies of new devices and procedures; however, this situation lends itself to disastrous consequences for elderly patients. Not only is a medical student's or resident's uncertainty transmitted to a patient (thus giving rise to alarm and fear), but frequently new procedures and investigations have inadequately sampled normal elderly populations; thus, the results of a study are uninterpretable. A patient has been exposed to an unnecessary risk of morbidity and mortality, and has been made to experience undue fear and discomfort.

TABLE 29-1 Reasons That Inner City Elderly Persons Hold Back From Going to a Physician, by Ethnicity and Income

Reason	Ethnicity		
	All Respondents (%)	White (%)	Black (%)
Lack of money	50.6	38.9	63.8
Lack of faith in physicians	31.5	35.8	28.3
Treatment accorded to older persons			
Waiting too long	31.1	27.0	31.0
Inconvenient hours	22.0	15.8	24.9
Physicians and nurses do not care about older persons	16.9	13.4	16.7
Clinic too confusing	15.9	13.3	13.7
Never see same physician twice	13.9	7.4	19.1
Difficulties in getting to a physician			
Too far	24.7	17.5	26.4
No one to take me	19.1	15.0	16.4
Total*	100.0	100.0	100.0
	(N = 320)	(N = 170)	(N = 102)

\* Figures add to more than 100.0 because it was possible to give more than one reason.

† IV = intravenous.

SOURCE: Cantor M, Mayer M: Health and the inner city elderly. *Gerontologist* 16:23, 1976.

Quixotically, instead of encouraging young physicians to fill their gaps in knowledge of the pathophysiology of old age, experiences of this sort tend to reinforce ageism by underscoring frustration. This phenomenon has serious implications for medical educators, as well as for designers of health care delivery systems for elderly persons.

### Model Health Care Systems for the Elderly Population

Although it presently is widely recognized that the elderly population have special health care needs that are only poorly met by existing health care schemes, very few options have been developed to alleviate this problem. Accessibility clearly ranks foremost in any plan that intends to care for an elderly population, but other criteria also must be taken into consideration. Economic reality must be a major criterion for success. Interwoven with financial considerations is the question of allotting scarce resources. Less than 5% of all persons over 65 years of age require institutional care, yet this 5% accounts for the bulk of expenditures for health care of the elderly population.

Another major dilemma is what Williamson has described as the "iceberg phenomenon,"<sup>47</sup> which is the discovery of an undiagnosed pathology in elderly persons. Although cardiac, respiratory, and neurologic disorders have been known to patients' personal physicians—dementia, anemia, incontinence, and immobility only rarely have been recognized. There are two divergent responses to this phenomenon. One group tends to believe that undiagnosed disorders hopefully are insignificant for the long-term care of a patient. Other investigators believe that early detection allows for early intervention. It is most likely that responsible medical care must fall into the second category, despite the fact that epidemiological studies have not to date been adequate to show this. (see Volume II, Chapter 4)

### Health Care in Great Britain

The initiation of a national plan in Great Britain to offer specialized medical services for elderly patients began at the time of the organization of the National Health Service. This plan was developed during World War II and was part of a comprehensive social security scheme

Hispanic (%)	Income				
	All Respondents (%)	I (Substandard) (%)	II (%)	III (%)	IV+ (High) (%)
63.9	50.6	65.3	56.2	40.5	19.7
22.7	31.5	28.5	32.8	34.4	41.7
45.5	31.1	32.0	32.2	38.4	17.2
38.2	22.0	24.7	21.4	26.4	14.9
29.9	16.9	18.4	16.9	16.2	17.4
29.9	15.9	20.4	16.0	16.8	7.5
25.9	13.9	14.5	17.7	13.4	5.0
46.3	24.7	30.5	25.6	17.0	19.7
39.6	19.1	23.6	18.7	19.6	7.5
100.0	100.0	100.0	100.0	100.0	100.0
(N = 48)	(N = 320)	(N = 104)	(N = 116)	(N = 54)	(N = 30)

that was meant to alleviate five major threats to society: want, idleness, disease, ignorance, and squalor.<sup>5</sup> Thus, in addition to attempting to address poverty, poor housing, education, and unemployment, formal recognition by the British government was given to the inadequacies and inequalities in health services. The initial belief was that the program would be short-lived; the hope was that free medical care would enhance health to the point that no further need would exist. The early planners did not foresee the development of current demographic alterations and the subsequent burgeoning of chronically ill elderly patients.

Of paramount importance in the National Health Service is the primary health care team, which consists of a general medical practitioner, a health visitor, and a home nurse. An older person is free to choose his or her own physician and a physician has the right to decide whether or not to accept a patient. A patient has ready access to medical care; a physician's office always is located in the neighborhood. If a patient is immobile, a house call is made. One third of all general practitioner visits with patients 65–74 years of age are made at home; two thirds of all consultations with patients over 75 years of age are made in

their own homes.<sup>6</sup> A general practitioner usually does not see a patient in a hospital if a grave illness arises. Perhaps one of the more remarkable innovations of the National Health Service was recognition of the fact that elderly patients are more time-consuming for general practitioners than younger patients. Because of the additional care that is involved, a higher fee for patients over 65 years of age is paid.

In addition to health care by general practitioners, many additional services are available to help elderly persons retain their independence. A health visitor is akin to a community health nurse in the United States. Although primarily involved with maternal and pediatric health, these personnel have assumed an increasing educational role for older persons (e.g., nutrition, hypothermia, and so on). A home nurse parallels an American visiting nurse; a physician's orders for skilled nursing duties are carried out. Eyeglasses, hearing aids, podiatry, and dental care are part of the nationalized system. Furthermore, pensioners do not pay for their prescriptions. Thus, a comprehensive, multidisciplinary system is universally available for British elderly persons in their own communities.

If the need for hospitalization should arise,

several pathways may be pursued, but all rely on a patient's own general practitioner to arrange the referral. Hospital specialists are known as consultants. For example, a physician would organize admission to the ward of an orthopedic consultant for a patient with a fractured femur. If a patient had a multitude of problems or had problems demanding the knowledge and expertise of a specialist in geriatric medicine, then admission to a geriatric unit would be arranged.

Because of the transition from a community general practitioner to a geriatric medicine consultant, it has been recognized that additional knowledge about a patient's home environment is key to optimal therapeutic interventions. A domiciliary visit by a consultant geriatrician thus provides continuity from the community to a hospital and then back into the community again. Several other practical bits of information also are readily obtained. A patient's medications and medication compliance are easily noted. The state of his or her kitchen offers clues to an older person's nutritional state. Inaccessibility to a bathroom may explain incontinence. Difficulty with a landlord or other neighbors may signal a change in mental capability. Perhaps most important is the opportunity to evaluate a patient's home in terms of the likelihood of a patient's probable return after hospitalization.

If help is needed, but a patient does not require full hospital admission, a geriatric medicine consultant may arrange for a patient to attend a day hospital. Active therapy can be pursued without disengaging a frail elderly person from his or her home surroundings. Physical therapy, occupational therapy, and medical evaluation by hospital-based multidisciplinary team members who are experts in geriatric medicine may take place.

Admission to a hospital by an elderly person in need of specialized help may be to either geriatric medicine assessment wards or, if the problem is primarily psychological, to a psychogeriatric ward.<sup>7</sup> In some instances, these modalities are united into combined geriatric medicine-psychogeriatric units where the patients are seen jointly by a psychiatrist and a geriatrician. After evaluation and the initiation of treatment, a patient will again be evaluated to determine his or her readiness to return home.

If an intermediate level of care with ongoing physical therapy is appropriate, a stay of several months will likely take place. For patients who are more able, some weeks of attendance at a day hospital (with transportation organized for them) will be instituted. If a patient no longer requires the help of a geriatric unit, his or her referring general practitioner will be contacted, pertinent information will be communicated, and a patient will be discharged from the hospital. If a patient is too frail to entertain the possibility of living independently again, each consultant geriatrician has long-term beds to which that patient may be transferred. Often, these wards are on the same hospital grounds and offer a physician an easy logistic arrangement for daily visits.

Critics of the National Health Service point to inadequate diagnostic technology and waiting lists for beds as evidence that the system is failing. However, it is unfair to apply United States standards to a much less affluent country, which spends a much lower proportion of its gross national product on health care. It also should be noted that Great Britain has a higher percentage of its population over 65 years of age than the United States, yet it has created a comprehensive spectrum of services in which all elderly persons qualify for health care.

## Geriatric Assessment Units

The geriatric assessment unit, as it has been developed in the United States, has borrowed heavily from the British acute geriatric medicine unit. In general, it is geared specifically towards an in-depth evaluation of patients who are enroute to nursing homes in hope of preventing long-term placement in an institution, with emphasis on various modalities of service that vary from facility to facility. In some instances, the focus is on careful psychological evaluation; in others, aggressive rehabilitation is the primary modality. Most assessment units are inpatient wards; a personal physician is seldom a participant.

Several features that are common to many of the programs deserve mention. The notion of functional assessment is basic to an evaluation, as has long been the case with physical medicine and rehabilitation. A patient is evaluated

by a multidisciplinary team, which usually consists of medicine, nursing, social service, psychology, and rehabilitation (e.g., physical therapy, occupational therapy, speech therapy, audiology, and recreational therapy) experts. A pharmacist who is knowledgeable about the specific hazards of medication in elderly persons is an obviously helpful resource, if available. Dietitians may offer nutritional expertise.

If remediable or reversible problems are found in patients in a geriatric assessment unit, the optimal outcome is to return these patients to independent living in the community. If self-care is severely impaired and no family support is available, then placement in a nursing home is organized.

Documentation of the efficacy of the geriatric assessment unit model is in the formative stage. Rubenstein's review of these specialized facilities notes that most reports strongly suggest that comprehensive geriatric assessment and rehabilitation lead to improved patient outcomes; however, only one investigator used a true experimental design.<sup>8</sup>

Criticism of this scheme of care for elderly persons centers about two points. First, there seldom is continuity throughout the spectrum of health care (i.e., community, acute assessment unit, or nursing home) or among health care providers. A geriatrician serves as a consultant, and thus is unable to assume bottom-line responsibility for a patient, although elderly persons frequently perceive their physicians as providing an ombudsman function in addition to expert medical knowledge. Second, the scheme demands that a patient is institutionalized to avoid institutionalization. Although this shorter institutionalization obviously is preferable to needless long-term and permanent institutionalization, frail elderly persons still are imperiled by such maneuvers. Furthermore, institutionalization is very costly, even for short-term care.

## Geriatric Medicine as Primary Care

Huge amounts of health care dollars are currently being spent on acute hospitalizations and long-term care; yet, there is a general consensus that care of the elderly population is less than adequate. One obvious strategy is to direct

financial resources into channels that will diminish the likelihood of institutional medical care. High-quality ambulatory care that is particularly molded to meet the needs of older persons has potential for a significant contribution.

The process of health screening is designed to identify an illness that is already present, but as yet undetected. Happily, early detection often is equivalent with a good therapeutic response. However, the effect of instituting good health practices in old age as a means of decreasing mortality is not known. Thus, a realistic goal for geriatric medicine is the thorough detection of remediable illness. This can be accomplished in an outpatient setting that is specifically adapted to caring for elderly persons.

Primary care has been receiving increasing acceptance as a strategy for meeting the health care needs of many groups of health consumers.<sup>9</sup> Its applicability to an elderly population is apparent, given the fact that primary care is distinguished from other care modalities because it demands high quality, comprehensive, individualized, quickly responsive, and readily accessible care that is available from an initial encounter to ongoing life-long health service.

To prevent institutionalization and to maintain independence requires the early recognition of both medical and psychosocial problems by health care professionals who are particularly skilled and knowledgeable about the illnesses of old age. This is enhanced in a model system<sup>10</sup> that is adapted to eliminate barriers to health care, and cares for 3000 elderly persons, as described below.

To best fulfill the stipulations of primary care, a patient is assigned to a particular physician who will be responsible for that patient in subsequent outpatient encounters; if the need should arise, then also during acute hospitalization for an episodic illness or in a nursing home for irremediable problems. Thus, physician continuity is guaranteed. A patient has an identified individual to whom he or she can turn regardless of the problem.

Physicians serve as part of a multidisciplinary team. Also integral to patient care are geriatric nurse practitioners, social workers, a psychiatrist, a podiatrist, a plastic surgeon (in a skin tumor clinic), and multiple levels of nursing personnel. Available in the same facility are rehabilitation specialists (e.g., physical thera-



pists, occupational therapists, speech therapists, and audiologists), pharmacists, and chaplains. Social workers help patients and their families with financial problems.

Several approaches to the lack of access were developed. A van with wheelchair capability was donated to the project. A network with community agencies was established to facilitate the use of existing voluntary transportation. Close ties with the Visiting Nurse Association's Serving Seniors Project were developed to enable home visits and monitoring of chronic health problems in familiar surroundings.

Temporal access is enhanced by established routine visit expectations. An initial visit is anticipated to take one half of a day. Any patient who requires medication is seen at a minimum of every 3 months. Any hospitalized patient will be seen by his or her physician daily, regardless of whether the hospitalization was warranted by a medical illness or a surgical problem (in which case a geriatric medicine physician acts as a consultant).

All personnel share responsibility for patients, both formally and informally. Team conferences on a weekly basis focus on patients with particularly vexing problems that require careful communication, planning, and team management. On a less formal basis, ward clerks and secretaries have been taught to monitor patients for evidence of cognitive impairment; they can obtain most of the parameters of an MSE in the normal course of conversation with a patient. This information is transmitted to a nurse practitioner or physician who will see that patient for further evaluation.

Staff members use non-verbal communication to aid older patients. Health professionals wear appropriate uniforms and dress according to the expectations that elderly persons have for nurses and physicians. Patients always are addressed by their surnames unless a patient asks his or her physician to use their given name. Medication information sheets and radiographic investigation prep directions are printed in large print.

The outcome of a clinic population's most frail patients who require hospitalization was studied retrospectively. Fifty patients who were receiving ongoing outpatient care in the project and who were sequentially admitted to acute medical care were reviewed. After 1 year

posthospitalization, 82% of the patients were alive and well and living in the community; 14% had died and 4% had moved to other states. The mean age was 78 years. Other investigations that link primary care and hospitalization have demonstrated cost-effectiveness for this approach.<sup>11</sup>

Any rational attempt to solve the problems of meeting the health care needs of elderly persons should have the foresight to create totally new schemes, if warranted. Any responsible attempt should have the courage to reinstate older styles of practice, although they are not currently in fashion or highly esteemed. Both approaches are needed, if a reasonable scheme of health care for our elderly citizens is to evolve.

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# Interdisciplinary Teams

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No single discipline can hope to meet the diverse and complex health care needs of the aging members of our society. At present, for any typical geriatric patient who is admitted to a hospital, it is quite likely that in addition to a physician and a nurse, the skills and knowledge of a physical therapist, social worker, nutritionist, and clinical pharmacist will be required; also, the services of many other health professions and occupations may be needed. Such a broad collaborative approach is seen as desirable not only from the standpoint of a patient's welfare; but, in these days of increasing concern over cost, it is obvious that coordinated and non-overlapping care for elderly persons can effect significant cost savings.

## Definitions

Physicians have always depended on other care-givers. However, the usual forms of such collaboration (e.g., direction, delegation, consultation, and/or referral) do not necessarily imply teamwork. Teamwork is a special form of interactional interdependence between health care providers, who merge different, but complimentary, skills or viewpoints in the service of a patient and in the solution of his or her health problem(s). While there have been many definitions of interprofessional teamwork over the years, Beckhard's<sup>1</sup> may be among the most simple: "A team is a group with a specific task or tasks, the accomplishment of which requires the interdependent and collaborative efforts of its members." Even this simple definition is based on several important assumptions<sup>2</sup>:

1. The problem is big and/or complex enough to require more than one set of skills or knowledge;
2. The amount of relevant knowledge or skills is so great that one person cannot possess them all;
3. Assembling a group or team of professionals with more than one set of knowledge or skills will enhance the solution of the problem;
4. In the solution of such a problem, the possessors of the relevant skills or knowledge are (at least temporarily) considered to be equal or equally important; and
5. All of the involved professionals are working for a common goal for which they are willing to sacrifice some professional security.

Teamwork, therefore, can be broadly defined as a mechanism that formalizes joint action towards mutually defined goals.

Medical teams are not new. Within the framework of an acute care hospital, they have been widely used to deal with crisis-oriented or life-threatening problems, such as open heart surgery, organ transplants, and burns and cardiac care, which usually require highly technical and frequently life-saving interventions and procedures. On such teams, roles are clear, tasks are delegated, and the structure usually is hierarchical. Sometimes, they are monodisciplinary in composition, with teamwork primarily involving different levels of training or skill within a particular specialty area of medicine or surgery.

Service-oriented teams provide a specific set of services to patients with complex long-term problems (e.g., developmental and learning disabilities, speech and hearing problems, and stroke and amputation rehabilitation). In this setting, effective diagnosis and management usually call for diverse skills and technologies and the collaboration of more than one professional discipline and level of skill. These teams are now well-accepted mechanisms for delivering care both within and outside of a hospital. In general, they are multidisciplinary in nature, with tasks and services being delivered in sequence or even in different settings according to a predetermined plan. Leadership usually is vested in the discipline with the most training and status, although the management of a patient may fall on other members of a team.

More recently, teamwork has been espoused as a means of better meeting the complex primary health care needs of underserved populations.<sup>3-5</sup> These patient-oriented health care teams are aimed at providing comprehensive primary care to a wide range of individuals or families, usually in an ambulatory setting. In this case, the diversity of the clinical problems that are presented and the broad range of tasks and skills that are required for their solution calls for a more "interdisciplinary" type of approach, which involves interactions among team members with considerable attention being directed at the negotiation of roles and tasks as well as the quality of the relationship between team members and between a team and a patient. Thus, teams may vary depending on the nature of the patient problem, the participating personnel, the setting involved, and the goal or mission of a team. In general, it can be said that the closer a team is to the center of the life and death arena, the clearer the mission and the task.

### Some Advantages of Teamwork

While the major goal of teamwork, from the viewpoint of a professional, can be simply stated as the achievement of maximum use with minimum redundancy, additional advantages that are suggested by the available literature<sup>6</sup> include:

Greater access to other health professions and services;

Availability of a greater range of knowledge, skills, and services;  
 Greater efficiency through coordination and integration of services;  
 Increased communication and support among providers;  
 Greater opportunity for learning new knowledge and skills; and  
 Opportunity to practice at the highest level of skill and training.

Advantages to a patient can include:

Availability of a greater range of knowledge, skills, and services;  
 Better coordination of care and services;  
 Greater convenience; and  
 More opportunity for preventive and educational interventions.

### Teamwork in Geriatric Care

The specific issue in geriatrics is how to better care for persons whose problems are chronic and vastly complex. These involve multiple systems of the body and affect multiple dimensions of the life situation, where the emotional and social aspects of chronic illness or incapacity often are as debilitating as the actual physical impairments. Being able to identify these multiple problems and their potential interactions, to assess the available resources, and to define reasonable goals and priorities in treatment requires a uniquely broad approach. Health among the elderly population consists not so much of the absence of disease, but of learning to lead maximally productive and independent lives through successful adaptation to the normal and abnormal changes of aging, as well as to illness. Even in complex and discouraging situations, a focus on limited and realizable efforts may bring about dramatic improvement. If true improvements in the health of elderly persons are to be achieved, it is necessary to involve practitioners of many disciplines in a wide variety of patient care facilities and services.

The unique challenge in geriatrics, therefore, is the efficient use of a group of providers whose combined and varied inputs can make a significant contribution to the care of these patients. Whether these providers choose to function independently or interdependently in a

multidisciplinary or interdisciplinary fashion may be affected by a variety of factors (e.g., patient needs and goals, available personnel and resources, physical settings, administrative policies and financial incentives). Also, a commitment to the functional advantages of collaboration and teamwork is required. While these two terms are not necessarily synonymous, they both involve a process of shared planning and action with a joint responsibility for outcomes. The concept of a team formalizes this process, with the additional element of a commitment over time to these goals and responsibilities.

### Sites and Settings

While most crisis-oriented and service-oriented teams practice in a hospital or outpatient clinic, much of the recent interest and experience with teams has been in ambulatory settings such as neighborhood health centers, community mental health clinics, or private offices. Hospital wards continue to have potential for enhancing patient care through improved communication and collaboration among health care providers. Acute crises that involve older patients certainly require the broadest possible teamwork to effect an early and successful resolution and functional return. One obvious potential advantage of teamwork lies in the ability of a team to provide necessary medical care at home rather than in more expensive settings.<sup>7,8</sup> At this level alone, any care that can enable a geriatric patient to stay at home probably represents a major saving over care in an institutional setting. Even more important may be the offsetting of the social and psychological costs of institutionalization and the loss of life-long personal support systems. Indeed, maintaining elderly persons in familiar and supportive surroundings enhances their sense of self-sufficiency and self-respect, which are key stabilizing strengths in the lives of elderly persons.

Another traditional site for geriatric care that would immeasurably benefit from increased collaboration and teamwork is the extended care facility or traditional nursing home. These settings do not have to exemplify the depressing, custodial, "end-of-the-road" stereotype of the past. Much can be done to improve the

physical, mental, and social function of institutionalized patients. The multiple skills and mutual support that are inherent in a team approach can favorably influence the management of these patients.

All of the above comments are based on the assumption that an elderly person either is in an institutional setting or else will come to an appropriate facility at the appropriate time. This usually is not the case! Well over 90% of all persons over 65 years of age are not in institutions, and many live alone in their own homes. These persons, as with the rest of the population, must go through the usual medical decision-making process, which involves an assessment of needs and available resources to secure help.<sup>9</sup> In this process, elderly persons may be at a disadvantage for a variety of reasons. First, as with many other members of society (including health care professionals), they already have been conditioned to attribute potentially serious complaints solely to aging. Second, elderly persons often suffer from depression or other impairments that rob them of the initiative or ability to act expeditiously and in a timely manner. A host of other reasons (including a lack of mobility, money, or knowledge of available resources and facilities, as well as personal embarrassment and fear) can lead to self-neglect until problems are beyond remedy. Therefore, the medical community must learn to find preventable illnesses in the elderly population if it is to do justice to this age group.<sup>10</sup> These case findings do not have to necessarily be carried out by a physician. Indeed, in most circumstances, it is impractical for a physician to perform this function. Furthermore, many of the ultimate preventive and therapeutic interventions are not medical, but involve a wide spectrum of community, social, and other health services. Therefore, it is essential that physicians learn to work as members of health care teams and to delegate those tasks for which others may be better trained or temperamentally suited, thus restricting themselves to those areas in which their training and expertise are unique. Above and beyond the values of prevention and early intervention, it should be noted that frequent contact with isolated, impaired, and vulnerable older persons has a value of its own and can be efficiently shared among members of a team.

A recent development in the health profes-

sions that calls for, and indeed is based on, the team approach is the hospice movement. The essential quality of this experience is the bringing together of the skills, knowledge, and understanding of those persons and disciplines that are capable of relating meaningfully to the needs of a terminal patient in or outside of an institutional setting.<sup>11</sup> In this case, the virtues and necessity of teamwork and collaboration become clearly evident both for a patient and a professional; the quality of care often reflects the degree of communication and mutual support. Team membership and leadership can vary considerably, depending on the needs of a particular patient and the stage of his or her illness. Frequent contact is vitally necessary and an obvious indication for multiple and mutual support systems.

While the activities of a physician (although immensely important) take less time, those of a spiritual or emotional counselor and a nurse or home health aide are also essential and may be extremely time consuming. As in other settings, the focus and activities of a team may include more than just an individual patient and may extend to spouses and other family members or support persons.

## Team Members

Ideally, membership on a health care team should be determined by the disciplines and skills that are required for the effective management of the task(s) at hand. For example, the knowledge and skills that are called for in an older patient with a chronic illness or condition may be entirely different than those that are needed for a child with a cleft palate. At the same time, it must be recognized that not all settings or facilities will have the desired personnel or resources available on site, and team members may have to be specially recruited or consulted in the surrounding community.

In primary care, a basic team usually consists of a physician and one or more nurses together with a social worker or family health worker, as well as the office staff who often provide a first and continuing, if not professional, contact.<sup>4,12,13</sup> However, in the practice of geriatric medicine, the addition of various

medical and nurse specialists, a nutritionist, a clinical pharmacist, a physical therapist, an occupational therapist, a speech therapist, an audiologist, a podiatrist, and a psychologist often as required although not necessarily on a full-time basis.<sup>10</sup> The concept of a "core" or "nuclear" team that regularly functions together on a full-time basis, and an "extended" or "consulting" team that consists of health care providers with whom it works closely on occasions, now is commonly accepted in a variety of primary and secondary health care settings.<sup>4,13,14</sup> While it is not absolutely essential that all of these persons work at the same site, one of the desirable aspects of team care is the improved convenience and communication that are afforded by close physical proximity. Cost considerations and financial reimbursement mechanisms also play an obvious role in determining who will be on the team; but primary emphasis should be on the needs of a patient.

Given the wide range and complex nature of the needs of elderly persons, a whole host of other care-givers also may be needed to address the emotional, social, and spiritual problems of a patient.<sup>10</sup> Thus, depending on the situation, a spiritual counselor as well as various senior citizen agency personnel and services (e.g., homemakers, drivers, and home care aides) may be required and should be involved with a team to whatever extent possible. At times, these personnel and services may be more helpful and important to a patient and his or her welfare than the "professionals" on a team.

Persons generally join teams at three rather different times during their career: 1) Very early, as a first professional experience; 2) Later, as a seasoned worker in the field; 3) Or else considerably later—frequently as the capstone of a professional career.<sup>15</sup> The issue of which stage is most likely to help a person be able to adjust to and contribute to "teamness" is largely unstudied; however, experience would suggest that there are some advantages to a mix of ability, maturity, and enthusiasm. Less experienced persons may have more energy, time, and openness to new concepts, while more seasoned practitioners can contribute valuable experience and expertise as well as professional and administrative validation of the team's effort.<sup>16</sup>

Important motives that lead toward collaboration and teamwork may include the opportunity for stimulating interaction and discussion with other professionals, continued new knowledge and learning of skills, and the advantages of mutual support.<sup>16</sup> All of these of course go hand-in-hand with special demands on an aspiring team member, including those of increased accountability as well as a responsibility to perform skillfully and sensitively in the clinical area. Personal and professional qualities that generally are seen as desirable in “good” collaborators and team members include the ability to listen, to trust, to be open, and to communicate clearly and effectively, as well as a willingness to give feedback, to live with uncertainty and ambiguity, to take personal and professional risks, and to share power and expertise. These may be named essential “membership” (as opposed to “leadership”) skills.<sup>17</sup>

In the final analysis, teams can be composed of any grouping of health care professionals, as long as the basic definition is adhered to with an integrated and coordinated effort at solving a perceived task or problem. Without this rigorous definition of task orientation, teams seldom achieve a smooth working relationship.

### Clinical Practicalities

At a practical level, team members may collaborate or relate to a patient and to each other in a variety of ways. They may be involved in either “shared” visits, in which a physician and/or other team members see a patient together or alternating or “sequential” visits in which each health professional sees a patient independently in a negotiated sequence and meets with other team members at regular intervals to share knowledge and to arrive at appropriate management procedures. Team members also may “refer” patients to each other for special diagnostic or therapeutic procedures with the expectation that they will be kept informed and reinolved when necessary. Finally, such visits may be “consultative”; one member of a team may “consult” with another member concerning a diagnosis and/or management. The particular choice of a collaborative style or model will depend on many factors, but it should be guided

mainly by the needs of a patient and by the principle of parsimony. An ideal team is one that is composed of the smallest number of individuals required to accomplish the task at hand in an efficient and adequate manner.

Teams also may differ in the type of relationship that exists between a physician and other team members. This can range from the traditional “directive” or “supervisory” approach to a more current “copractitioner” approach. All of these definitions and arrangements for teamwork call attention to the changing nature of the relationship between a physician and other health care professionals on a team, as well as between health care professionals and a patient. Indeed, one of the unique features and contributions of recent primary care team training demonstrations has been the emergence of a new “norm” of egalitarianism between members, as well as an increasing recognition of the important role of a patient as a member of a team.

### Team Building

Much of the above discussion presumes that there is a commitment to interprofessional collaboration and teamwork in the delivery of health services of some kind, to some target population, in some setting or other, on the part of some group or combination of health care providers. In other words, a team knows where it is going, what it wants to do, who is on board, and how it is going to get the job done. However, such key decisions are not always automatic or easily arrived at, although at times they may be mandated for a team by some external administrative or funding entity. In other cases, a team is formed around a perceived need or mission. In either case, team members must “own” the goals and/or redefine them for themselves if they are to understand and work toward their accomplishment.

Rubin, et al<sup>18</sup> maintain that there is a logical and necessary sequence or progression to this decision-making process; that it proceeds from goals to roles and then to procedures for accomplishing the work of that team. Our experience suggests a slight elaboration of this process, as in the following discussion.

## Goals

Logically, the first step for a team is the determination or setting of its goals. Goals define the aim or purpose of a team. The process of defining goals is time-consuming and takes energy, but it is absolutely necessary in terms of the commitment and satisfaction of team members. Also, team goals are not merely additive or some convenient combination of the individual goals of team members. The process of working out the goals and objectives of a team is the first major exercise in team development and may well be predictive of later accomplishments. In general, it is easier to begin by building or agreeing on a broad general statement of the mission or purpose to which all team members can subscribe. From this statement, it is possible and necessary to derive specific goals (clear, realizable, and achievable endpoints) and objectives (specific ways of, or directions for, accomplishing the goals).

It often is helpful to think of goals along several key dimensions. First, are they long-term or short-term in nature? Achievement of the latter usually provides a necessary sense of accomplishment and progress that infuses new energy and enthusiasm into a process that often appears to be difficult and neverending. Second, are the goals related to task (e.g., providing services) or maintenance (e.g., improving effectiveness and functioning of a team) activities on a team? This definition will help to clarify decision-making procedures and processes. Finally, do the goals arise from the professional needs of a team, are they related to patient needs, or are they oriented to the context in which a team operates? The last also includes the goals and objectives of a team as an organization in its own right. All three of these dimensions must be considered and included if a team is to be clear about its directions.<sup>19</sup>

The particular process or procedure by which team goals can be defined and elaborated is an important part of team development, and it serves as a basis for establishing a plan of action and performance standards on a team.<sup>18,19</sup> Thus, it is essential that the goals are as clear, specific, and measurable as possible. Since most teams have multiple, complex, and (occasionally) even competing goals, it also is important to set priorities among the established goals

and objectives. Useful procedures for accomplishing this include the module on setting priorities as described by Rubin<sup>18</sup> and the Nominal Group Process.<sup>20</sup> Finally, it is important to keep in mind that goals are not necessarily fixed or immutable and that a periodic review to assess progress and/or to redefine goals as necessary is highly desirable.

## Tasks and Roles

The emergence and proliferation of the many new health professions and occupations and the expanding role of many health care professionals probably signify a major change in interprofessional relationships and in the division of labor (and possibly rewards) in the health field.<sup>21</sup> Identification of the disciplines that are needed to provide the necessary services is not sufficient to resolve the important issues of task differentiation and role negotiation on a team. These are essential elements in team development and need to be accomplished before proceeding further.

### Task Differentiation

A logical outgrowth of defining team goals and objectives is the elaboration of the various tasks and activities by which the goals and objectives are to be accomplished. While one can sometimes abstract goals and objectives from a list of tasks and activities that are being performed or demanded of a team, it is better to proceed in the other direction and to derive the specific tasks from the agreed-on goals. In so doing, it may be helpful to use the criteria presented in Table 30-1. Thus, tasks may be related to professional, patient, or context goals of a team. Whenever possible, the differentiation of tasks (things to be done) should precede the negotiation of roles (who is to do them), because such a process tends to de-emphasize issues of territoriality and ownership.

Most organizations attempt to rationalize their operations by developing standard operating procedures. These are the evolved processes and protocols for accomplishing tasks. Procedures are concerned with “how things should get done”—with integrating information, functions, and activities to get the job

TABLE 30-1 Prerequisites for Effective Teamwork in Patient Care

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Common goals and objectives for the team, which are accepted and understood by all team members
Clear understanding by each team member of his or her own role, function, and responsibilities
Clear understanding by each member of the role, function, skills, and responsibilities of the other team members
Mutual respect for the role and skills of each team member, which are allied to a flexible approach
Effective mechanisms for communication and decision-making, together with opportunities for periodic review and assessment

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done. Therefore, they are an important aspect of team development and function. They permit work to proceed and tasks to be accomplished with a maximum of efficiency and a minimum of confusion and conflict. Unfortunately, while they initially are adopted to facilitate work, they sometimes tend to become solidified and codified into inflexible rules and manuals. Thus, they need to be reviewed periodically and revised as necessary.

### Role Negotiation

The central issue in role negotiation is whether traditional professional roles and skills are unique or merely distinctive.<sup>22</sup> In this regard, it would appear that teams working at the primary care level or attempting to deliver comprehensive services will experience more problems in defining roles and tasks than will more technologically or crisis-oriented teams. In fact, the more general or non-specific the skill (e.g., interviewing), the more likely it can be performed by more than one member of a team. For example, physical assessment, once the exclusive domain of a physician, now is being performed increasingly by nurse practitioners and physician's assistants.<sup>13,21</sup> This type of overlapping or interchangeability of skills can lead to problems in defining role boundaries within a team, as well as in interchanges with external parties, (e.g., patients, professional groups and third-party payors).

A related issue has to do with the role expectations of individual team members, both for themselves and for each other. These involve

questions concerning the extent to which: 1) Such expectations are clearly defined and communicated (role clarity versus ambiguity); 2) Such expectations are compatible or in conflict (role compatibility versus conflict); and 3) Any individual is capable of meeting these multiple expectations (role overload).<sup>22</sup> These issues exist not only within a team, but also for team members who belong to other reference groups or systems that maintain their own role expectations. Thus, a physician may function as a team member, as a member of a hospital staff, or his or her professional discipline or group, as chief of a service unit, as a consultant to other facilities or groups, and as a private practitioner who manages an office in the community (to say nothing about various personal roles). In each of these professional roles, he or she may relate differently to professionals from other disciplines. Clearly, the issue of roles is complex and cannot be easily dismissed, because role conflict, overload, or ambiguity can lead to feelings of misunderstanding, frustration, dissatisfaction, anger, or resentment.

The decision of who does what and when must be addressed if the goals of teamwork are to be accomplished. In many cases, these decisions can be guided by the general dictum that services (tasks) should be performed at the lowest level of professional training, which leaves those with greater training or responsibility free to perform tasks or to solve problems for which they are uniquely equipped. In other situations, considerations of availability or patient preference may serve as a guide. In any case, some time will have to be devoted to this issue to avoid causing confusion and conflict on a team. Also, it is important to recognize that this usually is not a once-and-for-all decision, but that it needs to be renegotiated as team members grow in awareness, knowledge, respect, and trust for each other's skills and capabilities.

There may be some predictable order in which roles generally are negotiated on teams. In our experience, the negotiation of roles tends to follow either status and power or salience to the goals and tasks of a team.<sup>23-25</sup> Thus, the role of a team administrator or leader usually is addressed first, to be followed in order by that of a physician, nurse, psychologist/social worker, and so on, in that approximate order—unless a team is functioning in the area of mental health,



in which case the psychosocial roles may take precedence.

## Leadership and Decision-Making

Other issues that are related to team composition concern leadership and decision-making. These issues are, by definition, partly determined by the nature of the disciplines represented, as well as by the goals and tasks of a team. Conversely, a number of authors have called attention to the traditional power and prestige of the medical profession in defining relationships on teams, as well as in negotiating team issues such as leadership and decision-making.<sup>26,27</sup> While the team arrangement for delivery of care questions the traditional power dispositions of medicine, it cannot be denied that both historical and medical-legal precedents clearly put power and authority in the hands of a physician in the medical or patient care arena.

At the same time, the emerging "norm" on many primary care teams appears to be one of equal participation and responsibility on the part of team members. This involves the concept of "shifting leadership," in which this role is determined less by traditional considerations than by the particular problem to be solved and the particular skills of team members.<sup>4</sup> An underlying issue, of course, is whether the team subscribes to, or operates within, the traditional "medical model" or the emerging "health care model." In the former, clinical considerations will remain paramount and the traditional prerogatives of the medical profession will tend to be perpetuated, with other disciplines serving (or being perceived) largely as adjuncts to the physician role.<sup>26</sup> On a team that subscribes to the health care model, however, the roles and contributions of the other disciplines can be viewed as equally important; and, at least conceptually, all health care professionals are regarded as equal.<sup>2,24</sup>

### Decision-Making

A team is basically a problem-solving decision-making mechanism. However, not all decisions need to involve an entire team. While decision-making traditionally tends to follow the lines of

organizational structure or power and status, the present trend in complex human systems "is to have decisions made as close to the source of the problem as possible, and by those who have the relevant information, regardless of their role or location in the organizational hierarchy."<sup>1</sup> In the clinical area, this means that a team member who best knows a patient and the problem probably should have a major role in reaching and effecting the decision after consulting with, or informing, other members of his or her team. For decisions that relate to team development and function, it probably is more characteristic and desirable that team members develop skills and procedures for reaching broadly based group decisions, by consensus where possible, since it is obvious that decisions which have group support will be carried out more effectively and efficiently.

In reaching decisions, the following questions should be addressed:

1. What needs to be decided?
2. Who should be involved in the process?
3. What decision-making process should be used?
4. Who will be responsible for carrying out the decision?
5. Who needs to be informed about the decision?

### Communication and Information

If a team is to be an effective decision-making vehicle, it must have well-functioning communication and information exchange mechanisms or systems. Anything that inhibits such an exchange will detract from a team's effectiveness. At the most simple level, time, space, and a regular opportunity for interaction and exchange are essential. More subtle, but equally important, are the formal and informal rules and norms that govern group participation and access to essential information.

Ideally, such systems should consist of several components: 1) A well-designed record system that conveys all of the essential patient information and includes all of the inputs of team members that are relevant to making effective management decisions; 2) A regular time or forum for appropriate exchange and discussion of relevant clinical information and in-

put, as well as for the development of mutually agreed on plans and procedures for patient management; 3) A regular time and opportunity for assessment and evaluation of team function and development, including a discussion of interpersonal issues; and 4) An effective mechanism for communicating with the external systems within which a team operates and with which it needs to communicate. Successful features of such systems often include appropriate variations of the problem-oriented medical record,<sup>28,30</sup> mutually designed clinical protocols, interdisciplinary case conferences, chart reviews and audits, and team development meetings, as well as the usual communication channels of referral and consultation.

### Conflict Resolution

The desired heterogeneity of skills and disciplines, as well as the complexity of the implied tasks of teamwork and collaboration, virtually guarantee that there will be a diversity of views and differences of opinion in pursuing goals. An acceptance of the inevitability of conflict and recognition, that it is both necessary and desirable if a team is to grow and to develop greater efficiency and effectiveness, is a hallmark of mature and productive teams.

Conflict stimulates and poses the need for creative problem-solving and innovation. Successful confrontation and resolution of differences results in a release of tension and renewed energy as new information and understanding are gained. Positive results include an increase in trust, openness, and risk taking, which usually leads to more innovative and creative solutions. Signs of failure to deal effectively with conflict or its avoidance include low morale, withdrawal, lack of involvement, condescension, depression, anger, and "burn-out," all of which can lead to increased estrangement, decreased productivity, and loss of creativity.

Several factors seem to prevent teams from dealing effectively with conflict. The first is the development of a norm of "teamness," or togetherness, which arises from the group dynamics traditions of many team members or from idealized perceptions of a team. This makes giving feedback or direct confrontation appear to be disloyal or divisive. In addition,

many health care professionals come from a tradition of obedience to authority and they feel they should not disagree.

Where there is conflict and/or differences between the disciplines, a phenomenon of mutual self-protection among members of the same discipline frequently occurs. This banding together of members of the same discipline is derived from a universal norm that guarantees mutual support from members of a profession in the face of real or perceived attacks from other professional groups. Under such circumstances, all outsiders are excluded.<sup>15</sup>

The basis of creative conflict resolution is a belief in, and an honest search for, "win-win" solutions. Indeed, teamwork is the essence of such an effort, since diversity and difference are built-in. Knowledge and skills in negotiating and conflict resolution styles, as well as developing assertive behaviors, can make such differences an opportunity and springboard for success and satisfaction.<sup>31</sup>

### Education and Training for Teamwork

Most health care professionals are taught in isolation from each other. Therefore, it is hardly surprising that many of them know relatively little about the knowledge and skills of other disciplines and even less about collaborative teamwork.<sup>23</sup> There clearly is a need for greater and earlier contact between students in the health care professions, preferably involving common courses and early collaborative experiences around clinical tasks that synthesize knowledge, judgment, psychomotor skills, and decision-making ability.<sup>32-35</sup>

The idea of shared or overlapping responsibility for patient care raises many issues for team members. What are the unique contributions of each discipline to a team and to the tasks at hand? Who does what and when? How are these decisions reached? Is there room for individual action and decision? Who is the leader? Who is responsible? How are disagreements resolved? Where does a patient fit in? Teams do not just happen: "It is naive to bring together a highly diverse group of people and to expect that, by calling them a team, they will in fact behave as a team."<sup>22</sup> Specific training is

necessary if a team is to achieve smooth and effective collaboration.

### Team Development

The technology of team development has derived from several theoretic orientations (e.g., general systems, communication sciences, group dynamics, and organizational development); various skills and concepts have been identified that can enable a group of health care professionals to work toward achieving more effective teamwork through the collaborative development of rules for governing their work. These rules are needed to cover such areas as goal setting, role definition and negotiation, problem solving, decision-making, leadership, and conflict management.<sup>18</sup> The basic assumption is that teams that develop skills in these areas will be better able to perform tasks, whatever their nature.

Major content areas that health teams have experienced as essential to their development include knowledge and skills in management, group process, interpersonal communication, and interdisciplinary or interprofessional interaction.<sup>36</sup> Additional areas that are deemed valuable include: 1) The development of knowledge and skills in primary care (e.g., practice management, problem-oriented medical record systems, protocols for management of acute and chronic ambulatory problems, and clinical audit procedures); 2) Family dynamics (e.g., family development, assessment, and counseling); 3) Provider-patient relationships (e.g., various models for interprofessional relationship); 4) Ethics and human values in health care; and 5) Organizational theory (e.g., institutional relationships, systems diagnosis, or change strategies). Acquisition of knowledge and skills in these areas hopefully will enhance not only the working relationships on and between a team and its external systems, but also will promote a more humanly satisfying environment in which to work.

Many teams have found the team development modules<sup>18</sup> to be extremely useful and have used them as a curriculum for team training. The titles of these modules correspond to specific tasks that these authors believe must be addressed by all teams, and (generally) in the prescribed order. Each module takes about 3

hours to complete, with some advance preparation required for several of them. They may need to be adapted for use with students, whose professional identity is not clearly established. Some flexibility in the application of these modules, including their use as needed rather than in some prescribed pattern, may be indicated.<sup>35-39</sup> Specific suggestions for student team training in geriatric settings are offered by Edinberg, et al.<sup>40</sup>

A frequent mistake of many teams has been to focus on interpersonal needs and issues first, instead of defining the necessary rules and procedures for working together. All too often, when difficulties occur on teams, they are assumed to be the result of basic personality conflicts rather than a lack of procedural rules for accomplishing task togetherness. As a team resolves ambiguities over goals and roles and deals effectively with the issues of leadership, power, and decision-making, interpersonal conflict tends to diminish.

Even after a team is well-established, the need occasionally arises to go back and rework one or another issue. For example, goals and roles may need to be renegotiated as tasks are successfully accomplished or conditions change. Some reworking of issues may be called for when a new person joins a team.<sup>14</sup> Despite his or her apparent understanding of, and commitment to, the concept of teamwork, each new member must be provided the opportunity to "own" and contribute to the goals and norms of a team. A failure to do this almost always results in problems in other areas—frequently the interpersonal area.

While there are important differences between groups and teams, one contribution from the field of group dynamics has been the realization that teams, (as with groups) go through predictable stages of development.<sup>41</sup> Whether these follow the classic group stages of "form, storm, norm, and conform" or Eichhorn's<sup>42</sup> team-oriented stages (i.e., 1) Subactualization or denial of differences; 2) Confrontation; and 3) Actualization or acceptance of differences), it is clear that it is important for a team to be aware of where it is in its own development, as well as to realize that the separation of old members and the integration of new members represent important "crisis" and new learning experiences for that team.

In our experience, it is extremely difficult for an assembled group of health care professionals to examine without outside assistance their mutual behavior in a fashion that leads to optimal growth and development as a team. Even the team development modules,<sup>18</sup> while designed for self-learning, are difficult to use on an independent basis without some objective person or procedure for conducting the exercises and processing the results. As a result, the presence of a consultant is helpful in team development. The presence of an outside facilitator, who calls attention to the process and behavior of a team and defines procedures for working together, enables the satisfactory conduct of important team processes (e.g., goal definition, role negotiation, decision-making, and conflict resolution).

In a practice setting, two approaches generally have been used to promote team development; either or both may be used interchangeably or together in sequence. The first involves one or (hopefully) a series of intensive team workshops, possibly on a weekend or at least on scheduled time off, which bring together the involved health care professionals to learn certain principles and to experience certain processes of team development. The second uses regular weekly or biweekly sessions during the working schedule for the same purpose. The involvement of a team in ongoing clinical activities appears to speed up the process by supplying "grist for the mill," although most teams underestimate the amount of time that is necessary to achieve smooth and effective teamwork, which can take months to achieve.

### Team Maintenance

As with machines, teams need regular and ongoing maintenance. The same pattern of regular team meetings, plus periodic workshops or retreats for the purpose of processing new or recurring issues with or without outside consultants, is advised for teams on an ongoing basis. One pattern calls for daily 30-minute meetings to review the previous and present days' tasks and schedule, plus weekly case conferences to discuss difficult problems on which an entire team's input is needed and weekly meetings to discuss team administrative and process issues. The essential element is the commitment and

legitimation of a regular time and opportunity for team interaction around task and process issues (e.g., clinical management, administrative organization and interpersonal communication, as well as ongoing team development). Without this commitment, progress toward team solidarity soon dissolves under the pressure of service demands.

### Some Problems with Teamwork

Much of the foregoing discussion has emphasized the positive advantages of collaboration. However, teamwork is not easy. Except in the more technologically or crisis-oriented areas (where goals, roles and tasks, as well as leadership and decision-making usually are clear and hierarchically determined), teamwork and close collaboration are exceedingly hard work; many sincere efforts have foundered in the past.<sup>43</sup> For example, the mere face-to-face involvement of more than two persons increases the number of possible interactions in an exponential fashion, thus vastly increasing the complexity of communication and the chances for misunderstanding. The number of two-way interactions that might occur between a group of 8 persons taken 2 at a time is 28.<sup>44</sup> If networks of three- to eight-way interactions are considered, the total number of possible interactions reaches 247! It is no wonder that teamwork is difficult and that team meetings occasionally are frustrating.

Another problem with teams has been that the term frequently means vastly different things to different people. In fact, individual motivation for wanting to participate on teams may range from an interest in new and special ways of learning, interacting, and working with others, to new ways of performing tasks and delivering health care, to new ways of creating changes in institutional systems. Frequently, it can be as mundane as needing a job or merely being "on board" when a decision to work in teams is made. The word team has been used to refer to three quite different concepts: 1) The whole body and range of health professions and occupations that are now engaged in the delivery of services; 2) A method of delivering comprehensive health services; and 3) Identified groups of health care providers who work closely together on a common task.<sup>45</sup> This con-

fusion has led some authors to urge that the term be discarded. However, it is the bias of these authors that no other word conveys exactly the same impact and meaning and that (with appropriate qualification) both the term and the concept remain valid and useful.

A frequent problem with primary care teams involves the unspoken assumption on the part of proponents that this approach represents a "best" or "sole" method for the delivery of health care. One source of such thinking appears to lie in the "missionary" zeal of team members. This should not be surprising, since team training still is highly innovative and even controversial in most settings; also, most team members feel like pioneers. While these persons frequently have highly developed skills in the relationship and effectiveness areas, they generally are low on task orientation and accomplishment.<sup>23</sup> The very existence of a mission-oriented "in-group" frequently results in the development of a "we-they" feeling.<sup>46</sup> Other manifestations of the "group think" phenomenon include the sense of righteousness and invulnerability, as well as mind-guarding, self-censorship, and pressure on a deviate. Such behavior may result in setting up or hardening the resistance mentioned by most innovators.

Still another problem involves the response to teams from the institutions and/or communities within which they exist. Teams are not free-floating entities. They function as small systems or subsystems that interface and interact with other environment systems (e.g., hospitals, clinics, professional reference groups, educational institutions, communities, and so on).<sup>41</sup> As such, teams are potential change agents. Indeed, many team proponents and participants openly espouse this role. Merely by existing, teams call into question many of the established procedures and relationships of their parent institutions. Thus, the existence of a "leaderless" team (usually a perception rather than a fact) within a hierarchically organized university or hospital often causes problems for responsible administrators because of difficulty in assigning responsibility and authority. Who is empowered to speak or make decisions for a team? Who is responsible? Who is the official head of a team? Who negotiates with a hospital administrator for space or supplies?

Who gets the credit for success or the blame for failure? Some agencies have gone as far as to accuse team members of a lack of accountability and of hiding behind group anonymity.

Perhaps more basically, the ideas and values behind teamwork represent a fundamental philosophical challenge to many traditional norms in education and practice. Successful task accomplishment (e.g., comprehensive health care) depends on cooperation rather than competition. Group achievement (teamwork) is valued over individual achievement. Cross-disciplinary sharing is encouraged over undisciplinary success. Egalitarianism and consensual decision-making are valued over authoritarian mandates. Flexibility and tolerance for ambiguity become important and respected qualities in team members.

## Some Speculations About the Future

Certainly, there are the real gains to be realized—better use of skills and personnel, new and expanded roles for practitioners, delivery of services at the lowest rather than highest level of skill and training, and development of a more comprehensive data base that leads to better identification of health problems. Significant gains also exist for patients—new and more comprehensive health planning and services (e.g., patient education, counseling, rehabilitation, and so on) and better integration and continuity of care (e.g., improved referral and follow-up, reduced duplication and fragmentation, and so on)—as well as a system tuned to patient needs rather than physician capabilities.

At the same time, the ultimate survival of a team as a mode of primary health care delivery will depend on its ability to prove itself in the world of cost-benefits and cost-effectiveness.<sup>47</sup> Are teams a more efficient (the amount of effort expended to achieve a specified result) and/or more effective (the degree of success attained) way of delivering services? Under what conditions? Is the quality of care improved? Do they provide a less stressful and more professionally satisfying working environment? A number of authors have demonstrated the salutary efforts of team care,<sup>5,12,48</sup> while others have indicated that the public is ready for expanded roles for

non-physicians.<sup>49,50</sup> Also reported have been greater patient satisfaction with team care<sup>51,52</sup> without higher cost,<sup>52,53</sup> increased efficiency and reduced costs,<sup>51,52</sup> reduction of broken appointments,<sup>5</sup> high levels of satisfaction and patient compliance,<sup>54</sup> and decreases in cost of care and in hospitalization rates.<sup>55</sup> Still other authors have shown that team-oriented comprehensive care results in lower infant mortality rates,<sup>56</sup> fewer hospitalizations<sup>7,8,57</sup> fewer emergency room visits,<sup>58</sup> as well as fewer visits for illness, more visits for health supervision, decreasing physician usage,<sup>48,59</sup> and increasing use of non-physicians.<sup>5,57,59</sup>

The issue is clearly not one of "team versus no team," but rather what kind of team, under what conditions, and for what purposes? Indeed, among many experienced team members, there is a growing realization that rather than representing a clear-cut end in itself, a health care team might be better viewed as a means—a means for increasing effective communication and cooperation among health professionals in the service of patient needs.

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# Physical Environments

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It may seem odd to include a chapter on environments in a textbook on geriatric medicine. In many ways, however, the environment directly affects the health of older persons. There is an important need for well-designed environments of all kinds, whether they are homes, apartments, hospital beds, or long-term care facilities. Physicians and other health care professionals often are called on to help design and build these environments.

## Interactions of Humans and the Environment

The term “environment” is difficult to define, because it is an amalgam of many components. It is the nation, state, county, city, neighborhood, street, and house in which an older person lives. It includes the architectural elements of a place (e.g., the style of house, the height and color of the walls, and doors). It is the furniture and utensils within that place. It is the climate, the light, the sounds, and the wind rustling through the curtains. By supplying shelter from the wind, rain, and other forces of nature, the environment provides feelings of safety, comfort, and protection. It stimulates the senses and creates affect and emotions. It provides a feeling of privacy (or lack of it), a sense of independence and control, or mastery (e.g., the territorialism of animals). This control gives a sense of “this is my place”; as such, it constitutes an element of the “wholeness” of experience and contributes to the “quality of life.” It is the setting for behaviors (e.g., eating in a

kitchen or sleeping in a bedroom) and, hence, the setting for social interactions. Finally, the environment exists in a given culture in a given point in history, and it reflects both.

The way in which the environment influences older persons is determined by their health, which in turn determines their mobility (*see* Figure 31-1). For example, if an older person is healthy, ambulatory, and has sufficient resources, he or she could board an airplane tonight and be in Rome tomorrow. If that person has a severe stroke or severe congestive heart failure or advanced Parkinson’s disease, that person is significantly less mobile and dependent on others. His or her world is limited to a bed or bedroom in a long-term care facility and is augmented by trips to the bathroom, shower, perhaps dining room, and other places that care-givers may move him or her. The majority of older persons live between these two extremes. As they become less mobile, forays into the neighborhood may become fewer until they are confined to their house or apartment and “don’t get out very often.”

The interaction of health and mobility characterizes other systems (*see* Figure 31-2). For example, consider a person who is recovering from a stroke that has rendered him or her hemiparetic. Before rehabilitation, this patient is immobile and dependent on others for transfers. He or she has to be lifted from bed to chair to a toilet and back. His or her meal must be cut up into bite-sized pieces. If this person then undergoes a successful rehabilitation program, he or she will learn ambulation in a wheelchair and skills in transferring from bed to chair to a toi-

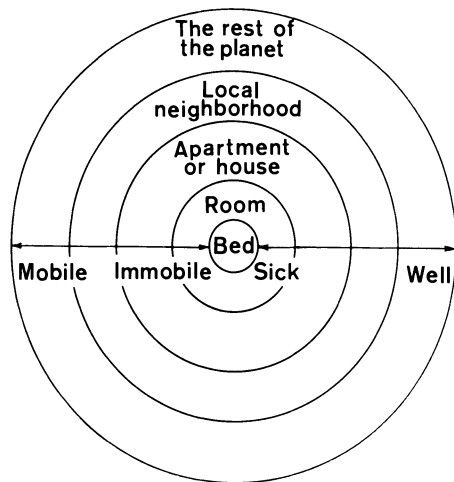


FIGURE 31-1 Older person's "worlds" as a function of mobility and health status. These "worlds" shrink as mobility and health diminish.

let. Because he or she can provide self-care, this patient may be able to live independently. If given adaptive eating utensils (*see* Chap. 20), this patient can eat by him- or herself. Thus, he or she is likely to be better nourished. Environmental manipulations of a home include building a wheelchair ramp to a door or putting a trapeze over a bed, both of which contribute to independence, mobility, and health.

Even though motor power has not changed and the paralysis persists, a patient becomes functionally more mobile, more independent, and better nourished. Therefore, this patient also is more healthy and less "sick." Even though developing transferring skills may represent a small change in motor performance, the functional change has been quite large, thus giving rise to functionally independent living. Because the spectra of Figure 31-2 are linked together, small absolute changes in one dimension may exert a profound improvement in another.

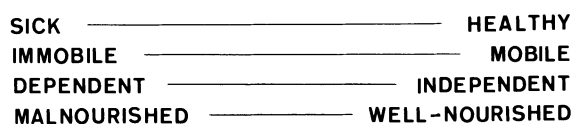


FIGURE 31-2 Systems operating in parallel and in concert in elderly persons. A change of direction in one line tends to draw the other lines in the same direction.

The model of Lawton and Nahemow<sup>1</sup> is useful in understanding the special interactions of the environment and the health of elderly persons (*see* Figure 31-3). They plot competence versus environmental press. Competence in this setting roughly means an ability to function or cope in a given environmental setting. It encompasses the various interacting spectra of mobility, health, and independence. A resident in internal medicine would have a high competence level, because he or she is healthy, mobile, and independent. A severely demented elderly person, conversely, would have a low competence level, because he or she is dependent on care-givers for his or her well-being.

Environmental press is the degree of stress that the environment places on a person. This is not always a negative factor; for example, a positive level of stimulation also counts as environmental press. For every degree of competence, there is a level of environmental press that balances too little and too great an environmental stress. This produces a line called the adaptation level. At this level, a person and his or her environment are in harmony. Bracketing this line to the right is a zone of maximum performance potential, which produces the maximum productive stimulation. On the left is a zone of maximum comfort. Beyond these zones are areas where the environmental stress is too little or too great, which leads to maladaptive behaviors.

Returning to the examples of competency, the case of a medical resident represents a high degree of competence in the environmental press of a hospital. If there are many patient admissions and a resident is inundated with calls, the environmental press becomes too taxing, and fatigue and poor thinking result. Conversely, if the patients are too few, the environmental press becomes negligible and boredom supervenes. With a medium number of patients, a resident functions well and reaches an adaptation level. When patient problems are more complicated, a resident is spurred on to more creative thinking and insight, and he or she learns more at the zone of maximum performance potential. If the number drops off slightly, the zone of maximum comfort is achieved, because a resident can finish his or her work in a reasonable period.

Now we will consider an institutionalized de-

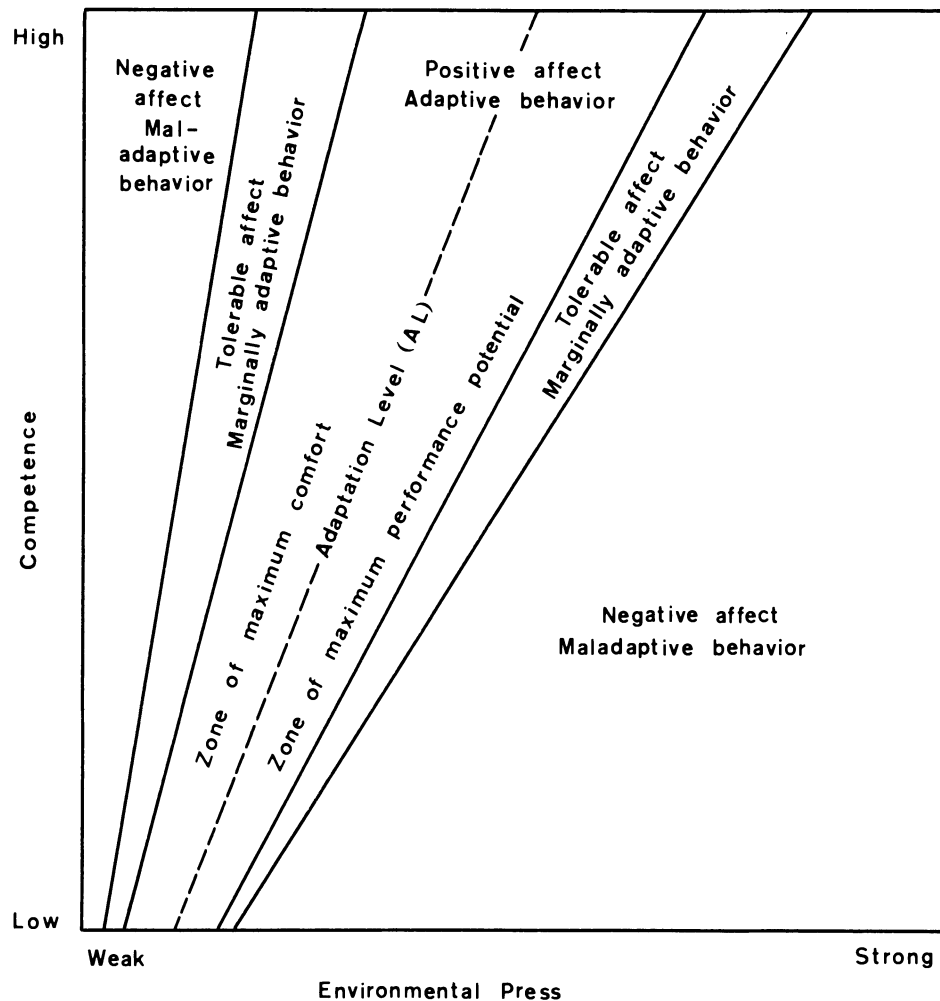


FIGURE 31-3 The ecologic model of Lawton and Nahemow, which demonstrates the effect of the environment on behavior at different levels of competency. (From Lawton MP, Nahemow L: Ecology and the aging process, in Eisdorfer C, Lawton MP (eds): *Psychology of Adult Development and Aging*. American Psychological Association, 1973, reprinted by permission of the author.)

mented elderly person as an example of someone with low competency. A noisy room full of people may be overwhelming, thus exceeding this person's capacity to interpret incoming signals and exceeding the zone of maximum performance potential; this leads to confusion, because the environmental press is too great. Conversely, if a person remains in bed staring at the ceiling, he or she may be equally confused through a lack of stimuli. A one-to-one interaction or small group may be the point of adaptation level.

Two significant features emerge from this model. First, for every degree of competency, the environmental press can be too little or too great. Second, at a low level of competency in a

sick and dependent immobile person, a small change in environmental press may yield a large change in the level of adaptation. At that point, simple changes in environmental press (e.g., letting a nursing home resident choose the color of his or her room or display a few treasured possessions) may have a significant benefit, whereas in an individual with higher levels of competency such small changes in environmental press would have an insignificant impact in the level of adaptation. Thus, a narrower range of environmental press at the lower end of competency for functioning makes that environmental press more significant; again, a small environmental change may produce significant functional improvements.

## Designing the Environment

From the discussion above, measuring the congruence of competency to environmental press is especially important at the lower end of the range of competency. In this range, elderly persons tend to be living in congregate situations, such as senior high-rise apartment buildings, retirement communities, or long-term care settings. The Multiphasic Environmental Assessment Procedure<sup>2</sup> measures architectural parameters, policies on institutional operations, capacity for change, resident and staff perceptions of an ideal facility, and how a given institution is perceived. This instrument is especially useful, because it measures not only the objective dimensions of the building, but how

the building is used and the effect it has on specific behaviors and feelings.

Most nursing homes have not been designed for the specific needs of elderly residents. They string a series of rooms together and designate some as bedrooms, some as lounges or day-rooms, and some as occupational therapy rooms. The residents and staff are then placed in these environments. For example, a dayroom with low-slung furniture may be at the end of a long hallway and far away from a bathroom. It remains empty, because it is a far distance for an elderly person to go, inconvenient to go to the bathroom, and difficult to get up from the sofa. Residents may enter the wrong room, because a long hallway full of doors has no identifying mark that this room is theirs, or the letter-

TABLE 31-1 Common Archetypal Behaviors. Behaviors Observed in Nursing Homes can Be Grouped Together to Analyze Use of Space.

Archetype	Descriptive Behavior
Nesting	Elemental protection; protection for nesting activities; retreat from stimulation, aggression, threat, social contact; emotional recuperation
Sleeping	Sleeping; dreaming
Mating	Courting rituals; pair bonding; copulation; affectional behavior; communication
Rehabilitation—healing	Recuperation; care of illness, injury; special rest out of phase with diurnal cycle; reduced stimulation in controlled environment; special ritual; props; instruments; foods; death
Grooming	Washing; social and mutual grooming
Nourishment	Eating; feeding; slaking thirst; communication; social gathering
Excretion	Excreting; territorial marking
Storing	Hiding of food and other property; storage; hoarding
Passive activity	Spying; contemplating; meditation; planning; waiting; territorial sentry; watching
Engaged activity	Motor satisfactions; role testing; role changing; role breaking; fantasy; exercising; creation; discovery; dominance; confirmation; analysis and synthesis
Locomotion	Perimeter checking; territorial confirmation; motor satisfaction; place changing
Meeting	Social gathering; communication; dominance confirmation; governing; educating
Working	Hunting; gathering; earning; building; making
Competing	Formal agnostic ritual; dominance assertion; ecologic competition; interspecies defense and aggression; mating competition; conflict
Learning	Formal education; conditioning; socialization
Worshipping	Meditation; cosmic awe; mysticism; reverence to deity; moral concern

SOURCE: Koncelik JA: *Designing the Open Nursing Home*. Stroudsburg, Penn, Dowden, Hutchinson & Ross, Inc, p 43, reprinted by permission of the publisher.

ing may be at the top of the door in tiny numerals. In this case, the environmental press exceeds competency, and dysfunction ensues.

Social scientists have grouped common activities into archetypal behaviors (see Table 31-1) in nursing homes (see Figure 31-4).<sup>3</sup> For a fragile, institutionalized elderly person who is restricted to a geriatric chair or wheelchair, the confines of his or her world shrink and his or her bedroom and the corridor become an increasingly important locus for activities (see Figure 31-5). Thus, in designing a nursing home, consideration of the residents and staff activities should influence the placing of rooms to optimize their use.

Mobility is only one parameter that influences or limits activities of nursing home residents. The composite physiology of an elderly

person delineates his or her interactions with the environment. The sciences of anthropometry and biomechanical engineering deal with these interactions. For example, automobiles are designed so that the radio control knobs can be reached by the average driver from his or her seat, and that the clock face on the dashboard is legible. These factors are different for elderly persons than for younger persons. In elderly persons, stature is shorter, strength decreased, activity diminished, reaction times prolonged, and adaptability is less.<sup>4</sup> For people in wheelchairs, the dimensions of reach and maneuverability are altered. In this case, stairs and narrow doorways become barriers to independent living. The discussion below considers specific design elements in relation to a knowledge of these principles.

▲ Denotes Interaction  
 (▲) Denotes Significant Interaction

	Nesting	Sleeping	Mating	Rehabilitation	Grooming	Nourishment	Excretion	Storing	Passive Activity	Engaged Activity	Locomotion	Meeting	Working	Competing	Learning	Meditation
1 Patient\Resident Rooms	(▲)	(▲)	▲	(▲)	(▲)	(▲)	(▲)	(▲)	(▲)	(▲)	▲	(▲)	▲	▲	▲	(▲)
2 Lounges		▲		▲		▲	▲		(▲)	▲	▲	(▲)	▲	▲	▲	▲
3 Corridors		▲		(▲)		▲	▲		(▲)	(▲)	(▲)	(▲)		▲	▲	
4 Dining Rooms				▲		(▲)			▲	▲	▲	(▲)		▲	▲	▲
5 Entrance Areas & Lobbies		▲							(▲)	▲	(▲)	(▲)		▲	▲	
6 Activities Areas									▲	▲	▲	▲	(▲)	▲	▲	
7 Bathrooms				▲	(▲)		(▲)	▲		▲						▲
8 Occupational Therapy Areas				(▲)						(▲)	▲	▲	(▲)	▲	(▲)	
9 Physiotherapy Areas				(▲)						(▲)	▲	▲	▲	▲	(▲)	
10 Beauty Parlors\Barber Shops					▲				(▲)	▲		(▲)				
11 Chapels & Worship Areas																(▲)
12 Outside Areas		▲		▲		▲	▲		(▲)	▲	(▲)	(▲)	▲	▲	▲	▲

FIGURE 31-4 Place-behavior interaction matrix. This matrix indicates the sites in which various archetypal behaviors occur in nursing homes. Note in particular the great deal of activity that occurs in hallways. (From Koncelik JA: *Designing the Open Nursing Home*. Stroudsburg, Penn, Dowden, Hutchinson & Ross, Inc, 1976, p 44, reprinted by permission of the publisher.)

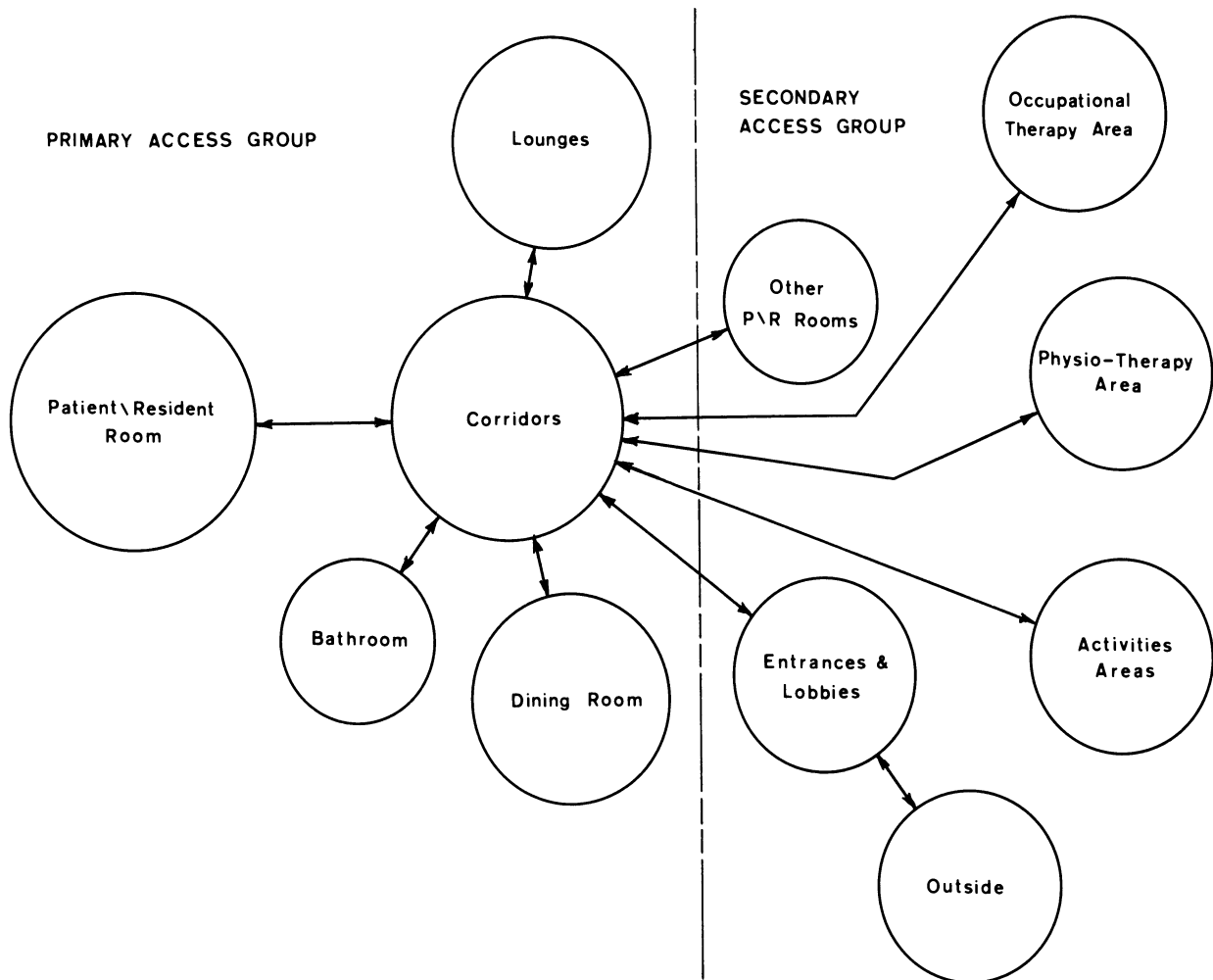


FIGURE 31-5 Access in the nursing home. Nursing home residents are easily accessible to places in the primary access group, but they usually are much further removed from the places in the secondary access group and (as a result) tend to be less readily used. (From Koncelik JA: *Designing the Open Nursing Home*. Stroudsburg, Penn, Dowden, Hutchinson & Ross, Inc, 1976, p 45, reprinted by permission of the publisher.)

## Safety

Measures that promote a safe environment help to prevent falls, accidents, poisoning, burns, hyper- and hypothermia. Thus, they constitute an important part of preventive medicine. A number of factors increase the incidence of accidental falls among the elderly population. In addition to physiologic changes of aging, such as an increased tendency to sway and an increased latency of righting responses, environmental hazards make falling more likely once imbalance is created. This tendency in an environment with poor illumination at the top of a

stairway and a lack of contrast between the end of the floor and the first step often results in falls. Bright illumination of stairways and provision of a handrail are useful safety features. A sharply contrasting baseboard, and striped strips at the margin of each step enhance their visibility to ensure sure footing for elderly persons. Flooring should be non-skid for better traction. For many elderly persons, especially those with parkinsonism who have a shuffling gait, an abrupt change in the level of the floor or a still in a doorway makes walking more difficult. For similar reasons, throw rugs are potentially dangerous. The tendency to catch

a foot under the edge of a rug makes them potentially dangerous. Of course, a bath or shower floor also should be made a non-skid surface.

Electric cords may trip an elderly person; therefore, paths should be kept clear of cords. These cords over time tend to fray or break down, which lead to short circuits, fires, or electric shock. Inspection and replacement of frayed cords is a useful maneuver in checking the environmental safety of an older person.

Heating pads represent a danger of burns. Many heating pads, whether set on high, medium, or low, eventually reach the same temperature. Only the rate of heating is different among these settings. Thus, it is dangerous for an elderly person to go to bed with the heating pad between him- or herself and the blankets. The insulation against heat loss may produce a thermal burn during sleep.

Elderly persons with a peripheral neuropathy who cannot feel water temperature may be burned by a hot water faucet. Reducing the setting of a hot water heater from the usual 140°–160°F to 110°F will make bathing safer. Providing adequate heating in winter will reduce the incidence of hypothermia; providing adequate cooling and ventilation in summer will reduce the incidence of hyperthermia.

A number of environmental manipulations are available to families who are caring for demented persons at home.<sup>5</sup> Valves or switches placed in the main line of gas and electric stoves prevent a demented person from leaving a stove on. Locks and latches near the bottom of doors may prevent a demented person from leaving home unattended. A night light and providing an unencumbered pathway between a person's bed and the bathroom can prevent confusion and falls at night.

The medicine chest should be checked periodically to remove old expired medicines and to minimize self-medication. Medicine bottles should be labelled in large print. Some authorities suggest that bottles of medicine should not be kept at the bedside to prevent an elderly person from waking briefly, taking a dose and falling asleep again several times per evening or confusing the pill bottles and taking the wrong medicine. Getting out of bed to go to the bathroom awakens a person who is then more conscious of his or her actions as he or she ingests

pills. Drugs that are needed in an emergency (e.g., nitroglycerin) should be kept at hand.

For some elderly persons, easily accessible telephone contact with a responsible person provides a feeling of safety. Some communities or agencies plan daily telephone contact with an elderly person and dispatch aid if there is no answer. There are paging devices worn on a person to summon help.

Finally, institutions and houses should have well-lit and protected entrances. The number of entrances should be limited and in clear view in a heavily trafficked, central location to deter crime.

## Color

In an aged eye, the perception of color changes. Cataracts may give a yellowish cast to objects. Changes in the rods and cones may lessen sensitivity to blues, making them appear gray. Therefore, color TV sets in nursing homes may be adjusted differently to make the colors look more "real."

There are no right or wrong colors for environments of elderly persons, but their use in the aggregate may have an effect. Large checkerboard floor patterns, for example, may be visually overstimulating and lead to confusion. A low-value contrast of colors may make it difficult to see where the wall and floor come together; a contrasting baseboard eliminates this problem. The use of varied values and colors may make the environment less sterile. Changing intensities of color in a hallway may serve as a means of orientation. Color may exert a stimulating or depressing mood or make a room feel large or small. Contrasting colors between dinnerware and trays or tables may make it easier to see the food. The use of an interior designer is recommended for achieving a harmonious blend of colors that are appropriate to the use of a given area.

## Lighting

Elderly persons usually need a higher level of illumination for a given task. Different tasks require different levels of illumination and depend on the contrasts that are involved and

the absorption and reflection of light. Sewing with black thread against black velvet requires much more light than watching TV. Because an aged eye accommodates slowly to changes in light levels, abrupt transitions should be avoided to prevent the feeling of walking into a darkened movie theater from the bright sun. Lighting without a lot of shadows is preferred. Glare is an especially important problem. The dining room of a nursing home may have a sunny southern exposure, a shiny floor and tables, and chrome on wheelchairs. The glare from the reflection of excess light may blur a resident's field of vision, as in driving in the mid-day sun. A high even level of illumination without casting shadows and without producing glare is optimal. It is instructive to take a light meter into a nursing home and to note the range and changes of illumination. Controls of lamps and light switches should be readily reached and easily manipulated.

### Acoustics

As with lighting, too little and too much are both bad. For many older persons, holding a conversation in a room with a lot of background noise becomes impossible (*see* Volume I, Chapter 9). A quiet environment is best for conducting an interview with a hearing-impaired person. Acoustical treatment of dining rooms with partitions, baffles, and sound-absorbing surfaces eliminates some of the din at meals. Telephones can be adjusted to amplify the volume. All residents should have telephone access.

The control of sound is an element of privacy. The continual blaring of radios and TVs in nursing homes as background noise demonstrates a lack of control of residents and it may make conversation difficult. Adequate sound-proofing of rooms also provides a measure of privacy.

A silent world also is a sterile world. Besides a diagnosis and treatment of hearing impairments where possible, the environment should be constructed to foster communication. Seating arrangements at meals and in lounge areas should allow people to face each other to capture as much sound, lip movement, and facial expression as possible. Opportunities for gathering and talking with each other should be en-

couraged. Finally, music is extremely useful in the environment of a long-term care setting; it embraces the cultural, religious, and ethnic traditions of older person, and it serves as a stimulus for reminiscence. Also, dancing encourages physical activity and the expression of sexuality.

### Graphics

Graphics refers to signs and letterings. Their role in the environment is one of orientation and mood-setting. Their placement and design are important in accomplishing these goals. Pictures on walls should be of appropriate size and mounted so they are readily visible. Their subject matter evokes feelings and can encourage conversation and reminiscence.

In buildings with elevators, the floor number should be plainly marked. Elevator buttons should be accessible from both standing and wheelchair positions. The floor numbers in the elevator should be large. Exit signs should be clearly marked. Room numbers and names of occupants should be clearly legible and placed for reading from a wheelchair or on foot. Clocks and calendars should have large plain lettering and be posted where residents can read them. Bathrooms should be plainly marked. Menus, whether posted or printed, should be in large print and clearly legible.

### Texture

Tactile stimuli are especially important to persons with limited mobility, hearing, and vision. Some institutions have found a vibrating lounger to be a useful adjunct in treating agitation. Sharp edges and corners traumatize fragile skin and should be avoided, if possible. Touch and massage serve as a vehicle of communication and transmit a caring atmosphere.

### Pets

The bonding of pet and elderly person is an ancient and ongoing one. There is evidence of an especially strong bond between elderly persons and their pets, a decreased mortality of pet



owners, and an intense grieving process that accompanies the death of a pet.<sup>6</sup> The companionship and love of, and for, a pet constitute an important part of the environment for many elderly persons and stave off isolation and loneliness. For others, pets stimulate the memory, help depression, and provide a non-threatening relationship. Bringing pets into contact with elderly persons in long-term care settings is becoming an increasingly popular maneuver, but it must be done with care. Bustad gives a useful approach to the selection of appropriate pets (especially cats and dogs) for long-term care settings and methods for their safe incorporation into the environment.<sup>6</sup>

## Reality Orientation and Reminiscence

Reality orientation is a program that is designed to help confused, disoriented persons to know who they are, where they are, and what they are doing there. By means of clocks, calendars, and activity charts, people are given cues to enhance their orientation. The program often involves a formal classroom setting in which these cues are reinforced. Reminiscence therapy is a group activity in which a leader, usually a nurse, occupational therapist, or activities director, leads the group in remembering scenes from their lives. This activity stimulates remote memory and is aimed at enhancing socialization and behavior. Both of these techniques promote a feeling of "living" in the institution; as such, they contribute to a resident's environment.

## Furniture

As more is learned about the anthropometry of elderly persons, the design of furniture conforms more to their needs.<sup>7</sup> Chairs should be designed to enable elderly persons to get in and out of them easily. The seat should be at a height that allows the feet to touch the floor, and the pelvis should not be significantly lower than the knees. This design optimizes the leverage of the legs in arising from the chair. In general, the depth of the chair should be smaller than the standard issue, so that the back is sup-

ported and a person does not slouch or recline. The arms of the chair should be of sufficient length so that a person's arms also can be used in raising from the chair. The material and padding of the chair should give even, firm support. In many padded chairs, the weight sinks to the bottom and is unevenly distributed, thus impairing circulation. For a weak immobile person, being confined to such a chair for several hours in one position will be a painful experience.

Many tables are too low to accommodate wheelchairs, and the table legs get in the way. A pedestal table of greater height optimally seats wheelchair-bound people. Many low tables, such as coffee tables, require excessive bending and are not functional. The storage space in bedside tables often is inaccessible. Rounded edges on all tables minimize trauma.

Closets and storage areas lend a feeling of possessing a space, and they humanize the environment. A lack of them produces an institutional jail-like atmosphere. They should be accessible to a resident and secured against theft. The theft of a resident's possessions is a real problem in many nursing homes. Misplacing dentures on meal trays and losing eyeglasses and hearing aids impair the quality of life of many persons in hospitals and in nursing homes; the problem compounds confusion. The outright theft of possessions represents a serious problem for a nursing home's administration. Some institutions have found that routinely filing a report with the local police creates a discouraging atmosphere to potential thieves.

## Bathrooms

Toilets, as with chairs, are easier to get on and off at a higher than standard level. Attachments to raise a toilet seat's height are readily available. Grab bars around toilets also facilitate access. For institutions that treat fairly immobile elderly persons, leaving space on either side of a toilet to interpose two assistants will prevent strained backs. Seats and grab bars for shower and bathtubs facilitate bathing. In institutions, bathtubs with lifts promote ease of transfer and bathing.

Lavatory sink faucets are easier to turn on and off with levers rather than knobs. Low shal-

low sinks are available for wheelchair users, and they have mirrors canted to reflect the face from a sitting position. Shelving should be provided, in conjunction with these handicapped-accessible sinks, low enough to place grooming aids by a person in a wheelchair. Mirrors on standard sinks should be mounted at the correct height, and adequate shelf space should be provided.

## Wheelchairs

Many wheelchairs are better designed to transport flowers to a hospital's front door than to move a patient about (*see* Volume II, Chapter 20). Wheelchairs can be prescribed to fit an individual patient's needs. Different heights, widths, and wheel sizes are available. Collapsible models (for travel), removable sides, tables, and adjustable leg and foot supports are some of the many options. Protruding spokes from the wheels make arthritic hands able to propel the vehicle. Double wheels on one side allow control for hemiplegic patients. Physiatrists and occupational and physical therapists can recommend specific modification. One must be sure, however, that a resident needs a wheelchair, and that it is not merely more convenient to wheel someone around than to help them walk. The Canadian film *How to Create a Non-Person* illustrates this point well.<sup>8</sup>

Motorized wheelchairs and scooter-chairs benefit paralyzed and weak persons. The padded geriatric chair may provide a less cramped posture; it often reclines, thus enabling a shift of position.

For wheelchair users, things should be mounted within reach (e.g., TVs, telephones, drinking fountains, and wall switches). Ramps should have a gentle incline. It is useful exercise to sit in a wheelchair, to wheel around a hospital or nursing home to see the sight lines and position of things, and to notice how tall the world has become.

## Aids to Independent Living

The recent monographs, *Mealtime Manual for People with Disabilities and the Aging*<sup>9</sup> and *The Source Book for the Disabled*<sup>10</sup> summarize

many adaptive devices that are available to promote independence. Many are simple and inexpensive, but impressive, in the functional independence that they generate. For visually impaired persons, there are talking books, large print books, large print playing cards, clocks, timers, telephone dials, stove dials, electronic magnifiers that employ TV cameras and screens, templates for signing checks and filling insulin syringes, among others.

There are tongs to grasp things out of reach; and velcro closures to eliminate buttons, zippers, and snaps on clothes. For kitchens, there are a plethora of devices ranging from a spiked board to impale potatoes for one-handed peeling to adjustable sinks and stoves. Sticky material to hold plates in place and plate rims to provide a backstop for loading a spoonful of food make eating easier; cups with two handles make drinking easier. Eating utensils, shavers, toothbrushes, and pens can have built-up handles for easier grasping. Levers instead of door-knobs make opening doors easier.

## Gardening and Recreational Activities

Horticulture and gardening are useful activities in the environment of elderly persons. Possession and the pleasure of seeing things grow give a sense of mastery of the environment and provide occupational therapy. Recreational activities (e.g., dancing, group singing, religious services, shopping expeditions, and evenings out) break the monotony of institutionalized living.

For less mobile persons, the passive watching of activities going on around them becomes an important diversion, engages attention, and contributes to mental stimulation and fantasy. The site selection of a long-term care setting should optimally include a view of things going on. This is the reason that many nursing home residents cluster about a nursing station—because things are going on there. It is the same reason that the dayroom at the end of the hall may be vacant.

## Privacy

The concept of privacy is intimately connected with freedom, choice, and independence. En-

hancing a resident's choice—of clothing, daily schedule, mealtimes, food, placement of furniture, or whether a door is open or closed—contributes to privacy. Hair styling and make-up also are elements of privacy in this context. Nursing homes should recognize the need for the expression of sexuality and provide a setting for it.

## Display and Personalization

Privacy and personality are expressed through personalization of the environment. It is important to provide space for displaying treasured momentos that serve as an apotheosis of a person's unique life history. These momentos serve as an aid to reminiscence and communication. Shelves for knick-knacks and treasured possessions, and wall space and bulletin boards for paintings, pictures, and cards, allow for personalization of the environment.

## Community

Institutions for elderly persons should promote a sense of community and allow for group interactions and socialization. Voting, religious services, libraries, discussion groups, and resident input into institutional policies and regulations foster this aspect of the environment. The Live Oak Project in Oakland, California takes this one step further by establishing a culture (in the anthropologic sense) within a nursing home by instituting rituals, holidays, and rites of passage, and by providing a sense of striving and goals for living. Some nursing homes create paying jobs (not just basket weaving) through local vocational rehabilitation departments and the establishment of sheltered workshops; they provide a sense of fulfillment through work.

## Eating

Eating is an important daily part of the environment. Besides the problems of glare, acoustics, tables, utensils, and food preferences (as mentioned above), the layout is important. Providing adequate room to get to and from a table is important. Arrangements of small tables that

seat four to six allow people to look at each other during meals and, hence, to hear each other and socialize. Serving food family style enhances the individualization of food preferences. If meals come on trays, the packaging sometimes is an impediment. Opening milk and cream cartons and cereal boxes, using jelly, syrup, butter, and plastic-wrapped bread slices may be difficult. Eating may well take longer and should not be rushed.

## Planning for Change

Physicians are not expected to be architects or interior designers, but an understanding of the medical impact of design elements promotes better planning. Professional advice from an interdisciplinary group in the care and design for elderly persons is helpful. Physicians should obtain the advice of social psychologists or designers who are familiar with the needs of elderly persons. Residents or clients should be involved in the decision. A physician should use the assessment instrument of Moos,<sup>2</sup> or ask residents things that they like and dislike about the current situation. Then, the staff should be asked their likes, dislikes, and desires. Physicians also should get the input of staff who work closely with the residents (not only those in administrative positions), for only they know how many steps lead to the linen closet. Design should be for function—how to best contain activities, rather than simply worrying about where the walls go. Sometimes, remodeling one room as a pilot study permits the discovery of flaws before the whole project is completed. If space permits, a mock-up room, with styrofoam sinks and other objects, gives people the feel of what a finished product will be like. Finally, a good design may cost somewhat more initially, but the cost is more than offset by the ease of maintenance, improved morale, and more efficient work patterns throughout the life of a facility.

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PART V

# Research Issues in Geriatrics

# Research in Geriatrics: Needs and Priorities

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Research in health care traditionally is focused on the diagnosis, management, and prevention of major acute diseases. The goal has been effective therapy and restoration of a patient to a disease-free state. We now understand that the acute disease model does not work well for elderly persons. We recognize that the major illnesses of elderly persons are chronic and multiple. Normal aging is not illness, but it does alter the management of ill elderly persons. For elderly persons, functional assessment is as important as a disease diagnosis. Consideration of a person's social supports, environment, and personal and functional goals is necessary for appropriate health care. Contemporary research in geriatrics reflects these principles.

## Scope of this Chapter

The subject of this chapter is research in health and medical care for older persons. Basic biomedical, clinical, and health services research on aging will be covered, with a particular emphasis on health services. Most of the chapters in these volumes include summaries of recent research, which we will not repeat here. The needs for research are presented in comprehensive reviews that have been published by the National Institute on Aging (NIA).<sup>1-4</sup> We will briefly analyze the health care problems of the elderly population, suggest information that is needed for solutions, and develop an agenda

of research questions that are focused on these needs. Because elderly persons are increasing in number and rely heavily on social resources, cost-containment is a major social motivation for research in health care of the elderly population. Nearly one third of the national health care budget goes towards the care of elderly persons. We need research that leads us towards efficient, effective, and humane health care for elderly persons, especially those who are frail and functionally dependent.

Categories of research are variously defined and obviously overlap. Biomedical research may be basic or clinical and concerns information derived from the sciences that are basic to the understanding of human biology. Clinical research is a form of applied research that is based on observations of patients, and is directed to the maintenance of health, the prevention or treatment of disease, and the restoration of function following an illness. Gerontology applies basic behavioral and social sciences to the study of elderly persons and the process of aging. Geriatrics is a field of medicine concerned with the care of elderly persons.

Health services research regarding care of the elderly population is particularly important, because many of the most serious problems of elderly persons are systems problems. We know what an elderly person in an individual case needs, but we do not know how to best organize, coordinate, fund, and provide appropriate services to groups.

## Health Services Research

Health services research is a broad scientific field whose goal is an improvement of the provision of health care. With the development of complex medical technologies and a large health care industry, research has been focused on the production, organization, and impact of health services on health status, illness, and disability. It is the science of personal health services. It encompasses many disciplines (e.g., medical science, economics, sociology, systems science, management, and particularly epidemiology). As an epidemiological science, it is concerned with the study of populations and not individuals.

Health services and biomedical research complement one another and often overlap in both subject matter and practice. For example, consider the development of hospital geriatric evaluation units.<sup>5</sup> Clinicians from a variety of disciplines felt the need for hospital units that were designed to carefully assess and place frail elderly persons. Biomedical and clinical research in dementing illness, arthritis, incontinence, and stroke rehabilitation developed the diagnostic and treatment tools. Health services research determined the need for such a service and carried out controlled clinical trials to determine its effectiveness. Clinical trials typically are undertaken jointly by biomedical and health services scientists; the latter consider such issues as costs, staffing, efficiency, acceptability, and organization.

Health services research is a relatively new field and has received federal funds only in the last 2 decades. Because it is carried out by persons from a variety of disciplines, health services research has no organized membership or constituency. It is broad compared to categorical disease research and touches on many fields. Because it is addressed to planners and managers, it must be both rigorous and simple. Mechanic<sup>6</sup> points out that one never hears administrators or legislators complain that research in immunology is not understandable, but health services research often is criticized for being full of esoteric regression equations.

Health services research often is conducted to inform health policy. However, Lewis has examined health services research results in manpower, reimbursement, and organization of

care; he found little evidence that the information influenced federal or private policy.<sup>7</sup> A full analysis of the linkage of policy-related research to policy formulation and implementation is beyond the scope of this chapter. However, Mechanic points out that, unlike other research disciplines, health services research is viewed with suspicion because of its inherent criticism of the status quo. Most persons agree that cancer research is a good thing to do; but, surgeons do not like to be told they are performing too many surgical procedures, nursing home administrators are upset by studies that show their care to be of low quality, and medical educators do not know what to do with research that suggests they are training too many physicians.

## Geriatric and Gerontologic Research

Interest in aging and mortality is as old as the recorded word. However, the scientific study of aging is a Twentieth-Century phenomena, and probably is best explained as a natural response to a demographic imperative by a society well-stocked with scientists. The interdisciplinary sciences of gerontology and geriatrics have developed rapidly in the United States. Lockett has recently published a history of research on aging in the United States that considers in detail the federally supported programs.<sup>53</sup> The *Journal of Gerontology* first appeared in 1945 and the *Journal of the American Geriatrics Society* followed in 1952. Federal funding for aging research initially was through the National Institute of Child Health and Human Development (NICHD). The study of aging averaged about 10% of NICHD's budget from 1962–1973. Other aging-related research was conducted by the Institutes for categorical diseases. Both the 1961 and 1970 White House Conferences on Aging recommended the establishment of a separate institute to support aging research and training. The National Institute on Aging (NIA) was opened in 1974.

There are a variety of reasons for increasing the level of research in aging. First, populations of persons now are present that simply did not exist previously. Large numbers of persons are

surviving to old age. We are experiencing the growth of an unprecedented new population of persons who are suffering from multiple chronic illnesses, functional disabilities, and dependence. Neither our medical care nor social support systems are adequate. Furthermore, control of the aging process is now conceivable. It may be possible to modify the biologic process of aging. Finally, a critical issue is the cost-effectiveness of medical and health care programs for older persons. Because elderly persons are high users of most types of medical service, and because of the rapidly increasing costs of these services, pressure exists for cost-containment in the care of elderly persons.

At the same time, our society has an ethical responsibility to the elderly population. Our sense of social justice and respect for persons requires that we understand ways of caring for elderly persons that are effective, fair, and humane. In fact, the care of elderly persons in modern health care systems raises a set of difficult value judgments, both for patients and providers and for society as a whole. The ethics of research have become a field that is particularly relevant to aging.<sup>8</sup> Research in ethics deals with such questions as: Can one obtain adequate informed consent from persons with impaired mental competence, and how are orders not to resuscitate to be used?<sup>9</sup>

## Rationale for Research

What research in aging should be funded? An almost infinite variety of research questions can be asked about age and aging. How should society, government agencies, or individual scientists decide on priorities when scarce research resources are distributed? There is a small available literature that proposes priorities in aging research.<sup>10-15,17,20</sup> Some priorities favor problems such as dementia, which are common, and those that cause substantial suffering. Other problems are selected because, if solved, they could provide new information to advance a basic science. Research priority that is based on need implies that the problems of a class of persons are known and that solutions to these problems fail for lack of critical information. In a rational research priority setting process, problems are defined by expert opinion, recent

research is reviewed, and areas of likely scientific breakthroughs are proposed.

## The National Plan for Research on Aging

In late 1980, a planning panel was organized to assist the NIA in the development of a long-range plan for research on aging. The panel reviewed past research, assessed the current state of knowledge that included present accomplishments and barriers to further progress, and made specific recommendations. The panel first defined the major goals and issues of research on aging: 1) To understand the basic processes of aging; 2) To understand, prevent, and control the clinical manifestations of age and age-related disorders; 3) To understand the interactions between older persons and a dynamic society; and 4) To increase the opportunity, motivation, and support for older persons to contribute productively to society. The results of the panel have been published as a National Plan for Research on Aging.<sup>1</sup> The plan is a rich source of material on the state of the art in aging research in each of its fields. A problem with this document is its failure to set priorities for the large number of research programs and investigations that it claims are needed. As Kane has commented, there are enough needed research projects on aging to employ an army of gerontologists and geriatricians when, in 1978, only six academic physicians claimed geriatrics as their full-time specialty and research interest.<sup>10</sup>

## A Research Agenda: The Medical and Health Care Needs of Elderly Persons

The medical, health care, and social service needs of elderly persons are well known in their general form; it should be possible to design a program of research in aging to meet these specific needs.<sup>17</sup> Such a research agenda-setting process would be in two parts. In the first, the medical and health care needs of the elderly population would be identified and ranked in order of importance. In the second part of the



process, research objectives would be prepared that specified work towards the solution of the previously identified problems. These research objectives would be ranked by feasibility or the likelihood of success, which includes estimates of cost and technologic complexity. The research priority of each objective would be the sum of the original problem's importance and the feasibility of the research. In this rationalistic scheme, research priority is a function of problem importance and expected success. Research plans that are based on technology forecasting (often using Delphi or group process methodologies) are commonly used in industry, but they have not been widely used in health care or medical research planning.<sup>16</sup>

The Veterans Administration has conducted a research in aging planning exercise using this approach.<sup>17</sup> A problem identification survey was conducted of 120 Veterans Administration clinicians and managers with responsibility for geriatric care. The survey produced a problem list of over 400 items that was collapsed into the 16-item typology presented in Table 32-1.

The generalizability of this approach may be limited. Problems in the care of elderly persons can be judged important on the basis of their

prevalence and their severity. For example, sensory impairments such as the impairment of sight and hearing are common in elderly persons. However, because such disability is felt by health care providers to be mild and relatively non-life-threatening, these problems often do not rank high in problem priority lists. However, elderly persons may feel that these losses are catastrophic. McNeil has clearly shown that patients do not make the same valuations of mortality and quality of life as do physicians. In McNeil's studies, cancer patients offered a laryngectomy weighed the preservation of speech more highly than their physicians.<sup>18</sup> In addition to these issues of value choice, the needs-based approach to research planning only may be relevant to the original population for which the needs identification was done.

## Biomedical Research

The objectives of biomedical research in aging are to reduce the incidence rate of chronic disease and disability and to extend life to the limits of biologic capability. Many diseases and disabilities of later life appear to be secondary to the actions of environmental agents (e.g., nutrition, trauma, and/or toxic agents) on organism made vulnerable by the aging process. As the aging process is better understood, efforts can be directed at producing a physiologically younger organism that is more resistant to disease. We suggest four organizing concepts for basic biomedical research in aging: 1) Life maintenance processes and regulatory systems; 2) Programmed senescence (the biologic clock concept); 3) Basic biology of human aging; and 4) Pharmacologic interventions.

### Life Maintenance Processes

The study of these processes draws on an integration of biochemistry, immunology, physiology, and systems analysis. (*See also* Volume I, Chapter 1.) The following paragraphs contain several examples.

#### *The DNA Repair Systems*

The life span in different species (from 3 years for mice to the biblical 120 years for man) correlates strikingly with the DNA repair capacity of

TABLE 32-1 A Typology of Problems in the Provision of Health Care to Elderly Persons

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Problems in clinical care
Cognitive, affective, and psychological disorders
Common problems and physical care
Assessment
Iatrogenics
Patient and family education
Provider barriers to provision of good care
Knowledge, attitude, and skills
Interprofessional relationships
Management and staffing
Organization and local system problems
Continuity and coordination
Information systems
Use of alternative care systems
Policy barriers in
Prevention, health maintenance, and chronic care
Reimbursement and resource allocation
Eligibility requirements
Ethical or value issues
Personal values and clinical decision-making
Justice and the allocation of resources

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the species. Each organism's DNA suffers damage as a concomitant of aging; cells possess enzymes that identify and attempt to repair this damage. This ability to repair correlates not only with the life span, but also (to some extent) with resistance to disease. In lower organisms, the life span can be prolonged by artificially increasing DNA repair capacity. Thus, an analysis of DNA repair mechanisms, and related studies in chromatin, could contribute substantially to our understanding of the biology of aging.

#### *"Free Radical" Scavengers*

By-products of oxidative metabolism are toxic, and cellular mechanisms have evolved to scavenge or eliminate them. It has been suggested that "free radical" damage may be one of the chief biologic elements of aging. Administration of free radical scavenging agents to mice can prolong their average and (to a lesser extent) their maximum life span, and it can diminish their susceptibility to disease.

#### *Immune System*

The immune and endocrine systems, including neuroendocrine functions, are important for life maintenance and regulation. Both may be pace-makers for the aging process. Both systems undergo significant changes with aging; these changes have been best documented in the immune system. The normal immune response capacity declines with age to 10% or 20% of its peak youthful value. The tendency of the immune system to self-destructive reactions increases markedly. Evidence for involvement of the immune system in the aging process includes: 1) Involution of the thymus, an organ that is essential for generating normal immune responsiveness; 2) Substantial shortening of the life span and presence of aging-like features in certain autoimmune-susceptible strains of mice; 3) The presence of signs of accelerated aging in certain human diseases in which immune dysfunction is demonstrated (e.g., Down syndrome); and 4) In advanced age, the frequency of human and animal diseases, such as cancer, that may involve a compromised immune response. These age-related breakdowns in the immune system appear to underlie a major portion of the increased susceptibility of older persons to disease. Present evidence supports the

possibility of attaining considerable rejuvenation of an aging immune system.

#### *The Endocrine System*

Neurologic and endocrine functions decrease substantially with age. Our knowledge of the aging of neuroendocrine function is greatly enhanced by the recent recognition of new neurotransmitters, which include neuropeptides. Research in neurobiology may lead to an understanding of some of the major problems in human aging, which range from dementia to the affective disorders.

#### **Programmed Senescence (Biologic Clock Concept)**

It is well-established that animal and human fibroblasts and human lymphocytes will undergo only limited proliferation in tissue culture. Thus, aging may result from the "running down" of a biologic clock within each cell, or in a "control center" such as the nervous system. This program may be stored in genes in which case aging may be viewed as a process of gene repression and derepression, as occurs in earlier periods of the life span. The only type of cell that escapes senescence in culture is the "transformed" or cancer cell. The phenomenon of this transformation has been poorly studied from the gerontologic point of view. It may reflect differences in only a few genes. Preliminary evidence suggests that the cell clock may be genetically linked to the major histocompatibility complex. The possibility has been raised that the "senescence genes" are turned on late in life through gene derepression. The possibility of identifying specific senescence genes and counteracting them, or of preventing the derepression, makes this a promising area of investigation. (*See also* Volume I, Chapter 2)

#### **Basic Biology of Human Aging**

The basic biology of aging in humans deserves intensive study in normal persons across the age span 20–100 years, by using the newer techniques of cell culture, biochemistry, and cytogenetics. Particular attention should be given to the various cellular components of blood that are readily available for analysis to identifying "biologic markers" of aging. This approach

permits a comparison of physiologic and chronologic age in humans. Such information would be a great help in assessing the efficacy of interventions that are aimed at correcting or lessening the damages of the aging process.

### Pharmacologic Interventions

Pharmacologic interventions may be carried out by immunopharmacology, neuropharmacology, or cellular or genetic engineering. Considerable rejuvenation of the aging immune system has been achieved by using thymic hormones, prostaglandins, cell transfer (e.g., bone marrow or thymic tissue transplantation), nutritional manipulation, and more traditional pharmacologic agents. For example, caloric restriction that is accompanied by specific diet supplementation yields a dramatic effect on disease patterns and the life span. In experimental rat and mouse colonies, restriction beginning either at weaning or at midlife can increase the maximum life span 25–100%. It also can sharply curtail the incidence of cancer and vascular disease.

### Clinical and Health Services Research

The major topics of clinical research in aging are well-covered in available research reviews.<sup>1-4</sup> The reader is encouraged to consult the appropriate chapters of this volume for the state-of-the-art and direction of current research in the major geriatric disease states—hypertension, arteriosclerosis, cancer, osteoporosis, arthritis, dementia, and depression. In addition, the epidemiology of these illnesses is presented in Volume II, Chapter 4. The remainder of this chapter presents health services research on issues that are unique to the care of older persons.

A research agenda reflects the needs of a particular population of older persons and the type of institution that provides the care. Health services research plans have been proposed from the perspective of academic geriatric medicine,<sup>10</sup> the Veterans Administration,<sup>19,20</sup> and health maintenance organizations (HMOs).<sup>21</sup> Kelman has suggested areas of needed evaluative research from a health planning and policy perspective.<sup>22</sup>

Kane, et al at the Rand Corporation and the University of California at Los Angeles conclude from their study of geriatric manpower requirements that a lack of knowledge in two areas is critical: how clinical interventions affect the quality of care and how elderly persons, their families, and society value the outcomes of alternative geriatric and long-term care programs. They propose a six-part research agenda for an academic department of geriatric medicine: 1) Refinement of methods for assessing and measuring the health status of older persons; 2) Studies of the effectiveness of care with attention to iatrogenesis; 3) Clinical epidemiology of geriatric illness, particularly the common problems (e.g., falls, incontinence, confusion, abuse, hypothermia, and so on); 4) The development of prognostic indicators and decision theory for patient care; 5) Examination of value preferences that older persons and their families use in making health-related decisions; and 6) Health services use and cost-effectiveness. They emphasize the need for longitudinal studies that are similar to studies of the aging process, but which stress the relationship of treatment and health status.<sup>10</sup>

In a recent unpublished report to the Veterans Administration (VA), Moran and Soumerai report the results of a survey of VA geriatricians that identified six areas of research regarding the care of aging veterans: 1) Effects of audits, interventions, and structural characteristics on optimal drug use; 2) Cost-effectiveness of identification of cognitive and emotional disorders; 3) Effectiveness of nutritional risk-screening and education programs to improve dietary patterns; 4) Utility of existing functional assessment tools for improving clinical and case management decision-making and patient outcomes; 5) Effectiveness of programs to coordinate care for frail elderly persons both within the VA and between the VA and community services organizations; 6) Cost-effectiveness of alternative combinations of services and personnel.<sup>20</sup>

### Assessment

The evaluation of any strategy for improving the health of elderly persons requires accurate and appropriate assessment tools. A comprehensive assessment of an elderly person's func-

tioning has been proposed as the necessary minimum for access to expanded long-term care benefits.<sup>23</sup> Once services have been marshalled on behalf of an individual, program accountability depends on regular assessment of the recipient of those services. That task, in turn, depends on an ability to accurately measure both health and functional status. Unfortunately, no agreement has been achieved on two crucial points—the identification of the factors to be measured and the technology to make the measurements.<sup>24</sup> Many authorities have pointed out the limitations of a diagnosis-centered approach in dealing with elderly persons.<sup>25</sup> Conventional wisdom now holds that elderly persons are subject to multiple diagnoses; also that the physical, mental and social well-being of an elderly individual are so inter-related that multidimensional assessments of health status are necessary.<sup>26</sup>

In some cases, scales and measurement systems have been developed, validated, and proven reliable by widespread use in psychological and other experimentation. These need only to be adapted for geriatric use.<sup>24,26</sup> In most instances, however, measurement techniques need to be refined or new measures need to be developed. Each component must be evaluated and the entire instrument tested for accuracy, validity, reproducibility, and reliability. Before the interaction of physical, mental, and social outcomes can be studied, each construct must be amenable to separate measurement.

### Effectiveness of Care

Once a measurement capability has been established, geriatricians can begin to examine the effectiveness of both clinical treatment and various patterns of care delivery. Investigators have the opportunity to empirically show the extent to which the overall goals of long-term care (e.g., survival, independence, contentment, freedom from discomfort, and mental alertness) are compatible with one another, and what trade-offs may be necessary.

### Iatrogenesis

Because elderly persons require disproportionate amounts of diagnostic and treatment service, they are especially vulnerable to iatro-

genic complications. It is necessary to know to what extent medical intervention leads to a worsening of patients' conditions. In test populations, which are stratified to encompass common diagnoses and a wide range of functional status, research is needed to assess the degree to which a relatively sudden decline in health status is primarily or secondarily associated with medical procedures (e.g., drugs, treatments, or surgery). Research also is needed to assess risk/benefit ratios for therapy, which is an issue that often is not considered in treating elderly persons.

Adverse drug reactions, for example, occur more frequently in older persons.<sup>27</sup> However, it is uncertain whether these reactions are due to inherent susceptibility, compliance, a combination of decreased memory and complex regimens, or inadequate education. Studies could be designed to determine whether medical iatrogenesis is a major or a minor element in both the overall health picture of elderly persons and the proportion of adverse outcomes that may be attributable to patterns of care and provider characteristics. Models for experiments in pharmaceutical care are available to aid in the design of these studies.<sup>28,29</sup>

### Clinical Epidemiology

Many issues that are relevant to geriatric practice can be best approached from an epidemiologic perspective. For example, a few common problems account for a substantial proportion of the hospital admissions and long-term care days among the elderly population. The most frequent causes for admission to geriatric wards in Great Britain are falls, strokes, incontinence, and mental confusion.<sup>30</sup> This finding offers opportunities for both clinical and health services research. A clinical researcher might study cardiac arrhythmias that affect cerebral blood flow or explore problems in proprioception and balance. A health services researcher might investigate how the organization of services and the service delivery environment affect these problems. Similarly, the routines of a short-term hospital stay may need altering for elderly persons. If a geriatric patient spends 3 weeks without being dressed and allowed out of bed, the effects on his or her functional abilities could be serious.<sup>31</sup> These examples suggest that research

is needed on the correlation of social and environmental factors with the incidence and prevalence of common geriatric problems.

This research offers an opportunity to combine the interests of a clinician and a health services researcher. For example, who is at risk for falls or incontinence? What are the circumstances that are associated with these events in terms of physiologic phenomena (e.g., arrhythmias or hypotension in the case of falls) and precipitating events? How effective is the physical therapy that is intended to rehabilitate those elderly persons who fall?

### Prognostic Indicators

Controlled clinical trials often cannot be done in geriatrics for ethical or organizational reasons. In this case, the effect of services can be judged only in comparison with some reasonable prognosis of outcome for a particular case. This suggests a line of research directed at establishing average prognoses for conditions that are common to elderly persons. Such work is a laborious, but inescapable, methodologic requirement. Once elderly patients are classified according to a system of diagnosis and staging, experts could make prognostic estimations that are related to care. The actual health status of each patient can be determined at each agreed-on point in time and compared with the original prognosis; also, mathematical modelling can be used to identify the factors that are most useful in a prognostic prediction. This information provides a probability estimate of the likelihood of change from one status to another for a group of patients with specified characteristics. This estimate is required in any efforts to describe decision-trees for patient care.<sup>32</sup>

Prognosis models would have application to many studies. They can be used to determine whether monetary or other incentives to caretakers can lead to better outcomes that are relative to standard prognoses. They can be used to compare the cost and effectiveness of various configurations of health care personnel and to compare the effectiveness and cost of various configurations of living conditions and health care settings. Alternatives to nursing home placement (e.g., home care, home care plus day-care centers, or residential communities with specialized services available) may be significantly more expensive than nursing home

care<sup>33</sup>; whether they are correspondingly more effective than nursing home care is not clear.

### Case Management

A major development in long-term care is the growing emphasis on case management. Data from the General Accounting Office (GAO) study in Cleveland suggest that it is possible to classify both the care needed by, and the services rendered to, a population of elderly individuals. The study used a taxonomy that included a wide variety of medical and social services. The rate of status change over time was related to the care that was received.<sup>34</sup> Longer periods of follow-up studies would permit more precise calculations of the probabilities of an elderly individual who is going from one status to another.

Community-based programs have tested the benefits of a comprehensive assessment as a basis for patient planning in settings other than a nursing home. Two of the best known programs, ACCESS in Rochester, New York and TRIAGE in Connecticut, combine assessment and placement functions with a recurrent monitoring to estimate the appropriateness of placement. In future studies, actual outcomes could be compared to standard prognoses.<sup>35</sup>

### Prevention

The prevention of disease and disability among the elderly population is an active research area.<sup>36-40</sup> Programs now are underway to explore whether early intervention with a variety of services can delay or avoid institutionalization. Research is needed to identify appropriate populations. Healthy elderly persons will have such a low probability of institutionalization that early treatment could not have a substantial effect; however, a severely impaired population may require too many services to be able to intervene.

There is growing interest in improving the use of vaccines by elderly persons for both viral and bacterial diseases. Controlled trials of vaccination programs are needed. There are good reasons to expect that appropriate immunizations will be cost-beneficial in the elderly population.<sup>36,37</sup> Enthusiasm also is building for early disease detection in elderly persons, and the criteria for useful screening tests have been de-

fined by various groups.<sup>38</sup> Because resources are limited, difficult decisions must be made about which areas to emphasize. Indeed, there is some basis of fear that screening actually may have a negative effect by uncovering problems for which no effective intervention is available.<sup>39</sup> Careful trials are needed to identify areas where early detection and intervention can alter the course of a chronic illness.<sup>40</sup> Information is needed to describe the relationships between client characteristics, interventions, and benefits to define appropriate target populations for a given intervention. Clinical trials may be necessary, but a great deal can be learned from a careful examination of existing programs.

### Self-Care and Patient Education

The growth of the elderly population raises concerns about the availability of the manpower required to provide care. One suggested solution is self-care and the use of family and volunteer care-givers. Anecdotal data suggest that various forms of peer support benefit both the recipient and donor; also there is a long history of non-professional personnel who are working effectively in social and medical settings. Careful research could identify how and where self-care and family systems can be effectively established and maintained. What types of clients can they best serve, and with what effect? What kind of organizational and educational support is needed to sustain such programs? The degree to which it is possible to develop self-care programs for elderly populations, and the extent to which these programs would be acceptable and cost-effective, are not yet well-described. Also, it is not clear to what extent elderly persons are knowledgeable about their disabilities and diseases, or what the effect would be of increasing their understanding. Effective methods of patient and family education is a needed area for gerontologic research.

### Value Preferences

Controlled clinical trials and comparisons with standard prognoses can establish the effects of interventions. However, such studies do not tell us what effects are desirable. For this information, an inquiry is needed into the health outcomes that are most valued by elderly persons. Work on the measurement of value prefer-

ences, with regard to health in general, is in its early stages of development.<sup>41</sup> If an older person was to understand fully the risks that are inherent in each choice of therapy, what would his or her choice be? How risk-averse are elderly persons? Which risks are most feared? Models for these kinds of explorations are provided by work in other fields, such as McNeil's studies of the choices of cancer patients for surgery or other therapies.<sup>18</sup>

Studies of the value preferences of family members and taxpayers also are relevant to the kind of care that elderly persons seek. In this case, the questions concern the degree to which an elderly relative's independence is valued above the safety or security of that individual and his or her family's convenience or peace of mind. Furthermore, elderly persons and their families often make extremely important health-related decisions under enormous stress. Research is needed to describe the basis of decisions to undertake high-risk surgery, to enter a nursing home, or to move to another city for health reasons. The role of family influences and social and economic circumstances in shaping those decisions also merits study.<sup>42</sup>

### Longitudinal Studies

Longitudinal studies of elderly persons have been a mainstay of gerontologic epidemiology for several decades. Although these studies may offer a rich data base on physiologic, biochemical, and social change that are associated with aging, much less is known about the factors that relate various forms of treatment to changes in health status over time. Research with aging cohorts can provide useful data on the natural history of changes in status and on the use of services and institutions. The Duke Longitudinal Study is a useful model.<sup>43,44</sup> The broader population study of Alameda County, California illustrates how subpopulations of elderly persons can be extracted and followed as a distinct cohort to provide similar information.<sup>45</sup>

### Manpower Issues

It is clear that, until very recently, medical care providers have not been trained to deal effectively with the care of elderly persons. The knowledge, attitudes, and skills that are ac-

quired by a traditionally trained physician certainly are deficient with regard to the needs of elderly persons. While there are new geriatrics training programs in medicine, nursing, dentistry, and other health professions, the research that is necessary to aid these programs in identifying specific educational objectives, in developing new teaching techniques, and in appropriately preparing students for their new roles has yet to be undertaken. The appropriate content for inclusion in geriatrics training is not certain.<sup>10</sup>

A great deal has been written about the problems of interprofessional relationships in health care. This issue is particularly important in care of elderly persons. The appropriate roles for various health care professionals is unclear in geriatrics. The claim for primacy of the medical profession is more open to question in chronic care. Recent research has assessed the role of health care teams in the care of elderly persons, but it has not yet demonstrated the cost-effectiveness of various health care professionals. There is a great deal of research to be done in evaluating the function of geriatric nurse practitioners, physician assistants, foot care specialists, social workers, mental health professionals (including the most cost-effective staffing ratios for geriatric health care programs), and of new kinds of health care teams.<sup>46</sup>

### Organization of Care

Among the critical issues in the organization of care for elderly persons are continuity and coordination of care. As new forms of medical care programs begin to be tested for elderly persons, the question of coordination of care is the focus of developmental and demonstration research. Studies that assess the consequences of the lack of coordination and continuity are beginning to find their way into the available literature. These questions have been of particular interest at the intersection of acute care and long-term care. A number of studies in long-term care (e.g., the Nursing Home Without Walls project, TRIAGE project, Project Open, the California MSSP project, the On Lok projects, and the forthcoming SHMO project) all look at new ways of coordinating services for long-term care.<sup>21</sup> The findings of these projects

indicate that it is possible to substitute community and in-home support services for institutional care, if the proper means of coordinating care can be developed. Research efforts in this area are certain to intensify.

### Information Science

It would appear that there are specific problems in the care of elderly persons that may be solved by new information technologies. One common problem is the isolation of elderly persons in their homes. It is hypothesized that some elderly persons are forced into institutions simply because of their physical isolation. Computer technology has progressed to the point where research scientists in geriatrics and gerontology are beginning to explore applications of computers to the problems of the elderly population. A keyboard, with or without interactive video linkage, could be used by a home-bound elderly person to ask for advice, request service, check or report medication use, or seek entertainment or education. Furthermore, the combination of the wide distribution of cable TV and the new economical forms of computers put significant technology within the reach of many of our elderly patients.<sup>47</sup>

It also would appear that the problems of coordination and continuity can be addressed by information sciences research. As computer networks become more readily available, it can be expected that community-wide information systems will allow providers throughout the community to have access to elderly patients' medical records from stations in hospitals, emergency rooms, senior citizen service centers, and nursing homes.<sup>48</sup> Information science and technology development is likely to become a very lively field of investigation in geriatrics.<sup>49</sup>

### Health Policy

Many of the problems in the organization of medical care for elderly persons involves policy barriers to the rationalization of care.<sup>50</sup> Many areas of difficulty in reimbursement and resource allocation for elderly persons affect the organization and provision of services. Of

particular concern are the barriers to appropriate care that are inherent in current Medicare, Medicaid, and health insurance provisions. For example, most services that are included under the rubric of disease prevention and health promotion are excluded from coverage by Medicare and many insurance providers. Chronic care is not covered in the same manner as acute care, and nursing home and respite care certainly are not adequately reimbursed. There are a variety of research and demonstration projects that are necessary to assess the impact of these barriers and to test alternatives to current methods of providing care.

Careful attention must be given to the evaluation of suggestions for disease prevention and health promotion for elderly persons. It is possible that those programs that are proven to be cost-effective and valuable for preventing disability will begin to become available. While there are a variety of research projects that have begun to study these programs in the general population, there is almost no work underway that is investigating the special approaches to disease prevention and health promotion in elderly persons.<sup>51</sup>

Similarly, little work has been published that carefully assesses the consequences of reimbursement policy on the care of elderly persons. While it certainly can be argued that the bias in the reimbursement system forces care into more expensive and less appropriate settings, the documentation of this assertion has just begun to accumulate. There are a number of research studies that will be proposed and undertaken in this field. Also, the policymakers will continue to demand relevant information on which to base their decisions. As there are demands for changes in Medicare, Medicaid, and other entitlement programs (e.g., the VA health care system), the need for this kind of research will expand. Work on the consequences of specific methods of resource allocation and on the potential impact of changes in entitlement programs will need to continue. For example, the implementation of prospective reimbursement of hospitals by a diagnosis-related group (DRG) case mix may adversely affect the care of elderly persons.<sup>52</sup> Policy-related health services research is nowhere more critically needed than in the care of elderly persons.

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# Action Research: Its Value in Gerontology and Geriatrics

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Action research offers certain advantages to investigators in geriatrics and gerontology over conventional models of research. It is, by definition, "applied research." This application involves three domains. First, the intervention addresses questions that cannot be answered by purely descriptive or analytic studies. Second, the collaboration enables those persons who are directly affected by the system under study to provide useful perspectives and to suggest important research questions. Such collaboration also can improve the dissemination of research. Third, the service aspect can be an integral part of the research design, thereby increasing the significance of the research.

## Background

One prevalent view of research is that it is a study of a system to advance the state of knowledge about such systems. The researcher is primarily interested in the results; the process of research is of interest to the extent that it determines the reliability and validity of the results. Moreover, it is assumed that the research does not affect the system under study. Scientists have questioned whether this statement is true<sup>1</sup> and whether such a goal is the best scientific method for all situations.<sup>2</sup> Research in the field of gerontology, in particular, may profit from a different perspective.<sup>3,4</sup> For example, research has increasingly come under public scrutiny, with clamors for relevance. Many researchers believe that such demands have interfered with the quality of scientific inquiry. However, a re-

searcher can benefit from these seemingly adverse conditions by investigating scientific questions that are confronted by society and created by public policy, such as the quality and costs of long-term care for elderly persons. There does not have to be a conflict between scientific advances and social usefulness.

In addition to the direct influences of funding priorities, research also is affected by the more subtle influences of the prevailing intellectual milieu. Dominant paradigms determine the questions, the location, the methodology, and the utilization of studies.<sup>5</sup> The intellectual milieu reflects the social, political, and economic climate for the period; the converse also is true. Intellectual concepts and models have profound influence on the perception of social, political, and economic events. For example, theories of the family and economic productivity color our view of both aging and elderly persons; this, in turn, affects public policy. Scientific investigation that informs public policy can benefit from explicitly considering the social, political, and intellectual context of its work.

## Action Research

There are four salient features of action research:

1. Action research is directed toward improving the current state of affairs. This is accomplished by dealing with practical concerns, both analyzing problems and developing methods for improving them.

2. Action research is collaborative. A researcher and subject are interdependent. The research will reflect the needs and competencies of each.
3. Action research is situational. An action researcher knows that relationships between people, events, and things reflect a particular context and can change as the definition of the situation changes.
4. Action research emphasizes the process of research. A consideration of the process can lead to identifying new phenomena, can contribute to theory development, and can be part of the solution to the problems.<sup>6</sup>

Action research is particularly relevant to dealing with complex social issues. Many of the hardships that older persons face stem from a combination of social, biomedical, political, and economic factors. In recent years, a number of experimentally controlled studies of services for elderly persons have been reported. Most of these have focused primarily on using quantitative measures in evaluating the impact of the interventions. However, they have not explicitly addressed the broader view of action research as described above.<sup>7,8</sup> Most action research experiments have been in the social science arena. The interdisciplinary imperative in geriatrics could use the expanded view of science that action research offers.

## Research as Intervention

Research that deliberately intervenes in a system provides unique information that otherwise is unavailable from analytic or evaluative studies. Analytic research is limited to a description of the current state of the field and, perhaps, to suggestions of alternative approaches. Evaluation research assesses existing programs by using a descriptive approach. Both descriptive and evaluative research are separated from program design. In contrast, in action research one analyzes the problem, designs interventions, and evaluates the outcomes. These three aspects are integral and mutually complementary parts of the whole.

While investigators and policymakers agree that much research is needed in geriatrics and gerontology, it also is true that much is already

known. We know, for example, where many of the gaps in health services for elderly persons exist, although they may not have been described with perfect quantitative measures. In addition to gaining more theoretic knowledge, it would be appropriate to develop research projects in which the experimental design itself attempts to improve aspects of health care that are already known to be deficient.

The case management and National Long-Term Care "channeling" demonstration (see also Volume II, Chapter 32) are examples of the type of action research that is designed to improve care for elderly persons. The experiments provided a comprehensive package of health and social services, particularly focusing on community-based and in-home services that often are difficult to obtain. Not only did individuals reap the benefits of these experiments, but the research provided new knowledge about the impact and costs of case management programs. The "channeling" experiment is building on the data derived from the earlier experiments in an attempt to identify programs that could be widely applicable.

Similarly, for many years, investigators documented the high complication rate of hospitalized elderly persons,<sup>9-11</sup> yet few studies addressed what could be done to ameliorate this situation. Recent studies on geriatric evaluation units,<sup>12</sup> assessment clinics, and consultation services<sup>9,13</sup> are using research and intervention methods simultaneously to improve patient outcomes and to analyze the impact of comprehensive geriatric care.<sup>14</sup> Although a research design with so many variables may produce results that are not as precise as some in which the structure is more rigidly limited,<sup>14</sup> it is possible to employ methodologic creativity and a sense of proportionality in the data analysis to produce meaningful data and positive outcomes.

In many of these recent studies, new diagnoses, the functional approach to patient care, and the emphasis on comprehensive assessment have resulted in an improved capacity for self-care. Thus, these experiments for both community-based and hospitalized elderly persons provide practical benefits by intervening directly into a system of care, attempting to improve that system, and analyzing the results of the intervention. The value decisions that determine the choice of interventions will greatly in-

fluence the social significance of any results (i.e., a small cost saving or improvement in the quality of life is very significant if it is a value shared by the society).<sup>15</sup>

## Research as Collaboration

A central task in research is to determine what questions need to be asked. However, who should formulate questions and priorities? Different perspectives are provided by the scientists who work independently in universities, professionals in government or private funding agencies, practitioners who are providing service, and older persons themselves. For example, which of these groups should determine the priorities among the numerous areas of needed research that were described in Chapter 32? To optimize both the relevance and the quality of the research, all of these groups should ideally participate in determining goals and methodologies.

An example of such collaboration is the Task Force on Research, Policy, and Advocacy in Aging, which several years ago grew out of a series of public discussions among Margaret Kuhn (the National Convenor of the Gray Panthers) and Drs. George Maddox and Paul Kershner (former presidents of the Gerontological Society and the Western Gerontological Society, respectively). The Task Force developed mini task forces that were composed of researchers, practitioners, and consumers in various cities. In Seattle, for example, Alzheimer Support Information Service Team (ASIST) facilitated collaboration among researchers, patients, and family members to benefit all. Through discussions with ASIST members, researchers recognized the lack of data about counseling and support for the patients. This fresh perspective stimulated subsequent service and research ideas.

Another example of collaboration that grew out of the Task Force (in this case, between researchers and practitioners) was a survey of the South Carolina Gerontological Society about relevant research topics. Practitioners suggested topics and priorities for investigation that had not been stressed in previous research. For example, administrators stressed the im-

portance of transportation in geriatric health and social programs.

Building on these experiences, researchers and practitioners might collaborate in small groups to develop specific research topics and methodologies with applicabilities to practitioners. The Western Gerontological Society, which is a predominantly practitioner organization, might serve as the focus for such collaboration. A similar approach is used with consumer organizations such as the Gray Panthers, National Council of Senior Citizens, and the American Association of Retired Persons. Representatives of these organizations meet with staffs in government and private funding agencies who are developing priorities for research. In addition, elderly representatives could meet with scientists who could provide input on which research questions are most important and which methodologies are most acceptable from a consumer perspective. This type of input might make an important contribution to both the ethics of the proposed research and subject compliance with the protocols.

## Research as Service

The subjects of research provide a great service to investigators. Scientists test their theories, instruments, and therapies on subjects with the hope of furthering the state of scientific knowledge and simultaneously furthering their own careers. It seems appropriate that the subjects as well should reap benefits from this relationship.<sup>16</sup>

Perhaps, researchers should offer the knowledge that they have gained from the subjects to the subjects themselves. The ASIST group in Seattle again provides an illustrative example. Investigators on the forefront of research in cognitive dysfunction use ASIST members as study subjects. In return, the researchers provide educational forums for ASIST members, thereby gaining additional satisfaction that the results of their research are used directly by those who are most in need of the data.

In a similar vein, the network for brain banks developed through the Association for Alz-

heimer's Disease and Related Disorders provides researchers with pathologic specimens that are crucial to research. At the same time, family members benefit by learning what the actual diagnosis is for their deceased love one(s).

In addition to individual researchers being of service to the subjects, the research design can provide benefits for both subjects and consumers. Nursing home research serves as a useful example. It is too well-known that some nursing homes provide inadequate, depersonalized care. The majority of studies from these settings emphasizes the development of research instruments. However, what impact does the process of research have on the subjects and the environment?<sup>17</sup>

An illustrative example is the study by Langer and colleagues, in which a series of interviews encouraged the subjects to engage in cognitive activity.<sup>18</sup> The degree of self-disclosure (i.e., personal information offered by the interviewer) varied. The results revealed a significant improvement on standard short-term memory tests and on nurses' ratings of alertness, mental activity, and social adjustment for the high self-disclosure group, but not for the low self-disclosure group. Furthermore, the control group that was not interviewed showed a significant decline in performance on certain short-term memory tests. An explanation of these data might be that in an environment in which persons are severely deprived of the normal social interaction of human relationships, an investigator who simply talks with an individual in a one-to-one give-and-take manner will improve that subject's situation to such a degree that behavior and cognitive function will improve. It is a tragic commentary on the state of residents' existence in nursing homes that research of this type can produce such striking results. This research offers tremendous opportunities to help elderly persons.

Although funding for research on aging may be small compared with other fields, resources to pay for interviewers and research assistants may appear to be riches in a barren nursing home. In research that affects persons directly, the impact that the research has on the subjects (Hawthorne effect) should be integral to the research methodology. The research design

should take advantage of the positive effects of the study of a subject.

Employment of older persons provides a second example of how research can directly benefit elderly persons. When interviewers or research assistants are to be hired, it is appropriate to employ older persons. It is a well-accepted axiom that good data collection requires eliminating barriers between study subjects and researchers by matching factors such as age, sex, and ethnicity. In a study to gather baseline information about residents in the United States Department of Housing and Urban Development (HUD) housing units for older persons, researchers deliberately recruited women who were former homemakers to work as interviewers. The training of this previously unskilled group consisted of classes in social gerontology, information about the study population, community resources, and training in the use of research protocol.<sup>17</sup>

Two significant facts emerged from this study. First, the oldest interviewer was the best interviewer. When subjects refused to be interviewed, this woman was sent in as the troubleshooter and never failed to obtain the needed data. In general, the more mature interviewers were better able to gather information about income, health, and activities of daily living than were their younger counterparts. Perhaps because the older interviewers were closer in age to the subjects, they were able to establish a better rapport; or, perhaps those older persons who still desired to work were the most capable members. In any case, the mature interviewers produced top-quality work. Second, the research helped to resolve some of the subjects' problems. Part of the design was to train the interviewers in information and referral. Thus, when subjects in need of help were identified by the survey, the interviewers referred them appropriately.

## Conclusion

Many gerontologists deplore the fact that their research often is not noticed by policymakers. In part, this stems from an inadequate translation and dissemination of research findings. In addition, because researchers have leaned to-

ward analytic non-interventionist methodologies, policymakers have difficulty finding research that is relevant to public policy issues. Perhaps, if top-quality action-oriented research were more common, consultation with researchers might occur more frequently.

In recent years, aging has become a crucial issue for society. Action research provides great advantages to investigators in geriatrics and gerontology. First, studying questions of concern to society and testing new models enable researchers to gather data that are directly relevant to public policy. Second, involving consumers and practitioners in research planning and methodology can improve the scientific quality of the research. Third, focusing on the process of research can provide benefits to the subjects. In these three ways—research as intervention, collaboration, and service—action research offers tremendous potential for outstanding research in gerontology.

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# Epilogue: A Political Perspective on Geriatrics

CONGRESSMAN RON WYDEN

## Senior Citizens as a Political Force

Governmental sensitivity to the concerns of senior citizens is a fairly recent phenomena. The post World War II baby boom ushered in an emphasis on youth and young people that drew attention away from the concerns of the elderly population. In the last decade, however, there has been a growing awareness in society and government of the problems of elderly persons—an awareness that resulted in laws repealing the mandatory retirement age for most federal workers, expanding home health care coverage under Medicare, providing for access to generic drugs, reforming insurance practices, and others.

As recently as 10 years ago, senior citizens did not have the strong network of services that they have today. In particular, there was a real need for advocacy on behalf of elderly persons. Many problems, however, required a legislative rather than a legal remedy. For example, there were problems concerning the price of prescription drugs or the readability and price of health insurance that simply could not be resolved by attorneys.

This is one of the reasons that the Gray Panthers have been so important in creating a strong political voice. The Gray Panthers and other senior citizen groups eventually were able to get some relief from prescription drug prices through the generic drug law that was passed in Oregon and in other states. Relief in the insurance area was achieved both in terms of readability and through a guarantee that policies provide a certain basic set of protections.

Over the years, senior advocacy has become a more and more potent political movement. In Oregon, for example, senior citizens have won the right to purchase dentures directly from denturists. They also have won legislative and administrative relief from the high price of eyeglasses under a new system that permits persons who sell eyeglasses to advertise so that there will be more competition and more choices.

Along with the new sensitivity to the needs of the elderly population is a growing awareness of their political clout. The government is learning that senior citizens can be (and are) very sophisticated politically. Senior citizens not only have valuable experience, political savvy, and skills to offer, they also have more time than most age groups to put into backing candidates and causes in which they believe. Senior citizens can run a grass roots campaign for a candidate whom they support (e.g., running a “telephone bank,” putting up lawn signs, getting out literature, going door to door and organizing fund raisers). Older people also vote in higher percentages than virtually any other age group. In 1980, for example, there was at least a 10% higher vote among elderly persons than in the electorate as a whole.

The Gray Panthers and the American Association of Retired Persons, with its 12 million members, have been very influential; so has the National Council of Senior Citizens, which has a base of retirees who are connected with labor organizations. The National Association of Retired Federal Employees is growing in strength, particularly in light of recent proposals to cut



benefits on federal workers and their retirees.

There are a number of other groups as well. They agree on most issues, but just like any other group in society, they have certain points on which they disagree—or points that one group may wish to emphasize more than another.

It is “ageist” to call elderly persons a “social burden.” An attitude like this may become a self-fulfilling prophecy if we do not allow elderly persons to contribute their knowledge and skills to our culture in a meaningful way. Looking at the fact that many of our most gifted artists and political figures do not reach the peak of their careers until their 70s and 80s, one realizes that society misses out on a tremendous contribution if people are simply “unplugged” from society at age 65.

There also is an economic issue here. According to labor experts, by the decade 1990–2000, there is going to be a real need for older workers. The post World War II baby boom has fallen off and birth rates have been on the decline until recently. This means that our work force will be getting older—and that the older workers soon will be critically needed in a variety of areas.

We are going to see a new emphasis on retraining employees in the middle of their careers. We are going to see older people living longer, feeling better, and contributing more. They will become increasingly involved in the jobs of the information age (e.g., computers, data processing, and so on). In other words, in the future, elderly persons will be likely to contribute even more to every aspect of our society.

For this reason, the concept of mandatory retirement must become obsolete. Statistical evidence, particularly as it relates to males, shows that forced retirement can have disastrous health implications. Individuals who are forced to retire against their will suffer depression and consequent physical health deterioration. The thrust of the mandatory retirement debate has been that old people must be pushed out to let younger people in.

This is both unjust and incorrect. First, in 50 years there could be a shortage of younger workers. Second, it is very unhealthy for soci-

ety to pit young people against old people. I think it is up to the federal government and the public sector to be imaginative enough to create work opportunities for all who wish to pursue them. It can be done if we make some important changes in our work force policies—all the way from promoting job sharing and flexible work schedules to encouraging retraining programs. The goal is to try to let people carve out for themselves the kind of employment options they would like to pursue. Many of them will be quite unconventional in comparison to our present 40-hour, Monday through Friday, 8 AM to 5 PM work world.

## Economic Issues

Of all senior citizens in this nation, 20% are truly poor by anybody’s definition; one third of them come close to walking an economic tightrope where they balance their food against their fuel, their fuel against their medical care, and by juggling, hope to make ends meet.

Our system has not reacted well to the growing phenomenon of poor elderly persons. Although many in society want to help, we are just not effectively reaching this group. Also, recent budget cuts have only hurt. For example, elimination of the Social Security minimum benefit, which passed Congress in 1981, is going to hit a lot of older people very hard. Those are people who now will have to go to welfare offices to get the money they need to survive. Many of them will not even find out that they are eligible for welfare benefits even though they do not get a minimum Social Security check any more; those that do might not accept the welfare benefits because they are too proud and independent.

What is needed is a reform of the welfare system. At the very least, we need to put in place a new set of terminology. For example, we should have a minimum level of income under which a person should not sink in this nation. If one is physically able to work and work is available, there could be a work requirement as a precondition for getting assistance. However, there is no doubt that many people, in-

cluding many of the current recipients of minimum Social Security benefits, are not able to find work that they can do. The government cannot simply turn its back on those citizens.

## Medical Care and Medical Education

The 1980 report of the Select Committee on Aging recommended “foresight” in policy planning—in particular, in relating social and medical problems, formulating model systems that focus on preventive orientation, making appropriate use of acute and long-term care and so on.

Most experts presently agree that an interdisciplinary approach is needed to deal with the concerns of older people. At present, social and medical concerns are too often considered separately; this has been especially true within the medical profession. In this particular situation, the government may have done a better job than the medical profession.

For example, most of the government-sponsored senior citizen centers advance the interdisciplinary approach. It is not uncommon in a senior citizen center to see a meals program, an exercise program, volunteer lawyer programs, transportation services, and visiting nurses, all coordinated in one place. In the Older Americans’ Act, which is the major federal statute governing assistance to senior citizens, there is a significant degree of an interdisciplinary approach.

The medical profession, however, has been very slow to acknowledge this need. Part of the problem is that the care of older people defies traditional medical training, which always has been to diagnose, treat, and cure. It is a direct one-two-three process that may not be very relevant to senior citizens.

A younger patient is more likely to come in with a problem, have it diagnosed, get it treated with some exciting new process, and be entirely cured. With elderly persons, the measure of success is a different one. Their life expectancy is shorter and they often respond more slowly to traditional treatment. However, that does not mean that they cannot be helped. Physi-

cians need to realize that the needs and concerns of elderly persons are very different, that non-traditional approaches may be needed to address them. An interdisciplinary approach, which takes into account the social needs as well as the medical needs, is particularly important for elderly persons because of the many life changes (e.g., retirement, loss of spouse and loved ones, limited incomes, and so on) that affect their health status.

The federal government should support work with medical schools to sensitize medical students to the unique needs of the elderly population. Medical education and medical research funding is being cut dramatically right now. This is very short-sighted and risky to our social well-being. We should concentrate on medical education and research (and the fruits of a much more preventive-oriented health care system) than the “sick-care” system we have at present.

Today’s incentives preferentially reward the acute care, high technology interventions. Under 1983 law, Medicare beneficiaries have to spend 3 days in a hospital before they can be admitted to a skilled nursing facility, whether they need to or not. This is both wasteful and medically unsound. First, at the end of 3 days, the senior citizens were invariably transferred within the hospital; risks of infection and the sequelae of mental confusion are increased, which raises the medical risk of transfer trauma and, possibly, death. Second, it is clearly more expensive to have an older person in a hospital than to have them in an alternative facility. Hard political work is necessary to change these regulations to a more coherent and humane system.

This nation’s health care policy should move away from our “sick-care” orientation to preventive care. We really do not have health care in this nation at all—we have sick care. We wait until Americans are flat on their backs in a hospital and then we respond, often at a high cost and greater risk to a patient. Some of this expensive hospitalization for elderly persons could be avoided with well-coordinated home health care programs. For example, Medicare Part A will authorize a check of \$50,000 from a Medicare carrier to a hospital to pay for hospi-

talization benefits. Medicare Part B, conversely, will not issue a check for \$50 for a senior citizen to have a physical examination or checkup or to have his or her blood pressure monitored. The reasons why prevention is not stressed in this nation include the facts that it is harder to measure the benefits of prevention and early diagnosis of disease and to convince policymakers to act on it. Catastrophic illness is more sensational and harder for policymakers to ignore.

Traditionally, insurers have found it hard to measure the benefits of preventive care; but, some enlightened insurers now are factoring it into their policies. To turn things around, society has got to stop giving in to the temptation to let insurance determine the standards of health care. It also has to eliminate the bias against what are considered to be less traditional kinds of services; in other words, it has to encourage, instead of discourage, competition in the health care field. Over the past 2 years, chiropractors, denturists, and other non-physician health care providers have come forward to promote their case. In response, physicians are seeking an exemption from the Federal Trade Commission's (FTC) power to regulate professions to promote competition. While the FTC should not try to regulate the quality of health care, which is outside the agency's authority and expertise, it should do everything it can to promote competition. This requires giving it the power to deal with cases of price fixing, boycotts, and other economic behavior that stifles competition in the health care field.

Most competition means more choices, which include choices in systems of health care delivery. We should give health care providers incentives to be efficient. An example is the legislation that supports a prospective payment system for Medicaid and Medicare. Under this system, health care providers who save money by being efficient are rewarded. Alternatively, under what is called cost-based reimbursement, we actually reward them for being inefficient.

Of course, federal spending must be responsible and not wasteful, but it does not make sense to cut funds for programs such as medical education and research that will help to provide a better future for all of us. In the future, federal spending must be cut with a greater sense of fairness, and it must not ignore legiti-

mate domestic concerns such as funding for health programs and health education and research.

Geriatric research and education is particularly hard-hit. The Health and Environment Subcommittee of the Energy and Commerce Committee has vigorous advocates who support funding for geriatric education. However, in a time of cut backs when one cannot fund the commitments already on the boards, it is nearly impossible to get any overwhelming support for doing something additional. The best that we have been able to do, with only limited success, is to try to redirect some of the existing medical education funds towards geriatric education and training.

The United States needs a consistent national health care policy. The federal government will have to play a major role in the development and implementation of that policy. In particular, the government has a strong role to play in allocating health care resources. If we do not live up to our responsibility in that area, not only are we not being fair to senior citizens, we are not being fair to the taxpayers who deserve to get the best value for their tax dollar. For example, Medicare is a \$55 billion program. If the resources are not allocated wisely, the tax payers lose out.

There are many ways of viewing national health insurance. One of the most effective models would give a major role to the federal government in prescribing minimal standards that state, local, and regional plans would have to meet. Thus, it would establish a decentralized approach that maximizes choices for consumers; an approach that mixes public services for people who cannot pay with private services for people who can.

The problem of long-term care is a major one. There has been a bias in this nation towards institutionalization, even though evidence shows that a substantial portion of older people in nursing homes would not have to be there if there were available alternatives.

The government has to take a lead in developing a continuum of health care that would cover the full range of services all the way from totally institutionalized care (preferably the last option) to the preferred option of home health care and other community-based non-institutional care services. The government can aid

that effort in a variety of ways—all the way from trying to redirect health education dollars away from traditional training to changing the way dollars are appropriated for directed services.

At present, there is an awareness of the many contributions that senior citizens have made and will make to society. This awareness will continue to grow in the years ahead, and all of us will benefit as a result.

# Resources for the Health Care of Elderly Persons

DIANA WHITE, M.S.

Many organizations provide assistance to older persons. The services they offer often are the critical factors that enable individuals to remain independent and in control of their lives. Therefore, knowledge of, and ability to use, the services system is an important aspect of providing care to elderly persons.

While each community varies in the range of services offered, and while the organization that is providing the service in one community may be different from the organization that is providing it in another, there are similarities regarding the types of services that are commonly available. This appendix describes the types of services that probably exist in most areas of the United States. In some cases, the agencies and organizations at the national and state levels that can give assistance in locating specific resources at the local level are presented as well. The types of resources discussed in this appendix are:

1. The "Aging Network": State Units on Aging and Area Agencies on Aging;
2. Information and referral services;
3. Health care services;
  - a. Preventive health care services;
  - b. Rehabilitation and health maintenance services;
  - c. Evaluation and assessment services;
4. Mental health programs;
5. Elder abuse programs;
6. Support programs, self-help organizations;
7. Long-term care services;
  - a. Home care services;
  - b. Day-care services;
  - c. Nursing home care;
  - d. Respite care;

8. Hospice services;
9. Legal services;
10. Advocacy organizations;
11. Employment services;
12. Income maintenance programs;
13. Housing programs;
14. Educational services;
15. Professional associations.

Other types of services probably exist in many communities. This appendix serves only as a general guide that describes some of the most common resources; practitioners should not be limited by this listing. It should not be assumed that a service does not exist if it is not discussed here.

It also is important to emphasize that the types of services listed above are not mutually exclusive. Indeed, there is a considerable overlap. For example, senior citizen centers may offer self-help, recreation, education, and advocacy services. A center also may provide direct linkages to home health services, legal services, employment programs, and more. In short, this appendix should be used as a general resource guide. In many cases, it will take several telephone calls to track down needed and appropriate services; however, this appendix should assist in this task.

## "The Aging Network State Units on Aging and Area Agencies on Aging

The 1973 amendments to the Older Americans Act of 1965 created area agencies on aging and state units on aging. State units on aging are

designated by the governor and state legislature and are responsible for administering the Older Americans Act. The major goals of this act are to:

1. Secure maximum independence and dignity in a home environment for those who are capable of self-care with appropriate supportive services;
2. Remove individual and social barriers to economic and personal independence;
3. Prevent unnecessary or premature institutionalization;
4. Help older persons to become involved with other persons, thereby reducing isolation and loneliness;
5. Help older persons to enjoy better health through improved nutrition;
6. Provide a continuum of supportive services for vulnerable or frail elderly persons.

In addition, state units on aging also oversee activities of area agencies on aging (AAAs). These agencies are responsible for planning, coordinating, and advocating services that are needed to meet the short- and long-term needs of older persons in a given geographic area. The AAAs may be part of a city or county government, councils of government, or they may be housed in private non-profit agencies. The number of AAAs within a state varies considerably. In some states, the state unit on aging also functions as an AAA. The AAAs generally do not provide direct services, with the exception of information and referral services. Instead, they select agencies to provide services and funds and to monitor and evaluate their activities.

Services supported by the aging network include:

case management  
 employment  
 escort  
 friendly visitation  
 home health aid  
 homemaker, chore services  
 housing alternatives  
 information and referral  
 legal services  
 nutrition programs  
 outreach  
 political advocacy

preretirement planning  
 recreational activities  
 shopping assistance  
 telephone reassurance  
 transportation

Two programs that are supported by the AAA warrant further discussion: multipurpose senior centers and nutrition programs. Several of the services listed above are provided directly by multipurpose senior centers. These centers serve a wide variety of elderly persons with varying needs and interests. Through their programs of educational and recreational activities, older persons are encouraged to interact with others, thereby maintaining and developing new skills and social roles. The centers also train many older persons as volunteers who assist other elderly persons by providing transportation, serving or delivering food, and visiting and telephoning those persons who are sick and isolated. Other older persons participate in multipurpose senior centers to be part of political advocacy activities. Senior centers often are the community focal point for other types of services (e.g., health screening, nutrition programs, housing, or day-care). Finally, most multipurpose senior centers provide information and referral; therefore, they are a good agency to contact when seeking assistance.

Nutrition programs are funded through AAAs in many communities. There generally are two parts to the programs: 1) Congregate meals; and 2) meals-on-wheels. Congregate meals are provided at various sites, which include senior centers, churches, schools, and so on. These programs are beneficial in that social interaction is encouraged, as well as good nutrition. Meals-on-wheels programs provide home-delivered hot meals to individuals who are home-bound and are physically or otherwise unable to prepare nutritious foods for themselves.

Specific information about nutrition programs may be obtained by contacting local AAAs, Senior Centers, or:

The National Association  
 of Meal Programs  
 c/o Mamie Lee  
 Lutheran Services Society  
 P.O. Box 6959  
 Pittsburgh, PA 15212

A state unit on aging can provide information regarding services of the Aging Network within a specific community. The State Units are listed below.

### State Units on Aging

#### *Alabama*

Commission on Aging  
State Capitol  
Montgomery, AL 36130  
(205) 832-6640

#### *Alaska*

Alaska Office on Aging  
Pouch H-OIC  
Juneau, AK 99811  
(907) 586-1491

#### *Arizona*

Aging and Adult Administration  
Dept. of Economic Security  
1400 West Washington  
Phoenix, AZ 85005  
(602) 255-4446

#### *Arkansas*

Office on Aging and Adult Services  
Dept. of Social  
and Rehabilitation Services  
Donaghey Bldg., Suite 1428  
7th and Main  
Little Rock, AR 77201  
(501) 371-2441

#### *California*

Department on Aging  
1020 19th St.  
Sacramento, CA 95814  
(916) 322-3887

#### *Colorado*

Aging and Adult Services Division  
Dept. of Social Services  
1575 Sherman St., Room 504  
Denver, CO 80203  
(303) 839-2585

#### *Connecticut*

Department on Aging  
80 Washington St.  
Hartford, CT 06106  
(203) 566-3238

#### *Delaware*

Division of Aging  
Dept. of Health and Social Services  
1901 North Dupont Hwy  
New Castle, DE 19720  
(302) 421-6791

#### *District*

*of Columbia*  
Office on Aging  
Office of the Mayor  
1424 K St. N.W., 2nd Floor  
Washington, DC 20005  
(202) 724-5622

#### *Florida*

Program Office of Aging  
and Adult Services  
Dept. of Health  
and Rehabilitation Services  
1323 Winewood Blvd.  
Tallahassee, FL 32301  
(904) 488-2650

#### *Georgia*

Office of Aging  
Room 632  
878 NE Peachtree St.  
Atlanta, GA 30309  
(404) 894-5333

#### *Hawaii*

Executive Office on Aging  
Office of the Governor  
State of Hawaii  
1149 Bethel St., Room 307  
Honolulu, HI 96813  
(808) 548-2593

#### *Idaho*

Idaho Office on Aging  
State House, Room 114  
Boise, ID 83720  
(208) 334-3833

#### *Illinois*

Department on Aging  
421 East Capital Ave.  
Springfield, IL 62706  
(217) 785-3356

#### *Indiana*

Department on Aging and Community Services  
115 N. Pennsylvania St.  
Indianapolis, IN 46204  
(317) 232-1190

*Iowa*

Commission on the Aging  
415 West 10th St., Suite 236  
Jewett Bldg.  
914 Grand Ave.  
Des Moines, IA 50319  
(515) 281-5187

*Kansas*

Kansas Department of Aging  
610 West 10th St.  
Topeka, KS 66612  
(913) 296-4986

*Kentucky*

Division for Aging Services  
Cabinet for Human Resources  
CHR Bldg., 6th West  
275 East Main St.  
Frankfort, KY 40621  
(502) 564-6930

*Louisiana*

Office of Elderly Affairs  
P.O. Box 80374  
Capitol Station  
Baton Rouge, LA 70898  
(504) 925-1700

*Maine*

Bureau of Maine's  
Elderly Community Services Unit  
Dept. of Human Services  
State House, Station 11  
Augusta, ME 04333  
(207) 289-2561

*Maryland*

Office on Aging  
State Office Bldg.  
301 West Preston St.  
Baltimore, MD 21201  
(301) 383-5064

*Massachusetts*

Department of Elder Affairs  
38 Chauncy St.  
Boston, MA 02111  
(617) 727-7751

*Michigan*

Office of Services to the Aging  
P.O. Box 30026  
Lansing, MI 48909  
(517) 373-8230

*Minnesota*

Minnesota Board on Aging  
Metro Square Bldg., Room 204  
7th and Robert Sts.  
St. Paul, MN 55101  
(612) 296-2544

*Mississippi*

Mississippi Council on Aging  
Executive Bldg., Suite 301  
802 N. State St.  
Jackson, MS 39201  
(601) 354-6590

*Missouri*

Division of Aging  
Dept. of Social Services  
Broadway State  
P.O. Box 1337  
Jefferson City, MO 65102  
(314) 751-3082

*Montana*

Aging Services Bureau  
Community Services Division  
P.O. Box 4210  
Helena, MT 59601  
(406) 449-3865

*Nebraska*

Department on Aging  
P.O. Box 95044  
301 Centennial Mall South  
Lincoln, NE 68509  
(402) 471-2306

*Nevada*

Division for Aging Services  
Dept. of Human Resources  
505 East King St.  
Kinkead Bldg., Room 101  
Carson City, NV 89710  
(702) 885-4210

*New Hampshire*

State Council on Aging  
14 Depot St.  
Concord, NH 03301  
(603) 271-2751

*New Jersey*

Division of Aging  
Dept. of Community Affairs CW 807  
P.O. Box 2768  
363 West State St.  
Trenton, NJ 08625  
(609) 292-4833



*New Mexico*

State Agency on Aging  
224 E. Palace Ave. 4th floor  
Sante Fe, NM 87501  
(505) 827-7640

*New York*

Office for the Aging  
New York State Executive Department  
Empire State Plaza  
Agency Bldg. No. 2  
Albany, NY 12223  
(518) 474-5731

*North Carolina*

Division of Aging  
North Carolina  
Dept. of Human Resources  
708 Hillsborough St., Suite 200  
Raleigh, NC 27603  
(919) 733-3983

*North Dakota*

Aging Services  
Dept. of Human Services  
State Capitol Bldg.  
Bismarck, ND 58505  
(701) 224-2577

*Ohio*

Commission on Aging  
50 West Broad St., 9th Floor  
Columbus, OH 43215  
(614) 466-5500

*Oklahoma*

Special Unit on Aging  
Dept. of Human Services  
P.O. Box 25352  
Oklahoma City, OK 73125  
(405) 521-2281

*Oregon*

Senior Services Division  
313 Public Service Bldg.  
Salem, OR 97310  
(503) 378-4728

*Pennsylvania*

Department of Aging  
231 State St., Boito Bldg.  
Harrisburg, PA 17120  
(717) 783-1550

*Rhode Island*

Department of Elderly Affairs  
79 Washington St.  
Providence, RI 02903  
(401) 277-2858

*South Carolina*

Commission on Aging  
915 Main St.  
Columbia, SC 29201  
(803) 758-2576

*South Dakota*

Office on Aging  
Adult Services and Aging  
South Dakota  
Dept. of Social Services  
State Office Bldg.  
Illinois St.  
Pierre, SD 57501  
(605) 773-3656

*Tennessee*

Commission on Aging  
703 Tennessee Bldg.  
535 Church St.  
Nashville, TN 37219  
(615) 741-2056

*Texas*

Department on Aging  
210 Martin Springs Rd.  
Capitol Station, 5th Floor  
P.O. Box 12768  
Capitol Station  
Austin, TX 78704  
(512) 475-2717

*Utah*

Division of Aging  
Dept. of Social Services  
150 West North Temple, Suite 326  
Salt Lake City, UT 84103  
(801) 533-6422

*Vermont*

Office on Aging, Agency on Human Services  
State Office Bldg.  
103 S. Main St.  
Waterbury, VT 05676  
(802) 241-2400

*Virginia*  
Office on Aging  
830 East Main St.  
Suite 950  
Richmond, VA 23219  
(804) 786-7894

*Washington*  
Bureau of Aging and Adult Services  
Dept. of Social  
and Health Services  
OB-43G  
Olympia, WA 98504  
(206) 753-2502

*West Virginia*  
Commission on Aging  
State Capitol  
Holly Grove  
Charleston, WV 25305  
(304) 348-3317

*Wisconsin*  
Office on Aging  
1 West Wilson St., Room 480  
Madison, WI 53702  
(608) 266-2536

*Wyoming*  
Department of Health  
and Social Services  
Office on Aging  
401 W. 19th St.  
Cheyenne, WY 82002  
(307) 777-7986

*American Samoa*  
Territorial Aging Program  
Government of American Samoa  
Office of the Governor  
Pago Pago, American Samoa 96799  
Samoa 3-1254 or 3-4116

*Guam*  
Office of Aging  
Social Service  
Dept. of Public Health  
Government of Guam  
P.O. Box 2618  
Agana, Guam 96910  
749-9901, ext. 423

*Puerto Rico*  
Gericulture Commission  
Department of Social Services  
P.O. Box 11368  
Santurce, Puerto Rico 00908  
(809) 722-2429

*Northern Mariana Islands*  
Office of Aging  
Department of  
Community and Cultural Affairs  
Commonwealth of  
Northern Mariana Islands  
Civic Center, Susupe  
Saipan  
Northern Mariana Islands 96950  
Telephone Nos. 9411 or 9732

*Virgin Islands*  
Commission on Aging  
P.O. Box 539  
Charlotte Amalie  
St. Thomas, VI 00801  
(809) 774-5884

For other information regarding state units  
and area agencies, contact:

National Association  
of State Units of Aging  
600 Maryland Ave. SW  
Suite 208  
Washington, DC 20024  
(202) 484-7182

National Association  
of Area Agencies  
on Aging  
600 Maryland Ave. SW  
Suite 208 West  
Washington, DC 20024  
(202) 484-7520

## Information and Referral Services

Information and referral (I&R) services usually are available through many of the organizations described throughout this appendix. However, the importance of this resource warrants a separate discussion.

Contacting an I&R agency often is the best, quickest, and easiest way to learn about service

resources for older adults in a given community. Information and referral specialists generally have the most up-to-date and comprehensive resource file in the community and are knowledgeable of eligibility requirements for the various services. Information and referral specialists are trained in communication skills so that they can: 1) Help a client or other individual identify specific needs; and 2) Provide guidance so that a client or individual understands how to contact the recommended resource. Many I&R programs also provide follow-up services to insure that needed resources are, in fact, used.

Information and referral agencies may be found by looking under information and referral in the white pages of the telephone book, or by looking under city or county listings. In addition, such services often are provided by senior centers and/or are supported by local area agencies on aging (see "The Aging Network" section in this appendix). To use I&R services, a worker or specialist should be told about the problem or about the situation that requires action. An I&R worker then will provide suggestions about relevant organizations or agencies that offer the needed assistance.

More information about I&R services may be obtained by contacting The Alliance of Information and Referral Services, Inc. (AIRS), P.O. Box 10507, Phoenix, AZ 85064.

## Health Care Services

Many types of health care services are available to elderly persons. Those that are discussed in this section include preventive health care services, rehabilitation and health maintenance services, and evaluation and assessment services. Health care services also are provided to residents of nursing homes, residential care facilities, and retirement homes.

### Preventive Health Care Services

These often are available through senior centers, hospitals, community colleges, and various service organizations (e.g., YMCA, churches, or fraternal organizations). Examples include blood pressure clinics and screening for vision or hearing problems. Exercise programs

that are designed for elderly persons are becoming more common. Care must be taken, however, to ensure that instructors of the exercise programs have adequate training and/or supervision, and that older persons check with their physicians before enrolling. Finally, these organizations occasionally provide educational services to elderly persons, which offer classes or workshops on topics such as stress management, preventive dental care, safety, and information of aging-related physical changes (e.g., sensory changes).

### Rehabilitation and Health Maintenance Services

These services also are available in several communities. These services are designed to help older people cope with chronic or life-threatening illnesses or conditions. As examples, there are pulmonary rehabilitation programs, rehabilitation services for visually impaired persons, groups to help people live with cancer, and organizations to help individuals cope with handicaps due to strokes.

Information about these and other rehabilitation services may be obtained by contacting area agencies on aging. Information and referral agencies, senior centers, hospitals, nursing homes, and local chapters of the following national organizations are likely to provide useful information regarding these services as well:

American Cancer Society\*  
777 Third Ave.  
New York, NY 10017  
(212) 371-2900

American Council of the Blind  
1211 Connecticut Ave. NW, Suite 506  
Washington, DC 20036  
(202) 833-1251

American Diabetics Association  
2 Park Ave.  
New York, NY 10016  
(212) 683-7444

\* These organizations are listed in *Health Groups in Washington: A Directory*. National Health Council, Inc., 1982. This directory may be obtained from: National Health Council, Inc., 70 West 40th St., New York, NY 10018.

American Foundation for the Blind  
15 West 16th St.  
New York, NY 10011  
(212) 620-2000

American Heart Association  
1110 Vermont Ave. NW, Suite 820  
Washington, DC 20007  
(202) 822-9380

American Lung Association  
1740 Broadway  
New York, NY 10019  
(212) 245-8000

American Red Cross  
18th and E St. NW  
Washington, DC 20006  
(202) 737-8300

American  
Speech-Language-Hearing  
Association  
10801 Rockville Pike  
Rockville, MD 20852  
(301) 897-5700

Arthritis Foundation  
1314 Spring St. NW  
Atlanta, GA 30309  
(404) 872-7100

National Association  
of Rehabilitation  
Facilities  
8200 Greensboro Dr., Suite 900  
McLean, VA 22102  
(703) 556-8848

National Association of the Deaf  
814 Thayer Ave.  
Silver Spring, MD 20910  
(301) 587-1788

### Evaluation and Assessment Services

These services sometimes are offered through special geriatric outpatient or inpatient programs. These programs may provide health-screening or conduct functional assessments of an individual's physical, psychological, and social status. These assessments sometimes are offered at low cost, and referrals for needed health care services usually are provided. Community hospitals, Veteran's Administration (VA) hospitals, and I&R agencies may be contacted for information on this type of program.

### Mental Health Programs

For many years, mental health programs served few elderly persons. In part, this was due to negative stereotypes of the elderly persons. Specifically, it is commonly believed that older persons cannot be successfully treated and that mental health problems naturally occur with age. Recent research, however, indicates that older persons, like their younger counterparts, do respond to treatment and do benefit from mental health services.

Mental health services for elderly persons may be offered through community mental health programs, private mental health clinics, and a variety of other agencies that serve the elderly population (e.g., church groups, hospitals, and self-help organizations). Services may include individual, family, or group counseling, day treatment for cognitively impaired or emotionally disturbed persons, psychiatric evaluations, educational services, crisis intervention, and various supportive services.

Because mental health services vary widely from state to state, it is difficult to provide other specific resources that might be used to identify mental services in a given community. Probably, the most effective method would be to contact a local community mental health clinic, a local area agency on aging (see the "The Aging Network" section in this appendix), or an information and referral agency. Other local organizations that might be able to provide information on mental health services include senior centers, nursing homes, and retirement centers. At the state level, the Department of Mental Health may have a special program in gerontology and/or may know of various programs and treatment facilities or institutions that offer both short- and long-term mental health care.

National resources for obtaining more information regarding mental health services for elderly persons include:

National Council of Community  
Mental Health Centers  
6101 Montrose Rd., Suite 360  
Rockville, MD 20852  
Washington, DC 20007  
(202) 337-7530

National Mental Health Association  
1021 Prince St.  
Alexandria, VA 22314  
(703) 684-7722

## Elder Abuse Programs

In recent years, there has been a growing awareness of domestic violence directed at older persons. In many states, programs have been or are being developed, and legislation is being enacted, that attempts to address this problem. Abuse should be suspected when there is evidence of physical trauma and its cause is poorly explained or not explained at all. (*see* Volume II, Chapter 16).

For more information on Elder Abuse and for specific resources in each State, contact the following State Offices responsible for Adult Protective Services:

### Adult Protective Services

*Alabama*  
State Dept. of  
Pensions and Security  
Bureau of Adult Services  
64 North Union St.  
Montgomery, AL 36130

*Alaska*  
Division of Social Services  
Dept. of Health  
and Social Services  
Pouch H-05  
Juneau, AK 99811

*Arizona*  
Aging and Adult Administration  
1400 West Washington  
Phoenix, AZ 85007

*Arkansas*  
Adult Protective Services  
Donaghey Bldg., Room 1428  
Little Rock, AR 72201

*California*  
Department of Social Services  
Adult Protective  
Supportive Services Bureau  
74 P St., NS 5-141  
Sacramento, CA 95814

*Colorado*  
Colorado State Dept.  
of Social Services  
Adult Programs  
1575 Sherman  
Denver, CO 80203

*Connecticut*  
State of Connecticut  
Dept. of Aging  
90 Washington St.  
Hartford, CT 06106

*Delaware*  
Department of Health  
and Social Services  
New Castle, DE 19720

*District  
of Columbia*  
Protective Services for Adults  
Room 613  
122 C St. NW  
Washington, DC 20001

*Florida*  
Aging and Adult Services  
Program Office  
1317 Winewood Blvd.  
Tallahassee, FL 32301

*Georgia*  
Division of Family  
and Children's Services  
Social Services Section  
618 Ponce de Leon Ave.  
Atlanta, GA 30308

*Hawaii*  
Social Services Intake Unit  
1149 Bethel St., Room 400  
Honolulu, HI 96813

*Idaho*  
State of Idaho  
Division of Welfare  
Statehouse  
Boise, ID 83720

*Illinois*  
Commission on Aging and Aged  
421 E. Capitol Avenue  
Springfield, IL 62706

*Indiana*  
Commission on Aging and Aged  
Graphic Arts Bldg.  
215 N. Senate Ave.  
Indianapolis, IN 46202

*Iowa*

Bureau of Adult Services  
Hoover State Office Bldg.  
Des Moines, IO 50319

*Kansas*

Adult Services Section  
State Dept. of Social Services  
Biddle Bldg., 1st Floor  
2700 W. 6th  
Topeka, KS 66606

*Kentucky*

Department of Human Resources  
Division for Aging Services  
Alternate Care Branch  
6th Floor W.  
275 E. Maine St.  
Frankfort, KY 40601

*Louisiana*

Division of  
Evaluation and Services  
P.O. Box 3318  
Baton Rouge, LA 70821

*Maine*

Adult Protective Services  
Department of Human Services  
Bureau of Resources  
Development  
State House, Station 11  
Augusta, ME 04333

*Maryland*

State Social Services Administration  
Adult Protective Services  
11 South St.  
Baltimore, MD 21212

*Massachusetts*

Department of Social Services  
11th Floor  
150 Causeway St.  
Boston, MA 02114

*Michigan*

Office of Adult  
and Family Community Services  
Adult Protective Services Division  
300 S. Capitol Ave.  
P.O. Box 30037  
Commerce Center Bldg.  
Suite 707  
Lansing, MI 48910

*Minnesota*

State of Minnesota  
Dept. of Public Welfare  
Centennial Office Building  
St. Paul, MN 55155

*Mississippi*

Department of Public Welfare  
Jackson, MS 39204

*Missouri*

Missouri Division of Aging  
Broadway Office Bldg.  
P.O. Box 570  
Jefferson City, MO 65102

*Montana*

Department of  
Social and  
Rehabilitative Services  
Social Services Division  
P.O. Box 4210  
Helena, MT 59601

*Nebraska*

Division of Social Services  
Adult Service Unit  
Nebraska Dept. of Public Welfare  
Lincoln, NE 68509

*Nevada*

Nevada State Welfare Division  
251 Jeanell Dr.  
Carson City, NV 89710

*New Hampshire*

Division of Welfare  
Bureau of Adult Services  
Haven Dr.  
Concord, NH 97467

*New Jersey*

Department of Human Services  
Division of Youth and Family Services  
Trenton, NJ 08625

*New Mexico*

Field Services Bureau  
Social Services Division  
Human Services Dept.  
P.O. Box 2348  
Santa Fe, NM 97503

*New York*

New York State  
Dept. of Social Services  
Aging Services Section  
40 N. Pearl St.  
Albany, NY 12243

*North Carolina*

North Carolina Division  
of Social Services  
325 North Salisbury St.  
Raleigh, NC 27611

*North Dakota*

County Social Service Boards

*Ohio*

Bureau of Adult Services  
Ohio Dept. of Public Welfare  
30 E. Broad St.  
Columbus, OH 43215

*Oklahoma*

Department of Human Services  
Division of Services  
to Adults and Families  
P.O. Box 25352  
Oklahoma City, OK 73125

*Oregon*

Senior Services Division  
Dept. of Human Resources  
400 Public Services Bldg.  
Salem, OR 97310

*Pennsylvania*

Department of Public Welfare  
Health and Welfare Bldg.  
Room 533  
Harrisburg, PA 17120

*Rhode Island*

Family and Adult Services  
600 New London Ave.  
Cranston, RI 02920

*South Carolina*

Adult Services Division  
Adult Protective  
Services Units  
State Dept. of Social Services  
P.O. Box 1520  
Columbia, SC 29202

*South Dakota*

Office of Adult Services  
Kneip Bldg.  
Illinois St.  
Pierre, SD 57501

*Tennessee*

Tennessee Dept.  
of Human Services  
Division of Social Services  
Protective Services  
for Adults  
111-19 7th Ave.  
Nashville, TN 37203

*Texas*

Alternative Care for Aged  
and Disabled Adults  
Division  
Texas Dept. of Human Resources  
P.O. Box 2960  
Austin, TX 78769

*Utah*

State Division of Aging  
150 West North Temple No. 326  
P.O. Box 2500  
Salt Lake City, UT 84103

*Vermont*

Department of Health  
60 Main St.  
Burlington, VT 05401

*Virginia*

Virginia State Dept. of Welfare  
8007 Discovery Dr.  
Richmond, VA 23288

*Washington*

Bureau of Aging  
OB-43G  
Olympia, WA 98504

*West Virginia*

All Welfare Department Area Offices

*Wisconsin*

Adult Service Units in 72 counties

*Wyoming*

Wyoming Dept. of Health  
and Social Services  
Division of Public Assistance  
and Social Services  
Hathaway Bldg.  
Cheyenne, WY 82002

## Support Programs, Self-Help Organizations

Individuals at any age may find help and strength through talking with others who have experienced similar problems or events. Care-

givers (e.g., family members, friends, and so on) and older persons often experience aging-related problems that can be eased by sharing them with others. These problems include bereavement, adapting to a chronic disability, and assisting cognitively impaired persons. In many communities, support groups or self-help organizations have been established to assist individuals in coping with these and other problems. Examples of the kinds of self-help and support groups that are available are described below.

Organizations that assist people in coping with specific physical impairments or conditions are numerous (e.g., as with cancer, diabetes, ostomies, mastectomies, Parkinson's disease, multiple sclerosis, stroke, coronary disease, and so on). To obtain information regarding these organizations, local hospitals and the various health organizations may be contacted (e.g., American Cancer Society; *see* the section on "Rehabilitation and Health Maintenance Services" in this appendix).

Several communities have support programs for widowed persons. These programs may be sponsored by mental health centers, colleges, funeral homes, senior centers, and other organizations. Two national sources for locating local programs are:

National Association  
for Widowed People  
P.O. Box 3564  
Springfield, IL 62708  
(217) 787-1221

Widowed Persons Service  
(American Association  
of Retired Persons)  
1909 K St. NW  
Washington, DC 20049  
(202) 872-4700

Support groups for family members of older persons have been developed in several communities through colleges, mental health centers, churches, and other organizations. The focus of many of these groups is on assisting an adult child to cope with aging-related changes in an older parent and to assist that child in maintaining an elderly parent in the community. Most specifically, a national organization has

been established to assist family members—both a spouse and adult children—of individuals with chronic mental impairment. Several chapters of this organization are operating throughout the United States. For information, contact:

Alzheimer's Disease and Related  
Disorders Association (ADRDA)  
360 N. Michigan Ave., Rm 1102  
Chicago, IL 60601  
(312) 853-3060

For more general information regarding support and self-help organizations (including the development of such groups) contact:

National Self-Help Clearinghouse  
Graduate School  
and University Center  
33 W. 42nd St.  
City University of New York  
New York, NY 10036  
(212) 840-1259

Self-Help Center  
1600 Dodge Ave., Suite S-122  
Evanston, IL 60201

## Long-Term Care Services

Long-term care services are those that are provided to elderly persons who need social health and mental health services for long periods of time (usually 6 months or more). These services are provided through a variety of programs. Those discussed here include home care, day-care, nursing home, and respite care services.

## Home Care Services

These are critical services for frail elderly persons who live at home. A full range of in-home services are available in most communities. This range covers three levels of care. First, homemaker or chore services are provided by paraprofessional workers. These individuals assist older persons with such activities as housecleaning, shopping, and meal preparation. Some agencies also provide home maintenance and repair services.



At a second level of care, a home health aide, under the supervision of a nurse, typically provides personal care services to an elderly individual. These services involve assistance with bathing, dressing, and with other activities of daily living. A home health aide also may assist an individual with simple exercises and with learning new skills.

Finally, in-home services are provided by trained professionals to individuals who require skilled care. Professionals include nurses and, where indicated, services from physicians, occupational and physical therapists, social workers, and others. It is important to stress that at all three levels of care, there also is an emphasis on the provision of emotional support to a patient or client.

Cost often is an issue with many older persons who require home care. Some in-home services are not reimbursed by Medicare or other insurance. For many individuals, therefore, the cost of home care may be prohibitive.

Organizations that provide in-home care services include home health agencies (private, non-profit, and proprietary), community health centers, hospitals, and county social service departments. Information about home health agencies in a given community, including eligibility requirements and reimbursement procedures, may be obtained through AAAs, senior centers, and I&R agencies. Hospital discharge planners also should be knowledgeable about local resources. There are many statewide associations of home health agencies that also can provide needed information. Finally, a national resource for home health services is:

National Association  
of Home Health Agencies  
205 C St. NE  
Washington, DC 20002  
(202) 547-7424

### Day-Care Services

This is an important component of long-term care services. Day-care services are provided outside of the home, and they typically serve individuals who are dependent on others due to physical and/or mental impairment. In most cases, these individuals require assistance in

performing activities of daily living (e.g., dressing, cooking, or bathing).

Day-care participants usually live with a spouse or other relatives who provide most of the care. As a result, day-care programs also serve a care-giver by providing respite so that he or she can work or engage in other activities. Elderly clients may attend a day-care program two to five times per week, depending on their needs and the particular day-care program.

There are several types of day-care programs. Most can be classified according to whether an emphasis is placed on the psychosocial or the health care components of the services offered. Services based on a psychosocial model of care emphasize a variety of activities that promote social interaction (e.g., coffee hours, discussion groups, outings into the community, games, crafts, or developing social skills). Some of these programs, but certainly not all, are specifically designed for those persons who are cognitively impaired due to dementia or mental illness.

A second type of day-care program emphasizes rehabilitation and other health care services. Day-care participants may engage in physical, occupational, or speech therapy or other types of treatment. The goal of these programs is to help elderly persons to regain their independence following a serious illness or injury. Skilled nursing care and supervision of medications are services that also are provided under this model of care. Services tend to be more short-term when compared to services that are offered from a program based on a psychosocial model of care.

Many day-care programs use elements from both models of care. Day-care programs with a greater emphasis on psychosocial care may be affiliated with senior centers, mental health centers, churches, or private service organizations. Those persons with more of a focus on health care services often are sponsored by hospitals or nursing homes.

Day-care services are not available in many communities. Services are not reimbursed by Medicare, and a number of states do not use Medicaid funds for day-care. Furthermore, few day-care services are supported by public funds; therefore, many individuals cannot afford to use them.

To find day-care services in a given commu-

nity, contact I&R agencies, AAAs, senior centers, local hospitals, and community mental health clinics.

### Nursing Home Care

This is the most familiar component of the long-term care system. Too often, health care providers (particularly physicians) have little knowledge about the range of long-term care services. As a result, they often recommend institutionalization (nursing home care) without considering various alternatives that might be more beneficial and satisfactory to an older person and his or her family. At times, however, admission to a nursing home may, in fact, be the best solution. Therefore, careful attention needs to be given to an individual, his or her situation, and the available services. The decision to institutionalize an individual should not be made lightly.

There are two major types of nursing homes: 1) Skilled nursing facilities (SNFs); and Intermediate care facilities (ICFs). Other types of long-term care facilities, which provide few health care services, also should be familiar to those persons who care for elderly patients. These health care facilities include residential facilities or homes for the aged, board-and-room homes, and retirement homes. These types of facilities are discussed in the section on "Housing Programs" in this appendix.

Skilled nursing facilities provide 24-hour nursing care and other services to patients who are severely ill. Professional services include care by registered nurses (RNs), regularly scheduled physician visits, pharmaceutical services, activity programming, and rehabilitation services. Intermediate care facilities also provide many of these services. However, residents of ICFs are less acutely ill and do not require full-time professional attention. Also, ICFs are more numerous than SNFs.

Professional associations, state agencies, and various advocacy groups all are resources for information regarding nursing home care. The following professional associations provide educational services for their members and have chapters in most states or regions:

American Association  
of Homes for the Aged  
1050 17th St. NW Suite 770  
Washington, DC 20036  
(202) 296-5960

National Geriatrics Society  
212 W. Wisconsin Ave., 3rd Floor  
Milwaukee, WI 53203  
(414) 272-4130

American College  
of Nursing Home Administrators  
4650 East-West Hwy.  
P.O. Box 5890  
Bethesda, MD 20814  
(301) 652-8384

American Health Care Association  
1200 15th St. NW  
Washington, DC 20005  
(202) 833-2050

State agencies also provide information regarding nursing home care. A state's department of public health usually oversees nursing home care and maintains a file of nursing home services. A state's unit on aging may sponsor or provide information about nursing home ombudsman programs. These programs are designed to help resolve specific problems that patients and their families may have with a particular nursing home. State social service or public welfare departments often are responsible for administering or overseeing a state's Medicaid program. In most states, Medicaid funds pay a large proportion of nursing home bills.

Finally, many advocate groups dedicate much of their effort to issues that involve nursing home patient and resident rights. (*see* the Section on "Employment Services" in this appendix for a listing of advocacy organizations.) Many of these organizations also have, or can refer individuals to, publications regarding suggestions for selecting nursing homes, patient rights, and nursing home regulations.

### Respite Care Programs

These programs offer services that allow family members who are caring for dependent elderly relatives some relief from the constant care. Many professionals feel that these services are

crucial if a care-giver is to remain physically and mentally healthy and be able to continue to provide care.

It will likely take time and effort to locate respite services. While important in a long-term care services continuum, programs are loosely organized and do not exist formally in many communities. Many nursing homes will provide temporary short-term care. In some cases, a nursing home may provide care for 2-week periods, or it may offer care for an individual during the week, which allows that individual to go home on weekends. Nursing home services, however, may not be an option for many persons because of the expense. Home care programs and day-care programs often give respite in the course of providing regular services.

Senior centers, church groups, and various service organizations sometimes provide volunteers who can stay with an older person while his or her care-giver has a night or afternoon away from that dependent elderly relative.

## Hospice Services

In recent years, there has been an increasing recognition of the need to provide better and more humane care for terminally ill patients and their families. Hospice programs, which are designed to care for the social, psychological, and spiritual (as well as physical care) needs of a dying person, have developed rapidly. Hospice care emphasizes palliative care and the quality of life. The comfort of a patient through pain and symptom control is of paramount concern rather than the prolongation of life through aggressive, cure-oriented treatment.

Many hospitals have hospice units, often specifically for cancer patients. Some nursing homes also offer hospice services. Home care is a major component of hospice care, and some home health agencies have special hospice teams. The most comprehensive programs offer both outpatient and inpatient care. While there may be some independent hospice programs, the vast majority are affiliated with existing hospitals and home care programs.

Hospice services in a specific community may be located by contacting community hospitals, VA hospitals, home care programs that provide skilled care services, or:

National Hospice Organization  
1901 N. Fort Myer Dr., Suite 402  
Arlington, VA 22209  
(703) 243-5900

## Legal Services

Legal services are available to many older persons at little or no cost. Legal services for older persons may be obtained from four major sources: 1) Legal aid programs and services that are offered through the Legal Services Corporation; 2) Area agencies on aging (see “The Aging Network” section in this appendix); 3) Lawyer referral programs; and 4) Paralegal programs. Common problems where legal services may be warranted include:

1. Obtaining public benefits (e.g., Social Security, Supplemental Security Income (SSI) benefits, VA benefits);
2. Income maintenance (food stamp certification or pension plan benefits);
3. Age discrimination;
4. Medical malpractice;
5. Health law issues regarding Medicare, Medicaid, or nursing home care;
6. Abuse, neglect, and abandonment;
7. Guardianship or conservatorship;
8. Consumer fraud;
9. Wills and probate;
10. Landlord/tenant disputes.

Legal aid programs are private, independent, and non-profit. They provide services to individuals who meet financial eligibility requirements. The Legal Services Corporation is a federal program that partially supports legal aid programs. Services that are provided may vary by state; each state, in conjunction with the state Bar, sets its own priorities. In general, legal aid programs help older clients in matters that pertain to personal rights, eligibility rights for public benefits, Medicare and Medicaid benefits, housing, abuse, neglect, abandonment, guardianship and consumer fraud. In addition to these services, a portion of the federal funds are committed to the development of voluntary legal services or reduced-fee services for low-income clients.

The area agency on aging (AAA) is a second source for obtaining legal services for elderly

persons. The AAAs are mandated to provide advocacy and legal assistance. Specific services may be developed independently or in conjunction with other legal services programs. For example, AAAs may provide space for legal aid programs. In other cases, AAAs have worked to establish volunteer law projects in which private attorneys provide legal services at reduced fees or no cost to elderly clients. At a minimum, AAAs are knowledgeable about available legal services; they help older persons to use them (*see* the section on "The Aging Network" in this appendix for information on AAAs).

The third source for obtaining legal advice or services is to contact private attorneys listed in the yellow pages of the telephone book. In addition, some state Bars will refer elderly clients to attorneys who have special interests in issues related to elderly persons. Private attorneys are most appropriate for matters regarding pensions, malpractice suits, or other areas that are involved with the recovery of funds. Older persons should be encouraged to "shop" for private attorneys; clients should feel comfortable with their legal counsel, both professionally and personally.

Fourth, paralegal programs are available in some communities. Paralegals have received formal training and are employed by attorneys. They work on cases for individuals who are seeking public benefits (e.g., social security or public housing). Duties may include legal research, representing clients at hearings, drafting documents, and interviewing clients. Another group of non-professionals are community services advisors or advocates (CSAs). These persons do not work for attorneys, but they provide valuable assistance by representing elderly clients during formal hearings. CSAs may include older persons, staff members of senior centers, home care agencies, and other agencies that serve the elderly population. Neither paralegals nor CSAs may offer a legal opinion or legal advice.

In addition to the legal services described above, two other resources may be quite useful. Because it is important for older persons and others to understand their legal rights, Robert Brown of the American Civil Liberties Union has prepared a handbook: *The Rights of Older Persons* (New York, NY, Avon Press, 1979). This book provides extensive information on in-

dividual rights concerning income, health care, freedom, and property.

A second resource is the National Senior Citizens Law Center. This organization acts as an advocate for poor elderly clients in litigation, legislation, and administrative matters. It also sponsors workshops, publishes newsletters, handbooks, guides, and testimonies. For more information contact:

National Senior Citizens Law Center  
1636 W. 8th St.  
Los Angeles, CA 90017  
(213) 388-1381

National Senior Citizens Law Center  
1302 18th St. NW, Suite 701  
Washington, DC 20036  
(202) 887-5280

## Advocacy Organizations

Several groups and social service agencies serve as advocates for older persons. Advocacy may take the form of providing assistance to an individual who needs help in receiving a particular service, or it may involve efforts at the state, local, or national level to change policies to improve services for elderly persons. Advocacy also may include educating the public regarding physical, psychological, and social aspects of aging and the status of the elderly population in the United States.

Many of the organizations that are described in this appendix are mandated to provide advocacy services. Among these groups are the I&R organizations, senior centers, AAAs, and legal aid services. In addition, several organizations pursue advocacy-related activities in the sphere of public policy, as well as various educational and service-related activities. Included are:

American Association of Retired Persons  
1909 K St. NW  
Washington, DC 20049  
(202) 872-4700

Gray Panthers  
3700 Chestnut St.  
Philadelphia, PA 19104  
(215) 382-3300

Jewish Association for  
Services for the Aged  
40 West 68th St.  
New York, NY 10023  
(212) 724-3200

National Alliance of Senior Citizens  
2525 Wilson Blvd.  
Arlington, VA 22201  
(703) 528-4380

National Caucus and Center  
on Black Aged  
1424 K St. NW, Suite 500  
Washington, DC 20005  
(202) 637-8400

National Council on the Aging  
600 Maryland Ave. SW  
West Wing 100, Suite 208  
Washington, DC 20024  
(202) 479-1200

National Council on Black Aging  
Box 8813  
Durham, NC 27707  
(919) 684-3175 or 489-2363

National Council of Senior Centers  
925 15th St. NW  
Washington, DC 20005  
(202) 347-8800

National Indian Council on Aging  
P.O. Box 2088  
Albuquerque, NM 87103  
(505) 766-2276

National Interfaith  
Coalition on Aging  
P.O. Box 1924  
298 South Hull St.  
Athens, GA 30603  
(404) 353-1331

National Pacific/Asian Resource  
Center on Aging  
811 First Ave., Suite 210  
Seattle, WA 98104  
(206) 622-5124

National Senior Citizens Law Center  
1424 16th Ave, NW, Suite 300  
Washington, DC 20036  
(202) 232-6570

Urban Elderly Coalition  
600 Maryland Ave. SW, Suite 208  
Washington, DC 20024  
(202) 554-2040

## Employment Services

Most older persons retire voluntarily, and most report satisfaction with their retirement decisions. Key factors that are involved with successful retirement include good health and an adequate income. Regardless of these factors, many individuals desire to continue working on a full- or part-time basis. Some prefer to maintain previous positions, while others may seek new work roles.

Older persons who desire to keep working often face numerous obstacles. Although mandatory retirement policies are becoming less stringent, it usually is difficult for older workers to find positions. Periods of unemployment are longer for "older" workers (those over 45 years of age) than they are for younger workers. In 1967, the Age Discrimination in Employment Act was passed, which prohibits employers from denying employment opportunities (e.g., promotions) or dismissing employees who are 40–64 years old solely on the basis of age. Older workers who feel that they have been discriminated against because of age should be encouraged to seek counsel from legal services and/or to file complaints with the Equal Employment Opportunities Commission.

There are several programs that are designed to assist older workers in finding employment. One such program, The Senior Community Service Employment Program, is funded through Title V of the Older Americans Act. Funds are targeted for low income older persons who generally work in social service agencies providing services to the elderly or general community. The Green Thumb program is another national employment program. It is sponsored by the National Farmers Union and funded by the Department of Labor. Low income individuals with a rural farm background can be hired on a part-time basis to work on conservation, beautification, or outreach projects. Similarly, the U.S. Forest Service sponsors a Conservation Employment Program.

The State Employment Agency, the local AAA, and local senior centers can provide information regarding these and other employment programs. A national resource is:

National Institute on Aging, Work and Retirement  
(National Council on the Aging)  
600 Maryland Ave. SW  
Washington, DC 20024  
(202) 479-1200

Opportunities for volunteer work are greater than those for paid employment. Four volunteer programs are administered through the Federal agency ACTION: the Retired Senior Volunteer Program (RSVP), Foster Grandparents, Senior Companions, and the Service Corp of Retired Executives (SCORE). Senior centers, churches, nutrition programs and many other agencies serving the elderly also have organized volunteer programs which can provide meaningful activity for older persons. To locate these agencies, look under the white pages in the telephone book, or contact the local I&R agency or the AAA.

## Income Maintenance Programs

In general, the elderly have about half the income of younger people. Also, while the majority of older persons have adequate financial resources in old age, a disproportionate number of older persons fall into the poor and "near poor" (125% of the poverty threshold) categories. Individuals with the lowest incomes include very old women who live alone and minority older persons.

Social Security benefits are the primary source of income for elderly persons. If an individual has worked 40 quarters or 10 years of covered employment, or has been dependent on someone who has worked the required amount, he or she is eligible for Social Security benefits. The size of the benefits reflects the level of earnings during an individual's working years. Benefits are adjusted automatically each year to reflect changes in the cost of living. Benefits are not means-tested (i.e., limited only to low-income persons), so all persons who have met the work requirements receive Social Security checks.

The Supplemental Security Income (SSI) program is sponsored by the Social Security Administration and provides assistance to low-income elderly persons, to blind persons, and to

those permanently disabled. The program helps to provide a basic income floor. There is a means test for SSI benefits; individuals must meet specific income criteria to be eligible.

The Medicare program is an important part of the Social Security system and was established to assist older persons in obtaining health care. It is available to individuals over 65 years of age who are eligible for Social Security benefits. There are two parts to the program: Part A, hospital insurance and Part B, supplementary medical insurance. Part A is received automatically. To receive Part B benefits, an individual pays a monthly premium. Medicare generally covers part of the cost of acute medical care; it pays for very few long-term care services. Private health insurance is available to many older persons to supplement Medicare coverage. This coverage is beneficial, although there are many "horror stories" about older persons who unnecessarily purchase four or more health insurance policies in fear of a catastrophic health care event.

The local Social Security Administration (SSA) should be contacted for more detailed information regarding Social Security, Medicare, and SSI benefits. The SSA prints several helpful brochures that explain these and other income maintenance programs in more detail.

Social Security was never intended to be the sole source of income for elderly persons. It is important for individuals to have other financial resources. Private pension plans provide some of this additional support, although in the past many pensions have been inadequate or unavailable for a large proportion of the elderly population. Federal legislation passed in 1974 placed some controls on private pension plans to ensure that retirees receive benefits that are due them. In the future, private pension plans probably will become a more important source of income for elderly persons.

The Medicaid program authorized by the Social Security Administration, provides financial assistance to medically indigent elderly persons in most states. Eligibility requirements and benefits vary from state to state. In many states, Medicaid funds provide a large part of long-term institutional care.

All states also have general assistance programs for those with low incomes, and they are available to individuals who are ineligible for

Social Security or SSI due to their work histories or age. Eligibility requirements and benefits vary from state to state. For specific information regarding income maintenance programs in a given state, contact social service agencies (through AAAs or the programs listed in the section on "Elderly Abuse Programs" in this appendix). For eligible veterans, the Veterans Administration may provide income maintenance through pensions, medical care, and long-term care services.

The preceding paragraphs are a summary of the major income maintenance programs. More information regarding these and other services can be obtained from AAAs, advocacy and legal services, and social workers in various social service or health care agencies.

Younger persons should be encouraged to begin financial planning well before their retirement. Numerous preretirement planning programs are offered by private consultants or through businesses, colleges, and universities. This type of planning can do much to help persons to achieve a more financially secure old age.

## Housing Programs

Most older persons (approximately 70%) live in homes that they have owned and lived in for several years. Another 5% reside in institutions (e.g., nursing homes), 3% live in public housing units, and about 2% in board-and-care homes. About 5% live in mobile homes, and most of the rest live in apartments or other rental units.

Community resources for individuals who live in their own homes include various maintenance and repair services. These services are important for older persons who wish to remain in the familiar surroundings of their own homes, yet who are no longer able to perform basic maintenance. Home maintenance, or chore service, often is provided by the aging network and consists of routine care of a home. Examples of specific tasks that are performed include heavy cleaning (floors and windows), installation of storm windows, yard work, servicing major appliances, cleaning gutters, and making minor repairs. The local area agency on aging (AAA) can provide information regarding home maintenance resources within a given community.

Churches and various service organizations are another resource.

Some older persons may wish to move from their homes into housing that is smaller and requires less maintenance. For those persons with adequate incomes, a move into a retirement community may be an appropriate option. The population to which these communities cater is active independent individuals. Communities generally are self-contained in that they offer shops, medical services, and activity programs. As the population of these communities has aged, there has been an increased emphasis on the provision of various long-term care services as well. For information regarding retirement communities, check in the yellow pages of the telephone book or contact the local AAA.

For individuals without many financial resources, low-income housing or public housing may be an option, although in most communities there are long waiting lists. Section 8 housing (of the Housing and Community Development Act of 1974) is a major form of public housing for elderly persons. It consists of subsidized rent for individuals who meet specific age and income criteria. Residents pay 25% of their adjusted income for rent; the rest of the rental cost is subsidized by the federal government. Section 8 housing units may be owned by private non-profit, private profit, or public housing agencies. For information regarding public housing in your community, call the regional office of the federal Department of Housing and Urban Development, a city and/or county housing agency, or an I&R agency.

Congregate housing (including retirement homes and residential care facilities) is a housing option for older persons who are not completely independent, but who do not require nursing home care. In this type of situation, meals are prepared by the staff in a central kitchen and residents eat in a common dining room. Residents have their own rooms and may receive housekeeping and some personal care services. The AAAs, senior centers, and the yellow pages of the telephone book are sources of information regarding congregate housing.

Foster homes and board-and-care homes generally are for low-income elderly persons who are unable to live alone and have no families. They live in the homes of others who then

receive monthly payments to cover the costs of providing care. Board-and-care homes generally are not licensed by the state. Therefore, it is important that such housing options be examined very carefully before they are selected.

In addition to these formal programs, older persons have made some fairly innovative informal housing arrangements. For example, some older persons have come together and rented or purchased a large house. In one model, the residents have a staff (e.g., a manager and cook); in another model, the residents divide household tasks among themselves. For information regarding this type of arrangement, contact the local AAA.

## Educational Services

A prevailing myth is that intellectual functioning declines with age and that older persons are unable to learn. For most people, however, intelligence remains stable. Older persons can and do continue to learn throughout their entire lives. Colleges and universities are beginning to provide an opportunity for older persons to pursue academic interests. Many offer classes to elderly persons at reduced or no cost. Some colleges offer courses at senior centers, retirement homes, and even nursing homes. In addition, several universities and colleges participate in Elderhostel programs, in which persons move into university housing during the summer for study. There usually are a wide range of courses available.

For information regarding educational opportunities, contact local colleges or universities, or contact:

Elderhostel, National Office  
55 Chapel St.  
Newton, MA 02160

Institute for Lifetime Learning  
NRTA/AARP  
1909 K St. NW  
Washington, DC 20049

## Professional Associations

There are several professional organizations that focus on the study of aging and/or the care of elderly persons. Involvement in such an or-

ganization is helpful to a clinician, practitioner, or researcher who is interested in maintaining state-of-the-art knowledge. In addition to the national organizations listed below, there are professional organizations at state and regional levels. To identify these organizations, contact state units on aging or the national organization. There also are special interest groups within major professional organizations. For example, there is a gerontology section within the American Public Health Association.

Those professional organizations with a primary emphasis on aging are:

American Association for Geriatric  
Psychiatry  
505 N. Lakeshore Dr., Suite 1706  
Chicago, IL 60601  
(312) 329-0325

American Geriatrics Society  
10 Columbus Circle, Suite 1470  
New York, NY 10019  
(212) 582-1333

Gerontological Society of America  
1411 K St. NW Suite 300  
Washington, DC 20005  
(202) 393-1411

International Association of Gerontology  
c/o Dr. Ewald Busse  
Duke University Medical Center  
Durham, NC 27710

## Additional Resource Listings

There are additional publications that provide more detailed information regarding resources for older adults:

Akey DS, Gruber K, Leonard C (ed): *Encyclopedia of Associations*. Detroit, Gale Research Co, 1982.

Gelfand DE, Olsen JF: *The Aging Network: Programs and Services*. New York, Springer-Verlag, 1980.

Holmes MB, Holmes D: *Handbook of Human Services for Older Persons*. New York, Human Sciences Press, 1979.

Silverstone B, Hyman HK: *You and Your Aging Parent*. New York, Pantheon Books, 1982.



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