Beneficiary Profile: Yesterday, Today, and Tomorrow

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CHANGING DEMOGRAPHIC STRUCTURE OF THE POPULATION

Growth of the Elderly Population

The distribution of the population in the United States has shifted with considerable rapidity in both the number and proportion of the population 65 years of age or over. This population group has grown and will continue to grow at a rapid rate for the remainder of the 20th century and is expected to increase well into the next century. In the 50-year period 1940-90, the elderly population grew twice as fast as the population under 65 years of age. The U.S. Bureau of the Census (1993) projects that a similar differential rate of growth for the elderly population will continue in the next 50-year period, 1990-2040.

At the turn of the century, there were only 3.1 million elderly people, 4.0 percent of the total population (Table 1). Forty years later the number of elderly had tripled to 9 million, as the proportion increased to 6.8 percent. By 1994 the elderly population had more than tripled again, to 33.2 million persons, comprising 12.7 percent of the total population. The growth of the elderly population is attributable to the increased survival of the large generations of Americans born during the first quarter of this century, when birth rates were higher than they are today. The aging of the 19 million immigrants who entered the United States in the first three decades of this century also contributed to this growth. Because of the aging of the baby boomers born between 1946 and 1965, more than one out of five Americans will be 65 years of age or over by the year 2030, and the total number is projected to be 70 million, more than doubling in the 36-year period 1994-2030 (U.S. Bureau of the Census, 1995).

Within the group 65 years of age or over, the number and proportion of the oldest old population have also increased rapidly. In 1900, fewer than 125,000 persons were 85 years or over, comprising 4 percent of the elderly; by 1994, there were 3.5 million persons in this age group, or 11 percent of the elderly. In the 46-year period 1994-2040, the very old population is projected to quadruple and will comprise 18 percent of the elderly, the fastest growing segment of the population. This growth in the number of oldest old persons is explained by the aging of the baby-boom generation into old age and by continuing declines in mortality at advanced ages that many scientists predict. These projections are middle-series projections of the U.S. Bureau of the Census, based on assumptions of slightly increasing fertility rates, increasing life expectancy from 76 years in 1993 to 82.6 years in 2050, and net immigration of 880,000 persons each year (U.S. Bureau of the Census, 1993).

Mortality

In 1993, 2.3 million people died in the United States, a rate of 8.8 per 1,000 population. Because the population has been aging, a more accurate picture of mortality

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Table 1

Number and Distribution of the Population, by Age Group: United States, 1900-2050

Year	All Ages	65 Years of Age or Over			
		Total	65-74	75-84	85 or Over
		Number in Thousands			
Actual					
1900	76,303	3,084	2,189	772	123
1910	91,972	3,950	2,793	989	167
1920	105,711	4,933	3,464	1,259	210
1930	122,775	6,634	4,721	1,641	272
1940	131,669	9,019	6,375	2,278	365
1950	150,697	12,270	8,415	3,278	577
1960	179,979	16,675	11,053	4,681	940
1970	203,235	19,973	12,443	6,122	1,408
1980	226,546	25,550	15,581	7,729	2,240
1990	248,718	31,080	18,046	10,012	3,022
1994	260,341	33,159	18,712	10,925	3,522
Projected'					
2000	276,241	35,322	18,551	12,438	4,333
2010	300,431	40,104	20,978	13,157	5,969
2020	325,942	53,349	30,910	15,480	6,959
2030	349,993	70,175	37,984	23,348	8,843
2040	371,505	77,014	33,968	29,206	13,840
2050	392,031	80,109	34,628	26,588	18,893
		Percent Distribution			
Actual					
1900	100.0	4.0	2.9	1.0	0.2
1910	100.0	4.3	3.0	1.1	0.2
1920	100.0	4.7	3.3	1.2	0.2
1930	100.0	5.4	3.8	1.3	0.2
1940	100.0	6.8	4.8	1.7	0.3
1950	100.0	8.1	5.6	2.2	0.4
1960	100.0	9.3	6.1	2.6	0.5
1970	100.0	9.8	6.1	3.0	0.7
1980	100.0	11.3	6.9	3.4	1.0
1990	100.0	12.5	7.3	4.0	1.2
1994	100.0	12.7	7.2	4.2	1.4
Projected'					
2000	100.0	12.8	6.7	4.5	1.6
2010	100.0	13.3	7.0	4.4	2.0
2020	100.0	16.4	9.5	4.7	2.1
2030	100.0	20.1	10.9	6.7	2.5
2040	100.0	20.7	9.1	7.9	3.7
2050	100.0	20.4	8.8	6.8	4.8

† Middle-series projections.

SOURCES: U.S. Bureau of the Census: *Current Population Reports,* Series P-23, No. 128 and P-25, No.1018; and *Statistical Abstract of the United States,* Washington, DC, 1995.

trends is provided by the age-adjusted death rate, which eliminates the distortion associated with changing age composition. Thus, the crude death rate declined 9 percent, while the age-adjusted death rate for the total population declined 39 percent during the 43-year period 1950-93. Examination of the trend clearly shows two separate periods: (1) a moderate decline from 1950 to 1970, in which the age-adjusted mortality rate declined at an average annual rate of 0.8 percent; and (2) a rapid decline from 1970 to 1993, at 1.5 percent annually (Table 2).

Trends in mortality rates for the elderly population show a similar pattern. Changes in mortality for those 65-84 years of age were small from 1950 to 1970, but the rate

Table 2
Number of Deaths per 100,000 Resident Population and Percent Change: Selected Years, United States, 1950-93

Age and Cause of Death	Year 1950	1960	1970	1980	1993	Average Percent Change 1950-70	Average Annual Change 1970-93	Total Percent Change 1950-93
All **Causes**								
All Ages, Age-Adjusted	840.5	760.9	714.3	585.8	513.3	-0.8	-1.5	-39.0
All Ages, Crude	963.8	954.7	945.3	878.3	880.0	-0.1	-0.3	-8.7
65-74 Years of Age	4,067.7	3,822.1	3,582.7	2,994.9	2,617.1	-0.6	-1.4	-35.7
75-84 Years of Age	9,331.1	8,745.2	8,004.4	6,692.6	5,951.6	-0.8	-1.3	**-36.2**
85 Years of Age or Over	20,196.9	19,857.5	17,539.4	15,980.3	15,481.7	-0.7	-0.5	**-23.3**
Diseases of **the Heart**								
All Ages, Age-Adjusted	307.2	286.2	253.6	202.0	145.3	-1	-2.5	-52.8
65-74 Years of Age	1,839.8	1,740.5	1558.2	1,218.6	848.2	-0.8	-2.5	-53.9
75-84 Years of Age	4,310.1	4,089.4	3,683.8	**2,993.1**	2,182.9	-0.8	-2.3	**-49.4**
85 Years of Age or Over	9,150.6	9,317.8	7,891.3	7,777.1	6,668.9	-0.7	-0.7	27.1
Malignant Neoplasms								
All Ages, Age-Adjusted	125.4	125.8	129.8	132.8	132.6	0.2	0.1	5.7
65-74 Years of Age	692.5	713.9	751.2	817.9	876.1	0.4	0.7	**26.5**
75-84 Years of Age	1,153.3	1,127.4	1,169.2	**1,232.3**	1,366.9	0.1	0.7	18.5
85 Years of Age or Over	1,451.0	1,450.0	1,320.7	1,594.6	1,807.7	-0.1	1.4	**24.6**
Cerebrovascular Diseases								
All Ages, Age-Adjusted	88.8	79.7	66.3	40.8	26.5	-1.5	-4.1	-70.2
65-74 Years of Age	549.7	469.2	384.1	219.5	135.8	-1.8	-4.6	-75.3
75-84 Years of Age	1,499.6	1,491.3	1,254.2	788.6	479.1	-0.9	-4.3	-68.1
85 Years of Age or Over	2,990.1	3,680.5	3,014.3	2,288.9	1,607.7	0.4	-2.8	-46.2

SOURCES: National Center for Health Statistics: *Health, United* States, *1994,* DHHS Pub. No. (PHS) 95-1232, 1995; and Monthly Vital Statistics Report, Vol. 43, No. 6(S), December 8,1994, Hyattsville, MD.

of decline increased significantly from 1970 to 1993. This marked acceleration in declining mortality rates across the age range has had a significant impact on the demographic structure of the population in the recent past and is the basis for optimistic population projections in the future.

In 1900, infectious diseases (particularly influenza and tuberculosis) were the leading causes of death, accounting for one-fifth of all deaths in the United States. The rapid decline in the death rates for these causes has been evident throughout the developed world. Improvements in sanitation, nutrition, housing, and education contributed to the decline. Similarly, advances in medical care, such as immunization and' the use of antibiotics, are associated with declining mortality. Heart disease, cancer, and stroke have been the leading causes of death among the elderly since 1950.

More recently, however, decreases in death rates from some of the major chronic diseases, mainly the cardiovascular diseases, including heart and cerebrovascular diseases, have been evident. Heart disease continues to be the leading cause of death in the United States, and as such is the predominant influence on total mortality. The age-adjusted heart disease death rate decreased 53 percent from 1950 to 1993. Among the elderly, the death rates for heart disease declined 54 percent for those 65-74 years or age, 49 percent for those 75-84 years of age, and 27 percent for those 85 years of age or over. Some suggested explanations for the decline in heart disease mortality include: decreased smoking, improved management of hypertension, improved life styles, decreased dietary intake of saturated fats, more widespread physical activity, improved medical emergency services, and more widespread use and increased efficacy of coronary care units.

Malignant neoplasms, or cancer, are the second-leading cause of death for all ages and for the elderly in the United States. Age-adjusted death rates from cancer for all ages have increased 6 percent since 1950. For the elderly, however, the increases are larger: 27 percent for those 65-74 years of age, 19 percent for those 75-84 years of age, and 25 percent for those 85 years of age or over. The highest rates of increase occurred in cancer of the respiratory system, mainly as a result of the deleterious health effects of smoking.

The second major component of cardiovascular disease is cerebrovascular diseases or stroke, which are the third-leading cause of death among the elderly in the United States. From 1950 to 1993, cerebrovascular age-adjusted mortality rates for the total population decreased 70 percent, 75 percent for those 65-74 years of age, 68 percent for those 75-84 years of age, and 46 percent for those 85 years of age or over. Factors related to the rapid decline include expanded hypertension screening programs, improved management and rehabilitation of stroke victims, and effective hypertension therapy.

Life Expectancy

Life expectancy is a summary measure of mortality. Life expectancy and death rates are the oldest measures of health status. Early improvements in life expectancy have resulted from the control of acute infectious diseases, primarily by reductions in infant mortality. Recent improvements have been attributable to declining mortality from chronic diseases at the older ages.

Since the turn of the century, more than a quarter century (28 years) has been added to life expectancy at birth and more than 5 years have been added at age 65 (Table 3). Based on mortality experience in 1900, an individual born in that year could expect to live an average of 47.3 years; by 1990, life expectancy reached

Table 3

Life Expectancy at Birth and at Age 65, by Sex: United States, Selected Years, 1900-2050

Specified Age and Year	Total	Male	Female
		Years	
At Birth			
1900	47.3	46.3	48.3
1950	68.2	65.6	71.1
1960	69.7	66.6	73.1
1970	70.9	67.1	**74.8**
1980	73.7	70.0	77.5
1990	75.4	71.8	**78.8**
2000[1]	NA	73.2	80.2
2020[1]	NA	75.7	82.3
2030[1]	NA	77.0	**83.4**
2040[1]	NA	78.4	84.5
2050[1]	NA	79.7	85.6
At **65 Years**			
1900	11.9	11.5	12.2
1950	13.9	12.8	15.0
1960	14.3	12.8	15.8
1970	15.2	13.1	17.0
1980	16.4	14.1	**18.3**
1990	17.2	15.1	18.9
2000[1]	NA	16.4	20.0
2020[1]	NA	18.0	21.5
2030[1]	NA	18.9	22.3
2040[1]	NA	19.8	**23.2**
2050[1]	NA	20.8	24.0

[1] Projections based on middle mortality assumptions.

NOTE: NA is not available.

SOURCES: National Center for Health Statistics. *Health, United States, 1994.* DHHS Pub. No. (PHS) 95-1232, Hyattsville, MD, 1995; U.S Bureau of the Census: *Current Population Reports,* P25-1104, Washington, DC.

75.4 years. In 1900, an elderly person could expect to live 11.9 additional years to reach age 77; by 1990, life expectancy at age 65 increased to 17.2 years. Thus a person who reached age 65 in 1990 would survive on the average to about age 82.

Although improvements in life expectancy have been shared by males and females, women have experienced the most rapid improvements, especially in the first half of the 20th century when maternal mortality rates declined. Between 1950 and 1990, women gained 7.7 years, compared with only 6.2 years for men. In 1990, the gender gap in life expectancy at birth was 7 years. The latest U.S. Bureau of the Census population projections of life expectancy at birth show a steady rise to 79.7 years for males and 85.6 years for females in 2050, a gap of 5.94 years. At age 65, life expectancy in 1990 was 15.1 years for males and 18.9 years for females, a difference of 3.8 years. By 2050, life expectancy at age 65 is projected to increase to 20.8 years for males and 24 years for females, a difference of 3.2 years. Thus, the gender gap in life expectancy at birth and at age 65 is projected to narrow slightly by 2050. Longer life for women has some negative effects, including widowhood, living alone, and poverty in later life for women.

SOCIOECONOMIC CHARACTERISTICS OF THE ELDERLY POPULATION

Elderly Living Arrangements

The demographic shifts just described indicate clearly that the population of the United States, as in most industrialized societies, is aging, and the aged are predominantly female. Not only do women live longer than men, they tend to marry older men than themselves, so they are often widowed, and they are unlikely to remarry once widowed. In 1994, one-third of women 65-74 years of age and almost two-thirds of those 75 years of age or over were widowed. In contrast, less than one-seventh of men 65-74 years of age and one-fifth of those 75 years of age or over were widowed (U.S. Bureau of the Census, 1995). An increasing number of older persons live alone rather than in family settings. In 1950, 14 percent of all elderly people lived alone; by 1994, this proportion had increased to 30 percent. The disparity in the marital status of older men and women results in significant differences in their living arrangements. In 1994, three out of four elderly men were married and living with their wives, but only two-fifths of elderly women were married and living with their husbands (U.S. Bureau of the Census, 1995).

About 9 million elderly people live alone and about one-fourth live in poverty, roughly twice the rate of all other elderly people, including those living with family members (Commonwealth Fund Commission on Elderly People Living Alone, 1993). An additional 27 percent of elderly people living alone have incomes between 100 and 150 percent of the poverty level. Among poor elderly women living alone, almost 80 percent are widows who often lack the essential economic, physical, and emotional supports that are essential to maintain their independence and the quality of their **lives.**

Income of the Elderly

Annual income, reliance on Social Security benefits, and poverty rates are important factors that may affect the amount, type, and distribution of health services used by Medicare beneficiaries. As persons age, they tend to leave the labor force or to work fewer hours. When they retire, their pensions are generally lower than their prior earnings. Thus, there is a pattern of declining income for older persons. The lower incomes of the elderly are associated with factors over which they have little control: their sex and race, the health and survival of their spouses, their health, their ability to work, their educational attainment (which is strongly associated with lifetime earnings), their investments, and their assets. For men, income tends to increase with age until about age 55, when income levels begin to decline steadily. Median income levels for women begin at lower levels than for men and start to decline at age 55. In 1993, the median income of men 65 years of age or over was $14,983, about 76 percent higher than that for elderly women ($8,499) (U.S. Bureau of the Census, 1995).

The overall economic position of the elderly has improved significantly since 1970. However, not all elderly persons have shared equally in the income gains. Elderly married couples fared best over the 8-year period 1979-87; their real incomes in 1987 dollars rose 21 percent, from $17,330 to $20,996, respectively. The incomes of elderly unrelated females increased by only 13 percent over the period, from $6,966 to $7,863. The economic situation for elderly black women who are poor has not improved over the period (Taeuber, 1992).

Sources of Income

Social Security benefits are the largest source of income for the elderly. In 1994, 9 out of 10 elderly persons received benefits; 15 percent received all their income from Social Security; and 36 percent depended on Social Security for 80 percent of their income (Grad, 1996). For married couples, Social Security accounts for 38 percent of income, other public and private pensions for 20 percent, earnings for 23 percent, assets for 17 percent, and other (including public assistance) for 3 percent. For nonmarried persons, Social Security accounts for nearly one-half (49 percent) of their income. Since the 1940s, there has been a marked increase in reliance on Social Security and a decline in the importance of earnings, although a paycheck is still important to those older people who still work. If Social Security and other government programs were not counted, the poverty rate for the elderly would be four times higher than the current rate, and one-half of the persons 65 years of age or over would live in poverty (Treas, 1995). It also should be recognized that non-cash benefits, including Medicare, Medicaid, subsidized or public housing, and food stamps, also improved the economic welfare of older persons.

Poverty Among the Elderly

Even with the improvements in income, 3.8 million persons, or 12.2 percent of the elderly, lived in poverty in 1993. This rate represents a significant improvement from 1970, when the poverty rate among the elderly was 24.6 percent (U.S. Bureau of the Census, 1995). Poverty among the elderly is accounted for partly by the substantial reduction in income occurring at retirement and by the likelihood of major expenditures for health care. Poverty is disproportionately high among elderly Hispanic persons (21 percent), elderly black people (28 percent), and elderly unrelated individuals (24 percent). Persons 65 years of age or over comprise 11.9 percent of the total population but make up 9.6 percent of the poor.

The current government definition of poverty does not include the value of in-kind transfers under income. If the value of in-kind food, housing, and medical care transfers received by the low-income elderly population were regarded as income, the poverty rate would be reduced. There is disagreement, however, over the inclusion of medical care, especially institutional care, in determining poverty status, especially among the elderly. The recent report of the Panel on Poverty and Family Assistance (Citro and Michael, 1995) recognized that medical care benefits are not fungible, that medical care needs are highly variable across the population, and that adjusting the poverty thresholds to appropriately account for these costs is difficult. The panel recommended that "medical care risk" indexes be developed that measure the economic risk to families and individuals of having no or inadequate health insurance coverage but that such indexes should be kept separate from the measure of economic poverty (Citro and Michael, 1995).

Employment and Retirement Patterns

Labor force participation decreases rapidly with increasing age. In 1994, 65.5 percent of men 55-64 years of age and 48.9 percent of women in the same age group were in the labor force. For persons 65 years of age or over, however, the rates decreased to 16.8 percent for men and 9.2 percent for women. The proportion is projected to continue to decrease to 14.7 percent for men 65 years of age or over and 8.8 percent

for women by the year 2005 (U.S. Bureau of the Census, 1995).

There has been a growing trend toward early retirement. In 1994, of the 1.6 million new awards made to retired workers 62 years of age or over, 1.1 million (78 percent) were reduced because they were made to workers between 62 and 65 years of age (Social Security Administration, 1995). Although these early retired persons are eligible for Social Security benefits, they do not qualify for Medicare until age 65. Therefore, there is a potential gap in health insurance between retirement and age 65 for this group. This problem is further complicated because many early retirees retire because of poor health.

A recent report by Lewin-VHI, Inc. (1994) for the American Association of Retired Persons reviewed the economic security issues related to the aging of the baby-boomer population, the 76 million persons born in the United States from 1946 to 1964. By 2030, surviving baby boomers will be 66-84 years of age, and most will be retired. The study found that most baby boomers should have higher incomes in retirement than today's elderly, assuming that the economy grows at a moderate pace from 1990 to 2030 and that current economic and social policies remain in place. However, not all persons will benefit uniformly. Many individuals will live in strained economic circumstances because of low earnings, poor education, and discrimination. Black persons, single women, and the poorly educated will be particularly vulnerable.

The demographic and socioeconomic characteristics of the elderly are associated with their health status and use of health care services. Therefore, these statistics serve as a basis for understanding the magnitude of the problem of providing medical and long-term services to the increasing number of persons who live to an age at which they are vulnerable to chronic illnesses that can cause limited or total disability.

HEALTH STATUS OF THE ELDERLY

Health-Status Measures

The health of the elderly can be measured in several ways: their own perception of health, limitation in their usual activities, and restricted and bed-disability days. Table 4 summarizes these health-status measures by age and sex. In 1994, 28 percent of the non-institutionalized elderly population reported that their health was fair or poor, compared with other people their age. Approximately 11.8 million persons, 38 percent of the non-institutionalized elderly population, reported limitations of activity as a result of chronic diseases, 23 percent reported limitation in their major activity, and 11 percent reported they were unable to carry on their major activity.

Elderly men and women reported about the same health status: About 29 percent of men and 28 percent of women reported feeling fair or poor. The percent limited in activity because of chronic conditions was slightly higher among women-39 percent, compared with 37 percent for men. The percent reporting limitation in major activity was also higher for elderly women than men, 24 percent and 21 percent, respectively, but 11 percent of elderly men, compared with 10 percent of the women, reported that they were unable to carry on their major activity.

Other measures of health status of the elderly relate to their functional abilities. National estimates of basic and instrumental activities of daily living of older persons are available from the 1991 National Health Interview Survey. Activities of daily living (ADLs) refer to the ability to independently accomplish self-care activities such as

Table 4

Health-Status and Utilization Measures, Non-Institutionalized Persons 65 Years of Age or Over, by Age and Sex: United States, 1994

Measure	Age Group			Sex	
	65 Years or Over	65-74 Years	75 Years or Over	Males	Females
Health-Status Measures					
Percent Feeling Fair or Poor	28.0	NA	NA	28.5	27.5
Percent Limited in Activity	38.2	36.7'	38.9[2]	36.9	39.1
Percent With Limitation in Major Activity	22.6	29.3'	19.5[2]	20.5	24.1
Percent Unable to Carry on Major Activity	10.7	16.7[1]	8.1[2]	11.4	10.3
Restricted Activity Days	34.6	NA	NA	30.9	37.2
Bed Disability Days	14.4	NA	NA	12.1	16.1
Utilization Measures					
Physician Visits Per Person	11.3	10.3	12.7	10.6	11.8
Percent Seeing Physician in Last Year	88.1	86.7	90.2	86.4	89.3
Short-Stay Hospital Discharges Per 100 Persons	26.9	23.0	32.4	29.0	25.4
Days of Care Per 100 Persons	208.6	164.9	271.2	241.9	184.8
Average Length of Stay (Days)	7.8	7.2	8.4	8.3	7.3

[1] Rates are for the group 65-69 years of age.

' Rates are for the group 70 years of age or over.

NOTE: NA is not available.

SOURCE: National Center for Health Statistics: *Current Estimates from the National Health Interview Survey:* United States, 1994. Senes 10, No. 193.

personal hygiene and mobility. Not surprisingly, for all ADL measures, difficulty in performance of these activities among elderly men and women increased with age, and elderly women had more difficulty than men in all ADL measures. The two most frequent limitations in ADLs were difficulty in controlling urination and difficulty in getting outside. For the latter, the rates ranged from 7 percent to 22 percent for men and 8 to 39 percent for women, with the highest rates among those 85 years of age or over (Table 5). In contrast, both elderly men and women were least likely to experience difficulty with eating: About 1 percent reported such difficulties.

Instrumental activities of daily living (IADLs) refer to activities inside and outside the home, such as meal preparation, using the telephone, shopping, managing money, and doing housework. The highest rate of difficulty in performing these activities was in doing heavy housework, ranging from 12 to 23 percent for men and 22 to 43 percent for women, with the highest rates for those 85 years of age or over. Except for using the telephone, elderly women had more difficulty than elderly men in performing this group of activities, as shown in Table 5. This differential could be in part the result of the older age distribution of women compared with **men.**

Acute Conditions Among the Elderly

Acute conditions are those that are less than 3 months in duration. Included are influenza, pneumonia, indigestion, viral infections, fractures and sprains, acute eye and ear infections, headaches, and other conditions. A total of 445 million acute conditions were reported in 1994, of which the elderly reported 34.1 million conditions, or 7.7 percent of the total. Respiratory conditions, including influenza and the common cold, are the most frequent conditions among

Table 5

Percent of Non-Institutionalized Persons 65 Years of Age or Over Having Difficulty With Activities of Daily Living, By Sex and Age: United States, 1991

Activity	Persons 65 Years of Age or Over	Males				Females			
		65 Years of Age or Over	65-74 Years of Age	75-84 Years of Age	85 Years of Age or Over	65 Years of Age or Over	65-74 Years of Age	75-84 Years of Age	85 Years of Age or Over
					Percent				
Activities of Daily Living									
Walking	8.5	6.3	4.3	9.2	15.4	10.1	7.8	11.4	21.4
Getting Outside	10.9	6.7	3.9	10.4	21.7	14.0	8.3	17.3	39.4
Getting In and Out of Bed or Chair	6.7	4.2	2.8	6.3	11.1	8.5	6.8	9.2	17.1
Eating	1.1	1.0	0.5	1.6	2.8	1.2	0.9	1.6	1.5
Dressing	3.6	2.3	1.4	3.1	9.9	4.5	4.0	4.5	8.1
Bathing or Showering	6.3	3.7	1.8	6.0	15.4	8.3	5.8	9.3	21.6
Using Toilet	3.0	1.6	0.4	3.6	3.5	4.0	3.3	4.2	8.0
Controlling Urination	12.0	8.5	7.0	11.8	7.1	14.5	11.9	16.4	24.7
Instrumental Activities of Daily Living									
Preparing Own Meals	5.3	3.6	2.1	5.7	11.9	6.4	4.5	7.8	14.2
Using Telephone	2.0	**2.2**	1.5	3.2	6.1	1.9	1.2	2.5	5.2
Shopping	10.6	6.4	4.3	8.8	20.4	13.6	8.3	17.7	**33.8**
Managing Money	3.9	2.9	1.4	4.8	12.4	4.6	2.4	6.2	13.3
Light Housework	6.5	4.7	2.6	7.8	12.9	7.7	5.7	10.0	**12.2**
Heavy Housework	21.9	13.8	11.7	17.1	22.7	27.7	21.5	34.4	42.9

SOURCE: Data from the 1991 National Health Interview Survey Public Use Data Tape, National Center for Health Statistics, Hyattsville, MD; data analysis by the author.

the elderly, with an incidence of 109.9 per 100 persons 65 years of age or over. Injuries, including contusions, fractures, and sprains, ranked second (National Center for Health Statistics, 1995a).

For all acute conditions, the incidence rate has remained relatively stable at around 172-182 per 100 persons, except for a rise to 190 per 100 persons in 1986 because of an outbreak of influenza that year. The incidence rate for acute conditions is highest for children under 18 years of age. For the elderly, the rate was about 100-110 per 100 persons for the period 1984-94, except for 1986 and 1992, when the rate rose to 120 and 121 per 100 persons, respectively.

Restricted-activity and bed-disability days (a subset of restricted activity days) associated with acute conditions were also effected by the influenza outbreak in 1986. An average of 9 restricted-activity days, of which 4 were bed-disability days, were reported by the elderly in 1994 (National Center for Health Statistics, 1995a).

Chronic Illness Among the Elderly

The prevalence of chronic illness increases with age and becomes a major cause of disability requiring medical care. The prevalence of specific chronic conditions causing limitations of activity among the non-institutionalized elderly population is high. In 1994, 50 percent had arthritis, 36 percent had high blood pressure, and 32 percent had heart disease. Many elderly persons suffer from impairments: Twenty-nine percent had hearing impairments, 17 percent had orthopedic impairments, and 8 percent had visual impairments (Figure 1).

Not surprisingly, older persons who suffer from chronic and disabling conditions are high utilizers of medical resources. In 1994, elderly people reported 11.3 physician visits per year and 27 hospitalizations per 100 persons per year (Table 4).

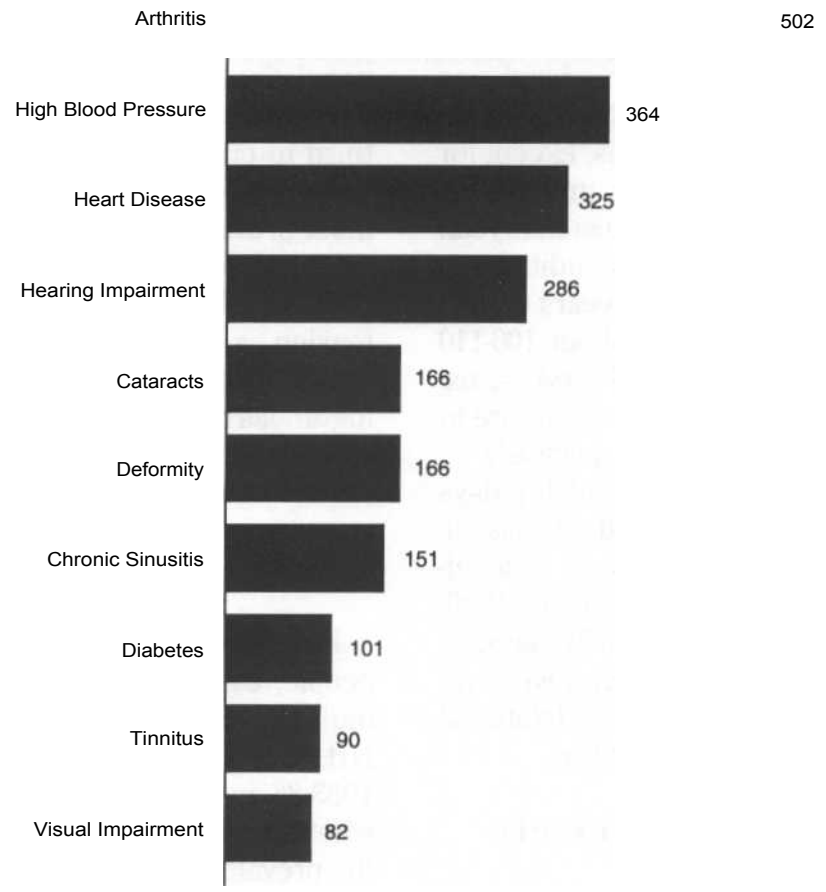
Although elderly persons with chronic disabling conditions are high utilizers of medical resources, little relationship exists between the most prevalent chronic conditions and the leading cause of death for the population 65 years of age or over. Heart disease, the leading cause of death, ranks third in prevalence among the non-institutionalized elderly population. Arthritis, the most prevalent chronic condition, is not a cause of death, although arthritis is often disabling. High blood pressure, or hypertension, a risk factor for cerebrovascular and heart disease, ranks second, and hearing impairments and cataracts, which rank fourth and fifth, are also not causes of death, though often **disabling.**

Trends in Multiple Chronic Conditions

It is generally recognized that many people, especially the elderly, suffer from multiple conditions and disability. The NHIS data tapes for two 3-year periods, 1983-85 and 1992-94, were combined to see whether there were important changes in the prevalence of multiple conditions in the 9-year period, a time of declining mortality rates for many of the major chronic conditions. Table 6 shows the trends over this 9-year period in the chronic conditions causing limitation of activity, the proportion with multiple conditions, and the number of conditions per person, by socioeconomic characteristics. The total number of chronic conditions per person causing limitation of activity remained about the same, at about 1.6 per person. This pattern occurred for all ages and for all characteristics-sex, race, marital status, and current activity. For both periods, the number of reported limiting chronic conditions per person increased with age up to age 85, when the number declined to about the rate reported for those 65-74 years of age. This reduction in the number of conditions in the

Figure 1

Prevalence of Top Ten Conditions per 1,000 Persons 65 Years of Age or Over: United States, 1994



SOURCE: National Center for Health Statistics: 1994 Health Interview Survey. Hyattsville, MD. 1994.

oldest age group may be the result of mortality or the institutional selection process, in which the sickest persons die or enter nursing homes before age 85.

During this 9-year period, the proportion of the population limited in activity and reporting one condition also remained about the same: 62 percent in the 1982-85 period and 63 percent in 1992-94. Not surprisingly, the proportion of the population with multiple conditions increased with age in both periods; about one-half of the population 65 years of age or over reported multiple chronic conditions.

USE OF MEDICAL CARE SERVICES

Use of health services increases with age, and the elderly consume health services in amounts disproportionate to their numbers in the population (Rice and Feldman, 1983; Rice, 1986; Rice and LaPlante, 1988). The use of medical care services increases with age. Elderly people make more frequent visits to physicians than do younger people. In 1994, non-institutionalized elderly people had a physician contact (not including physician visits to hospital inpatients) an average of 11 times

Table 6

Number of Chronic Conditions Per Person Causing Limitation of Activity and Distribution of Conditions, by Socioeconomic Characteristics: United States, 1983-85 and 1992-94

Socioeconomic Characteristic	1983-85			1992-94		
	Limiting Conditions Per Person	Percent With		Limiting Conditions Per Person	Percent With	
		1 Condition	Multiple Conditions		1 Condition	Multiple Conditions
Sex						
Both Sexes	1.621	62.1	37.9	1.608	63.4	36.6
Male	1.555	65.3	34.7	1.545	66.3	33.7
Female	1.678	59.3	40.7	1.663	60.8	39.2
Age						
Under 17 Years	1.197	84.7	15.3	1.215	83.0	17.0
17-44 Years	1.297	78.2	21.8	1.351	75.6	24.4
45-64 Years	1.738	56.0	44.0	1.736	57.5	42.5
65-74 Years	1.879	48.2	51.8	1.841	51.6	48.4
75-84 Years	1.917	48.0	52.0	1.888	49.3	50.7
85 Years or Over	1.860	51.5	48.5	1.875	50.4	49.6
Race						
White	1.605	62.8	**37.2**	1.591	64.2	35.8
Black	1.751	56.1	43.9	1.715	58.2	41.8
Other	1.476	68.9	31.1	1.582	64.8	35.2
Marital Status'						
Married	1.618	61.7	38.3	1.596	63,5	36.5
Widowed	1.940	46.7	53.3	1.934	48.4	51.6
Never Married	1.423	71.2	28.8	1.481	69.3	30.7
Divorced or Separated	1.758	56.4	43.6	1.767	56.2	43.8
Current Activity'						
Employed	1.315	76.4	23.6	1.326	76.5	23.5
Unemployed	1.396	72.0	28.0	1.418	71.2	28.8
Not in Labor Force	1.846	51.1	48.9	1.844	52.1	47.9

[1] Excludes oersons under 18 years of ace and unknown.

SOURCE: Data from the National Health Interview Survey Public Use Data Tapes, National Center for Health Statistics, Hyattsville, MD; data analysis by the author.

a year, in contrast to an average of 7.3 times for persons 45-64 years of age. About 88 percent of the elderly had a physician contact within the preceding year (Table 4).

Those 75 years of age or over had 12.7 contacts per year, and 91 percent of this group had a physician contact within the preceding year (National Center for Health Statistics, 1995a).

Hospital Utilization

Elderly people are hospitalized more frequently and stay in the hospital longer than younger persons. According to the 1994 NHIS, there were 8.3 million discharges of elderly persons from non-Federal short-stay hospitals in 1994, with a total of 65 million days of care. About 12 percent of the non-institutionalized population was 65 years of age or over in 1994; they accounted for 30 percent of all discharges and 40 percent of all days spent in hospitals (Figure 2). Less than 4 percent of the civilian non-institutionalized population was 75 years of age or over in 1994, yet they accounted for 15 percent of the discharges and 21 percent of all the days of care.

From 1965 to 1983, there was a steady rise in the number and rate of hospitalization

among the elderly. According to the National Hospital Discharge Survey (U.S. Senate Special Committee on Aging, 1989; National Center for Health Statistics, 1988, 1991, 1993, 1995c), the number of hospital discharges of persons 65 years of age or over rose steadily from 4.6 million in 1965 to 11.3 million in 1983. The discharge rate increased from 249 per 1,000 elderly persons in 1965 to 413 in 1983. With the introduction in 1983 of prospective payment for hospital care on the basis of diagnosis-related groups, the rate of discharges of elderly persons declined to a low of 327 per 1,000 elderly in 1990 (Table 7). By 1993, the number of such discharges rose to 11.2 million and 342 per 1,000 elderly, a function' of the aging of the population.

The average length of hospital stay for elderly persons rose to a high of 14.2 days in 1968 and subsequently declined steadily to 7.8 days in 1993. Hospital days of care, a combination of discharges and length of stay, rose to a high of 110 million days in 1983 and subsequently declined to 88 million by 1993. The number of days of care per 1,000 population fluctuated between 3,700 and 4,000 per 1,000 aged persons between 1967 and 1983. After the change to prospective payment, the rate declined to a low of 2,676 in 1993. It is clear that this change in payment and an emphasis on cost control significantly reduced the use of hospital care by the elderly.

Long Term Care

In addition to medical care, many elderly persons who have lost some capacity for self-care require a wide range of social, personal, and supportive services. Long-term care (LTC) is defined as physical care over a prolonged period for those persons incapable of sustaining themselves without this care (Kane and Kane, 1980). LTC is viewed as a spectrum of services responding to different needs across a range of chronic illness and disability. To address the multiple and varied LTC needs of the aged population, services must cross the boundaries between income maintenance and health, social, and housing programs (Harrington et al., 1985; Wiener, Illston, and Hanley, 1994).

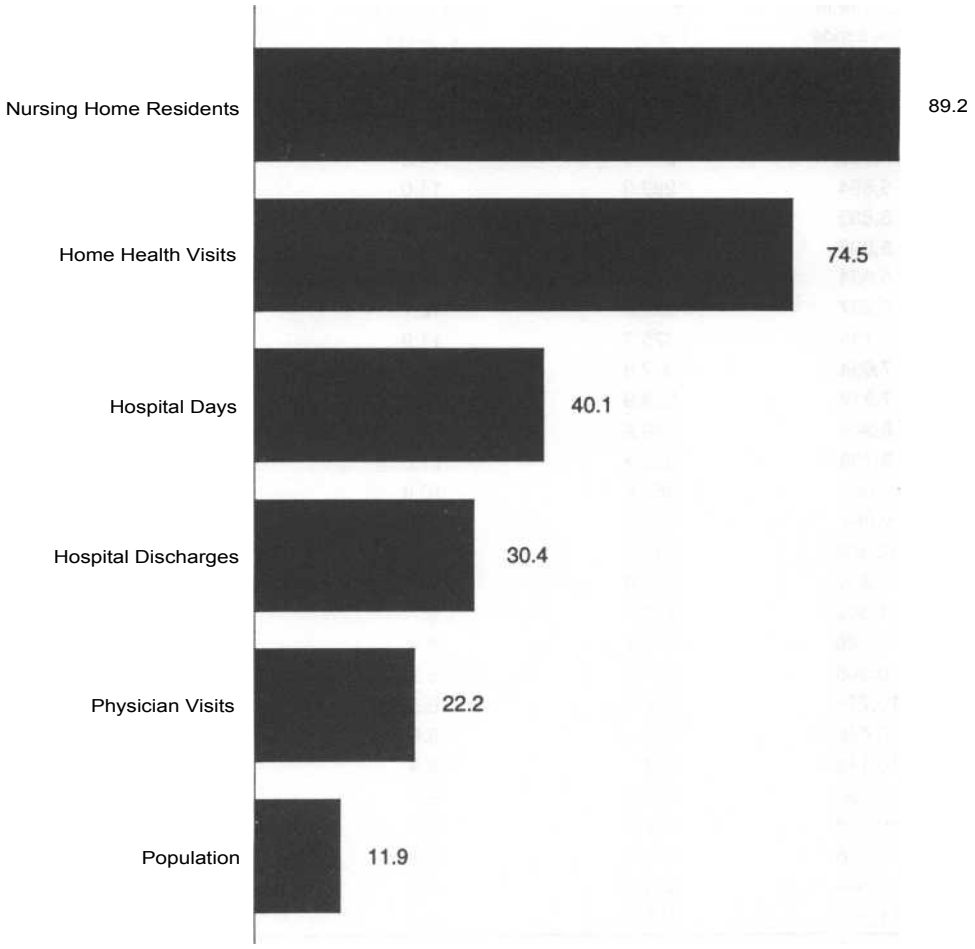
About 12.6 million persons require LTC, where LTC is defined as needing assistance with either ADLs or IADLs. ADLs include basic tasks of everyday life such as eating, bathing, dressing, toileting, and getting in and out of bed; IADLs encompass a range of activities that are more complex, such as handling personal finances, preparing meals, shopping, traveling, doing housework, using the telephone, and taking medications. Of those persons in need of LTC, approximately 42.1 percent are under 65 years of age, and the remaining 57.9 percent (7.3 million persons) are elderly. Of the 12.6 million persons in need of LTC, 10.3 million live in the community, and 2.3 million live in institutions (Vladeck, Miller, and Clauser, 1993).

Family and friends, rather than paid personnel, provide the bulk of LTC services on an informal basis. The availability of care at home often plays a significant role in sustaining the capacity of elderly and disabled persons to maintain their independence and often determines their admittance into institutions. Furthermore, caregiving is assumed to be women's responsibility because the home has traditionally been considered the women's domain, and caring a natural female characteristic (Estes, Swan, and Associates, 1992).

A wide range of organizations, professionals, and paraprofessionals are involved in the delivery of LTC. LTC services can be delivered in a variety of settings: the client's own home, community foster homes, multipurpose senior centers, day hospitals, day care centers, and various

Figure 2

Rates of Health Care Utilization, by Persons 65 Years of Age or Over: United States, 1994



SOURCE: National Center for Health Statistics: 1994 Health Interview Survey, 1993 National Home and Hospice Survey, and 1991 National Health Provider Survey.

residential settings, including sheltered housing, board-and-care homes, residential hotels, old-age homes, nursing homes, rehabilitation centers, and mental hospitals.

With the growing numbers of chronically ill elderly and disabled adults, increasing consideration is being given to alternatives in providing LTC services and preventing the need for high-cost institutionalization. Research and demonstrations in the United States have focused on LTC needs, service systems, and financing for the elderly. Recent years have seen the development of a variety of community services, such as day care, home health, meals on wheels, and respite care. Most of these services are aimed at maintaining the independence of the aged or disabled person at home to avoid institutional placement, often viewed as a measure of last resort.

Research studies have suggested that the provision of community-based non-institutional services has generally raised health care costs because limited reductions in institutional care are more than offset by the increased demand for and use of community-based care (Weissert, Cready,

Table 7

Number and Rate of Discharges, Average Length of Stay, and Number and Rate of Days of Care for Persons 65 Years of Age and Over: United States: 1965-93

Year	Discharges		Average Length of Stay in Days	Days of Care	
	Number in Thousands	per 1,000 Persons		Number in Thousands	per 1,000 Persons
1965	4,602	249.3	13.0	59,286	3,240.9
1966	4,911	261.8	13.4	65,807	3,508.1
1967	5,215	273.5	14.1	73,532	3,856.4
1968	5,520	285.0	14.2	78,384	4,047.0
1969	5,694	289.3	14.0	79,716	4,050.2
1970	5,883	293.3	13.1	77,067	3,842.2
1971	5,986	291.1	12.6	75,424	3,667.9
1972	6,634	315.6	12.2	80,934	3,850.3
1973	6,937	322.3	12.1	83,938	3,899.8
1974	7,185	325.7	11.9	85,502	3,875.8
1975	7,654	337.3	11.6	88,754	3,912.7
1976	7,912	339.9	11.5	90,797	3,908.9
1977	8,344	349.2	11.1	92,618	3,876.1
1978	8,708	355.4	11.0	95,411	3,909.4
1979	9,086	361.5	10.8	97,740	3,904.2
1980	9,864	383.7	10.7	105,358	4,105.6
1981	10,408	396.5	10.5	109,088	4,155.3
1982	10,697	398.8	10.1	108,000	4,026.2
1983	11,302	412.7	9.7	109,655	4,004.3
1984	11,226	400.4	8.9	100,237	3,574.8
1985	10,508	368.3	e 7	91,726	3,215.1
1986	10,716	367.3	8.5	91,041	3,120.7
1987	10,459	350.5	8.6	90,397	3,029.9
1988	10,146	334.1	8.9	90,191	2,970.0
1989	10,230	330.2	8.9	90,795	2,930.4
1990	10,333	327.1	8.7	89,552	2,834.6
1991	10,806	340.3	8.6	92,942	2,927.0
1992	10,864	336.5	8.2	89,484	2,771.7
1993	11,201	341.6	7.8	87,755	2,676.2

SOURCES: (U.S. Senate Special Committee on Aging, 1989); (National Center for Health Statistics, 1988, 1991, 1993, 1995c).

and Pawelak, 1988). Others suggest that evaluation of community-based care should consider the benefits associated with reinforcing existing informal support networks and meeting the preferences of the elderly and their caregivers in addition to the cost effectiveness of the services provided (Vladeck, Miller, and Clauser, 1993).

According to the 1991 National Health Provider Inventory, about 4.2 percent of the elderly 65 years of age or over and 17.5 percent of persons 85 years of age or over are in nursing homes (National Center for Health Statistics, 1994a). An additional 413,040 people, of which one-half are elderly persons, were in board-and-care homes. Other chronically ill elderly persons are in psychiatric or other chronic disease hospitals, Veterans Administration hospitals, and other LTC facilities. In general, elderly residents of nursing homes suffer from multiple chronic conditions and functional impairments. It has been estimated that the elderly's risk of institutionalization is about 40 percent (Kemper and Murtaugh, 1991).

About $103 billion, or 13 percent of the $832 billion in personal health care expenditures in 1994, were spent on LTC. Of this total, 42 percent comes from private resources, and the remaining 58 percent

from public sources: 38 percent from Medicaid and 20 percent from other public sources, such as Medicare. Private LTC insurance represents only 5 percent of total LTC dollars. In 1994 more than twice as much was spent on institutional care as on community-based care: $72 billion versus $31 billion, respectively (Levit et al., 1996).

Provision of formal home health services has increased substantially in the past three decades in large part as a result of increased public funding under Medicare and Medicaid. In 1991, 65 per 1,000 Medicare enrollees received home health services. On any given day during 1992, there were 929,500 elderly home health patients, representing 3 out of 4 of the 1.2 million patients served by home health agencies. These patients were predominantly female (66 percent), white (70 percent), widowed (44 percent), married (35 percent), and not Hispanic (69 percent) (National Center for Health Statistics, 1994b).

Expenditures for home health care are the fastest growing component of national personal health care expenditures. In 1994, $30.9 billion, 3.9 percent of the total, was spent for home health care services (Levit et al., 1996). By the year 2005, home health expenditures are projected to rise to $68 billion (Burner and Waldo, 1995).

EXPENDITURES FOR MEDICAL CARE OF THE AGED

Although 12 percent of the population was 65 years of age or over in 1987, this group accounted for 36 percent of all personal health expenditures (latest data available) (Waldo et al., 1989). Children and youth under age 19, 29 percent of the population, accounted for 12 percent of total spending; adults 19-64 years of age comprised 59 percent of the population and accounted for 52 percent of total spending. For the elderly, private funds paid 35 percent of personal health care spending and public funds paid 65 percent, of which Medicare paid for 42 percent, Medicaid 16 percent, and the Veterans Administration, 7 percent

Medicare Payments

During the last three decades, medical care has come to be recognized as a basic right, along with food, clothing, and shelter. The government has played a significant role in the attainment of this right, greatly enhanced by the 1965 enactment of Medicare and Medicaid. Medicare is the single largest health insurer in the country, covering virtually all elderly persons 65 years of age or over (32.5 million people) and certain persons with disabilities or kidney failure (3.9 million). Medicare personal health care outlays in 1994 amounted $166.1 billion (Levit et al., 1996).

Medicare is oriented toward acute care; long-term nursing home care and outpatient drugs are not covered, and patients must also pay coinsurance and deductibles. Medicare covers less than one-half of the total medical care expenses of the elderly (Waldo et al., 1989). To pay for medical coinsurance and in some cases, uncovered benefits, about 75 percent of elderly Medicare beneficiaries have some form of private insurance to supplement Medicare (Chulis et al., 1993). Despite all these sources of health insurance, the elderly spend an increasing share of their after-tax income on health expenses, rising from 7.8 percent in 1972 to 12.5 percent in 1988 (DeLew, Greenberg, and Kinchen, 1992).

The number of elderly enrollees doubled from 19 million in 1966 to 38 million in 1994, reflecting the rise in the elderly population during the past two decades (Health Care Financing Administration, 1996). The largest relative increase in enrollment occurred among those 85 years of age or over, in part because of the increasing life

expectancy already discussed. The number of persons served increased 45 percent from 1977 to 1993, rising from 570 to 825 per 1,000 enrollees 65 years of age or over, and the rates increase with age. In 1993, for example, the number of persons served per 1,000 enrollees 65-66 years of age was 752; for those 85 years of age or over, it was 906.

Medicare payments per person served in 1993 were more than three times the 1977 amount, rising from $1,332 to $4,263. Payments per enrollee, however, rose almost five times during the same period, from $759 in 1977 to $3,519 in 1993, reflecting the slower growth in enrollment relative to the accelerated growth of medical spending. Payments per person served and per enrollee also increase with age. In 1993 payments per person served rose from $2,798 for those 65-66 years of age to $5,609 for those 85 years of age or over. The comparable amounts per enrollee were $2,238 and $5,083, respectively.

There are large variations in the distribution of payments per Medicare enrollee. For example, a large proportion of enrollees incurred small payments or none at all. An estimated 18.7 percent (6.8 million) of all Medicare enrollees (including aged and disabled) had no payments made on their behalf. An additional 34.3 percent (12.4 million) incurred payments of less than $500. In contrast, health care spending in the Medicare program is concentrated on a relatively small proportion of very sick beneficiaries. In 1993, an estimated 10.1 percent (3.7 million) of Medicare enrollees had payments of $10,000 or more, and they accounted for 69.7 percent ($90.2 billion) of all Medicare payments (Health Care Financing Administration, 1995).

Medicaid Payments

Medicaid covers low-income aged, blind, and disabled persons, pregnant women, or dependent children, and is jointly financed by Federal and State governments; the Federal share of total expenditures ranges from 50 to 83 percent, with poorer States receiving a higher percentage from the Federal Government. About 60 percent of the poor with incomes below the poverty line, however, are excluded by Medicaid (De Lew, Greenberg, and Kinchen, 1992). Medicaid expenditures in 1994 amounted to $122.9 billion (Levit et al., 1996).

Of the 35.1 million Medicaid recipients in 1994, 12 percent were 65 years of age or over, accounting for 31 percent of the expenditures under the program; 16 percent of the recipients were blind or disabled and accounted for 39 percent of the expenditures; and 72 percent obtained benefits through the Aid to Families with Dependent Children program, accounting for 30 percent of expenditures (National Center for Health Statistics, 1996).

Expenditures in the Last Year of Life

Various studies have shown that elderly people approaching death or institutionalization have very high expenditures for medical care (Lubitz and Prihoda, 1984; Scitovsky, 1984, 1988; Riley and Lubitz, 1989; Roos, Shapiro, and Roos, 1987). In one of their earliest studies, Lubitz and Prihoda (1984) found that in 1978, the 1.1 million Medicare enrollees in their last year of life represented 5.9 percent of all enrollees but accounted for 28.2 percent of program expenditures. Medicare beneficiaries who died in 1978 were reimbursed for all covered services in their last year, about four times the amount reimbursed for services provided to survivors. Average reimbursement per decedent for hospital care was 7.3 times higher in the last year of life than for survivors; 3.9 times higher for physician and other medical services, and 12.7 times higher for nursing home care.

In their latest study, Lubitz and Riley (1993) found that Medicare payments per person increased nearly four times both among all elderly persons and among decedents between 1976 and 1988. However, the percentage of total dollars spent for decedents changed little, fluctuating between 27.2 and 30.6 percent, and the percentage that decedents represented of all enrollees fluctuated between 5.1 percent and 5.4 percent.

The high medical costs at the end of life are not a new phenomenon, and available data do not support the assumption that high medical expenses at the end of life are largely the result of aggressive, intensive treatment of patients who are moribund. The data suggest that most sick people who die are given the medical care generally provided to the sick, and sick care is **expensive.**

FUTURE MORBIDITY PATTERNS

Compression of Morbidity

Changing morbidity and mortality play an important part in estimating future illness patterns and in developing population projections, and considerable conjecture and controversy have arisen about future morbidity patterns. One theory holds that improvements in life style will delay the onset of disability, reducing the prevalence of morbidity from chronic disease and compressing morbidity at older ages. A continuing decline in premature death is foreseen, along with the emergence of a pattern of natural death at the end of a natural life span (Fries, 1980). Another theory argues that the prevalence of chronic disease and disability will increase as life expectancy increases, leading to a "pandemic" of mental disorders and chronic diseases (Kramer, 1980). Thus, the extension of life will bring on an extension of disease and disability and higher costs. This increase in longevity is seen as "the price of our success at surviving" (Cassel, Rudberg, and Olshansky, 1992).

A review of the evidence concludes that the number of oldest-old is increasing rapidly, the average period of diminished vigor will probably rise, chronic diseases will probably occupy a larger proportion of our life span, and the need for medical care in later life is likely to increase substantially (Schneider and Brody, 1983). It is, of course, possible that these phenomena will be taking place simultaneously: There may be an increasing number of individuals in good health nearly up to the point of death and an increasing number with prolonged severe functional limitation, with a decline in the duration of infirmity (Rice and Feldman, 1983). The effect on the prevalence of morbidity would, of course, depend on the relative magnitude of the various changes. Models linking morbidity and mortality can and are being developed to predict how healthy or ill cohorts of the older population will be in the future (Manton, 1982).

A recent study suggests that the prevalence of chronic disability in the elderly may have declined in the period from 1989 to 1992 (Manton, Corder, and Stallard, 1993). This decline is the result of a number of factors: increased education and income in elderly cohorts and improvements in mortality.

An important question is: Are the additional years of life added to the elderly years of independence, free of disability, or years of chronic illness and dependency? Katz et al. (1983) developed a measure of active life expectancy based on functional well-being. The expected years of active life show a decrease from 10 years for those 65-70 years of age to 2.9 for those 85 years of age or over. More recent data on years of healthy life show a decrease from

11.9 years for those 65-70 years of age to 3.1 years for those 85 years of age or over (National Center for Health Statistics, 1995b). Life expectancy at age 65 in 1990 was 20.8 years and at age 85 it was 8.3 years. Thus, only about 57 percent of the years remaining at age 65 may be years of healthy life; at age 85, 37 percent of remaining years may be healthy years.

Impact of an Aging Population

The incidence of chronic illness increases with age and becomes a major cause of disability requiring medical care. The cost of care for those suffering from chronic illness accounts for a large proportion of national expenditures for health care. Health trends of middle-aged and older persons since the late 1950s paradoxically include both longer life and worsening health (Verbrugge, 1984). The apparent worsening health, as reflected in the increasing prevalence of many chronic conditions, is attributed to greater awareness of diseases as a result of earlier diagnosis and earlier accommodations to disease. Longer life, as reflected in decreased mortality rates, may be attributed to earlier and better medical care of diagnosed conditions, earlier and better self-care after diagnosis, and possibly lower incidence of some chronic diseases.

Both the U.S. Bureau of the Census and the Social Security Administration have assumed continued reductions in mortality and improved life expectancy to the year 2050, resulting in a rapidly aging population. Based on the population projections made by the U.S. Bureau of the Census, national estimates were made of the impact of these demographic changes in the age structure of the population on health status, health services utilization, and expenditures for health care to the year 2050. The projections were based on current age-gender-specific rates of health-status and utilization patterns, although it is expected that additional changes in levels of morbidity, therapies and technologies, availability, cost of care, and social and economic conditions will also contribute to altered patterns and levels of utilization of medical care services.

Table 8 presents the results of these projections for the 46-year period 1994-2040 in activity limitations, medical care use, and expenditures. During this 46-year period, the total population is projected to increase 43 percent, while the group 65 years of age or over will increase 132 percent. The total number of persons limited in ADLs is projected to increase 76 percent; the number of elderly with limitations will increase 166 percent. Physician visits and short stay hospital days for the elderly will almost double, and the number of nursing home residents is projected to increase from 1.4 million to 4.3 million in 2040 to meet the needs of the aging population. Using constant 1994 dollars, total personal health expenditures are projected to increase 74 percent; for the elderly an increase of 147 percent is projected. In 1994, 13 percent of the population age 65 and over consumed 37 percent of total personal health expenditures; by 2040 the elderly are projected to comprise 21 percent of the population, with more than one-half of the expenditures made on their behalf.

How closely these population projections for the United States will correspond to future demographic changes is uncertain. Several demographers question the assumptions made by the U.S. Bureau of the Census and the Social Security Administration and project more elderly persons in the future (Singer and Manton, 1993). The interaction of future demographic changes and changing disability prevalence is unclear. Whatever else happens, however, the projected growth in the number of very old

Table 8

Medical Care Utilization and Expenditure Statistics, by Age Group: United States, 1994-2040

Characteristic and Year	All Ages	Age Group			
		Under 65 Years	65 Years and Over		
			Total	65-74 Years	75 Years and Over
Population'		Thousands			
1994	260,342	227,183	33,159	18,712	14,447
2000	276,240	**240,918**	**35,322**	18,551	16,771
2010	302,431	262,326	40,105	20,979	19,126
2020	325,939	272,591	53,348	30,909	22,439
2030	351,045	280,870	70,175	37,984	32,191
2040	371,504	294,490	77,014	33,968	43,046
Persons With Limitations in Activity'					
1994	39,057	27,211	11,846	6,215	5,631
2000	43,562	29,648	13,914	6,315	7,599
2010	49,759	33,749	16,010	7,145	8,865
2020	56,011	35,116	20,895	10,529	10,366
2030	62,738	35,204	27,534	12,942	14,592
2040	68,592	37,114	31,478	11,573	19,905
Physician Visits'		Millions			
1994	1,384	1,064	320	171	150
2000	1,501	1,129	372	174	199
2010	1,680	1,256	424	196	228
2020	1,859	1,303	556	289	267
2030	2,058	1,324	734	355	379
2040	2,220	1,393	827	317	510
Days of Hospital Care'		Thousands			
1994	143,551	87,301	56,250	27,398	28,852
2000	160,327	93,777	66,550	27,939	38,611
2010	183,187	106,569	76,618	31,784	44,834
2020	210,149	110,541	99,608	46,975	52,634
2030	243,525	110,923	132,602	57,861	74,741
2040	270,145	117,088	153,057	51,747	101,310
Personal Health **Expenditures'**		Constant 1994 Billions of Dollars			
1994	831	520	311	136	175
2000	861	552	309	135	175
2010	985	601	384	152	231
2020	1,120	625	496	224	271
2030	1,309	643	665	276	389
2040	1,442	675	767	247	521
Nursing Home **Residents`**		Thousands			
1994	1,426	108	1,318	'766	'552
2000	1,706	119	1,587	'830	[5]757
2010	2,087	130	1,957	'914	[6]1,043
2020	2,595	137	2,458	'1,243	[8]1,216
2030	3,325	138	3,188	'1,643	[8]1,545
2040	4,255	145	4,110	'1,692	[8]2,418

' Estimates are from the U.S. Bureau of the Census.

' Projections based on 1994 National Health Interview Survey age-sex-specific rates applied to U.S. Bureau of the Census population projections.

' Based on 1987 HCFA age-specific per capita expenditures inflated to 1994 and applied to U.S. Bureau of the Census population projections.

' Projections based on 1991 age-specific rates applied to U.S. Bureau of the Census population projections.
Figure is for ages 65-84 years.

' Figure is for ages 85 years and over.

SOURCE: Projections produced by the author, 1996.

persons would alone have a significant impact on the need and demand for medical and LTC services and on health expenditures.

CONCLUSION

It is difficult to accurately forecast changes in the medical care system and in patterns of medical treatment, government regulations and legislation, inflation, insurance coverage, education, income, and other important parameters of health care; however, continuing rapid growth in the number and proportion of aged in the population is certain.

The burden of an increasingly larger number and percentage of elderly persons will greatly affect Social Security, welfare, and Medicare benefit payments. An aging population raises many important policy issues (Rice and Estes, 1984). Included are the integration of medical, social, and LTC systems and their financing, political and ethical concerns, geriatric medical care needs versus supply, alternative delivery systems, and the roles of health-care providers. The heterogeneity of the aged population and their special health and LTC needs present challenges for policymakers who are concerned with equity, effectiveness, and the quality of life. The organization, delivery, costs, and financing of medical, social, and LTC services will need to be restructured and reshaped to effectively and efficiently meet the special needs of the elderly.

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