United States General Accounting Office

GAO

Report to the Honorable
William S. Cohen,
Special Committee on Aging,
U.S. Senate

June 1991

LONG-TERM CARE

Projected Needs of the Aging Baby Boom Generation

GAO/HRD-91-86

GAO

United States
General Accounting Office
Washington, D.C. 20548

Human Resources Division

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June 14, 1991

The Honorable William S. Cohen
Special Committee on Aging
United States Senate

Dear Senator Cohen:

By virtue of its numbers, the baby boom generation, about 76 million born between 1946 and 1964, has already had a profound impact on American education and, in more recent years, the workforce. As the baby boom generation ages, rapid growth in the numbers of elderly people who need nursing home care or care at home will increase long-term care resource requirements. This growth will be a significant issue in the 21st century.

This report responds to the August 9, 1990, letter in which the late Senator John Heinz asked us to examine how the changing composition of the U.S. population in the 21st century will affect nursing home and home care services as well as the population available to pay for such services. In this report, we provide information on projections of (1) the disabled elderly population and its use of long-term care services, (2) the number of home health aides required, (3) the costs of future long-term care services, and (4) the base of taxpayer or employed workforce available to pay for the elderly needing care.

Scope and Methodology

In order to obtain information, we used (1) population projection data from the Census Bureau and the Social Security Administration and (2) long-term care projections—such as the number of elderly (65 years and older) using nursing homes and home care services, the number of home health aides needed, and the future costs of long-term care services—made by researchers at the Urban Institute, the Brookings Institution, and the Center for Demographic Studies at Duke University. These groups are leading sources for projections in the long-term care field. Their projections cover the period from 2018 through 2060. This period includes the years in which the baby boom generation will be the primary consumers of long-term care services. (See apps. II and III for additional information on these projections.)

In addition, we reviewed the methods used by these researchers and conducted interviews with them to determine reasons for variation in

projections. We conducted our review between October 1990 and January 1991 in accordance with generally accepted government auditing standards.

Long-Term Care Needs of a Growing Elderly Population

The 21st century will see an unprecedented growth in the elderly population. Much of this growth will occur because of the aging of the baby boom generation. According to the Bureau of the Census, nearly 31 million people in the United States were 65 years or older in 1989 (see fig. 1).[1] This elderly group is projected to more than double under a middle mortality assumption, increasing to over 68 million by 2050.[2]

The population aged 85 and over is also expected to increase and could make up nearly one-quarter of the elderly population by 2050 (see fig. 1). This growth will have a dramatic impact on the need for long-term care services because of the higher rates of disability and utilization by the 85-and-over population. For example, while less than 14 percent of the elderly aged 65 to 74 were considered disabled in 1985, over 58 percent of the elderly aged 85 and over were considered disabled.[3]

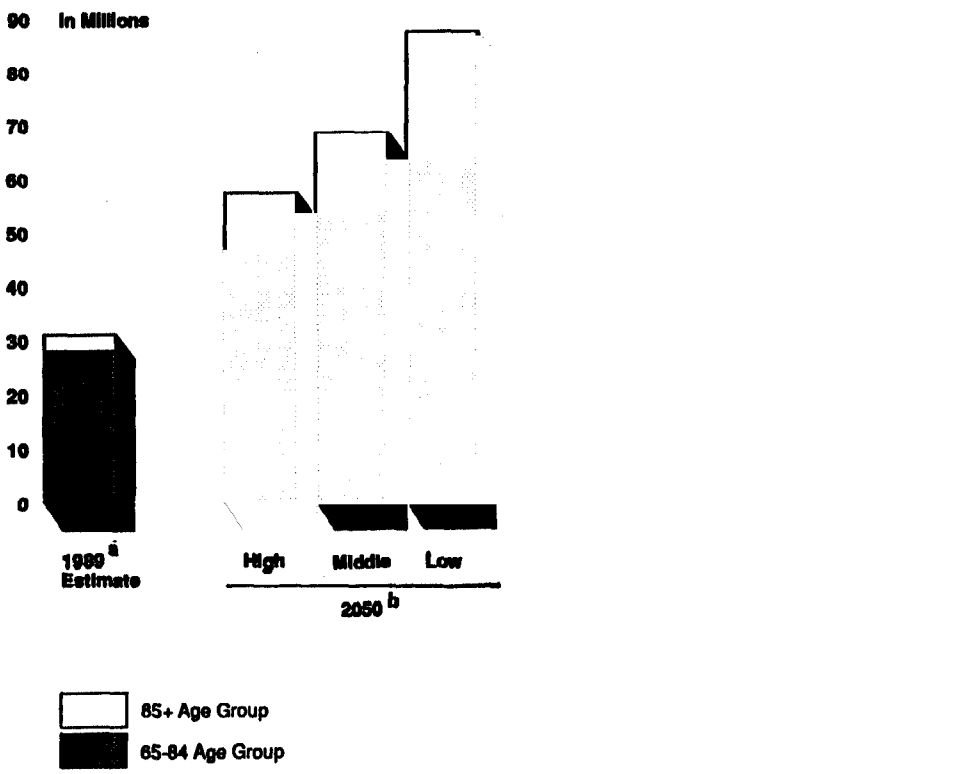
The disabled elderly suffer from limitations in performing one or more (1) activities of daily living (ADLs), such as eating, dressing, toileting, bathing, transferring, and continence, or (2) "instrumental" activities of daily living (IADLs), such as doing housework, preparing meals, managing money, shopping for personal items, and using the telephone. Long-term care services consist of assistance with such basic activities and routines of daily living. These services may also include skilled and

[1]U.S. Bureau of the Census, "U.S. Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1989," Current Population Reports, series P-25, no. 1057 (Washington, D.C.: Department of Commerce, 1990).

[2]U.S. Bureau of the Census, "Projections of the Population of the United States by Age, Sex, and Race: 1988 to 2080," Current Population Reports, series P-25, no. 1018 (1989). The middle mortality scenario has life expectancy increasing from 75 years in 1986 to 78 years in 2005 and 80 years in 2050.

[3]Brookings analysis, based on the 1982 National Long-Term Care Survey; Esther Hing, "Use of Nursing Homes by the Elderly: Preliminary Data from the 1985 National Nursing Home Survey," Advance data from Vital and Health Statistics, no. 135 (Hyattsville, Md.: National Center for Health Statistics, Department of Health and Human Services, May 14, 1987), p. 2; U.S. Bureau of the Census, "Projections of the Population of the United States, by Age, Sex, and Race, 1983 to 2080," Current Population Reports, series P-25, no. 952 (May 1984), table 6; and "Health Statistics on Older Persons, United States, 1986," Vital and Health Statistics, series 3, no. 25 (June 1987), p. 15.

Figure 1: Elderly Population by Age Groups (1989 and 2050)



[a]Source: U.S. Bureau of the Census, Current Population Reports, series P-25, no. 1057 (1990).

[b]Source: U.S. Bureau of the Census, Current Population Reports, series P-25, no. 1018 (1989). These are projections, using differing mortality assumptions, of the elderly population by age groups. Under the middle mortality scenario, life expectancy is expected to increase from 75 years in 1986 to 78 years in 2005 and 80 years in 2050. Under the high mortality (slow improvement) scenario, life expectancy is expected to increase to 77 years by 2050. Under the low mortality (rapid improvement) scenario, life expectancy is expected to increase to more than 80 years by 2005 and 85 years by 2050.

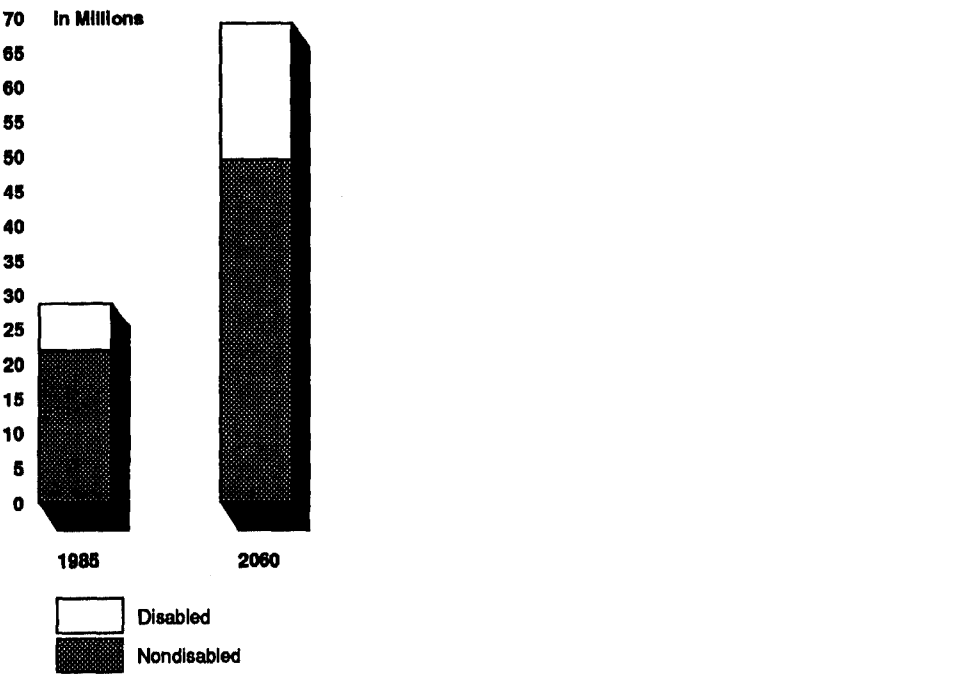
therapeutic care for the treatment and management of chronic conditions. Services can be provided in a variety of settings—the individual's home, the community, or an institution.[4]

[4]A Call for Action, The Pepper Commission, U.S. Bipartisan Commission on Comprehensive Health Care (Sept. 1990).

Projections of the disabled elderly population, made by researchers at the Urban Institute and Duke University, are presented in appendix II. Researchers at Duke University project that in 2020, the disabled elderly population could be as low as 10 or as high as 14 million; in 2060, it could be as low as 14 or as high as 24 million. Projections made by researchers at the Urban Institute also show variation, although the absolute number of disabled elderly projected is much larger.

Not only is the disabled elderly population expected to grow, but the proportion of the elderly that is disabled is also expected to grow (see fig. 2). The growth in this proportion is due to the changing age composition of the elderly population, with an increasing proportion of elderly aged 85 and over. Researchers at Duke University project that this proportion will increase from 23.7 percent in 1985 to 28.6 percent in 2060.

Figure 2: Disabled and Nondisabled Elderly Populations (1985 and 2060)



Source: K. Manton, "Epidemiological, Demographic, and Social Correlates of Disability among the Elderly," The Milbank Quarterly, vol. 67, suppl. 2, pt. 1 (1989).

Factors Affecting Projections of Future Disabled Elderly

Projections of the disabled elderly population vary according to how disability is defined and what assumptions are used for future disability and mortality rates. These projections are made by applying estimates of the percentage of elderly that will be disabled to projections of the future elderly population. However, there is no standard, generally accepted definition of disability. Surveys measuring disability include different questions about ADL and IADL performance. Researchers have applied different definitions of disability to the survey information, resulting in varying estimates of the current proportion of the elderly that is disabled. In making projections, researchers have made different assumptions about how future prevalence of disability may differ from current levels. Finally, disability projections vary because alternative projections of the total elderly population differ with the mortality assumptions used.

Variation in Definition of Disability

Individual estimates of the current disabled elderly population can vary considerably depending on how the underlying survey defines disability and what criteria are used by researchers when they analyze disability.[5] For example, the researchers at Duke University estimate current disability levels using a survey that includes only disabilities that have lasted, or are expected to last, at least 90 days. The Urban Institute researchers, however, estimate current disability levels using a survey that did not ask about the duration of the disability. As a result, estimates of the total number of disabled elderly in the mid-1980s ranged from 6.8 million, as estimated by Duke University researchers, to 9.0 million, as estimated by the Urban Institute researchers. Much of this difference can be accounted for by differences in the IADL population, who only require assistance with activities such as shopping rather than activities such as eating.

In addition, researchers sometimes include different ADLs in their disability calculations. For example, when researchers at the Urban Institute used the Supplement on Aging to the National Health Interview Survey, they included dressing, bathing, transferring, eating, and using the toilet, but did not include continence.

[5]As used here, disability refers to a limitation in performing one or more ADLs or IADLs. A number of factors affecting the definition of disability are discussed in appendix I.

Researchers Make Different Assumptions About the Future Prevalence of Disability

Projections of the number of disabled elderly in the next century can also vary because of different assumptions about the future prevalence of disability. At present there is inconclusive evidence as to whether the elderly are becoming more or less disabled. Some researchers argue that medical advances have increased life expectancy, but have not changed the age of onset of morbidity.[6] Others contend that morbidity will be increasingly compressed into a smaller part of life.[7]

The effects of changing an assumption about the future prevalence of disability can be substantial. For example, projections by Duke University researchers indicate that if disability rates declined as rapidly as mortality rates, there would be 20 percent fewer disabled elderly in 2020 and 30 percent fewer in 2060.

Effects of Different Mortality Assumptions

Different projections of the size of the total elderly population is another factor that can affect projections of the disabled elderly. The projected number of total elderly varies when different mortality assumptions are used. For example, projections by the Census Bureau show that the total elderly population is expected to increase to over 68 million by 2050 under a middle mortality assumption. Depending on whether future mortality rates are higher or lower than expected, however, the projected elderly population by 2050 could range anywhere from over 57 million to nearly 87.5 million.[8]

The uncertainty about mortality illustrates the potential inaccuracies that are inherent in very long-range projections. For example, demographers in the 1940s substantially underestimated the mortality rate improvements that would occur in subsequent decades. Consequently, projections of the very elderly population—people aged 85 and older—fell short of the actual number of the very elderly by a large margin

[6]E. Gruenberg, "The Failures of Success," Milbank Memorial Fund Quarterly: Health and Society, vol. 55 (Winter 1977); and M. Kramer, "The Rising Pandemic of Mental Disorders and Associated Chronic Diseases and Disabilities," Acta Psychiatrica Scandinavica Supplementum, vol. 62, supplement 285 (1980).

[7]J. Fries, "Aging, Natural Death and the Compression of Morbidity," New England Journal of Medicine (July 17, 1980); and J. Fries, "The Compression of Morbidity," Milbank Memorial Fund Quarterly: Health and Society, vol. 61 (Summer 1983).

[8]U.S. Bureau of the Census, Current Population Reports, series P-25, no. 1018 (1989).

(1.2 million projected for 1990 compared with the actual number of over 3 million in 1989).[9]

Those Using Care Also Expected to Increase

The future growth in the number of disabled elderly indicates that the demand for long-term care services will dramatically increase. In the mid-1980s, only about one in five elderly with long-term care needs lived in a nursing home. The rest lived in the community, and most of them relied on the informal help of family and friends.[10]

Use of Nursing Home Care

The rapidly growing population aged 85 and over is expected to cause a sharp rise in the number of elderly who will use formal, paid care in the future because of higher rates of utilization and disability by the 85-and-over population. Projections by the Brookings Institution concerning the number of elderly who are expected to use paid long-term care services in the future are given in appendix III. According to Brookings researchers, the number of elderly using nursing homes during the course of a year is expected to increase by 76 percent over the next 30 years—from about 2.3 million in 1988 to about 4.0 million in 2018.[11] This compares with a 61 percent increase in the overall number of elderly. Thus, a larger fraction of the elderly population is expected to use nursing home services. Research at both the Urban Institute and Duke University also forecast, for the first few decades of the 21st century, an increase in the number of elderly using nursing homes, ranging from just under 3 million to over 5 million.

These projections are based on an assumption that current nursing home use rates for the elderly will prevail in the future. It is difficult to assess the validity of this assumption. No concepts of appropriate or desirable level of nursing home use have been established. The use of nursing homes (as measured by the percentage of elderly residing in nursing

[9]W. Thompson and P.K. Whelpton, Estimates of Future Population of the United States: 1940-2000 (Washington, D.C.: U.S. Government Printing Office, 1943); and U.S. Bureau of the Census, Current Population Reports, series P-25, no. 1057 (1990).

[10]A. Rivlin, J. Wiener, R. Hanley, and D. Spence, Caring for the Disabled Elderly: Who Will Pay? (Washington, D.C.: The Brookings Institution, 1988), p. 5.

[11]The Brookings estimates report the total number of people using nursing homes at any time during the year rather than at a point in time. These estimates include many short-stay patients that are not included in estimates of nursing home use on a given day during the year.

homes) varies tremendously across states.[12] During the 1970s, states began to control growth in the number of nursing home beds.[13] Consequently, the ratio of beds per 1,000 elderly in 1989 was slightly below the level in 1978 (52.5 in 1989 compared with 53.4 in 1978). In some states, the reductions have been quite substantial. For example, in Colorado, Oregon, Washington, and Wisconsin, this ratio decreased by at least 17 percent between 1978 and 1989.[14]

Large declines in some states may continue into the future. However, some researchers argue that despite recent efforts by states to cut costs by constraining the nursing home bed supply, the long-run increase in demand will be so great as to make this strategy untenable.[15]

It is not clear whether nursing homes will remain as the predominant form of institutional care. Board-and-care facilities, assisted living facilities, congregate housing, and continuing care communities may play more of a role in the future. These facilities can provide different mixes of ADL and IADL, as well as nursing and medical, services.

Factors Affecting Use of Paid Care by Elderly in the Community

The growing disabled population living in the community will generate more demands for both paid and unpaid care in the home. Forecasts of the growth in formal, paid home care services depend on the extent to which current reliance on informal care will be retained in the coming decades. Researchers at the Brookings Institution project that the number of elderly using paid home care services during the course of a year will rise from 4.0 million in 1988 to 6.4 million in 2018, an increase of 60 percent.[16]

It is uncertain whether reliance on unpaid care by family and friends will be viable for the future. With lower birth rates during the last 30 years, there may be fewer family members to provide care. At the same time, recent trends show that the labor force participation rate of

[12]"Nursing Home Characteristics: 1986 Inventory of Long-Term Care Places," Vital and Health Statistics, series 14, no. 33 (1989).

[13]C. Harrington, S. Preston, L. Grant, and J. Swan, Trends in Nursing Home Bed Capacity in the States (Paper presented at the November 1990 meeting of the American Public Health Association).

[14]Harrington and others, Trends in Nursing Home Bed Capacity, table 5.

[15]Rivlin and others, Caring for the Disabled Elderly: Who Will Pay? p. 34.

[16]As discussed in footnote 11, these numbers report use during the course of a year rather than at a point in time.

women has been increasing.[17] This could lead to relatively fewer women available in the future to care for their elderly parents if this trend continues to hold. In addition, more elderly people with a need for services may be living alone. One projection indicates 46 percent of the elderly will live alone in 2030 compared with 38 percent in 1990.[18] If the elderly living alone become increasingly disabled but lack support from family and friends, these elderly will have a greater need for paid, formal care.

As a result, the demand for personnel to provide care at home will probably be great. However, the extent of demand and the types of workers required is not clear. Projections have been made for one type of worker—home health workers—on the basis of data related to the Medicare program. These projections reflect varying assumptions about the numbers and health of future elderly and their demand for formal services.

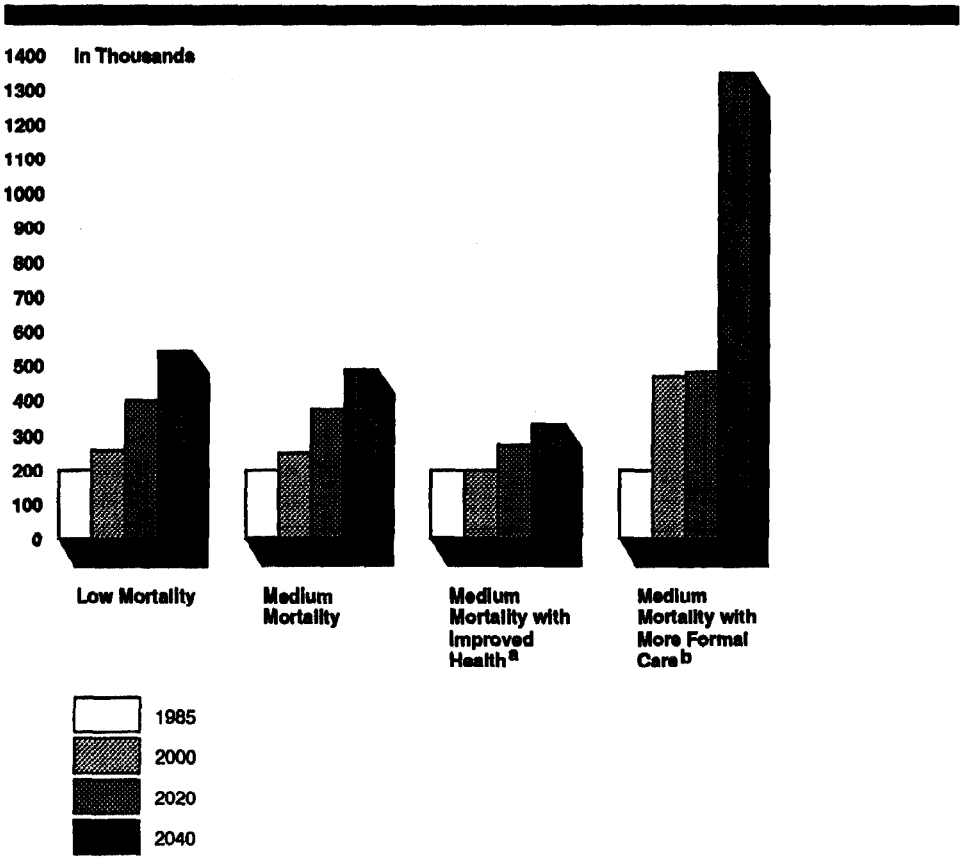
The effect of varying these assumptions on the number of home health aides needed is shown in figure 3.[19] (These projections, however, do not account for the numbers of other workers that may be needed to provide care for the elderly, such as homemakers and day care staff.)

[17] Economic Report of the President (Washington, D.C.: U.S. Government Printing Office, 1991).

[18] S. Zedlewski, R. Barnes, M. Burt, T. McBride, and J. Meyer, The Needs of the Elderly in the 21st Century (Washington, D.C.: The Urban Institute, 1990), p. 45.

[19] The number of home health aides is based on an estimate of full-time equivalents defined as how much staff time will be required. In measuring staff time, this estimate does not reflect the actual number of home health aides now employed. This estimate of the demand for home health aides uses data from the 1984 National Long-Term Care Survey and the associated Part A Medicare files. See R. Suzman and K. Manton, "Forecasting Health and Functioning in Aging Societies" (1991).

Figure 3: Projections of Full-Time Equivalent Home Health Aides Needed (1985, 2000, 2020, and 2040)



[a]Health is assumed to improve as rapidly as life expectancy increases.

[b]The number of people who switch from relying on informal care services to formal care services is assumed to increase by 5 percent in 2000 and 10 percent in 2020.

Source: R. Suzman and K. Manton, "Forecasting Health and Functioning in Aging Societies," in chapter 5 of Aging, Health and Behavior, eds., M. Ory and R. Ables (Sage Publications, 1991).

According to these projections, maintaining current levels of services for the elderly population could require more than doubling the number of full-time equivalent home health aides needed, from just under 200,000 in 1985 to about 484,000 in 2040. Changes in the reliance on paid, formal care, which could be prompted by a change in the level of public financing of long-term care services, could have an enormous impact on future personnel needs. For example, if an increased use is made of paid, formal care services by the year 2040, reflecting a shift away from current reliance on unpaid care by family and friends, home health aide requirements could increase from just under 200,000 in 1985 to more than 1.3 million in 2040.

In general, forecasts of the number of elderly using paid home care services and the personnel needed to provide such services are difficult because current provision of home care is a very dynamic situation. More providers are marketing services, more public programs are financing home care, and more families are willing to purchase home care. Only a small percentage of the disabled elderly population living in the community has relied solely on formal, paid home care services.[20] However, it is clear that if programs were to expand to reach a larger percentage of the disabled elderly in the community, the increase in the number of elderly using formal, paid home care services could be substantial.

Costs Expected to Be High

The costs of long-term care will be high because of the expected increases in the number of elderly needing care and in long-term care cost inflation. Researchers at the Brookings Institution estimated expenditures for nursing home and home care services for the elderly in 1988 to be nearly $42 billion.[21, 22] Costs (in 1987 dollars) are projected to nearly triple to $120 billion by 2018, and could nearly triple again to over $350 billion by 2048.

These cost estimates are quite sensitive to the particular assumptions used. For example, when disability assumptions are changed, the projected cost in 2018 ($120 billion) ranges from $93 to $150 billion.[23] Varying the long-term care cost inflation assumption causes projected nursing home costs (about $33 billion in 1988) to range from $66 to $145 billion in 2018.

[20]K. Liu, K. Manton, and B. Liu, "Home Care Expenses for the Disabled Elderly," Health Care Financing Review, vol. 7, no. 2 (Winter 1985).

[21]All Brookings cost estimates are in constant 1987 dollars and assume that current public policies toward financing long-term care remain intact. Long-term care cost inflation is assumed to be 5.8 percent a year, 1.8 percent a year in excess of general inflation.

[22]Other estimates of current long-term care expenditures vary because the populations included are different: for example, table 3.1 in the Pepper Commission report (A Call for Action) cites national long-term care expenditures in 1988 as nearly $53 billion (1988 dollars). These expenditures include costs for both the elderly and the nonelderly, whereas the Brookings estimates include costs for the elderly only. The Congressional Budget Office (N. Gordon, Congressional Budget Office, testimony before the U.S. House Budget Committee, Health Task Force, Oct. 1, 1987) estimated spending for long-term care services in 1985 to be almost $45 billion (1985 dollars). Besides expenditures for the elderly, this estimate includes expenditures for the nonelderly and the mentally retarded.

[23]There was no projected range for costs in 2048.

How Will Long-Term Care Costs Be Financed?

The elderly users of long-term care and their families can be expected to contribute to their long-term care costs, but some share of the costs will most likely be borne by the working population. Decreases in birth rates over the past 30 years indicate that there will be relatively fewer workers available to help pay for these costs when the elderly population reaches its peak. We can examine this issue by looking at the ratio of working-age people (defined here as the number of people aged 20 to 64) to the elderly in nursing homes. This ratio is projected to decline from 111 in 1985 to 39 in 2060 (see table 1). A similar ratio, based on the number of disabled elderly, is also projected to decline. These declines suggest that asking active workers to finance future long-term care expenditures will become increasingly difficult. The actual burden on each worker will depend on a number of factors, such as the growth of the economy, the distribution of costs between public and private sources, and the relative earning power of the workers.

On the other hand, improved financial status of the future elderly could mean that a larger share of the costs would be borne by the elderly rather than by the working population. The income and assets of the elderly are expected to increase in real terms in the future,[24] although the income of the group 85 years and over, those most at risk of using long-term care services, may still be quite low.

Table 1: Ratio of Working-Age Population to People Aged 65 and Over

	Years	
Ratio of working-age population to[a]	**1985**	**2060**
People aged 65 and over in nursing homes	111:1	39:1
Disabled people aged 65 and over	21:1	9:1

Note: Although it has been noted that the dependency ratio measures are often flawed because of the implicit assumption that all dependent populations are supported by people of labor force age (see W. Crown, "Some Thoughts on Reformulating the Dependency Ratio," The Gerontologist, vol. 25, no. 2, 1985), the disabled elderly and elderly nursing home populations are unlikely to be members of the labor force.

[a]To calculate this ratio, we divided the working-age population between the ages of 20 and 64 (from the Social Security Administration Annual Report) by the number of elderly in nursing homes (from K. Manton, "Epidemiological, Demographic, and Social Correlates of Disability among the Elderly," The Milbank Quarterly, vol. 67, suppl. 2, p.1 [1989]). This gave us the ratio of working-age population to nursing home elderly. A similar method was used to calculate the ratio of working-age population to disabled elderly.

Summary

The aging of the U.S. population will lead to a tremendous increase in the elderly population over the next 60 years and an even larger increase in the 85-and-over population who are more likely to use long-

[24]Zedlewski and others, The Needs of the Elderly in the 21st Century, pp. 74 and 102.

term care services. Projections on each of the issues addressed in this report are summarized in table 2. Despite variation in projections, the implications of an elderly baby boom generation will be dramatic. The projected number of disabled elderly in the future could range anywhere from 14 to 27 million. This could result in substantial increases in resources needed for this growing elderly population. The costs of long-term care for the elderly are projected to almost triple from $42 billion in 1988 (1987 dollars) to over $120 billion (1987 dollars) by 2018, and could nearly triple again to over $350 billion (1987 dollars) by 2048.

Table 2: Summary of Projections

Numbers in millions and dollars in billions (1987 dollars)

		Baseline		Future	
Disabled elderly population	**Source**	**Year**	**Population**	**Year**	**Population**
Disabled	a	1985	6.8	2060	14–24
	b	1990	11.1	2030	23–27
Using long-term care	c	1988	6.3	2018	9–13
In a nursing home	a	1985	1.3	2060	3–5
	b	1990	1.8	2030	4–5
	c	1988	2.3	2018	3–5
Disabled	a	1985	5.5	2060	11–18
In community	b	1990	9.2	2030	19–22
Using home care	c	1988	4.0	2018	6–8
Home health aides	d	1985	0.19	2040	0.3–1.3
			Costs		**Costs**
Costs of long-term care	c	1988	$42	2018	$93-$150
	c	1988	$42	2048	$355
Ratio of working-age population to the elderly aged 65 and over			**Ratio**		**Ratio**
Elderly in nursing homes	e	1985	111:1	2060	39:1
Disabled elderly	e	1985	21:1	2060	9:1

Note: Projections cannot be compared across researchers because these sources used different surveys to define disability, used different projection methodologies, and beginning and end points for projections are not the same.

[a]K. Manton, "Epidemiological, Demographic, and Social Correlates of Disability among the Elderly" (The Milbank Quarterly, vol. 67, 1989).

[b]S. Zedlewski and others, The Needs of the Elderly in the 21st Century (The Urban Institute, 1990).

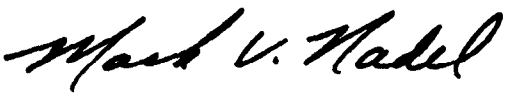
[c]A. Rivlin and others, Caring for the Disabled Elderly: Who Will Pay? (The Brookings Institution, 1988).

[d]R. Suzman and K. Manton, "Forecasting Health and Functioning in Aging Societies," in Aging, Health and Behavior, eds., M. Ory and R. Ables (Sage Publications, 1991).

[e]To calculate this ratio, we divided the working-age population between the ages of 20 and 64 (from the Social Security Administration Annual Report) by the number of elderly in nursing homes (Manton, 1989). This gave us the ratio of working-age population to nursing home elderly. A similar method was used to calculate the ratio of working-age population to disabled elderly.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after its issue date. At that time, copies of this report will be sent to interested congressional committees and to other parties on request. If you or your staff have any questions about this report, please call me on (202) 275-6195. Other major contributors are listed in appendix IV.

Sincerely yours,



Mark V. Nadel
Associate Director, National and
Public Health Issues

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Abbreviations

ADL	activity of daily living
IADL	instrumental activity of daily living

Factors Affecting Estimates of the Disabled Elderly Population

Estimates of current disability rates and the number of disabled elderly are affected by several factors, which are related to the different national surveys of disabled populations. Since most projections are made using estimates of a current disability rate, factors leading to a higher current disability rate will lead to a larger projected disabled population if all other factors are held constant. A description of several of the factors follows:[1]

- The number and type of activities of daily living (ADLs) included in survey questionnaires: Not all surveys use the same list of ADLs when asking questions about disabilities. A larger, more inclusive, list of ADLs will result in a higher estimate of the number of disabled elderly.
- The level of difficulty in performing ADLs: Some surveys ask about the level of difficulty in performing a particular ADL, whereas other surveys ignore this aspect. Where such gradations exist, an author can choose the level of difficulty to analyze. This may lead to differences in the estimated number of disabled elderly.
- The duration of a disability: Some surveys ask whether the disabling condition lasted or was expected to last at least 90 days. A survey not asking about duration will most likely include more short-term disabilities and may lead to a higher estimate of the number of disabled elderly.
- The age composition of the elderly population: Rates of disability and long-term care utilization increase with advancing age. A higher proportion of the elderly who are at least 85 years old will lead to a higher rate of disability for the elderly population as a whole. A survey taken in a later year would have a larger proportion of those 85 and over since this group has grown at a faster rate than the entire elderly population during the past few years.

[1]J. Wiener, R. Hanley, R. Clark, and J. Van Nostrand, "Measuring the Activities of Daily Living: Comparisons Across National Surveys," Journal of Gerontology: Social Sciences, vol. 45, no. 6 (1990), pp. S229-S237.

Projections of the Disabled Elderly Population

Table II.1: Duke University Projections of the Disabled Elderly Population

Numbers in millions

Disability and mortality assumptions[a]	Total disabled	Setting	
		In the community	Institutionalized[b]
Projections to 2020			
Baseline[c]	12.68	10.13	2.55
Low mortality[d]	13.70	10.93	2.77
High mortality[e]	11.84	9.48	2.36
Changes in rate of institutionalization[f]	12.68	10.79	1.89
Low disability[g]	10.10	8.10	2.00
Projections to 2060			
Baseline[c]	19.74	15.22	4.52
Low mortality[d]	23.56	18.07	5.49
High mortality[e]	17.82	13.80	4.02
Changes in rate of institutionalization[f]	19.76	16.87	2.89
Low disability[g]	13.65	10.62	3.03

[a]Projections are made using a static component model that takes a current disability or institutionalization rate (estimated from the 1984 National Long-Term Care Survey and the 1985 National Nursing Home Survey) and applies this rate to a projection of the number of elderly. The 1984 National Long-Term Care Survey asks whether disabilities have lasted or are expected to last at least 90 days. The current disability rate used by researchers at Duke University reflects longer-term disabilities only.

[b]Institutionalized refers to the elderly living in nursing homes and related-care facilities.

[c]Baseline mortality assumption refers to the Social Security Administration's intermediate mortality assumption (mortality rate projected to decrease at an average rate of about 0.6 percent per year). Disability rates are fixed at current rates.

[d]Low mortality assumption refers to a mortality rate that declines twice as fast as the baseline mortality assumption. Disability rates are fixed at current rates.

[e]High mortality assumption refers to a mortality rate that declines one-half as fast as the baseline mortality assumption. Disability rates are fixed at current rates.

[f]Changes in rates of institutionalization assumption refers to an assumption that there will be a 50-percent reduction in the growth rate of institutionalization (that is, a reduction from a growth rate of the institutionalized population of 2.1 percent per annum observed from 1977 to 1985 to 1.05 percent per annum). Disability rates are fixed at current rates.

[g]Low disability assumption refers to a disability rate that declines as fast as the mortality rate.

Source: These projections are taken from K. Manton, "Epidemiological, Demographic, and Social Correlates of Disability among the Elderly," The Milbank Quarterly, vol. 67 (1989), tables 1, 3, and 4.

Table II.2: The Urban Institute Projections of the Disabled Elderly Population

Numbers in millions

Disability and mortality assumptions[a] Projections to 2030	Total disabled	Setting	
		In the community	Institutionalized[b]
Baseline[c]	23.49	19.17	4.32
Low mortality[d]	27.39	22.09	5.29
Low mortality/disability[e]	25.15	20.90	4.26

[a]The Urban Institute uses a microsimulation model that starts with a nationally representative sample of the adult population and simulates changes to this population over time. The disability rates for the noninstitutionalized and institutionalized populations are estimated from the 1984 National Health Interview Survey/Supplement on Aging and the 1985 National Nursing Home Survey. The Supplement on Aging does not ask whether a disability has lasted or is expected to last at least 90 days and can include short-term and long-term disabilities.

[b]Institutionalized refers to the elderly living in nursing homes and related-care facilities.

[c]Baseline mortality assumption refers to the Social Security Administration's intermediate mortality assumption (mortality rate projected to decrease at an average rate of about 0.6 percent per year). Disability rates are fixed at current rates.

[d]Low mortality assumption refers to a mortality rate that declines 1.2 percent per annum. Disability rates are fixed at current rates.

[e]Low mortality/disability assumption refers to mortality and disability rates that decline 1.1 percent per annum.

Source: These projections are taken from S. Zedlewski and others, The Needs of the Elderly In the 21st Century (The Urban Institute, 1990), tables 2.12 and 2.13.

The Brookings Institution Projections of the Elderly Population Using Long-Term Care Services

Numbers in millions

Disability assumptions[a] Projections to 2018	Using care[b]	Setting	
		Home care[c]	Institution[d]
Baseline[e]	10.38	6.36	4.02
High disability[f]	12.90	7.88	5.02
Low disability[g]	8.91	5.88	3.03

[a]The total number of elderly who will use long-term care services includes the elderly in nursing homes and all elderly Medicare home health users whether chronically disabled or not. The Brookings Institution researchers use a microsimulation model which simulates general demographic changes and changes specific to long-term care (e.g., onset of and recovery from disability). They project the number of users over the course of a 5-year period (e.g., 2016-2020) and the result can be thought of as the annual experience for the midpoint year (in this case, 2018). Because these projections represent numbers over the course of a year, they will include many short-stay patients who are often underrepresented in cross-sectional counts. The Brookings Institution researchers estimate rates of institutionalization and the number of people using formal, paid services in the community from the 1977 National Nursing Home Survey and the 1982 National Long-Term Care Survey. Although the Brookings Institution has updated its model to reflect more recent surveys (the 1985 National Nursing Home Survey and the 1982-84 National Long-Term Care Survey) and baseline projections are available, projection ranges that reflect varying disability rates are not available at this time.

[b]The total number of elderly who will use long-term care services is not comparable to the total number of disabled elderly.

[c]Home care refers to the use of paid home care services.

[d]Institution refers to care received in nursing and related-care facilities.

[e]Baseline mortality assumption refers to the Social Security Administration's intermediate mortality assumption (mortality rate projected to decrease at an average rate of about 0.6 percent per year).

[f]High disability assumption refers to disability rates assumed to increase at the same rate as mortality rates decline.

[g]Low disability assumption refers to disability rates assumed to decline at the same rate as mortality rates.

Source: These projections are taken from A. Rivlin and others, Caring for the Disabled Elderly: Who Will Pay? (The Brookings Institution, 1988), table 2-11.

Major Contributors to This Report

Human Resources Division, Washington, D.C.

Janet L. Shikles, Director, Health Financing and Policy Issues, (202) 275-5451
Michael Gutowski, Assistant Director
Nancy Donovan, Assignment Manager
Julie Gesterling, Evaluator-in-Charge
Steve Machlin, Statistician

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