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# Age Estimates in the National Health Accounts

Sean P. Keehan, M.A., Helen C. Lazenby, Mark A. Zezza, M.A., and Aaron C. Catlin, M.S.M.

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*This article presents historical trends of health spending by age. Personal health care is broken out into seven age groups for 1987, 1996, and 1999. Analysis of trends in health care spending is provided separately for children (age 0-18), working-age adults (age 19-64), and the elderly (age 65 or over). Future impacts of aging are also discussed, including using the historical estimates in a simulation to show only the effect of changing the age mix of the population over the next 50 years.*

## INTRODUCTION

The information presented in this article offers some insight into the challenges that society faces in providing for and financing the health care needs of our aging population. In 1999, the average person in the U.S. spent \$3,834 on personal health care (Table 1).<sup>1</sup> However, the amount spent, source of funds, and types of services used varied considerably by age group. Children (age 0-18) consume the least amount on personal health care (\$1,646 per person), with private health insurance and Medicaid as the major payers. Individuals from age 19 to 64, hereafter referred to as working-age adults, spent an average of \$3,352 on health care, with private health insurance as the dominant payer. By far, the largest amount spent (\$11,089 per person) was for the elderly (age 65 or over), with Medicare covering

almost one-half of these costs.<sup>1</sup>

## DATA SOURCES

Because complete data on health spending by age was not available in one location, it was necessary to use a variety of data sources to generate these estimates.<sup>2</sup> The major data sources for all payment categories other than Medicare and Medicaid were the household surveys from the Agency for Healthcare Research and Quality (AHRQ)—the 1996 and 1999 Medical Expenditure Panel Surveys (MEPS) and MEPS's predecessor, the 1987 National Medical Expenditure Survey. Administrative data from Medicare and Medicaid were used to produce these sources of payment estimates.

Although the household surveys gave estimates of services used, we used data from various provider surveys to obtain more accurate counts of units of service for each age group, type of service, and source of funding. In contrast to the household surveys, the provider surveys also cover the institutionalized population and typically have a more precise tally of utilization. Spending and utilization are often underreported in the household surveys because they predominantly rely

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<sup>1</sup>Personal health care consists of therapeutic goods or services rendered to treat or prevent a specific disease or condition in a specific person. Additional tables are found at <http://www.cms.hhs.gov/statistics/nhe/age/tables.asp>. Prior articles in this series include Waldo (1989) and Fisher (1980).

<sup>2</sup>The methods used to generate these estimates, and the adjustments we made to the household survey data, can be found in our methodology paper at <http://www.cms.hhs.gov/statistics/nhe/definitions-sources-methods/age-estimates.asp>.

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Sean P. Keehan, Mark A. Zezza, and Aaron C. Catlin are with the Centers for Medicare & Medicaid Services (CMS) and Helen C. Lazenby is formerly with CMS. The statements expressed in this article are those of the authors and do not necessarily reflect the views or policies of CMS.

on respondent recall, rather than provider records, to identify use.

Expenditures by age group were scaled to match totals from the national health accounts by type of service and source of funding. Our estimates were compared with published MEPS and the Medicare Current Beneficiary Survey (MCBS) results. Definitional variations, particularly coverage of the institutionalized population, account for most differences.<sup>3</sup>

## NATIONAL HEALTH SPENDING CONTEXT

From 1987 to 1999, the average annual growth rate of nominal personal health care spending was 7.6 percent, with faster growth occurring between 1987 and 1996 and slower growth between 1996 and 1999 (Table 2). Advances in medical technology, which typically led to increased utilization and intensity of services, and price inflation contributed to the high growth between 1987 and 1996 (Cutler and McClellan, 2001). The slower growth between 1996 and 1999 was the continued result of the expansion of managed care and the Balanced Budget Act of 1997 (BBA). Managed care primarily affected the non-elderly while the BBA primarily affected Medicare payments on behalf of the elderly, especially those that relied on nursing home and home health care.<sup>4</sup>

Managed care, especially health maintenance organizations, succeeded in shifting care from more to less expensive settings (for example, inpatient hospital

to outpatient hospital or physician/clinic). These managed care plans used lower cost sharing to encourage enrollment, which also induced greater use of prescription drugs (Levit et al., 2004). Each age group spent less of its health care dollar on hospital care and more on prescription drugs in 1999 than in 1987. In addition, the share of the personal health care bill paid out-of-pocket (approximately one-sixth in 1999) decreased approximately 7 percentage points for each age group between 1987 and 1999.<sup>5</sup>

## CHILDREN

Children made up 29 percent of the population yet accounted for only 12 percent of spending on personal health care in 1999. This spending amounted to \$131 billion or \$1,646 per child. Children's health care is primarily financed through private health insurance and Medicaid; together, these sources paid for more than two-thirds of health care for children. Hospital and physician services accounted for 70 percent of health spending for children in 1999. Spending for dental services accounted for a larger share of children's health spending (9 percent) than for working-age adults (7 percent) and the aged (2 percent).

In 1999, 87 percent of children in the U.S. were insured, with most having private health insurance or Medicaid (U.S. Bureau of the Census, 2003). Between 1987 and 1999, the share of children's health spending paid by private health insurance remained steady at approximately 42 percent. In contrast, Medicaid and out-of-pocket spending

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<sup>3</sup>Most differences with MEPS are outlined in Selden (2001). For MCBS, the major differences are seen in sources of payment other than Medicare that are typically underreported in the MCBS.

<sup>4</sup>Average annual growth in nursing home expenditures slowed from 9.2 percent from 1987-1996 to 3.9 percent from 1996-1999. Average annual growth in home health expenditures was 19.7 percent from 1987-1996, but fell to -1.3 percent from 1996-1999.

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<sup>5</sup>In the national health accounts, out-of-pocket spending includes direct payment of health care services, including coinsurance and deductibles and excludes enrollee premiums for private health insurance or Medicare supplementary medical insurance.

shares changed dramatically over the same period. In 1999, Medicaid paid for 27 percent of spending for this age group—more than double its 1987 share—while the out-of-pocket spending share fell from 26 percent in 1987 to 15 percent in 1999. This dramatic shift was largely due to mandated increases in coverage of children by Medicaid and lower coinsurance and deductible costs for care covered by private health insurance. Additional coverage in recent years came from the State Children's Health Insurance Program (SCHIP), created through enactment of BBA, which expands health insurance coverage to children whose families cannot afford private health insurance, but make too much money to qualify for Medicaid. In 1999, total SCHIP spending was \$1.6 billion, or less than 1 percent of children's total health spending.<sup>6</sup> However, SCHIP outreach did contribute to increased Medicaid enrollment as eligible families were identified and enrolled.

In 1999, expenditures for hospital services totaled \$610 per child while spending on physician and clinical services was \$551 per child. The hospital share of total health spending for children declined slightly between 1987 (40 percent) and 1999 (37 percent). On the other hand, the share of spending accounted for by physician and clinical services rose from 32 percent in 1987 to 34 percent in 1999 as Medicaid expansions and SCHIP coverage improved access to physician services.

Although the 1999 per capita dental spending level for children of \$139 was below that for working-age adults (\$228) and the elderly (\$229), children's overall

health spending was much lower. The result was a dental share of total spending (9 percent) that was larger for children than for any other age group. Approximately 73 percent of children had at least one dental visit in 1999 compared with 65 percent of working-age adults and 55 percent of the aged (National Center for Health Statistics, 2001). This higher usage may have been driven in part by mandated coverage of oral health services for children under Medicaid and SCHIP expansions of Medicaid.

Prescription drug spending accounted for 7 percent of total health care spending for children in 1999. The three largest payers for children's prescription drugs were private health insurance, Medicaid, and out-of-pocket expenditures, representing 43, 27, and 27 percent of total spending, respectively. A dramatic decline in the out-of-pocket share of funding for children's prescription drugs between 1987 and 1999 was offset by substantial increases in the share of funding accounted for by private health insurance and Medicaid.

## **WORKING-AGE ADULTS**

Working-age adults comprised 59 percent of the population while accounting for 51 percent of personal health care spending in 1999. This spending amounted to \$547 billion or \$3,352 per person. Private health insurance funded 47 percent of working-age adults' personal health care spending in 1999, while out-of-pocket payments and Medicaid, paid for approximately 18 and 15 percent, respectively. Purchases of medicines for working-age adults accounted for 61 percent of all prescription drug spending.

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<sup>6</sup>The first full calendar year of the SCHIP program was 1999 and SCHIP spending has continued to increase dramatically ever since, reaching \$5.7 billion in 2002.

On a per capita basis, the near-elderly (age 55-64) spent approximately 50 percent more than the average expenditure for all ages while those age 45-54 spent an amount slightly below the national average in all years studied. Higher incidence of chronic illness associated with advancing age was a driving factor of these trends. Nearly 60 percent of persons age 45-64 suffer from at least one chronic condition, compared with approximately one-third of those age 20-44 and one-quarter of those age 0-19 (Hwang et al., 2001).

### **Payer Sources**

In 1999, private sources of funding accounted for more than 70 percent of personal health care spending for the working-age population, with private health insurance as the primary payer. Nearly three-quarters of this cohort were covered under private health insurance plans, of which 90 percent were employer-sponsored (U.S. Bureau of the Census, 2004).<sup>7</sup> Private health insurance accounted for an increasingly larger share of personal health care expenditures for working-age adults between 1987 and 1999. The 45-54 age group experienced the largest increase in share, from 39 percent in 1987 to 48 percent in 1999. This increase occurred despite a slight drop in the percentage of working-age adults with private health insurance coverage over this period (U.S. Bureau of the Census, 2004).<sup>8</sup>

Falling private health insurance coverage for working-age adults contributed to the high rate of uninsurance among this population—18 percent, compared with 13 percent for children and 1 percent for

the elderly (U.S. Bureau of the Census, 2004). This cohort has less access to public sources of insurance than do children or the aged. Younger working-age adults were the most likely subgroup to be without health insurance: One-quarter of those age 19-35 were uninsured in 1999 (U.S. Bureau of the Census, 2004). Low-paying entry-level positions make it difficult to afford health insurance, and employers providing these jobs offer health insurance benefits less frequently (Fronstin, 2001). These workers may also elect to forego health insurance because they are relatively young and healthy. Segments of the near-elderly also have high uninsurance rates, while being at more risk for high medical expenses. Individuals who retire before the Medicare eligible age of 65 may lose their employer-sponsored health insurance benefits. In addition, near-elderly females may lose health insurance coverage on the death or divorce of their spouse. In 1999, 15 percent of females age 55-64 were uninsured compared with 12 percent of males (U.S. Bureau of the Census, 2004).

The other roughly 30 percent of all personal health care funding for working-age adults in 1999 was accounted for by public financing. Medicaid was the largest public payer for working-age adults, accounting for 15 percent of their 1999 personal health care spending. Within the working-age population, those age 19-44 had the largest Medicaid share, 17 percent. The concentration of low-income workers with families, single mothers, and people living with AIDS contributed to higher rates of Medicaid coverage in this age group. Compared with all other age groups, the near-elderly experienced the fastest average annual growth in per capita Medicaid spending, 13.5 percent, from

<sup>7</sup>Percent reported is based on the 18-64 age group figures reported in the Census tables.

<sup>8</sup>Those with private health insurance decreased from 77.3 percent in 1987 to 74.6 percent in 1999.

1987-1999. Sustained strong growth in prescription drugs during this period (16.4 percent), especially among disabled persons covered by Medicaid, contributed to this rapid increase.

Some working-age adults qualify for Medicare because of disability or end-stage renal disease. Medicare spending for this small number of very expensive beneficiaries accounted for 5 percent of personal health care spending for working-age adults in 1999. Other public spending funded nearly 10 percent of health care expenditures for the working-age population in 1999—partly attributable to workers' compensation programs, the largest component of other public personal health care spending, and to Department of Defense health programs.

## Services

In 1999, working-age adults had a larger share of their personal health care spending (12 percent) accounted for by prescription drugs than all other age groups. More than 95 percent of employer-based private insurance plans include prescription drug benefits, with small copayments increasing affordability of drug purchases (Kaiser Foundation and Health Research and Educational Trust, 2000).

During the mid-1990s, the managed care effects of shifting care from more to less expensive settings were more pronounced for working-age adults than for other age groups, because a higher percentage were enrolled in managed care plans. Compared with all other age groups, this cohort experienced the largest decrease in the hospital share of total personal health care spending, from 45 percent in 1987 to 37 percent in 1999—partially offset by the increasing share of prescription drug spending

(from 7 percent in 1987 to 12 percent in 1999). The shift was most accentuated for the 45-54 age group.

Part of the shift to prescription drugs in the older working-age cohorts can also be explained by the higher prevalence of chronic illnesses and the development and release of expensive new drugs to treat these conditions. The release of new prescription drugs could control, postpone, or displace hospital treatments for some chronic illnesses (Kleinke, 2001; Lichtenberg, 2001). In addition, many high-priced “blockbuster” drugs, which were tailored to treat these illnesses, were introduced in the late 1990s.

Hospital spending comprised the largest share of personal health care spending for the working-age population. In 1999, hospital spending accounted for 38, 33, and 39 percent of total personal health care spending for persons age 19-44, 45-54, and 55-64, respectively. Hospital days associated with labor and delivery were one factor leading to the relatively high share for the youngest age group. Young adult males also experienced a high rate of accidental injuries, which often led to expensive hospital stays (Pastor et al., 2001).<sup>9</sup>

Physician and clinical services spending accounted for the second largest share of personal health care spending for the working-age population, 28 percent in 1999. Between 1987 and 1996, private health insurance spending for these services grew at a relatively high average annual rate of 11.6 percent, largely explained by the increased role of physicians in managed care (Phelps, 2003). The private health insurance expenditure share of physician services for working-

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<sup>9</sup>Injuries were the leading cause of hospital days for males aged 18-44 while delivery was the leading cause of hospital days for females aged 18-44.

age adults grew from 31 percent in 1987 to 38 percent in 1996. By 1999, the share declined to 36 percent, as the prescription drug share rose and the effectiveness of managed care strategies began to dissipate.

## **ELDERLY**

In 1999, people age 65 or over made up only 13 percent of the population yet consumed 36 percent of spending for personal health care. This spending totaled \$387 billion or \$11,089 per person, quadruple the amount of per person spending (\$2,793) for people under age 65. Medicare financed 46 percent of the health care spending for the aged in 1999 while Medicaid financed over 15 percent. During this period, Medicare primarily funded acute care services and Medicaid paid the largest portion of nursing home care. The aged accounted for four-fifths of all spending for nursing home care and three-fifths of spending for home health care in 1999.

Average spending for health care generally escalates as people age and health deteriorates. As age advances, treating progressively more severe and complex medical conditions is reflected in the mix of services. The oldest old (age 85 or over) use more acute care services and require more, very expensive nursing home care than younger seniors. Also, the oldest old are more likely to be in their last year of life, which has been shown to correspond to high health care costs (Calfo, Smith, and Zezza, 2004).

### **Payer Sources**

In 1999, Medicare funded almost one-half of all spending for those age 65-74

and 75-84, and 36 percent of expenditures for the oldest old. This included 73 percent of hospital care spending, 65 percent of spending for physician and clinical services, and 40 percent of home health care spending for the elderly. Medicare paid for only 6 percent of all elderly prescription drug spending in 1999, mostly accounted for by those in Medicare managed care plans.

Out-of-pocket payments represented 16 percent of all personal health care spending for persons age 65-84 in 1999, but accounted for 21 percent of spending for the oldest old. By comparison, the share paid out-of-pocket in 1987 was 22 percent for those age 65-84 and 29 percent for the oldest old. In 1999, prescription drug spending was the largest out-of-pocket expense for those age 65-74, accounting for 28 percent of their out-of-pocket payments; for those age 75-84 and for the oldest old, the largest out-of-pocket expense was nursing home care at 34 and 66 percent, respectively. Out-of-pocket spending on prescription drugs was higher for the average person age 75-84 (\$395) than for both the 65-74 (\$371) and the oldest age group (\$265) in 1999.

Private health insurance and Medicaid each financed small shares (15 percent each, approximately) of overall health care expenditures of the aged. However, the share was much larger for certain services: almost one-third of prescription drug spending was funded by private health insurance while Medicaid funded 40 percent of spending for nursing home care in 1999.

### **Services**

Hospital care and physician and clinical services accounted for 56 percent of seniors' personal health care spending

in 1999, with the spending shares for these acute care services declining as people advance in age. Age-related declines in the share of overall spending going for these services resulted from increasing spending on long-term care (LTC), rather than from lower levels of spending on acute care services. In 1999, per capita spending for hospital care was \$5,791 for the oldest old, compared with \$3,298 for those age 65-74. By comparison, the oldest old spent, on average, \$7,819 on nursing home care while those age 65-74 spent only \$611.

Spending for physician and clinical services averaged \$2,263 per person for those age 75-84 in 1999, with the youngest and the oldest age groups averaging approximately 12 percent less. For the oldest old, spending for physician services may have been limited because they were receiving alternative care in nursing homes. Also, if they were in their last year of life, they or their families may have chosen to forego some treatment measures in favor of hospice care (Levinsky et al., 2001). The major payer for physician and clinical services was Medicare, followed by private health insurance. The private health insurance share was 25 percent for the youngest elderly age group, who are more likely to participate in the workforce and have employer-based private health insurance, compared with 14 percent for the two older age groups. For each age group, the out-of-pocket share of spending for physician and clinical services dropped approximately 10 percentage points from 1987 to 1999 (eventually reaching 6 percent) while the private health insurance and Medicare shares rose.

In 1999, prescription drug spending accounted for 8 percent of all health care spending for the aged, but represented

the largest single out-of-pocket expense for the 65-74 age group and second largest for the 75-84 age group. The elderly paid for 41 percent of prescription drug expenditures directly out-of-pocket while private health insurance financed 33 percent. By comparison, the 1987 out-of-pocket share was 64 percent, with more than one-half of this change in share shifted to private health insurance (smaller shares were picked up by Medicare and Medicaid). The oldest old relied more heavily on Medicaid than did younger elderly cohorts, reflecting declines in income as the population ages and the spending down of assets to qualify for Medicaid coverage (Johnson and Penner, 2004).

Advancing age increases the need for LTC, which contributed heavily to higher per capita spending for older Americans.<sup>10</sup> In 1999, nursing home expenditures for the oldest old consumed 39 percent of their total personal health care expenditures, compared with 18 percent for the 75-84 age group. Trends in spending for home health care were comparable to those for nursing home care, with average spending increasing for each successive age group. The out-of-pocket share of payments for home health care also increased with advancing age, reaching one-third of all spending for the oldest old. However, unlike nursing home care, Medicare funded the largest share of spending for home health care—40 percent in 1999.

## FUTURE IMPACTS

Over the next several decades, the elderly share of the population is

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<sup>10</sup>According to data from the 1999 MCBS, the number of aged Medicare beneficiaries who need help with one or more activities of daily living increased from 13 percent for persons age 65-74 to 26 percent for those age 75-84 to 54 percent for the oldest old.

projected to move from 12.5 percent in 1999 to 21.3 percent in 2049 (Table 3). One of the most valuable applications of age estimates is to be able to isolate the effect on health care spending growth from only the changing age-mix of the population. We can then simulate the impact of this factor in the future by holding constant other cost-increasing factors that drive growth in health care spending such as technological change, price inflation, and age-specific utilization rates, at 1999 levels.<sup>11</sup> Another cost-increasing factor is population growth; however, this factor is removed in the simulation because the results are reported on a per capita basis. This exercise does not create a complete health care projection, but instead provides insight into the role that the changing age-mix of the population may have on future health care spending.

This analysis shows that the effects of the changing age-mix of the population on personal health care spending growth would average just under 0.5 percent annually (27 percent cumulatively) from 1999 to 2049, double the average annual growth rate due to aging from 1987 to 1999 (Table 4). The growth rate over the 50-year simulation period is also above the 0.3 percent growth rate during the 1965-1999 period, which has also been documented in other studies (Burner, Waldo, and McKusick, 1992, Strunk and Ginsburg, 2002, Reinhardt, 2003). Even though the changing age-mix of the population is expected to play a larger role in the future, it is still rather limited when compared with the 10.6 percent average annual growth of personal health care spending from 1965 to 1999.

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<sup>11</sup>Stated another way, these factors are assumed to stay constant at their 1999 levels in future years. The only factor that can change is the percentage of the population in each age group. Additional information can be found at <http://www.cms.hhs.gov/statistics/nhe/age/simulation.asp>.

These small age-mix effects on the annual growth of overall health spending mask more significant effects on certain services and payers. The nursing home sector is most affected by this demographic change, which would increase nursing home spending by 1.3 percent annually (89 percent cumulatively) from 1999 to 2049. Growth is projected to peak between 2029 and 2039 when the baby boom generation reaches and surpasses age 85, and is expected to have a considerable impact on Medicaid and out-of-pocket spending that pays for the vast majority of this care. In contrast, spending on hospital care, prescription drugs, and physician and clinical services is projected to experience smaller age-mix impacts over the five-decade period.

The program responsible for financing the largest portion of health care spending by the elderly—Medicare—will experience the most significant age-mix effect of any payer, increasing just over 1 percent annually (67 percent cumulatively) from 1999 to 2049. In contrast, both Medicaid and out-of-pocket spending can be expected to increase by 0.5 percent annually due to age-mix effects—only slightly faster than the effect on overall spending. The impact of aging on private health insurance is greatest between 1999 and 2009, as the baby boomers enter the more expensive working-age cohorts and just before they become eligible for Medicare. However, the age-mix effect on private health insurance growth is limited over the 50-year simulation period, averaging just 0.2 percent per year.

As discussed in the 2004 Medicare Trustees Report, the projected distribution of the population in the future is likely to create challenges in financing elderly health care spending. The relatively slower population



growth in younger age groups that provide tax income to support pay-as-you-go programs such as Medicare will place increasing pressure on health care financing for an aging population—even more so when the prescription drug benefit begins in 2006. Slower population growth in the working-age cohorts will mean that the number of workers supporting each beneficiary of age-related programs such as Medicare and Social Security will fall. For Medicare, 2.2 workers will likely support each beneficiary in 2049, down from 4.0 in 1999 (Board of Trustees, 2004).

The simulation provided here shows a static aging effect because only the distribution of the population is allowed to change. This is a narrow definition of the effect of population aging used by several researchers (Strunk and Ginsburg, 2002, Reinhardt, 2003). This type of exercise assumes that relative spending in each age group remains constant over the next several decades. From 1965 to 1987, growth in per capita personal health care spending for the elderly outpaced that for the non-elderly (Lubitz et al., 2001). However, from 1987 to 1999, growth was similar for both groups, causing the ratio of per capita personal health care spending of the elderly to the non-elderly to remain stable.<sup>12</sup> Our estimates show that elderly spending grew slightly faster than non-elderly spending between 1987 and 1996, while the opposite was true between 1996 and 1999 (Table 5). This turnaround was driven by a sharp downturn in home health care growth and a strong deceleration in hospital spending growth mainly caused by efforts to control fraud and abuse in

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<sup>12</sup>In 1987, the ratio of per capita spending of the elderly to the non-elderly was 4.01 (5,288/1,319). In 1999, the ratio of per capita spending of the elderly to the non-elderly was 3.97 (11,089/2,793).

Medicare and by provisions of the BBA that curbed Medicare payments to home health agencies and skilled nursing facilities. Additional slower growth in Medicare inpatient hospital spending came from the nationwide trend of lower inpatient hospital utilization. Another reason for the turnaround is higher relative spending by the baby boom generation as it moved into older age groups during this period.<sup>13</sup>

Looking at aging effects more broadly, it is possible that future elderly health care spending could resume growing at a faster rate than that of the non-elderly. Should we return to the experience of the 1965-1987 period, this broader view would show much larger impacts of aging than the static effects described in the simulation. An example of why spending could return to this historical trend is the diffusion of cost-increasing medical technologies focused toward the aged, especially with the movement of the baby boom generation into aged cohorts (Shactman et al, 2003). On the other hand, lower elderly disability trends coupled with earlier treatment of chronic conditions by the non-elderly could continue the 1996-1999 trend of relatively stronger non-elderly growth in the future. Either way, the simulation presented here likely minimizes the total effect that the aging of the population will have on health spending over the next several decades.

## CONCLUSION

This report has broken down the Nation's health care spending by children, working-age

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<sup>13</sup>Although average annual growth for the under 65 population slowed from 7.2 percent from 1987-1996 to 4.4 percent from 1996-1999, the 45-54 age group, which contains the bulk of the baby boom generation only slowed from 6.7 percent from 1987-1996 to 5.1 percent from 1996-1999.

adults, and the elderly. Children spend the least on health care with private health insurance and more recently, Medicaid, picking up the bulk of the bill. Adults from age 19 to 64 make up over half of the population and spend the most aggregate dollars on health care with private health insurance as the most common payer. The elderly have the highest per capita expenditure on health care, almost four times the under 65 population, with Medicare paying for about half of their health care costs.

Higher relative health spending levels by the aged and faster elderly population growth combine to generate much discussion and confusion about the impact that aging will have on future health care expenditures. Defined narrowly, aging will continue to play a relatively minor role in comparison to other factors that influence health care spending growth. The aging of the population, though, is likely to have significant implications on the financing of health care and a disproportionate impact on spending for certain services and payers.

## ACKNOWLEDGMENTS

The authors wish to thank David McKusick and Ed King for their assistance in generating these estimates. Also, we would like to thank Katie Levit, Mark Freeland, Steve Heffler, Rick Foster, and several anonymous peer reviewers for their helpful comments.

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Reprint Requests: Sean P. Keehan, Office of the Actuary, Centers for Medicare & Medicaid Services, 7500 Security Boulevard, N3-02-02, Baltimore, MD 21244-1850. E-mail: [skeehan@cms.hhs.gov](mailto:skeehan@cms.hhs.gov)

**Table 1**  
**Personal Health Care Spending, by Type of Service and Age Group: Calendar Year 1999<sup>1</sup>**

Age Group	Distribution				Age Group	Distribution			
	Level (Billions)	Per Capita	by Age Within Service	Distribution by Service and Age		Level (Billions)	Per Capita	by Age Within Service	Distribution by Service and Age
<b>Personal Health Care</b>					<b>Prescription Drugs</b>				
All Ages	\$1,065.0	\$3,834	100.0	100.0	All Ages	104.4	376	100.0	9.8
Under 65 Years	678.4	2,793	63.7	100.0	Under 65 Years	73.1	301	70.0	10.8
0-18 Years	131.0	1,646	12.3	100.0	0-18 Years	8.9	112	8.6	6.8
19-64 Years	547.4	3,352	51.4	100.0	19-64 Years	64.1	393	61.4	11.7
19-44 Years	278.4	2,706	26.1	100.0	19-44 Years	27.1	264	26.0	9.7
45-54 Years	135.8	3,713	12.8	100.0	45-54 Years	18.6	509	17.8	13.7
55-64 Years	133.2	5,590	12.5	100.0	55-64 Years	18.4	771	17.6	13.8
65 Years or Over	386.5	11,089	36.3	100.0	65 Years or Over	31.4	900	30.0	8.1
65-74 Years	149.5	8,167	14.0	100.0	65-74 Years	16.4	895	15.7	11.0
75-84 Years	148.4	12,244	13.9	100.0	75-84 Years	11.2	922	10.7	7.5
85 Years or Over	88.6	20,001	8.3	100.0	85 Years or Over	3.8	858	3.6	4.3
<b>Hospital Care</b>					<b>Nursing Home</b>				
All Ages	393.5	1,416	100.0	36.9	All Ages	89.6	323	100.0	8.4
Under 65 Years	249.4	1,027	63.4	36.8	Under 65 Years	16.8	69	18.8	2.5
0-18 Years	47.9	601	12.2	36.5	0-18 Years	1.1	13	1.2	0.8
19-64 Years	201.6	1,234	51.2	36.8	19-64 Years	15.8	97	17.6	2.9
19-44 Years	105.3	1,023	26.8	37.8	19-44 Years	7.2	70	8.0	2.6
45-54 Years	44.4	1,213	11.3	32.7	45-54 Years	4.0	111	4.5	3.0
55-64 Years	51.9	2,177	13.2	38.9	55-64 Years	4.5	191	5.1	3.4
65 Years or Over	144.0	4,132	36.6	37.3	65 Years or Over	72.7	2,087	81.2	18.8
65-74 Years	60.4	3,298	15.3	40.4	65-74 Years	11.2	611	12.5	7.5
75-84 Years	58.0	4,786	14.7	39.1	75-84 Years	26.9	2,221	30.1	18.1
85 Years or Over	25.7	5,791	6.5	29.0	85 Years or Over	34.6	7,819	38.7	39.1
<b>Physician and Clinical Services</b>					<b>All Other Services<sup>2</sup></b>				
All Ages	270.9	975	100.0	25.4	All Ages	206.7	744	100.0	19.4
Under 65 Years	198.0	815	73.1	29.2	Under 65 Years	141.1	581	68.3	20.8
0-18 Years	43.9	551	16.2	33.5	0-18 Years	29.2	367	14.2	22.3
19-64 Years	154.1	944	56.9	28.1	19-64 Years	111.9	685	54.2	20.4
19-44 Years	80.3	780	29.7	28.8	19-44 Years	58.5	568	28.3	21.0
45-54 Years	38.5	1,051	14.2	28.3	45-54 Years	30.3	829	14.7	22.3
55-64 Years	35.3	1,482	13.0	26.5	55-64 Years	23.1	970	11.2	17.3
65 Years or Over	72.9	2,092	26.9	18.9	65 Years or Over	65.5	1,879	31.7	16.9
65-74 Years	36.7	2,006	13.6	24.6	65-74 Years	24.9	1,358	12.0	16.6
75-84 Years	27.4	2,263	10.1	18.5	75-84 Years	24.9	2,052	12.0	16.8
85 Years or Over	8.8	1,977	3.2	9.9	85 Years or Over	15.8	3,556	7.6	17.8

<sup>1</sup>A version of this table with all other services broken out and a source of payment distribution can be found at Internet address: <http://www.cms.hhs.gov/statistics/nhe/age/tables.asp>. Similar tables with data for calendar years 1987 and 1996 are also available here.

<sup>2</sup>All other services includes home health care, dental care, other professional services, other personal care, non-durables, and durables. SOURCE: Keehan, S., Lazenby, H., Zezza, M., and Catlin, A., Centers for Medicare & Medicaid Services, 2004.

**Table 2**  
**Levels, Population, and Per Capita of Personal Health Care Spending by Age Group:**  
**Calendar Years, 1987, 1996, and 1999<sup>1</sup>**

Age Group	Levels			Average Annual Growth			Share of All Ages		
	1987	1996	1999	1987-1996	1996-1999	1987-1999	1987	1996	1999
<b>Personal Health Care (Billions)</b>									
						Percent			
All Ages	\$443.4	\$911.2	\$1,065.0	8.3	5.3	7.6	100.0	100.0	100.0
Under 65 Years	285.7	570.0	678.4	8.0	6.0	7.5	64.4	62.6	63.7
0-18 Years	57.9	115.2	131.0	7.9	4.4	7.0	13.1	12.6	12.3
19-64 Years	227.8	454.9	547.4	8.0	6.4	7.6	51.4	49.9	51.4
19-44 Years	127.0	241.5	278.4	7.4	4.9	6.8	28.6	26.5	26.1
45-54 Years	42.3	105.8	135.8	10.7	8.7	10.2	9.5	11.6	12.8
55-64 Years	58.5	107.5	133.2	7.0	7.4	7.1	13.2	11.8	12.5
65 Years or Over	157.7	341.1	386.5	9.0	4.3	7.8	35.6	37.4	36.3
65-74 Years	70.1	135.8	149.5	7.6	3.3	6.5	15.8	14.9	14.0
75-84 Years	56.1	128.9	148.4	9.7	4.8	8.4	12.7	14.1	13.9
85 Years or Over	31.5	76.4	88.6	10.3	5.1	9.0	7.1	8.4	8.3
<b>Population (Millions)</b>									
All Ages	246.5	270.2	277.8	1.0	0.9	1.0	100.0	100.0	100.0
Under 65 Years	216.7	235.9	242.9	0.9	1.0	1.0	87.9	87.3	87.5
0-18 Years	71.6	77.8	79.6	0.9	0.8	0.9	29.1	28.8	28.7
19-64 Years	145.1	158.1	163.3	1.0	1.1	1.0	58.9	58.5	58.8
19-44 Years	99.4	103.3	102.9	0.4	-0.1	0.3	40.3	38.2	37.0
45-54 Years	23.6	33.1	36.6	3.8	3.4	3.7	9.6	12.2	13.2
55-64 Years	22.1	21.7	23.8	-0.2	3.1	0.6	9.0	8.0	8.6
65 Years or Over	29.8	34.3	34.9	1.6	0.6	1.3	12.1	12.7	12.5
65-74 Years	17.4	18.8	18.3	0.8	-0.8	0.4	7.1	6.9	6.6
75-84 Years	9.4	11.4	12.1	2.2	1.9	2.1	3.8	4.2	4.4
85 Years or Over	3.0	4.0	4.4	3.4	3.2	3.3	1.2	1.5	1.6
<b>Per Capita Personal Health Care</b>									
All Ages	\$1,799	\$3,373	\$3,834	7.2	4.4	6.5	—	—	—
Under 65 Years	1,319	2,416	2,793	7.0	4.9	6.5	—	—	—
0-18 Years	809	1,480	1,646	6.9	3.6	6.1	—	—	—
19-64 Years	1,570	2,878	3,352	7.0	5.2	6.5	—	—	—
19-44 Years	1,278	2,339	2,706	6.9	5.0	6.5	—	—	—
45-54 Years	1,790	3,200	3,713	6.7	5.1	6.3	—	—	—
55-64 Years	2,650	4,944	5,590	7.2	4.2	6.4	—	—	—
65 Years or Over	5,288	9,958	11,089	7.3	3.7	6.4	—	—	—
65-74 Years	4,021	7,235	8,167	6.7	4.1	6.1	—	—	—
75-84 Years	5,964	11,265	12,244	7.3	2.8	6.2	—	—	—
85 Years or Over	10,548	18,921	20,001	6.7	1.9	5.5	—	—	—

<sup>1</sup>Versions of this table are available with each type of service under personal health care (hospital, prescription drugs, etc.) at Internet address: <http://www.cms.hhs.gov/statistics/nhe/age/tables.asp>.

SOURCE: Keehan, S., Lazenby, H., Zezza, M., and Catlin, A., Centers for Medicare & Medicaid Services, 2004.

**Table 3**  
**Population Projections, by Distribution and Average Annual Growth Rates: 1987-2049**

Age Group	Distribution						
	1987	1999	2009	2019	2029	2039	2049
	Percent						
All Ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 65 Years	87.8	87.5	87.3	84.3	80.6	79.3	78.7
0-18 Years	29.0	28.7	26.8	25.7	24.7	23.8	23.6
19-64 Years	58.8	58.8	60.6	58.7	55.9	55.4	55.2
19-44 Years	40.1	37.0	34.3	33.0	32.2	31.3	31.1
45-54 Years	9.6	13.2	14.6	12.6	12.2	12.7	12.1
55-64 Years	9.0	8.6	11.6	13.1	11.5	11.4	12.0
65 Years or Over	12.2	12.5	12.7	15.7	19.4	20.7	21.3
65-74 Years	7.1	6.6	6.8	9.4	10.8	9.8	9.9
75-84 Years	3.8	4.4	4.1	4.5	6.5	7.7	7.2
85 Years or Over	1.3	1.6	1.8	1.8	2.1	3.3	4.2
	Average Annual Growth						
	1987-1999	1999-2009	2009-2019	2019-2029	2029-2039	2039-2049	1999-2049
	Percent						
All Ages	1.1	0.9	0.8	0.6	0.4	0.3	0.6
Under 65 Years	1.1	0.9	0.4	0.1	0.3	0.2	0.4
0-18 Years	1.0	0.2	0.4	0.2	0.1	0.2	0.2
19-64 Years	1.1	1.2	0.4	0.1	0.3	0.3	0.5
19-44 Years	0.5	0.2	0.4	0.3	0.1	0.2	0.3
45-54 Years	3.8	2.0	-0.7	0.3	0.8	-0.2	0.4
55-64 Years	0.8	4.0	1.9	-0.7	0.3	0.8	1.3
65 Years or Over	1.4	1.0	2.9	2.8	1.1	0.6	1.7
65-74 Years	0.5	1.2	4.1	2.0	-0.6	0.4	1.4
75-84 Years	2.3	0.4	1.6	4.3	2.2	-0.4	1.6
85 Years or Over	2.9	1.9	0.8	2.4	4.8	2.9	2.6

SOURCE: Boards of Trustees: The 2004 Annual Report of the Boards of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, March 23, 2004. Internet address: <http://www.ssa.gov/OACT/TR/TR04/tr04.pdf>.

**Table 4**  
**Simulated Impact of Changing the Age-Mix of the Population, Per**  
**Capita Average Annual Growth: 1987-2049<sup>1</sup>**

Type of Service and Funding	Per Capita Average Annual Growth						
	1987-1999 <sup>2</sup>	1999-2009	2009-2019	2019-2029	2029-2039	2039-2049	1999-2049
Personal Health Care	0.2	0.4	0.5	0.7	0.6	0.3	0.5
<b>Type of Service</b>							
Hospital	0.2	0.3	0.6	0.7	0.5	0.2	0.5
Physician and Clinical Services	0.1	0.3	0.4	0.4	0.2	0.1	0.3
Nursing Home	0.9	0.4	0.7	1.9	2.3	1.1	1.3
Prescription Drugs	0.2	0.6	0.6	0.4	0.2	0.1	0.4
All Other Personal Health Care	0.2	0.3	0.4	0.6	0.5	0.3	0.4
<b>Source of Funding</b>							
Private Health Insurance	0.1	0.5	0.2	0.0	0.1	0.1	0.2
Medicare	0.4	0.3	1.6	2.0	1.0	0.3	1.0
Medicaid	0.3	0.2	0.3	0.7	0.9	0.5	0.5
Out-Of-Pocket	0.3	0.4	0.5	0.7	0.7	0.3	0.5
Other Private and Other Public	0.1	0.3	0.1	0.2	0.3	0.2	0.2

<sup>1</sup>An alternative way to view this information, which can be found at Internet address:

<http://www.cms.hhs.gov/statistics/nhe/age/simulation.asp>, is with index levels, where the per capita expenditure level of 1999 is used as the base (1999=100.0). This chart clearly shows the high cumulative growth in nursing home care and Medicare because of the changing age-mix of the population.

<sup>2</sup>The estimates in this column are from a simulation that calculated 1987 estimates with utilization and price levels from 1999, but the distribution of the population in 1987.

SOURCE: Keehan, S., Lazenby, H., Zezza, M., and Catlin, A., Centers for Medicare & Medicaid Services, 2004.

**Table 5**  
**Personal Health Care: Contribution to Average Annual Growth, Non-Elderly and Elderly**

Personal Health Care	Total	Physician					
		Hospital Care	and Clinical Services	Prescription Drugs	Nursing Home	Home Health	All Other
<b>Average Annual Growth</b>		Percent					
<b>Under Age 65</b>							
1987-1996	8.0	6.6	8.8	11.1	9.0	14.6	8.2
1996-1999	6.0	4.1	5.4	17.0	3.1	7.4	5.4
Difference	-2.0	-2.5	-3.4	6.0	-6.0	-7.1	-2.8
<b>65 Years or Over</b>							
1987-1996	9.0	8.0	7.1	10.0	9.2	23.0	9.5
1996-1999	4.3	2.4	6.6	13.3	4.1	-5.8	5.2
Difference	-4.7	-5.6	-0.5	3.3	-5.1	-28.9	-4.3
<b>Contribution of Each Service to the Change<sup>1</sup></b>							
<b>Under Age 65</b>							
1987-1996	100.0	33.8	31.6	9.8	2.9	2.6	22.1
1996-1999	100.0	26.2	26.5	25.4	1.4	2.3	19.6
Difference	0.0	-7.7	-5.1	15.6	-1.6	-0.3	-2.5
<b>65 Years or Over</b>							
1987-1996	100.0	36.5	15.1	6.8	19.2	10.6	31.0
1996-1999	100.0	21.7	28.2	21.5	18.0	-8.4	37.0
Difference	0.0	-14.8	13.0	14.8	-1.2	-19.0	6.0

<sup>1</sup>These numbers show what service(s) drove the deceleration in the growth rate from one period to another. For example, hospital care accounted for 36.5 percent of the 9.0 percent average annual growth in aged personal health care (PHC) from 1987 to 1996, but only accounted for 21.7 percent of the 4.3 percent average annual growth in aged PHC from 1996 to 1999. Each cell was calculated by taking the dollar change in the period of a particular service and dividing it by the dollar change in the period of PHC. The change in elderly hospital spending from 1987 to 1996 was \$66.9 billion (134.2-67.3) while the dollar change in elderly PHC spending was \$183.5 billion (341.1-157.7). The contribution of 36.5 was calculated by dividing 66.9 by 183.5.

SOURCE: Keehan, S., Lazenby, H., Zezza, M., and Catlin, A., Centers for Medicare & Medicaid Services, 2004.