

# Health care spending patterns of U.S. consumers, by age, 1998, 2003, and 2008

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The National Health Care Expenditure Accounts (NHEA), the official estimates of total health care spending in the United States, show that in 2008, U.S. health care spending by business, governments, and households was \$2.3 trillion, or \$7,681 per person. The NHEA also shows that in 2008 health care spending was 16.2 percent of the gross domestic product (GDP), up from 13.5 percent in 1998.<sup>1</sup>

NHEA estimates indicate that households accounted for 34 percent of spending on health services and supplies in 1998, 32 percent in 2003, and 31 percent in 2008. In 1998, household health care spending averaged 5.3 percent of adjusted personal income, increasing to 5.8 percent in 2003, and 5.9 percent in 2008.<sup>2</sup>

Although NHEA data supply a great deal of information to the Government and play an important role in health care policy decisions, they fail to provide a complete picture of how increases in health care spending influence household budget decisions. For this reason, Consumer Expenditure Survey (CE) data from the U.S. Bureau

of Labor Statistics (BLS) are used to provide a snapshot of out-of-pocket health care spending changes among consumer units<sup>3</sup> by age of the reference person<sup>4</sup> in 1998, 2003, and 2008. This study examines changes in total health

<sup>2</sup> Healthcare Services and Supplies (HSS), a subset of the NHEA, excludes Investment, the sum of medical sector purchases of structures and equipment and expenditures for noncommercial medical research. In 2008, HSS was \$2.2 trillion compared with \$2.3 trillion for the NHEA. A continued drop in the share of health care outlays represented by consumer out-of-pocket spending contributed to the decline between in household share between 1998 and 2005 when it reached 31 percent where it has remained. Adjustments to personal income included adding contributions to social insurance for Medicare and excluding health benefit payments. This information is from "Sponsors of Health Care Costs: Business, Households and Governments, 1987-2008." Centers for Medicare and Medicaid Services, Baltimore, MD, and was accessed on August 10, 2010. The data in this report were revised and updated and the report replaced with "Sponsors of Health Care Costs: Business, Households and Governments, 1987-2009," available online at [www.cms.gov/NationalHealthExpendData/downloads/bhg09.pdf](http://www.cms.gov/NationalHealthExpendData/downloads/bhg09.pdf) (visited Jan. 6, 2011).

<sup>3</sup> A consumer unit is defined as (1) all members of a particular household who are related by blood, marriage, adoption, or other legal arrangement, such as foster children; (2) a financially independent person living alone, sharing a housing unit with others, or living as a roomer in a private home, lodging house, or permanently in a hotel or motel; or (3) two or more persons living together who pool their incomes to make joint expenditures. For more information, see *BLS Handbook of Methods*, chapter 16, "Consumer Expenditures and Income" (updated 4/2007), available online at <http://www.bls.gov/opub/hom/pdf/homch16.pdf> (visited October 25, 2010).

<sup>4</sup> In the CE, the reference person is the first consumer unit member mentioned by the respondent when asked to "start with the name of the person or one of the people who owns or rents the home." It is with respect to the reference person that the relationship of the other consumer unit members is determined. For more information, see "Consumer Expenditure Survey Glossary," available online at <http://www.bls.gov/cex/csxgloss.htm#chars>. (visited August 4, 2010).

<sup>1</sup> When the Centers for Medicare and Medicaid Services publish NHEA data for subsequent years, data from previous years often are revised. The NHEA data cited were those released with the 2008 estimates and accessed January 12, 2010. NHEA data for 2009 were released on January 6, 2011, and the earlier data were replaced with newer data titled "National Health Expenditures by Type of Service and Source of Funds: Calendar Years 1960-2009" (U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, Jan. 6, 2011), on the Internet at <http://www.cms.hhs.gov/NationalHealthExpendData/downloads/highlights.pdf> (visited Jan. 6, 2011)

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care spending in dollars as well as in the share of total annual expenditures. Changes in the distribution of health care spending by health care commodities and services are also examined.

### Data and methodology

This research uses CE data from the 1998, 2003, and 2008 Interview Survey collection years.<sup>5</sup> However, BLS provides integrated data from the CE Diary and the Interview Surveys online.<sup>6</sup> For each year examined, this study sample consists of consumer units interviewed in that year who reported positive health care spending (net of any reimbursements) during an interview. Expenditure estimates presented for the collection year are annual estimates, whereas percent-reporting numbers are average quarterly estimates. Quarterly percent-reporting estimates are computed by adding up the number of consumer units reporting a positive health care expenditure during a given quarter and dividing this figure by the total number of consumer units interviewed during the quarter to obtain an average. Once the percent-reporting figures are obtained for all 4 quarters, an arithmetic mean of the 4 quarters is used to represent the average quarterly estimate. Annual expenditure means are computed

<sup>5</sup> Because of the rotating panel design of the Interview Survey, a collection year is different from a calendar year. For example, data for the first quarter of calendar year 2008 were collected in January, February, and March. Respondents interviewed in January were asked to recall expenditures made since the first of the month 3 months prior to the interview, resulting in a reference period between Oct. 1, 2007, and Dec. 31, 2007. Similarly, respondents interviewed in February would have a reference period from Nov. 1, 2007, to Jan. 31, 2008. This means that respondents interviewed in January who were also interviewed in April, July, and October would have provided 4 quarters worth of data in collection year 2008. However, the data would cover a combined period from Oct. 1, 2007, to Sept. 30, 2008, the last 3 months of calendar year 2007, and the first 9 months of calendar year 2008. For more information see "2008 Consumer Expenditure Interview Survey Public Use Microdata: User's Documentation," October 15, 2009, available online at <http://www.bls.gov/cex/2008/cssintvw.pdf>. (visited August 4, 2010.)

<sup>6</sup> For more information, see "2008 Consumer Expenditure Interview Survey Public Use Microdata: User's Documentation," October 15, 2009, available online at <http://www.bls.gov/cex/2008/cssintvw.pdf>. (visited August 4, 2010.)

by first summing up the total for an expenditure, such as health insurance premiums, for a given quarter, then annualizing the sum, and dividing by the number of consumer units reporting the expense. For each collection year, an arithmetic mean of the 4 quarters is used to represent an annual average.<sup>7</sup>

The expenses examined are total health care outlays and its associated components: health insurance, medical services, prescription drugs, and medical supplies. Nonprescription drugs, nonprescription vitamins, topicals and dressings, and medical equipment repair are not included in this study because these expenses are collected from Diary Survey respondents only.

Health insurance includes premiums paid by consumers for private health insurance and Medicare. Private insurance includes coverage obtained individually or through a group plan sponsored by an employer or other organization. Medicare outlays are premiums paid for Medicare Part B and Medicare Part D coverage. Medicare Part B (Medical Insurance) helps cover physicians' services and outpatient care and Medicare Part D covers prescription drugs.<sup>8</sup>

Medical services include physicians', dental, eye care, and other professional services;<sup>9</sup> inpatient hospital care; lab tests and x-rays; other medical care services, such as hospital outpatient and emergency room care; and nursing home care. The prescription drug spending category is for outlays that are not connected to inpatient hospitalization. Medical supplies include the purchase of hearing aids,

<sup>7</sup> Annual pretax income and total consumption figures were derived in the same manner as the health expenditure means figures.

<sup>8</sup> For more information, see "Medicare and You: 2010," Centers for Medicare and Medicaid Services, Baltimore, MD, available online at <http://www.medicare.gov/navigation/medicare-basics/medicare-benefits/part-b.aspx>. (visited August 4, 2010.)

<sup>9</sup> Spending on other professional services includes those provided by health professionals other than physicians, dentists, and optometrists. Among those professionals are chiropractors, acupuncturists, marriage counselors, nurse practitioners, podiatrists, physical therapists, psychologists, substance abuse professionals, and (certified) medical massage therapists.

eyeglasses and contact lenses, and the purchase or rental of medical equipment for general use. For each year examined, findings will be reported for the total sample and by the age of the reference person.

### Findings

In 2008, nearly 78 percent of Interview Survey respondents reported making health care expenditures during a quarter, compared with 78.6 percent in 2003 and 80.4 percent in 1998. The proportion reporting expenses ranged from 42.3 percent among consumer units with a reference person under 25 years old to 95.3 percent among consumer units with a reference person 65 years and older in 2008; similar patterns were found for 1998 and 2003, as chart 1 indicates. As table 1 shows, among those with health care expenditures, in all years, average total expenditures increased with the age of the reference person up to 45–54 years and then declined. However, in all years, average total health care expenditures, in dollars and as a proportion (or share) of total annual expenditures, generally increased with age.

The proportion of total annual expenditures represented by health care went from 6.2 percent in 1998 to 6.8 percent in 2003 and was virtually the same at 6.7 percent in 2008. Chart 2 shows that these averages varied among age groups. For example, among consumer units with a reference person age 25–34, the proportion of total annual expenditures represented by health care was 4.8 percent in 2008, compared with 4.6 percent in 2003 and 4.4 percent in 1998. Among consumer units with a reference person 65 years and older, the proportion of annual expenditures represented by health care went from 12.6 percent in 1998 to 13 percent in 2003, but was about the same (12.9 percent) in 2008.

Health care component shares changed between 1998 and 2008. Health insurance premiums increased from about 52 percent of health care outlays in 1998 to nearly 58 percent in 2008. The most pronounced change was among consumer units with a reference person under 25 years old;

health insurance was 47.9 percent of health care spending in 1998, compared with 59.1 percent in 2008. Despite this percentage increase, these consumer units still spent substantially less on health insurance than other groups. For consumer units with a reference person 65 years and older, the proportion of the health care budget represented by health insurance was similar in 1998 and 2003, 56 and 55.8 percent, respectively, but was higher (63.5 percent) in 2008. (See chart 3 and table 1.)

Spending on medical services dropped from 31.1 percent of total health care spending in 1998 to 25.9 percent in 2008. The largest declines were for groups with a reference person under age 55. One reason may be increased enrollment in managed care plans, particularly preferred provider organizations (PPOs), which tend to have lower out-of-pocket costs than traditional fee-for-service (FFS) plans. Additional analysis of the insurance coverage of sample consumer units provides some support for this conclusion.

Table 2 presents information about sample consumer units with private coverage under a health maintenance organization (HMO), a PPO, or an FFS plan, and with Medicare Part B coverage. The proportions add up to more than 100 percent because some consumer units have members covered under different plans. For example, a married respondent may have private coverage under an HMO plan, but the respondent's spouse may have coverage under Medicare Part B. In 1998, 26.4 percent of the sample reported having an FFS plan, compared with 14.8 percent in 2003 and 13.4 percent in 2008. Although FFS coverage declined among all groups, consumer units with a reference person age 55–64 reported the greatest proportion of FFS coverage in all years surveyed.

For consumer units with a reference person 65 years and older, PPO coverage was higher in 2008 than in

1998—15.0 percent compared with 9.3 percent—but it still represented the lowest participation rate of all groups. Similarly, FFS coverage for the 65-and-older group dropped from 27.2 percent in 1998 to 14.2 percent in 2003 and 2008, but it was still the second highest among all groups.

Prescription drug spending increased from 13.1 percent of health care outlays in 1998 to 15.9 percent in 2003, with all age groups experiencing increases. Between 2003 and 2008, overall prescription drug spending decreased to 13 percent of health care outlays, with all age groups showing declines, except those with a reference person age 35–44. The greatest decline during the period was for the 65-and-older group, attributable to the introduction of Medicare Part D.<sup>10</sup> Medical supplies, a small proportion of health care spending, declined for the sample as a whole, from 4.3 percent in 1998 to 3.2 percent in 2008.

### Conclusions and implications

Among respondents with expenses, the proportion of annual expenditures for health care increased between 1998 and 2003, but was unchanged in 2008. Whether this pattern will continue is uncertain because of the recession that began in December 2007. If poor economic conditions suppressed health care spending in 2008, then increased health care outlays relative to total consumption expenses are possible in

<sup>10</sup> Additional analysis of 2008 data found that 37.6 percent of consumer units with a reference person 65 years and over had one or more members with Medicare Part D coverage. Existing research has found that Medicare Part D coverage reduced user cost among the elderly in 2006. For more information, see Schneeweis, Sebastian, Amanda R. Patrick, Alex Pedan, Laleh Varasteh, Raisa Levin, and William H. Shrank, "The Effect of Medicare Part D Coverage on Drug Use and Cost Sharing Among Seniors without Prior Drug Benefits," *Health Affairs*, February 2009, pp. w305–w316, and Lichtenberg, Frank R. and Shawn X. Sun, "The Impact of Medicare Part D on Prescription Drug Use by the Elderly," *Health Affairs*, volume 26, number 6, November/December 2007, pp. 1735–44.

the future.<sup>11</sup>

The share of total health care spending accounted for by various components changed during the period. In 2008, the share of health care spending accounted for by health insurance premiums had increased while the share accounted for by medical services had decreased relative to 1998, possibly due to increased enrollment in managed care plans.

The age of the reference person had an effect on health care spending. For example, the greatest decline in prescription drug spending was found for the 65-and-older group. However, increased spending on health insurance premiums resulted in virtually no change in the proportion of annual expenditures allocated to health care among this group.<sup>12</sup>

<sup>11</sup> On September 20, 2010, the National Bureau of Economic Research determined that a trough in business activity occurred in the U.S. economy in June 2009. The trough marked the end of the recession that began in December 2007 and the beginning of an expansion. For more information, see "U.S. Business Cycle Expansions and Contractions," Cambridge, MA, National Bureau of Economic Research, available online at <http://www.nber.org/cycles/cyclesmain.html> (visited October 12, 2010).

An NHEA report indicates that household out-of-pocket health care spending (which excludes insurance premiums and contributions to Medicare) decelerated from 6 percent in 2007 to 2.8 percent in 2008. It was concluded that the slower growth may be because poor economic conditions have forced households to reduce health care spending by forgoing treatment. For more information, see "Sponsors of Health Care Costs: Private Business, Households and Governments, 1987–2008," available online at [www.cms.gov/NationalHealthExpendData/downloads/bhg09.pdf](http://www.cms.gov/NationalHealthExpendData/downloads/bhg09.pdf) (visited August 10, 2010).

<sup>12</sup> In 2008, the average Medicare Part D base beneficiary monthly premium was \$27.93. The Part B standard monthly premium was \$96.40, but there is a higher "income-related" premium for those individuals whose modified adjusted gross income exceeds a specified threshold. For more information, see "2009 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and the Federal Supplementary Medical Insurance Trust Fund," May 12, 2009, Centers for Medicare and Medicaid Services, Baltimore, MD, available online at <http://www.cms.hhs.gov/ReportsTrustFunds/> (visited August 10, 2010).

Table 1. Average income before taxes, annual expenditures, total health care; total health care spending shares of annual expenditures; health insurance, medical services, prescription drugs, and medical supplies share of total health care spending, by age of reference person, 1998, 2003, and 2008

Item	All consumer units			Under 25			25-34		
	1998	2003	2008	1998	2003	2008	1998	2003	2008
Income before taxes	\$44,576	\$54,949	\$69,465	\$22,118	\$28,026	\$39,415	\$46,559	\$56,182	\$68,333
Average annual expenditures	\$35,592	\$42,435	\$53,785	\$22,210	\$27,966	\$36,467	\$36,942	\$42,664	\$53,167
Total health care	\$2,204	\$2,882	\$3,591	\$922	\$1,283	\$1,449	\$1,613	\$1,953	\$2,533
Share of average annual expenditures	6.2	6.8	6.7	4.2	4.6	4.0	4.4	4.6	4.8
Health insurance	\$1,134	\$1,563	\$2,080	\$442	\$666	\$856	\$840	\$1,151	\$1,498
Medical services	685	766	931	330	426	392	585	571	745
Prescription drugs	289	458	468	102	143	158	127	176	217
Medical supplies	96	95	113	48	48	43	62	54	73
Shares of total health care									
Health insurance	51.5	54.2	57.9	47.9	51.9	59.1	52.0	59.0	59.1
Medical services	31.1	26.6	25.9	35.8	33.2	27.0	36.3	29.2	29.4
Prescription drugs	13.1	15.9	13.0	11.0	11.1	10.9	7.8	9.0	8.6
Medical supplies	4.3	3.3	3.1	5.2	3.7	2.9	3.8	2.8	2.9

SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Interview Survey

Table 1. **Average income before taxes, annual expenditures, total health care; total health care spending shares of annual expenditures; health insurance, medical services, prescription drugs, and medical supplies share of total health care spending, by age of reference person, 1998, 2003, and 2008—Continued**

Item	35–44			45–54		
	1998	2003	2008	1998	2003	2008
Income before taxes	\$55,180	\$66,621	\$86,709	\$62,178	\$72,653	\$88,961
Average annual expenditures	\$42,689	\$50,160	\$64,195	\$45,492	\$52,952	\$64,746
Total health care	\$1,975	\$2,589	\$3,022	\$2,323	\$2,900	\$3,442
Share of average annual expenditures	4.6	5.2	4.7	5.1	5.5	5.3
Health insurance	\$1,012	\$1,436	\$1,730	\$1,088	\$1,443	\$1,837
Medical services	705	801	881	879	912	1,056
Prescription drugs	166	270	324	241	426	419
Medical supplies	91	82	87	114	120	130
Shares of total health care						
Health insurance	51.3	55.5	57.2	46.8	49.7	53.4
Medical services	35.7	30.9	29.2	37.8	31.4	30.7
Prescription drugs	8.4	10.4	10.7	10.4	14.7	12.2
Medical supplies	4.6	3.2	2.9	4.9	4.1	3.8
	55–64			65 and older		
	1998	2003	2008	1998	2003	2008
Income before taxes	\$45,288	\$60,415	\$75,422	\$24,095	\$30,420	\$39,683
Average annual expenditures	\$36,578	\$44,844	\$57,654	\$22,363	\$27,848	\$36,178
Total health care	\$2,411	\$3,382	\$4,204	\$2,812	\$3,624	\$4,658
Share of average annual expenditures	6.6	7.5	7.3	12.6	13.0	12.9
Health insurance	\$1,164	\$1,798	\$2,268	\$1,574	\$2,020	\$2,956
Medical services	787	898	1,175	587	707	866
Prescription drugs	361	577	632	537	788	697
Medical supplies	98	109	129	114	108	140
Shares of total health care						
Health insurance	48.3	53.2	54.0	56.0	55.8	63.5
Medical services	32.6	26.6	27.9	20.9	19.5	18.6
Prescription drugs	15.0	17.1	15.0	19.1	21.7	15.0
Medical supplies	4.1	3.2	3.1	4.1	3.0	3.0

SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Interview Survey

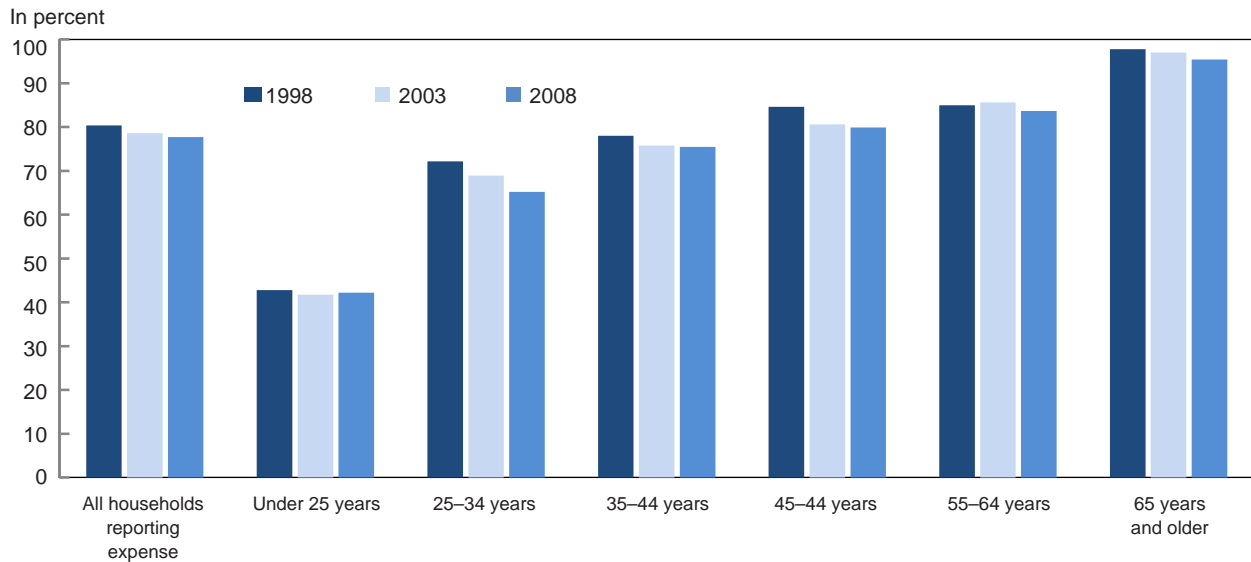


**Table 2. Percentage enrollment in HMO, PPO, FFS plans, and Medicare Part B, by age of reference person, 1998, 2003, and 2008**

Item	All consumer units			Under 25			25-34			35-44		
	1998	2003	2008	1998	2003	2008	1998	2003	2008	1998	2003	2008
HMO	52.2	45.5	36.0	47.6	39.4	38.4	67.8	56.2	40.5	61.3	50.8	40.6
PPO	23.0	30.2	32.5	24.1	30.3	27.7	26.2	36.6	38.8	27.6	36.2	37.8
FFS	26.4	14.8	13.4	21.2	14.1	10.5	22.1	10.9	10.9	21.0	13.4	11.3
Medicare Part B	28.7	27.3	31.1	1.9	2.1	4.8	2.4	2.9	3.9	5.2	5.4	6.5
Item	45-54			55-64			65 and older					
	1998	2003	2008	1998	2003	2008	1998	2003	2008			
HMO	59.1	54.9	37.6	54.1	47.7	39.5	28.1	26.2	25.4			
PPO	30.7	37.5	40.4	25.8	34.2	37.2	9.3	12.4	15.0			
FFS	31.4	15.9	14.7	34.1	20.2	15.6	27.2	14.2	14.2			
Medicare Part B	6.7	7.8	10.6	19.9	19.2	24.4	93.2	86.1	93.4			

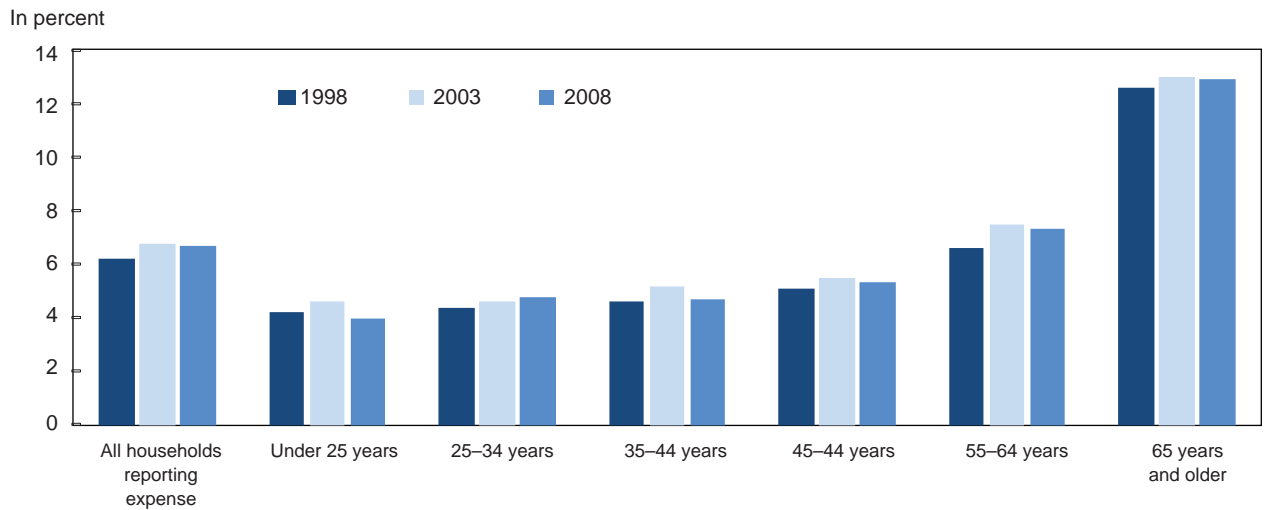
SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Interview Survey

**Chart 1. Average percent reporting health care expenditures by age of reference person, 1998, 2003, and 2008**



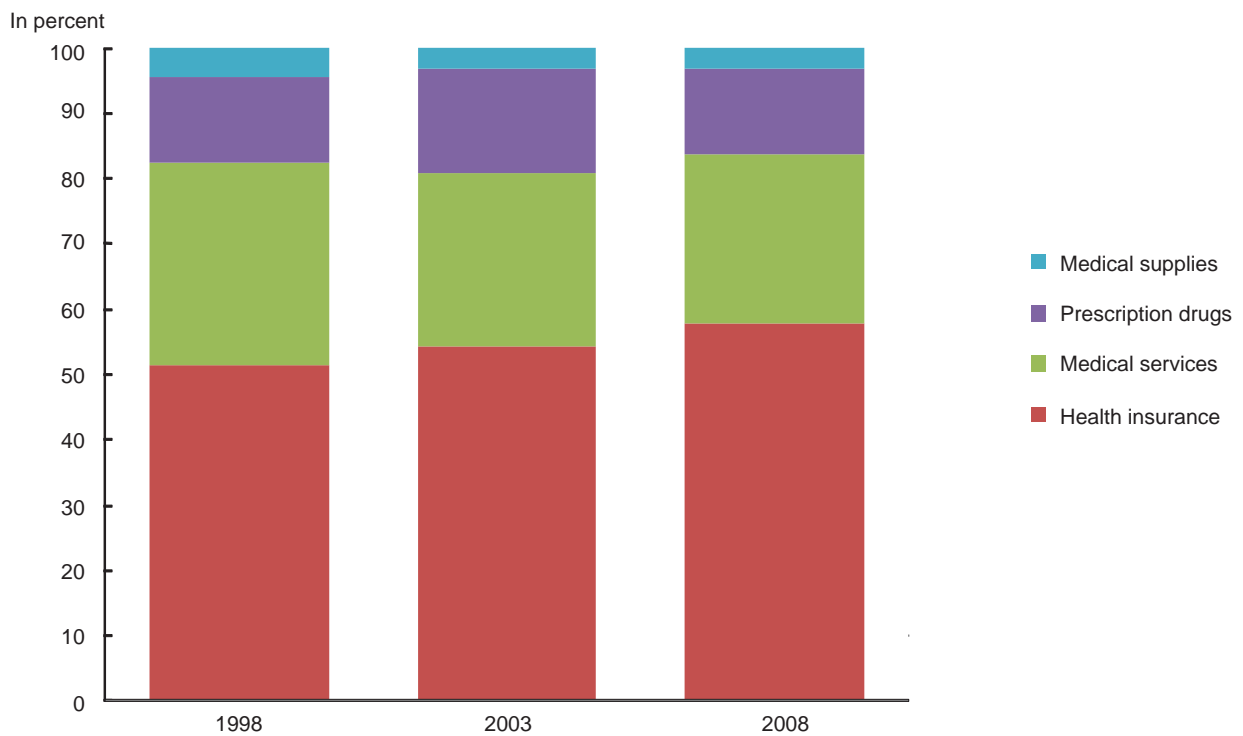
SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Interview Survey

**Chart 2. Average health care spending shares of total annual expenditures by age of reference person, 1998, 2003, and 2008**



SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Interview Survey

**Chart 3. Distribution of total health care spending, by type of expense, 1998, 2003, and 2008**



SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Interview Survey