

# National Health Expenditures Accounts: Definitions, Sources, and Methods, 2007

## Introduction

### U.S. National Health Expenditure Accounts

Since 1964, the United States Department of Health and Human Services has published an annual series of statistics presenting total national health expenditures. These statistics, termed National Health Expenditure Accounts (NHEA), are compiled with the goal of measuring the total amount spent in the United States to purchase health care goods and services during the year. The amount invested in medical sector structures and equipment and in non-commercial research in the United States, to procure health services in the future, is also included.

The NHEA are generally compatible with the National Income and Product Accounts (NIPA), but bring a more complete picture of the health care sector of the nation's economy together in one set of statistics. Three primary characteristics of the NHEA flow from this framework. First, the National Health Expenditure Accounts are comprehensive because they contain all of the main components of the health care system within a unified structure. Second, the Accounts are multidimensional, encompassing not only expenditures for medical goods and services, but also the source of funds that finance these expenditures. Third, the Accounts are consistent because they apply a common set of definitions that allow comparisons among categories and over time.

Table 1 provides an example of the accounting matrix used in the U.S. to classify health care spending. In 2007, \$2.2 trillion was spent on health care services and products, over half of which purchased hospital care and physician and clinical services. Private expenditures totaled \$1.2 trillion, or 53.8 percent of all health spending. Private health insurance paid for 34.6 percent, out-of-pocket sources for 12.0 percent, and other private sources for 7.2 percent. Government accounted for the remaining 46.2 percent of spending, or \$1.0 trillion, through programs such as Medicaid and Medicare. The participation of government in financing health care varies by type of personal health expenditures, ranging from 6.4 percent of dental expenditures to more than half of expenditures for hospital, nursing home, home health and other personal health care services (Hartman et al. 2009).

### Health Expenditure Accounts and the Health Economy

The NHEA are a representation of the economic activity within the health sector, which is one part of the national economy. The classifications used are those that are central to the financing and provision of health care. They form a system for understanding changes in the structure of the health sector, particularly changes in the amount and cost of health services purchased and in sources of financing for these purchases. Additionally, the NHEA can serve as a database for researchers to study the economic causal factors at work in the health sector. They show at a minimum the following important relationships:

- Health care expenditures as a proportion of gross domestic product. The amount spent on health care goods and services relative to the amount spent for all goods and services purchased represents the share of the nation's total production that is devoted to health care. The amount of economic resources devoted to the production of health care also represents the "opportunity cost" of health care to society, in that resources devoted to the production of health care goods and services cannot be applied to the production of all other goods and services.
- Health care expenditures by source of funds. The NHEA bring into focus the share and magnitude of public and private spending for various types of health care services and products. This allows consideration of the relative levels of expenditures that emanate from public and private sources, given their sources of revenue and competing priorities.

- Changes over time in sources of funds. The availability of consistent time series in the NHEA allows observation of changes in the sources of funding for health care expenditures. Many of these changes reflect basic technological, programmatic, and demographic trends. For example, the influence of the Medicare and Medicaid programs, legislated in 1965, in shifting funding to the public sector is discernable. Increases in the role of third party payment (public or private) over time may inflate medical care costs more quickly by weakening economic incentives associated with direct payment.
- Health Care Expenditures for various types of services. This describes the structure of the health care system by the amount spent in various health care establishments for services and products delivered each year. The Accounts provide data to evaluate how much is spent at medical establishments and provide data useful in analyzing the changing mix of medical services and products consumed in the United States.
- Changes over time in expenditures for types of services. Consideration of the entire matrix over time permits evaluation of policies intended to curb or redirect growth within the health care sector. Because we observe the system as a whole, it is possible to detect substitutions or countervailing effects in other services in response to changing funding sources. For example, the expansion of managed care to most workers and their families further constrained the growth of inpatient hospital services while increasing access to and expenditures for prescription drugs.
- Sponsors: While the NHEA record *sources of funds* as specific public programs, private insurance, out-of-pocket payments and philanthropic funds that directly pay health care bills, estimates of spending by sponsor organizes spending according to the underlying entity financing the health care bill payer – businesses, households and governments. This structure allows an examination of burden measures that help identify pressure points behind rising health care costs. (Cowan et al., 2005)
- Projections. Historical trends provide a basis for projections of what health care expenditures will be in the future. The projections incorporate assumptions about demographic and economic changes, as well as inflation rates and other variables. By projecting the likely consequences of current trends, these models alert us to undesirable outcomes and alternative policies to avoid them (Keehan et al., 2008).
- Specialized estimates. Specialized estimates based on the historical accounts fulfill a variety of informational needs. Health Spending by Age, (Hartman et al., 2007) lets policymakers focus on the differential expenditure, use, access, and financing mechanisms available to various age groups. State level health accounts (CMS February 2007 and Martin et al., 2007) highlight regional differences in expenditures, service mix, and financing sources, and how these change over time.

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**Table 1: National Health Expenditures, by Source of Funds and Type of Expenditure:  
Calendar Year 2007**  
(Amounts in Billions)

Year and Type of Expenditure	Private							Public		
	Total	All Private		Consumer			Total	Federal <sup>1</sup>	State and Local <sup>2</sup>	
		Funds	Total	Out-of-Pocket Payments	Private Health Insurance	Other				
National Health Expenditures	\$2,241.2	\$1,205.5	\$1,043.5	\$268.6	\$775.0	\$162.0	\$1,035.7	\$754.4	\$281.3	
Health Services and Supplies	2,098.1	1,123.9	1,043.5	268.6	775.0	80.4	974.2	712.9	261.3	
Personal Health Care	1,878.3	1,027.7	948.9	268.6	680.3	78.8	850.6	663.0	187.6	
Hospital Care	696.5	312.2	280.0	23.2	256.9	32.2	384.3	307.8	76.6	
Professional Services	702.1	454.5	413.7	107.6	306.1	40.9	247.6	186.9	60.7	
Physician and Clinical Services	478.8	317.4	286.1	49.6	236.5	31.3	161.3	133.5	27.8	
Other Professional Services	62.0	41.7	38.5	15.9	22.6	3.2	20.3	16.1	4.3	
Dental Services	95.2	89.1	89.0	42.1	46.9	0.1	6.1	3.6	2.5	
Other Personal Health Care	66.2	6.3	--	--	--	6.3	59.8	33.7	26.1	
Nursing Home and Home Health	190.4	62.4	56.6	41.3	15.3	5.8	128.0	92.4	35.6	
Home Health Care	59.0	12.6	11.5	6.0	5.6	1.1	46.4	35.4	11.0	
Nursing Home Care	131.3	49.7	45.1	35.3	9.8	4.6	81.6	57.0	24.6	
Retail Outlet Sales of Medical Products	289.3	198.6	198.6	96.5	102.1	0.0	90.7	76.0	14.7	
Prescription Drugs	227.5	146.6	146.6	47.6	99.1	0.0	80.8	66.5	14.3	
Other Medical Products	61.8	52.0	52.0	49.0	3.0	0.0	9.9	9.5	0.4	
Durable Medical Equipment	24.5	16.9	16.9	14.0	3.0	0.0	7.5	7.1	0.4	
Other Non-Durable Medical Products	37.4	35.0	35.0	35.0	0.0	0.0	2.3	2.3	0.0	
Government Administration and Net										
Cost of Private Health Insurance	155.7	96.2	94.6	--	94.6	1.6	59.5	40.2	19.3	
Government Public Health Activities	64.1	--	--	--	--	--	64.1	9.7	54.4	
Investment	143.1	81.6	--	--	--	81.6	61.5	41.5	20.1	
Research	42.4	4.3	--	--	--	4.3	38.1	33.0	5.2	
Structures and Equipment	100.7	77.3	--	--	--	77.3	23.4	8.5	14.9	

<sup>1</sup>Detailed estimates are prepared for these Federal Government programs: Medicare, Workers' Compensation, Medicaid, Department of Defense, Maternal and Child Health, Vocational Rehabilitation, Veterans' Administration, Substance Abuse and Mental Health Services Administration, Indian Health Service, State Children's Health Insurance Program, and miscellaneous general hospital and medical programs.

<sup>2</sup>Detailed estimates are prepared for these State and Local Government programs: Temporary Disability Program, Workers' Compensation, Medicaid, General Assistance, Maternal and Child Health, Vocational Rehabilitation, hospital subsidies, State Children's Health Insurance Program, and school health.

NOTE: Research and development expenditures of drug companies and other manufacturers and providers of medical equipment and supplies are excluded from research expenditures. These research expenditures are implicitly included in the expenditure class in which the product falls, in that they are covered in the final cost of that product. The figure 0.0 denotes amounts less than \$50 million. Numbers may not add to totals because of rounding.

SOURCE: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

## Definitions

In an economic accounting construct it is important to thoroughly define the concepts to be measured and the data sources and methods to be used in creating the estimates. This section presents the blueprint for creating NHEA estimates in the United States. The NHEA definitions constitute the framework on which estimates of spending for health care are constructed. The framework can be considered as a two-dimensional matrix; along one dimension are health care providers or products that constitute the U.S. health care industry and along another dimension are sources of funds used to purchase this health care.

## National Health Expenditures

National Health Expenditures represents health care spending in the aggregate. The NHEA recognize several types of health care spending within this broad aggregate. "Personal Health Care Expenditures" measures the total amount spent to treat individuals with specific medical conditions. "Health services and supplies," which represents spending for all medical care rendered during the year, is the sum of personal health care expenditures, government public health activity, and program administration and the net cost of private health insurance. National Health Expenditures equals Health Services and Supplies

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plus Investment, the sum of medical sector purchases of structures and equipment and expenditures for noncommercial medical research.

“Personal health care” is comprised of therapeutic goods or services rendered to treat or prevent a specific disease or condition in a specific person. “Government public health activity” measures spending by governments to organize and deliver health services and to prevent or control health problems. “Program administration and the net cost of private health insurance” covers spending for the cost of running various government health care programs, and the difference between premiums earned by insurers and the claims or losses incurred for which insurers become liable (the net cost of private health insurance). Finally, the category “Investment” includes spending for noncommercial biomedical research and expenditures by health care establishments on structures and equipment.

In the NHEA, the type of product consumed or, in the case of services, the type of establishment providing the service, determines what is included or excluded from health care spending. In the case of both goods and services, the classification systems are provided by the Federal Government. Goods are classified according to the product codes used by the Bureau of the Census. Services are recognized when they are provided through private sector establishments in North American Industrial Classification System (NAICS) sector 62 *Health Care and Social Assistance* or through government operations that parallel that classification. The NAICS classifies private sector establishments (for profit and not-for-profit) whose production processes are similar. Each establishment is assigned a code that identifies the specific nature of its operation within the broader industrial classification scheme. For the health care and social assistance industry, the NAICS is also structured to capture the continuum of medical and social care. In this fashion, the NAICS structure ranges from medical care facilities providing acute care, such as offices of physicians and hospitals, to non-acute medical care facilities, such as nursing homes, to social assistance facilities providing little or no medical care, such as certain residential facilities and establishments providing only social services.

Prior to the introduction of the NAICS, the 1987 version of the Standard Industrial Code (SIC) was used for classification purposes in the United States. Services recognized as health care in the NHEA were those in major group 80, the SIC designation for health services. The current NHEA represents a NAICS classification structure that is as consistent as possible with the SIC-based classification structure for health care services in order to maintain continuity of the data series over time. However, using different classification systems over time introduces some estimating problems into the NHEA. SIC and NAICS structures are not identical, and individual SIC categories may not always map directly into NAICS categories. For example, some establishments not previously defined as health establishments in the NHEA are now included as health care and social services in the NAICS (NAICS 62191, Ambulance; NAICS 62322, Residential Mental Health and Substance Abuse Facilities; NAICS 623312, Homes for the Elderly; NAICS 6239, Other Residential Care Facilities; NAICS 624, Social Assistance). In addition, some parts of health care establishment categories are switched from one category to become part of another. This shift occurs for certain clinics that were previously classified as Offices and Clinics of Doctors of Medicine (SIC 801) but are now grouped with certain other SIC 809 clinics under NAICS 6214 (Outpatient Care Centers). Such switches interrupt the definitional continuity of a data series and present unique challenges in devising methods to realign information to maintain that continuity. In the NHEA, we have realigned data from SIC to NAICS so as not to introduce any changes solely as a result of differences in classification systems.

The following schematic shows the relationship of the SIC to the NAICS. The detailed categories of health care establishments listed under NAICS Sector 62 are described in Figure 2.

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**Figure 1 Crosswalk between NAICS and SIC**

NAICS	SIC
6211 Offices of physicians	8011 Offices and clinics of doctors of medicine (part)
	8031 Offices and clinics doctors of osteopathy
6212 Offices of dentists	8021 Offices and clinics of dentists
6213 Offices of other health practitioners	8041 Offices and clinics of other health practitioners
6214 Outpatient care centers	8011 Offices and clinics of doctors of medicine (part)
	8092 Kidney dialysis centers
	8093 Specialty outpatient clinics
	8099 Health and allied Services nec (part)
6215 Medical & diagnostic laboratories	807 Medical and dental laboratories (part)
6216 Home health agencies	808 Home health care services
6219 Other ambulatory health care	8099 Health and allied services, nec (part)
622 Hospitals	806 Hospitals
623 Nursing & residential care facilities (part)	805 Nursing Care Facilities

Personal Health Care (PHC) is the NHEA category that is most analogous to NAICS code 62. Some categories of establishments included in NAICS 62, such as social assistance, are not included in PHC. Some services/products measured in PHC are not delivered by establishments classified in NAICS 62. For example, medical goods classified in the NHEA as non-durable medical products and durable medical products are not included in NAICS code 62 - Health Care and Social Insurance. Rather, they are delivered (provided) by retail pharmacies and other retail businesses classified in NAICS-44-45.

**Figure 2 [See Quick Reference for Definitions]  
North American Industry Classification System for Health Care Services Crosswalk to NHEA**

NAICS Code	NAICS Industry Title	National Health Expenditure Accounts Category
6211	Offices of Physicians	Physician and Clinical Services
6212	Offices of Dentists	Dental services
6213	Offices of Other Health Practitioners	Other Professional Services
6214	Outpatient Care Centers	Physician and Clinical Services
6215	Medical and diagnostic laboratories (part)	Physician and Clinical Services
6216	Home Health Care Agencies	Home Health Care
62199	All Other Ambulatory Health Care Services	Not Applicable <sup>2</sup>
622	Hospitals	Hospital Care
623110	Nursing care facilities	Nursing Home Care
623311	Continuing care retirement communities	Nursing Home Care

<sup>2</sup>For various reasons, none of the industries classified in NAICS 62199 are counted separately as medical services recognized in the NHEA. First, services such as physical fitness evaluation services and smoking cessation do not meet the definition of health care within the NHEA. Second, services provided by blood or body organ banks and blood donor stations would be included with other services, primarily hospitals, so that including them separately would be double-counting. Last, remaining services (health screening, hearing testing, and pacemaker services) might be considered health care, but these services make up a small percentage of the total NAICS 62199 and we are unable to break them into separate categories.

SOURCE: Executive Office of the President, *North American Industry Classification System*. Washington, U.S. Government Printing Office, 1997; Executive Office of the President, *Standard Industrial Classification Manual*. Washington, U.S. Government Printing Office, 1987; and Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

## Services and Products

### Hospital Care

In the NHEA, hospital care spending is defined to cover revenues received for all services provided by hospitals to patients. Thus, expenditures include revenues received to cover room and board, ancillary services such as operating room fees, services of resident physicians, inpatient pharmacy, hospital-based nursing home care, hospital-based home health care and fees for any other services billed by the hospital.

All hospitals in the United States are included in the scope of the NHEA. Expenditures are estimated separately for Federal hospitals and non-federal hospitals. The value of hospital output is measured by total net revenue.<sup>1</sup> This includes net patient revenues (gross charges less contractual adjustments, bad debts, and charity care). It also includes government tax appropriations, nonpatient operating revenue (receipts from cafeterias, gift shops and parking lots, for example), and non-operating revenues, such as interest income, contributions, and grants. Thus, although revenue is measured in accrued terms rather than cash terms, the value is expressed as what the hospital expects to receive, rather than what it charged. Non-patient revenues are included in the NHEA because hospitals take anticipated levels of these revenues into account when setting patient revenue targets or charges.

Except for Federal hospitals, the basic data sources used to prepare the hospital estimates are the American Hospital Association (AHA) Annual Survey and the Census Bureau's Services Annual Survey (SAS). Federal hospital estimates are based on data from the Federal agencies that administer them.

### Professional Services

#### Physician and Clinical, Dental, and Other Professional Services

The expenditures reported in these categories are for services rendered in establishments of health professionals. The category into which such expenditure falls is determined broadly by the NAICS classification of the establishment in which the service is provided. Thus, the NHEA "physicians and clinical services" comprise the Offices of Physicians [including Doctors of Medicine (M.D.) and Doctors of Osteopathy (D.O.) (NAICS 62111)] and outpatient care centers (NAICS 6214), plus the portion of medical laboratories services that are billed independently by the laboratories (a portion of NAICS 62151). "Dental Services" is comprised of services provided by Offices of Doctors of Dental Surgery (D.D.S.), Doctors of Dental Medicine (D.M.D.), or Doctors of Dental Science (D.D.Sc.) (NAICS 6212). "Other professional services" is comprised of services provided by offices of other health practitioners (NAICS 6213). The services of professionals working under salary for a hospital, nursing home, or some other type of health care establishment are reported with expenditures for the service offered by the establishment. For example, care rendered by hospital residents and interns is defined to be hospital care; services provided by nursing home staff nurses are included with nursing home care. In addition, some physicians receive professional fees from arrangements with hospitals, including minimum guaranteed income, percentage of departmental billing, and bonuses. These fees are counted with hospital expenditures, rather than with expenditures for physician services. If the medical professionals are serving in the U.S. Armed Forces in stations other than military hospitals, their professional salaries are included with "other personal health care services." (The cost of medical care administered outside the U.S. is not included in the NHEA)

NHEA estimates for professional services through the late 1970s are based primarily on statistics compiled and published by the Internal Revenue Service (IRS). Business receipts (which exclude non-practice income) were summed for sole proprietorships, partnerships, and incorporated practices to form the bulk of the estimate. In the late 1970s, the IRS was forced to reduce the size of the sample of income tax returns used to prepare its Statistics of Income (SOI). The reduced sample size limited the usefulness of the SOI to make time-series estimates of health spending. Fortunately, new data sources emerged to

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<sup>1</sup> This differs from the concept used in the National Income and Product Accounts produced by the U.S. Department of Commerce, Bureau of Economic Analysis in that the value of output of nonprofit hospitals is measured as expenses, rather than net revenue.

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supplement the SOI data that previously had formed the basis of these estimates. Data from the Services Annual Survey (SAS), compiled by the Bureau of the Census (1984-2007), are now used to estimate the year-to-year change in the business receipts of these professional services.

Data on professional services are also available from the Bureau of the Census (1977, 1982, 1987, 1992, 1997, and 2002) in its quinquennial Census of Service Industries. This once-every-five-year census gathers business receipt information from all private service establishments, providing benchmarks for the SAS, which only surveys a sample of service establishments. The introduction of the quinquennial Census of Services Industries information presents some unique estimating problems, especially when, as mentioned earlier, it includes a transition to a new industrial classification system such as the NAICS. There are three steps to this estimating procedure. First, the annual Services Annual Survey (SAS) data must be rearranged in historical periods from the SIC to a NAICS basis. This step is complicated by the inability to completely align the new NAICS structure with the historical SIC categories.<sup>2</sup> Second, the SAS data for 1993-1996 and 1998-2001 are used to interpolate between the benchmark Census of Service Industries data for 1992, 1997, and 2002. Finally, the 2003-2007 SAS data are used to complete the time series.

In addition to Census data, other sources of information are used to corroborate the physician and clinical services expenditures estimates in the NHEA: data on employment, hours and earnings in private health establishments, provided by the Current Employment Statistics (Bureau of Labor Statistics, 1972-2007); estimates of price inflation provided by the Consumer Price Index and Producer Price Index (Bureau of Labor Statistics, 1960-2007); and indirect measures such as hospital admissions, and inpatient days that require complementary professional services.

The physician and clinical services estimates reported in the NHEA contain some modifications. An addition is made to physician and clinical service expenditures for the portion of medical laboratory services that are billed to the patient directly from the lab rather than being billed through the physician or clinic, based on data for establishments coded as NAICS 6215, Medical and diagnostic laboratories. Also, a subtraction is made to physician and clinical service expenditures for the inclusion of professional fees paid to physicians by hospitals, since these fees are included in hospital expenditures. Estimates of spending for government run Department of Veterans Affairs and Indian Health Services clinics and the Coast Guard Academy Clinic are also added to physician and clinical services expenditures; SAS does not collect data for government facilities in this category.

As is the case for physician services, estimates of spending for dental services are based upon IRS data (Internal Revenue Service, 1960-87), and in later years the Bureau of the Census SAS and Economic Census. Additional information from the American Dental Association (1980-2000) on dental office expenditures, from the Current Employment Statistics (Bureau of Labor Statistics, 1972-2007) on employment, and from the Consumer Price Index (CPI) (Bureau of Labor Statistics, 1960-2007) on dental expenses are considered as the final estimates are prepared. The receipts of dental laboratories (SIC 8072 and NAICS 339119) are not included explicitly, because all billings are assumed to be made through dental offices and thus to be already included in expenditure estimates.

“Other professional services” covers spending for services provided by health practitioners other than physicians and dentists. Professional services include those provided by private-duty nurses, chiropractors, podiatrists, optometrists and physical, occupational and speech therapists, among others. These estimates are made using data from the IRS, the Bureau of the Census and the Bureau of Labor Statistics. A portion of optometrist receipts presumed to represent the dispensing of eyeglasses is deducted, as that money is already reported under spending for Durable Medical Products as eyeglasses

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<sup>2</sup> The Census Bureau provided a “bridge” between the NAICS and SIC. These bridge tables can be found at the Census website -- <http://www.census.gov/epcd/ec97brdg/INDXNAI3.HTM#62>. However, these tables clearly show that the NAICS and SIC structures are not exactly equivalent, as shown for example, in the receipts for all other outpatient care centers (NAICS 621498) and for all other outpatient care centers (SIC 8093). This sometimes occurs when segments of industries are moved from one health care industry to another. Also, the addition of specific industrial categories allows establishments to be more precisely classified (Nursing and residential care facilities, NAICS 623, now provides data on facilities such as residential mental retardation facilities and continuing care retirement facilities that were not delineated in the SIC).

in the NHEA. The Medicare reimbursement for ambulance services also is currently included in the other professional services estimates.

### Other Personal Health Care

This category of spending covers two types of expenditures. One is industrial inplant services, and the other is comprised of government expenditures for medical care not specified by type of service.

Industrial inplant services represent health care or supplies provided by employers for employees at the employer's establishment. The industrial inplant estimates are derived from various data sources. A 1984 survey of employer-sponsored health plans (McDonnell et al., 1987) produced an estimated cost per employee with access to covered services in 1984; the cost per covered employee was extrapolated backward (to 1960) and forward through the most current year using the annual percent change in the medical care component of the Consumer Price Index. The BLS estimates of the number of people employed in the civilian labor force are multiplied by the cost per covered employee with access to covered services<sup>3</sup> to produce the estimates of industrial inplant health services.

The second type of medical expenditures included in Other Personal Health Care are those expenditures for medical care not delivered in traditional medical providers sites. Examples of this type of non-traditional sites are community centers, senior citizens centers, schools, and military field stations. One of the largest categories of government spending for Other Personal Health Care is comprised of Home and Community Waivers programs under Medicaid. In these programs, States may apply for waivers of some of the statutory provisions in order to provide care to beneficiaries who would otherwise require long-term inpatient care in a hospital or nursing home. Examples of types of services provided are rehabilitation, respite care, and environmental modifications. This care is frequently delivered in community centers, senior citizens centers and through home visits by various kinds of medical and non-medical personnel.

### Home Health Care and Nursing Home Care

#### Home Health Care

The home health component of the NHEA measures annual expenditures for medical care services delivered in the home by freestanding home health agencies (HHAs). NAICS 6216 defines home health care providers as private sector establishments primarily engaged in providing skilled nursing services in the home, along with a range of the following: personal care services; homemaker and companion services; physical therapy; medical social services; medications; medical equipment and supplies; counseling; 24-hour home care; occupation and vocational therapy; dietary and nutritional services; speech therapy; audiology; and high-tech care, such as intravenous therapy. Hospital-based HHAs are classified with hospitals (NAICS 622), and are therefore included with hospital care expenditures. Beginning in 1987 and continuing through 1996, home health care agencies were classified under the SIC, which defines home health care providers (SIC 8082) to be establishments primarily engaged in providing skilled nursing or medical care in the home, under supervision of a physician, a definition consistent with NAICS 6216.

Estimates of freestanding home health spending in 1987, 1992, 1997, and 2002 are based on business receipts of private taxable and tax-exempt service establishments collected in the Census Bureau's quinquennial Census of Service Industries. Information from the Census Bureau's Service Annual Survey (SAS) is used to interpolate between the Census of Service Industries benchmark years and to extrapolate to later periods. To estimate revenue for government-owned HHAs, an annual adjustment factor is calculated using a ratio of Medicare reimbursements for government-owned HHAs to Medicare reimbursements for all privately owned HHAs. These Medicare reimbursements by type of agency and type of control are obtained using tabulations from the Medicare Provider Analysis and Review (MEDPAR) database. This ratio, multiplied by Census receipts, produces an estimate of revenue for

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<sup>3</sup> The number of employed civilians with access to coverage was set at 25 percent of the civilian workforce in the 1994 NHE benchmark estimating cycle.

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freestanding government facilities. Total home health spending is derived by adding together the receipts for private establishments and the estimated revenue of government facilities.

Freestanding home health expenditures in 1987 are extrapolated back to 1967 based on data available from Medicare and Medicaid. Approximations of national spending for Medicare home health care in each year from 1967 through 1984 were obtained by doubling Medicare spending for non-facility-based HHA services, then adding an estimate of beneficiary liability for Medicare Part B copayments from 1967 through 1981. (Medicare dropped beneficiary co-payment requirements from home health services in 1982.) Total HHA costs and the shares attributable to Medicare are available from unaudited cost reports submitted to Medicare by HHAs. Analysis of cost report data from agencies that were not part of a hospital or nursing home indicate that agency costs for services, medical equipment, and supplies provided to Medicare patients represented approximately 50 percent of total agency costs. This share was observed in data extracted from cost report files in the mid-1970s (Health Care Financing Administration, 1974-76). Examination of annual data for 1981-84 verified Medicare's 50-percent share (Health Care Financing Administration, 1981-84). Estimates of spending for home health care from 1960 through 1966 were obtained from information reported by a sample of voluntary public health nursing agencies. Data on voluntary public health nursing agency income and expenditures were collected in surveys conducted by the National League for Nursing in 1958, 1963, and 1967. Survey data on total agency income and income from patient fees were weighted to estimate income of all voluntary public health nursing agencies, and then estimated for each non-survey year between 1958 and 1968 (Freeman, 1969).

### Nursing Home Care

Expenditures reported in this category are for services provided by freestanding nursing homes. These facilities are defined in the 1997 NAICS as private sector establishments primarily engaged in providing inpatient nursing and rehabilitative services and continuous personal care services to persons requiring nursing care (NAICS 6231) and continuing care retirement communities with on-site nursing care facilities (NAICS 623311). In the 1972 and 1987 Standard Industrial Classifications these establishments were identified as nursing and personal care facilities (SIC 805). In the NHEA, hospital-based nursing home spending is included with hospital care expenditures (NAICS 622).

Estimates of expenditures for care received in freestanding nursing homes for the years 1977, 1982, 1987, 1992, 1997, and 2002 are based on business receipts of service establishments collected in the Census Bureau's quinquennial Census of Service Industries (CSI). Information from the Census Bureau's Service Annual Survey (SAS) is used to interpolate between the CSI benchmark years and extrapolate to later periods. An estimate of expenditures for care received in State & local government facilities is added to the private establishment estimates detailed above.

In addition, the estimates presented here include Government outlays for care provided in nursing facilities operated by the Department of Veterans Affairs (DVA), and in intermediate care facilities for the mentally retarded financed by the Medicaid program. DVA outlays are adjusted to exclude outlays for domiciliary care, which is not medical in nature.

Estimates of freestanding nursing home spending in each year prior to 1977 are based on the annual growth in total nursing home expenditures previously estimated from data collected in the 1972 and 1977 National Nursing Home surveys, conducted by the National Center for Health Statistics. Estimates of spending for nursing home care in 1972 and 1976 were derived from the National Center for Health Statistics estimates of average revenue per day for all facilities providing some nursing care. Growth in the number of nursing home employee work hours for nursing and personal care facilities (SIC 805) multiplied by the growth in input prices were used to extrapolate 1972 revenue data to earlier years, and to interpolate between 1972 to 1977. Estimates of average weekly work hours are derived from data reported by employers and published monthly by the (Bureau of Labor Statistics, 1972-2007). Growth in costs of nursing home industry goods and services (labor and non-labor expenses) are maintained by CMS in the national nursing home input price index (CMS October 2007 and Federal Register 2007).

### Retail Purchase of Medical Products

This class of expenditure is limited to spending for products purchased or leased from retail outlets and through mail order. The value of drugs and other products provided to patients in hospitals (on an inpatient or outpatient basis), nursing homes, and other provider settings, are implicit in estimates of spending for those providers' services. The one exception is for optical goods, which comprise a large portion of optometrist receipts. Receipts for these products are removed from optometrist's receipts and included in this category of goods.

### Prescription Drugs

In the NHEA, prescription drug spending is defined to include retail sales of human-use dosage-form drugs, biologicals and diagnostic products. Retail prescription drug purchases occur in community pharmacies (which include both chain and independent pharmacies), grocery store pharmacies, mail-order establishments, and mass-merchandising establishments. Drug purchases by consumers from these retail establishments are based on detailed data from the Census of Retail Trade (Bureau of the Census, through 2002). Estimates for years following 2002 are prepared by extrapolating the 2002 levels with data on retail and wholesale purchases from IMS Health, Inc.

The prescription drug estimates are adjusted to account for manufacturers' rebates that reduce insurers' net payments for drugs. In recent years, providers and insurers who are responsible for the purchase of large volumes of drugs have been able to negotiate rebates with manufacturers for the use of specific drugs. Rebates received by providers such as hospitals do not require an adjustment because rebate savings are received directly by hospitals whose revenues are used to measure hospital spending. In retail purchases of prescription drugs, however, the retail outlet is not a party to the rebate transaction that takes place between the insurer who pays the retail outlet and the manufacturer that produces the drug. Because NHEA estimates of prescription drugs are based on retail sales data at the pharmacy level, a reduction to account for rebates must be made to total drug spending and to third party payments to retail pharmacies to avoid over estimation of prescription drug spending in NHEA.

### Other Non-Durable Medical Products

The category other non-durable medical products is comprised of non-prescription drugs and medical sundries. Nonprescription drugs include products purchased over the counter such as analgesics and cough and allergy medications. Medical sundries include items such as surgical and medical instruments, surgical dressing, and diagnostic products such as needles and thermometers. These estimates are benchmarked to the national Input- Output (I/O) tables produced by the Bureau of Economic Analysis in years ending in 2 and 7. The portion of the IO estimates that matches the NHEA definition for other non-durable medical products was established using detailed IO data (Bureau of Economic Analysis 1963, 1967, 1972, 1977, 1982, 1987, 1992 and 1997). The non-prescription drug estimate is interpolated between IO years and extrapolated to recent periods using retail sales data from Kline & Company (Kline 2008). The medical sundries estimate is interpolated between IO years and extrapolated to recent periods using detailed Personal Consumption Expenditure data from the National Income and Product Accounts (Bureau of Economic Analysis, 2008).

### Durable Medical Products

Expenditures in this category represent retail sales of items such as contact lenses, eyeglasses and other ophthalmic products, surgical and orthopedic products, medical equipment rental, oxygen and hearing aids. Durable products generally have a useful life of over three years whereas non-durable products last less than three years. The estimate of durable medical equipment expenditures is based on detailed Input/Output table final demand data adjusted to meet NHEA definitions (Bureau of Economic Analysis 1963, 1967, 1972, 1982, 1987, 1992, and 1997). The public estimate is determined using internal CMS program data combined with the latest OMB budget data and other public sources. The private estimate is determined in the intervening non-I/O years (though 1986) by using adjusted Personal Consumption Expenditures (PCE) data for ophthalmic and orthopedic appliances. From 1987 through 2006, the private estimates were prepared by interpolating between and extrapolating from adjusted benchmark I/O levels

using Consumer Expenditure (CE) data, adjusted and distributed with National Medical Expenditure Survey/Medical Expenditure Panel Survey data. For 2007, the durable medical equipment expenditures were prepared using the historical relationship of CPI-eyeglasses and eye care, real GDP, and current population data combined with public data sources.

### **Administration and the Net Cost of Private Health Insurance**

The largest portion of this category is the net cost of private health insurance. For an explanation of the net cost of private health insurance, see the section on private health insurance under the source of funds category. The next largest portion is comprised of the administrative expenses of government programs. The smallest portion is comprised of the administrative expenses associated with health activities of philanthropic organizations. Specifically, these are the overhead expenses incurred by donor organizations--those that channel money to providers or researchers (Greenberg 1990).

### **Government Public Health Activity**

In addition to funding the care of individual citizens, governments are involved in organizing and delivering publicly provided health services such as epidemiological surveillance, inoculations, immunization/vaccination services, disease prevention programs, the operation of public health laboratories, and other such functions. In the NHEA, spending for these activities is reported in government public health activity. Funding for health research and government purchases of medical structures and equipment are reported in their respective categories. Government spending for public works, environmental functions (air and water pollution abatement, sanitation and sewage treatment, water supplies, and so on), emergency planning and other such functions are not included.

Most Federal government public health activity emanates from the Department of Health and Human Services. The Food and Drug Administration and the Centers for Disease Control account for the great majority of Federal spending in the area. Since the 9/11 catastrophe, substantial public health funding has come from two other sources: The Public Health and Social Services Emergency Fund, a part of the HHS Departmental Management Budget, and the Department of Homeland Security.

State and local government public health activity expenditures are primarily for the operation of State and local health departments. Federal payments to State and local governments are deducted to avoid double counting, as are expenditures made through the Maternal and Child Health Program and the Crippled Children's Program. Disbursements made by State and local government departments for environmental functions (water and sewer authorities, for example) are not included.

There are two basic data sources used in estimation of government public health activity. Federal spending is taken from annual budget documents prepared by the various agencies and summarized in *The Budget of the United States* (Executive Office of the President, 1960-2007). State and local government spending is estimated using data from the quinquennial (5-year) Census of Governments (Bureau of the Census, 1957, 1962, 1967, 1972, 1977, 1982, 1987, 1992, 1997 and 2002) and from its annual survey of State and local government finances [Bureau of the Census, 1960-2006]; the latter surveys all State governments and a sample of local government units drawn from the 5-year census. The most recent year's estimates (2007) are prepared by projecting the 2006 estimates to 2008 by applying the year to year change for 2005 to 2006. These state fiscal year estimates are converted to calendar year estimates by means of the standard statistical procedure used in the NHEA.

### **Investment**

#### **Research**

Research shown separately in the NHEA is that of non-profit or government entities. Research and development expenditures by drug and medical supply and equipment manufacturers are not shown in this line, as those expenditures are treated as intermediate purchases under the definitions of national income accounting; that is, the value of that research is deemed to be recouped through product sales.

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Through 1991, estimates of noncommercial research in the NHEA are based on data provided by the National Institutes for Health (NIH), the Federal agency that funds a significant portion of research (National Institutes of Health, 1995). Training and capital acquisition are excluded, but general support is included. The data are reported by source of funds and by performer, although the latter disaggregation is not shown here. The data are reported by NIH on a variety of timeframes (Federal fiscal years, June fiscal years, and calendar years) and are converted to calendar years where necessary.

After 1991, actual outlay data for NIH (net of capital-related expenditures) that are published annually in the Federal Budget (Appendix, Budget of the United States Government) were used. Outlays for research by other federal agencies were calculated as a percentage of NIH outlays based on their relationship in expenditures for total research (both health-related and non-health-related). The latter data are published annually by the National Science Foundation (NSF November 2008).

For state/local research funding, NSF data on nonfederal spending in academic institutions are used. Beginning with 1992, state/local funded research performed by non-academic non-profits was also calculated from special surveys conducted by the NSF (NSF September 2007 and November 2007). Private funding data for years starting with 1992 are now also obtained from the same NSF sources used for state and local funding. For private funds until 1991, data came from the H. Hughes Medical Institute, National Health Council information on voluntary health agencies' support of medical research<sup>4</sup>, and the Foundation Center<sup>5</sup>.

### Capital Formation – Structures and Equipment

This component of the NHEA reflects the acquisition of structures and durable equipment by medical sector establishments. In the 2004 NHEA benchmark revision, the Structures and Equipment investment estimates replaced the previously published Construction series. The Construction estimates measured the value put in place in the construction of some medical sector buildings, mainly hospitals and nursing homes; these estimates were derived from the Bureau of the Census C-30 survey of new construction (1960-2003). The revised measure for Structures encompasses the value put in place in the construction of all buildings used by medical sector establishments. It differs from the old Construction estimates primarily by capturing the value put in place in structures that house medical professional's offices.

#### Structures

The structures component of the NHEA is defined as the value of new construction put in place by the medical sector. This measure of the medical sector includes establishments engaged in providing health care, but does not include retail establishments that sell non durable or durable medical goods. The construction measure includes new buildings; additions, alterations, and major replacements; mechanical and electric installations; and site preparation. Maintenance and repairs are excluded. Non-structural equipment such as X-ray machines and beds are included in Medical Capital Equipment. The value of new construction put in place includes the cost of materials and labor, contractor profit, the cost of architectural and engineering work, those overhead and administrative costs chargeable to the project on the owner's books, and interest and taxes paid during construction. For 1992-2003, the primary data source for these estimates is the Annual Capital Expenditures Survey, conducted by the Census Bureau. The 2004-2007 structures estimates are extrapolated forward from the 2003 using data from the C-30 survey of new construction. The estimates for preceding years (1960-1992) were prepared by extrapolating the 1993 values back by a time series developed using data published by the Census Bureau (1992-2003) and the Bureau of Economic Analysis (1992-2003).

#### Medical Equipment

Medical capital equipment is comprised of the value of new capital equipment (including software) purchased or put in place by the medical sector during the year. The medical sector includes establishments engaged in providing health care, but does not include retail establishments that sell non

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<sup>4</sup> Available at [www.nhcouncil.org](http://www.nhcouncil.org).

<sup>5</sup> Foundation Giving Trends (2003), The Foundation Center. <http://foundationcenter.org/findfunders/statistics/>

durable or durable medical goods. The capital equipment purchased or put in place includes all capital equipment purchased by medical establishments and is not limited to specific medical equipment or devices. The estimates are prepared using a variety of data published by the Census Bureau (1992-2003) and the Bureau of Economic Analysis (1992-2003).

### Sources of Funds

#### Out-of-pocket expenditures

Out-of-pocket spending for health care consists of direct spending by consumers for all health care goods and services. Included in this estimate is the amount paid out-of-pocket for services not covered by insurance and the amount of coinsurance and deductibles required by private health insurance (including provider payments covered by Health Savings Accounts) and by public programs such as Medicare and Medicaid (and not paid by some other third party).

Enrollee premiums for private health insurance and Medicare are not included with this funding category because the payment by the enrollee is paid to the third party insurer (private health insurance or Medicare) that is classified in the NHEA as a separate source of funds. Similarly, coinsurance and deductible amounts paid by supplementary Medicare policies on behalf of enrolled Medicare beneficiaries are also excluded from the out-of-pocket source of funds category, and are counted as private health insurance

For physicians and clinics, dental, other professionals, home health and nursing home services, the Service Annual Survey provides data on out-of-pocket payments along with all other sources of funds. This data has been available for all the above services since 1998 and for a subset of these services beginning in 1991. Other sources of data for out-of-pocket spending include the Consumer Expenditure Survey and publications of trade associations such as Visiting Nurses Association (1988) and its predecessor (Voluntary Public Health Nurses Association), the American Hospital Association (1980-2005), the American Medical Association (1984-2001), the American Dental Association (1980-2000) and various nursing home surveys.

In addition, data from surveys of the non-institutional population's health care use and financing patterns conducted periodically over the past three decades provided information used to determine the amount of out-of-pocket spending. For 1963 and 1970, the Center for Health Administration Studies and the National Opinion Research Center, both at the University of Chicago, surveyed individuals for the purpose of providing "reliable and valid statistics of medical care use and expenditures for . . . public policy and research activities" (Research Triangle Institute, 1987). These studies were followed in 1977 by the National Medical Care Expenditure Survey (National Center for Health Services Research, 1977), in 1980 by the National Medical Care Utilization and Expenditure Survey (National Center for Health Statistics, 1980), and in 1987 by the National Medical Care Expenditure Survey (National Center for Health Services Research, 1987) and in 1996-2006 by data from the most recent household survey, the Medical Expenditure Panel Survey - Household component (Agency for Healthcare Research and Quality 1996-2006).

#### Private health insurance

At the National Health Expenditures (NHE) level, private health insurance expenditures equal the premiums received by private health insurers. This figure is composed of benefits incurred (personal health care expenditures) and net cost. The net cost of insurance is the difference between benefits and premiums. This difference includes administrative costs, and in some cases, additions to reserves, rate credits and dividends, premium taxes, and profits or losses and, is estimated separately for various types of insurers.

Private health insurance expenditures measure individually purchased and employer sponsored insurance premiums plus payments for the health portion of property and casualty plans. Retiree drug subsidies (RDS) paid to employers by the Medicare program are included with estimates of private health

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insurance. For an alternative view of private health insurance premiums and treatment of the RDS, see the sponsor analysis. (CMS January 2008)

Included with traditional health care plans offered by commercial carriers and Blue Cross and Blue Shield are managed care and self-insured health plans. Managed care plans include Health Maintenance Organizations (HMO's), Preferred Provider Organizations (PPO's) and Point of Service Plans (POS's). An HMO is a prepaid health plan where the enrollee pays a co-payment but must receive their care from an approved provider; otherwise the expense is not covered. A PPO is a medical plan where coverage is provided to enrollees through a network of selected health care providers, although in some cases enrollees may go outside the network and pay a larger share of the cost. A POS plan is an "HMO/PPO hybrid" or an "open-ended" HMO. POS plans resemble HMOs for in-network services in that they both require co-payments and a primary care physician or gatekeeper. Services received outside of the network are usually reimbursed on a fee-for-service basis.

Self-insured plans are offered by employers and other groups who directly assume the major cost of health insurance for their employees or members, with some self-insured plans bearing the entire risk. Self-insured groups can also insure against large claims by purchasing stop loss insurance plans. Stop-loss coverage is a form of reinsurance that limits the amount an employer will have to pay for each person's health care (individual limit) or for the total expense of the company (group limit). In addition, some self-insured groups' contract with traditional carriers or third-party administrators for claims processing and other administrative services; other self-insured plans are self-administered.

There are three approaches to calculating private health insurance estimates:

The first approach, labeled "the insurance industry method," currently relies on purchased data from AM BEST (A.M. Best, Inc., 2001-2007) to estimate total premiums and benefits paid for most insurance plans, including traditional indemnity, managed care, and property and casualty insurers. In addition, estimates of self insured plans are developed from data from the Medical Expenditure Panel Survey-Insurance Component (Agency for Healthcare Research and Quality, 1996-2006). This data is compiled to provide an estimate of the relationship between premiums and benefits, called the net cost ratio. In the past data was gathered from many health insurance industry sources. This method includes measuring earned premiums and incurred benefits directly from the principal payment source. Data from the National Association of Blue Cross and Blue Shield plans (Blue Cross/Blue Shield, 1960-2005) are used to estimate the net cost of plans marketed by its members. Annual data on premiums and benefits published by the National Underwriter Company are used to develop estimates for commercial carriers through 1995 (National Underwriter Company, 1960-96). From 1996 forward, annual data for premiums earned and direct losses incurred published by Best, Inc. (A.M. Best 2001-2007) are used to develop commercial plan estimates and property casualty estimates. Estimates for self-insured and prepaid plans for earlier years come from a variety of sources, including the Survey of Health Insurance Plans conducted by HCFA (McDonnell et al., 1987). Estimates for prepaid plans in later years are developed using data from the Group Health Association of America which later became American Association of Health Plans, (GHAA, 1984-94) and InterStudy, (August 2002).

The second approach, estimates private health insurance benefits by type of service using provider survey data in conjunction with source of funding spending from several sources. These sources include: U.S. Bureau of the Census, the American Medical Association, the American Hospital Association and IMS as well as household data from surveys such as the National Medical Care Expenditure Survey (National Center for Health Services Research, 1987) and later, the Medical Expenditure Panel Survey-Insurance Component (Agency for Healthcare Research and Quality, 1996-2006). After the benefits are estimated, the net cost ratio developed from the insurance industry method is used to inflate these benefit estimates to premiums.

In the third methodology, estimates of premiums are derived by combining Private Health Insurance (PHI) premium cost estimates from employers using the Employer Costs for Employee Compensation survey results (Bureau of Labor Statistics, 1980-2008) with individually-paid PHI premium cost data from the Consumer Expenditure Survey and AM Best. (Bureau of Labor Statistics, 1984-2006, AM Best, 2007).

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Premium estimates developed from all three methodologies are then compared for reasonability. Recently available premium estimates from the Medical Expenditure Survey-Insurance Component for 1996-2006 provide an additional check for reasonability. The annual growth rates for each of the four premium totals are compared to one another and private survey sources such as Mercer/Foster Higgins and Kaiser/HRET (Mercer 2007 and Kaiser 1992-2007). These comparisons are used to adjust benefit and premium estimates from the second approach to produce the final estimates and trends for the NHEA.

### **Other private funds**

The most widely recognized source of other private funds is philanthropy. Philanthropic support may be direct from individuals or may be obtained through philanthropic fund-raising organizations such as the United Way. Support may also be obtained from foundations or corporations. Philanthropic revenues may be spent directly for patient care or may be held in an endowment fund to produce income to cover current expenses. For institutions such as hospitals, nursing homes and HHAs, other private funds also include income from the operation of gift shops, cafeterias, parking lots and educational programs, as well as investment income.

For hospitals, estimates of other private funds are based on data gathered by the AHA in its annual survey of all hospitals. Estimates of other private funds, including philanthropy, for other services are based on information from the Bureau of the Census' Services Annual Survey, trade associations, and person surveys discussed in the out-of-pocket section.

### **Medicare**

Estimates of Medicare spending for health services and supplies are based on information prepared by the Office of the Actuary for the Medicare Trustees Report, reports submitted by Medicare contractors, and administrative and statistical records. Medicare is estimated in two pieces, fee-for-service (FFS) and managed care. For each, expenditures are estimated separately by service category and then summed.

The Medicare actuaries prepare cash-flow and incurred-benefit estimates for fee-for-service spending and for capitated payments to managed care organizations. Fee-for-service benefits are estimated by type of benefit based on program information from the Medicare reporting system.

### **Hospital Insurance (HI) and Supplementary Medical Insurance (SMI) Trust Funds**

The actuarial estimates are published annually in the Trustees Report, and are reported according to the part of the Medicare Trust Fund responsible for payment. HI, or Part A, expenditures include payments for inpatient hospital services, skilled nursing services, home health care, hospice care, and Part A managed care. HI payments are made by "fiscal intermediaries" on behalf of the Centers for Medicare & Medicaid Services.

SMI, or Part B, expenditures include payments for physician services, durable medical equipment, laboratory tests performed in physician offices and independent laboratories, and other services (such as physician-administered drugs, freestanding ambulatory surgical centers, ambulance, and supplies). SMI payments are made by "carriers" on behalf of CMS for the above-mentioned type of Part B services, who determine coverage and payment requirements.

Under SMI, fiscal intermediaries are responsible for reimbursement of institutional services as well. These include outpatient hospital services, home health services, laboratory services performed in hospital outpatient departments, and other services (such as renal dialysis performed in freestanding dialysis facilities, services in outpatient rehabilitation facilities, and services in rural health clinics). Part B expenditures for managed care are reported separately.

Beginning in 2004, a separate Part D account was established within the SMI trust fund that is responsible for payments for prescription drugs.

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Because the reporting of expenditures in the Trustees Report by type of benefit (HI or SMI) and type of service is different than the NHE definitions and concepts of services, a series of adjustments to the actuarial FFS incurred benefits are necessary to achieve consistency between these two sets of Medicare estimates. An initial conceptual adjustment is the elimination of small amounts of incurred benefit spending occurring outside the United States for Medicare enrollees. The following sections detail how spending by NHE types of services are derived using Trustees Report incurred benefit spending data.

### **Fee-for-Service Estimates: Parts A & B**

#### **Part A Services**

##### **Hospital Care**

Hospital care is a summation of incurred benefits for inpatient hospital care, outpatient hospital care, and hospital-based hospice, hospital-based nursing home care and hospital-based home health care. Also included in hospital care are estimated “combined billing” amounts for services of hospital-based physicians (combined billing was allowed by Medicare for inpatient expenses incurred through fiscal year 1983). Outpatient hospital benefits are adjusted to exclude estimated payments to freestanding end-stage renal disease (FS/ESRD) facilities (which are included in Physicians and Clinics).

##### **Nursing Home and Home Health Care**

Incurred benefits for skilled-nursing facility services and home health care are adjusted to include spending for freestanding facilities only; hospital-based spending for these facilities are included with the Hospital estimate. In addition, home health-based hospice spending and skilled nursing facility-based hospice spending are separately estimated and are added to freestanding facility estimates for skilled nursing facilities and home health care to derive total spending for Nursing Home Care and Home Health Care.

#### **Part B Services**

Estimates of spending for physician and clinic services, other professional services, non-Part D prescription drugs, other medical non-durable and durable medical supplier services are extracted from actuarial estimates of incurred benefits for Physician and Part B Supplier services. Shares of spending for each of these categories are based on proportional distributions of reimbursements by provider specialty and procedure codes obtained from various administrative and statistical records. These shares are then applied to total Part B incurred benefit payments, which produce estimates of spending for NHE-based categories.

##### **Physicians and Clinics**

Expenditures for physician services include the estimated physician and laboratory services portions of incurred benefits for Physicians and Part B Supplier services. Expenditures for clinics include estimated payments to FS/ESRD facilities. In addition, expenditures for physician-administered drugs are included with physician services.

##### **Other Part B Services**

The supplier share of incurred benefits for Physician and Part B Supplier services is subdivided into further categories based on provider specialty designations. These NHE categories include Other Professionals, Ambulance services, Dental services, Durable Medical Equipment (DME), Prescription Drugs, and Other Non-Durables.

The category of other professional services includes payments for the services of other health professionals and ambulance services combined.

Beginning with NHE 2004, dental expenditures are separately estimated using the portion of expenditures attributable to oral surgery, as traditional Medicare does not cover regular dental services.

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Expenditures for Durable Medical Equipment include payments for the retail purchase or rental of DME from Medicare Part B suppliers and payments for oxygen and oxygen-related equipment (Note: these do not include expenditures associated with a provider's purchase or rental of items, such as for a hospital or physician's office).

The DME share is further subdivided into prescription drugs and other non-durables based on billing data using CMS's Healthcare Common Procedure Coding System (HCPCS). The prescription drugs included in this category represent drugs billed by pharmacy suppliers that are administered through DME (such as respiratory drugs administered through a nebulizer), drugs billed by pharmacy suppliers that are self-administered (such as immunosuppressive drugs and oral anti-cancer drugs), and other separately billable Part B drugs. Pharmacy supply and dispensing fees are also included in the Part B prescription drug category of the NHE.

The Medicare fee-for-service prescription drug estimates include calendar year incurred benefit spending for Part B and Part D drugs. Expenditures for Part D drugs are separately estimated, and are discussed in more detail in the next section.

### Part D

With the implementation of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA), a separate Part D account was established within the SMI trust fund. This portion of the SMI trust fund pays for prescription drugs. Beginning with NHE 2004, Part D benefits are allocated to the estimates of expenditures for prescription drugs. In 2004 & 2005, expenditures represent transitional assistance benefits only, and for 2006 forward, expenditures represent the full prescription drug benefit.

Calendar year incurred Part D expenditures are estimated by Medicare actuaries using data from the Prescription Drug Event (PDE) file. Data is available separately for stand-alone Prescription Drug Plans (PDPs) and Medicare Advantage plans (MA-PDs). Part D data for PDPs and MA-PDs are further divided into expenditures for benefits and for administration. Part D administration includes the administrative expenses and margins associated with the private organizations that administer the Part D benefit. Part D expenditures for PDPs are included in the Medicare fee-for-service estimates of prescription drugs and administration. Part D expenditures for MA-PDs are included in the Medicare managed care estimates of prescription drugs and administration.

In the NHE, Part D expenditures for Medicare employer-subsidized plans are subtracted from Medicare expenditures, and are included in the Private Health Insurance estimates, as these subsidies are provided to private businesses to help pay for coverage of their retired Medicare-eligible employees.

### Managed Care Estimates (known as Part C or Medicare Advantage)

Medicare actuaries report total Medicare payments to managed care plans for services covered by the Hospital Insurance (Part A) and Supplementary Medical Insurance (Part B) programs. All Medicare managed care enrollees receive coverage for a standard package of benefits, but they may also be covered for a wide variety of additional services such as routine physicals, preventive care, and prescription drugs.

The Medicare managed care program, known as "Medicare Advantage", makes capitated payments on behalf of Medicare to managed care organizations to care for beneficiaries enrolled in the managed care option. For most types of plans, beneficiaries enrolled in managed care are limited in their choice of health care providers. Submission of fee-for-service claims on behalf of enrolled beneficiaries is not permitted. Instead, health care providers are paid by a private health care organization (such as HMOs and PPOs), which in turn are paid a monthly rate. The monthly payment made by CMS on behalf of each plan enrollee is based on a plan's bid and is adjusted for the enrollee's demographic characteristics, health status, and county-of residence. In the NHE estimates, Medicare managed care payments are allocated to both services and administrative expenses.

Managed care expenditures represent payments made to Medicare Advantage plans whose funding includes premiums paid to Medicare Advantage plans through a basic beneficiary premium. Additional premiums charged by an MA plan that are intended to provide additional benefits or to reduce cost-

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sharing are excluded from the Medicare estimate, as these payments go directly to the plan and are not funded by Medicare. Instead, these premiums are included with private health insurance premiums.

Comprehensive statistics on specific services used by managed care enrollees are not reported to CMS. Therefore, service distributions of Medicare capitated payments are estimated using data from Bid Pricing Tools (BPTs) (which began in 2006). Prior to the BPTs, Medicare capitated payments were estimated using data from Adjusted Community Rating (ACR) proposals. These proposals are submitted for approval of the monthly premiums that the plan intends to charge and the services it intends to deliver to Medicare enrollees for the upcoming year. These types of forms are the only available source from which to obtain estimates of managed care expenditures by type of service.

Finally, beginning in 2006, Part D expenditures in managed care plans (Medicare Advantage Prescription Drug Plans, or MA-PDs), which are estimated separately by Medicare actuaries, are added to non-Part D drug expenditures associated with managed care organizations to form total MA drug expenditures.

### Administration

Medicare outlays for administrative expenses are obtained from Department of the Treasury reports submitted to Medicare actuaries, as reported annually in the Trustees Report. Administrative costs for HI (Part A) and SMI (Parts B and D) represent general administrative costs of the federal government.

In addition, administrative expenditures are estimated separately for private plans that offer Part D benefits and for private plans that administer the Medicare Advantage program. Administrative expenditures for these private plans represent the net cost of insurance, including margins, and are added to the estimates of general administrative costs of the federal government.

### Medicaid

Medicaid estimates are based primarily on financial information reports filed by the State Medicaid agencies on Form CMS-64. These reports provide total program expenditures and service distributions. Prior to the availability of the Form CMS-64 in 1979, State statistical reports (Form CMS-2082) were used to develop service distributions. The Federal share of Medicaid spending was taken from Federal budget outlay data (Executive Office of the President, 1960-2007; Bureau of Government Financial Operations, 1960-2007).

Several types of adjustments to reported program data are necessary to fit the estimates into the framework of the NHEA. The first series of adjustments are related to fee-for-service payments and are necessary to create Medicaid estimates that are consistent with the NHEA service and product classification structure. First, Medicaid expenditures, reported by State by Medicaid program category on CMS Form 64, are "crosswalked" to NHEA service categories by State. For example, five program payments for hospital care (inpatient hospital care, disproportionate share inpatient hospital, mental hospital inpatient, disproportionate share mental hospital, and outpatient hospital) are summed to a single hospital care estimate consistent with the NHEA structure. All program categories are assigned to NHEA service categories in this fashion. Second, an estimate of hospital-based nursing home expenditures is added to hospital care expenditures and subtracted from nursing home care expenditures. Third, an estimate of hospital-based home health care spending is added to hospital care expenditures and subtracted from home health care expenditures. Finally an estimate of Medicaid buy-ins to Medicare is deducted to avoid double counting when the programs are presented together in the NHEA.

The second series of adjustments relate primarily to the creation of NHEA service distributions for capitated and other insurance premium payments recorded on the CMS Form 64. First, an estimate of the administrative costs of Medicaid HMO's is prepared using total premiums paid and net cost ratios developed for the PHI estimates. These estimates of private insurers' net costs are deducted from Medicaid premium payments and added to the Medicaid administrative cost estimates. Second, the Medicaid premiums payments reduced by these administrative costs are allocated to NHEA service categories based on the distribution of FFS spending for selected services in the State. In certain states, adjustments are made to account for specific services or products that are "carved out" of the premium. These "carve-outs" typically occur for prescription drugs.

The third stage of the Medicaid estimating procedure is to sum the FFS and insurance portions of the Medicaid service estimates together across the 50 States and the District of Columbia together to get national estimates. These national estimates are adjusted to be consistent with aggregate budget data on program expenditures.

To accurately measure States' contributions to Medicaid expenditures, further adjustments must be made to estimates of State Medicaid payments to account for the diversion of some Medicaid funds to States' general revenue funds for use in other State programs. States have used two devices--disproportionate share hospital (DSH) and upper payment limit (UPL) payments--for this purpose. States accomplished this by working with nursing homes and hospitals to set higher reimbursement rates than usual for the service provided or make extra DSH payments to hospitals serving a disproportionate share of low-income residents.

### **State Children's Health Insurance Program**

The State Children's Health Insurance Program (SCHIP) is a joint federal/State program that provides health insurance for children in families that do not have health insurance coverage and are not eligible for Medicaid. SCHIP was created in 1997 with the enactment of the Balanced Budget Act of 1997 (BBA97) with the explicit goal of reducing the number of children without health insurance (P.L.105-33). The BBA97 gave States the option to set up new independent health insurance programs for children, to expand existing State Medicaid programs to insure children now eligible for health insurance coverage under SCHIP eligibility standards, or to use a combination of new SCHIP programs and Medicaid expansions.

In the NHEA, the estimates of spending under the SCHIP program are in two parts. In the first part, the new SCHIP programs are estimated as independent government programs and included in federal and State other government program categories. In the second part, the Medicaid expansion programs are estimated independently of the remainder of the Medicaid program. The data sources are CMS Form 21 for independent SCHIP programs and CMS Form 64 for Medicaid expansions. Service distributions are derived from program payment data reported on these forms and "crosswalked" to NHEA service categories in the same fashion as the Medicaid estimates. Service distributions for insurance premiums for both programs are created from fee for service program payments on CMS Form 64.

### **State and local government hospital subsidy**

State and local governments subsidize the operation of hospitals and home health agencies through tax appropriations. For hospitals, these revenues assist in meeting the revenue shortfall between patient revenues received and the expenses of operation. Estimates for 1960-82 tax subsidies to non-Federal hospitals were generated from the quinquennial Census of Governments and the annual survey of government finances conducted by the Bureau of the Census (1960-1981). Information on State and local expenditures to hospitals were adjusted to exclude State and local expenditures counted elsewhere in the NHEA, such as maternal and child health, medical vocational rehabilitation, general assistance and Medicaid payments to State and local hospitals. For 1983 through 2007, tax subsidies were estimated using American Hospital Association information on revenue sources collected as part of their annual survey of hospitals.

### **Other government programs**

All health care expenditures that are channeled through any program established by public law are treated as a public expenditure in the NHEA. For example, expenditures under workers' compensation programs are included with government expenditures, even though they involve benefits paid by insurers from premiums that have been collected from private as well as public sources. Similarly, premiums paid by enrollees for Medicare SMI are treated as public, rather than private, expenditures because payment of benefits is made by a public program. However, Medicare coinsurance and deductibles are included under out-of-pocket payments because they are paid directly by the beneficiary to the provider of service.

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To be included in the NHEA, a program must have provision of care or treatment of disease as its primary focus. For this reason, nutrition, sanitation, and anti-pollution programs are excluded. Another example of this is "Meals on Wheels", which is excluded from the NHEA because it is viewed as a nutrition program rather than a health service program.

Statistics on Federal program expenditures are based, in part, on data reported by the budget offices of Federal agencies. Several differences exist between spending definitions in the Federal budget and those used in the conceptual framework of the NHEA. Expenditures for education and training of health professionals (including direct support of health professional schools and student assistance through loans and scholarships) are not included in the NHEA. Payments made by government agencies for employee health insurance are included with private health insurance expenditures, rather than government expenditures.

In particular, data on overall Department of Defense (DOD) health care costs (Department of Defense, 1981-2007) are taken from DOD's FY 2009 President's Budget Submission. Also included are the DOD's projected receipts to the Defense Health Program from the DOD Medicare Eligible Retiree Health Care Fund (MERHC). This fund pays for health care costs of Medicare eligible retirees, retirees' family members, and survivors.

DOD's health care program, TRICARE, covers members of the uniformed services and their families and survivors, and retired members and their families<sup>6</sup>. Adjustments are made to remove items outside the scope of the NHEA and to convert data to a calendar year basis. Also excluded are spending levels for Non-DOD beneficiaries.

In addition, unpublished data provided by the DOD (Department of Defense, 1984-2005) are used to separate hospital care from other health care services for active personnel. Finally, data for the non-active duty populations are provided directly by the program administrators (Department of Defense, 1980-2006), including data to separate hospital care from other services.

Estimates of health expenditures by the Department of Veterans Affairs are prepared using data from annual Federal budget documents, monthly data from the Department of the Treasury on receipts and outlays of the U.S. Government (Bureau of Government Financial Operations, 1960-2007), and Department of Veterans Affairs *Annual Reports*, (1960-2007) and unpublished actual expenditure data supplied by the Veterans Administration. In addition, administrators of the Civilian Health and Medical Program of the Veterans Administration (CHAMPVA) provide unpublished information on that program (Financial Reports Division, 1960-2007).

In general, all spending by State and local government units that is not reimbursed by the Federal Government (through benefit payments or grants-in-aid) nor by patients or their agents is treated as State and local expenditures. State and local spending is net of Federal reimbursements and grants-in-aid for various programs. As with Federal expenditures, payment for employee health insurance by State and local governments is included under private health insurance expenditures.

Data covering State and local programs come from a variety of sources. State agencies handling general assistance programs supply information on State-specific programs. The Bureau of the Census collects data on State and local health and hospital expenditures, through its quinquennial census and intercensal sample surveys. The National Academy of Social Insurance publishes data used to estimate workers compensation medical benefits (2006). The National Center for Educational Statistics (2006) furnishes data used to estimate school health program expenditures. There are non-Federal sources of information, as well: the Public Health Foundation (1977-89) (established by the Association of State and Territorial Health Officials) reporting system furnishes data on State and local spending under the Maternal and Child Health and Crippled Children's' programs.

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<sup>6</sup> The medical care program for the families of active-duty members and retirees of the uniformed services used to be a separate program, Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). This program has been subsumed under TRICARE.

### Deflating personal health care expenditures

Health care spending has grown more rapidly than other sectors of the economy in recent U.S. history. While increased spending does reflect increases in use per person, technological innovation, aging of the population and population growth, this increase is also related to price inflation for medical goods and services. Deflating health care spending separates the effects of price growth from growth attributable to all other factors. The dollar value of these estimates of real health care expenditures is determined by the index (es) chosen to remove price growth from spending.

One approach to deflating health spending is to remove the effects of economy-wide inflation alone. The most appropriate deflator for economy-wide prices for this purpose is the Implicit Price Deflator for Gross Domestic Product (GDP). The Implicit Price Deflator for GDP is the most comprehensive measure of pure price inflation for the economy as a whole. Personal health care expenditures per capita deflated by the Implicit Price Deflator for GDP can be interpreted as the opportunity cost of health care. These constant dollar health care costs per capita measure the value of the other goods and services that society could have purchased instead of health care. This measure eliminates the cause of growth over which the health sector has little control--economy-wide inflation. The remainder measures changes in medical specific price inflation in excess of economy-wide inflation, and intensity and use per capita of health care services. These are factors which are specific to the health sector.

An alternative approach to removing the effects of price growth from health spending is to deflate health care expenditures per capita by a measure of medical specific price inflation<sup>7</sup>. The resulting measure of "real" growth gauges growth in quantity of health services delivered per capita devoid of medical care price changes. Quantity changes are generated by technological developments, changes in the age and sex composition of the population, or any changes in the intensity and quantity of health care services delivered per person. Also, this residual would include the net effect of any error in the measurement of medical prices or medical expenditures. The Office of the Actuary develops a personal health care expenditure price index as a tool to deflate personal health care expenditures per capita. Figure 3 lists price proxies assigned to each component of personal health care expenditures (PHCE).

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<sup>7</sup> Growth in population has remained fairly constant at about 1 percent per year since 1965. Therefore, per capita spending has been used to simplify this discussion.

**Figure 3: Price proxies for the personal health care expenditure price index**

Industry/Commodity or Service	Price proxy
<b>Personal health care</b>	
<b>Hospital care</b>	PPI, hospitals <sup>1</sup>
<b>Physician and clinical services</b>	CPI <sup>2</sup> , physician services
<b>Other professional services</b>	CPI <sup>2</sup> , other medical professionals <sup>3</sup>
<b>Dental services</b>	CPI <sup>2</sup> , dental services
<b>Other personal health care</b>	CPI <sup>2</sup> , medical care
<b>Home health care</b>	CPI <sup>2</sup> , professional services
<b>Nursing home care</b>	National Nursing Home Input Price Index <sup>4</sup>
<b>Prescription drugs</b>	CPI <sup>2</sup> , prescription drugs and medical supplies
<b>Other non-durable medical products</b>	CPI <sup>2</sup> , internal & respiratory over-the-counter drugs
<b>Durable medical equipment</b>	CPI <sup>2</sup> , eyeglasses and eye care

<sup>1</sup>Producer Price Index for hospitals, U.S. Department of Labor, Bureau of Labor Statistics. Used beginning in 1994 and scaled to 100.0 in 2000. Indexes for 1960-93 are based on a CMS developed output or transaction price index.

<sup>2</sup>Consumer Price Index for all urban consumers, U.S. Department of Labor, Bureau of Labor Statistics. Indexes are scaled so that the 2000 value is 100.0.

<sup>3</sup>With the NHE04 benchmark, the CPI for professional services was replaced with the CPI for other medical professionals, beginning in 1988.

<sup>4</sup>NNHIPI developed and maintained by CMS.

SOURCE: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

This personal health care index is a more appropriate measure of the medical price inflation associated with personal health care expenditures than two other available indexes--the Consumer Price Index (CPI) and the medical care component of the personal consumption expenditure fixed-weight price index. First, the medical care component of the CPI is weighted based on consumer out-of-pocket expenditures. Because a large proportion of health care is paid by third parties, certain health care services are assigned weights that under- or over- represent their shares if all payers were considered. For example, out-of-pocket spending for hospital services represents only 9 percent of all out-of-pocket expenditures while overall hospital spending represents 31 percent of personal health care spending in 2007. Therefore, hospital care is appropriately valued in the medical care CPI for deflating out-of-pocket spending but under-valued for deflating overall personal health care. Second, the medical care component of the personal consumption fixed-weight price index, estimated and published as part of the National Income and Product Accounts (NIPA), includes only portions of public expenditures when its weights are determined.

The Producer Price Index (PPI) is a third measure of price inflation. The PPI measures transaction prices or net prices received by producers for their output. Receipts include those from both public and private sources. However, PPIs for the health service industries are relatively new, with most series beginning in 1994 or later. To date, only the PPI for hospitals, starting in December 1992, has been incorporated in the personal health care price index. This series is used to measure price changes for the hospital care component of PHCE. Each component of PHCE can be deflated by its assigned price index to produce a constant dollar estimate of that component (Table 2). Summing all of the deflated components yields a constant dollar estimate of PHCE.

**Table 2: Personal health care expenditures in current and constant dollars and associated price indexes, by type of spending: Selected years 1980-2007.**

**Current dollars in billions**

<b>Type of spending</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Personal health care	\$214.8	\$607.6	\$1,139.2	\$1,655.1	\$1,765.5	\$1,878.3
Hospital care	101.0	251.6	416.9	607.5	649.3	696.5
Physician and clinical services	47.1	157.6	288.6	422.2	449.7	478.8
Other professional services	3.6	18.2	39.1	56.0	58.7	62.0
Dental services	13.3	31.5	62.0	86.4	90.5	95.2
Other personal health care	3.3	9.6	37.1	56.9	62.5	66.2
Home health care	2.4	12.6	30.5	48.1	53.0	59.0
Nursing home care	18.5	52.6	95.3	120.6	125.4	131.3
Non-durable medical products	21.8	62.7	150.4	233.7	252.2	264.8
Prescription drugs	12.0	40.3	120.6	199.7	216.8	227.5
Other non-durable medical products	9.8	22.5	29.8	34.0	35.3	37.4
Durable medical equipment	3.8	11.3	19.4	23.8	24.2	24.5

SOURCE: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

**Price Indexes**

<b>Type of spending</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Personal health care	34.5	70.4	100.0	120.5	124.6	128.8
Hospital care	36.4	75.1	100.0	123.0	128.4	132.9
Physician and clinical services	31.3	65.8	100.0	117.5	119.6	124.3
Other professional services	38.2	74.2	100.0	115.4	118.7	121.9
Dental services	30.5	60.2	100.0	125.5	132.0	138.7
Other personal health care	28.7	62.4	100.0	123.9	128.9	134.5
Home health care	32.8	65.7	100.0	118.5	121.7	126.6
Nursing home care	42.9	73.4	100.0	119.0	123.2	127.3
Prescription drugs	25.4	63.7	100.0	124.8	129.2	131.0
Other non-durable medical products	42.3	82.5	100.0	101.6	103.7	105.4
Durable medical equipment	47.3	78.3	100.0	109.0	112.2	114.6

SOURCE: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

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### Constant 2000 dollars in billions

Type of spending	1980	1990	2000	2005	2006	2007
Personal health care	\$621.8	\$862.6	\$1,139.2	\$1,374.0	\$1,417.2	\$1,458.4
Hospital care	277.8	335.2	416.9	494.1	505.9	524.3
Physician and clinical services	150.6	239.6	288.6	359.3	375.9	385.2
Other professional services	9.4	24.5	39.1	48.5	49.4	50.8
Dental services	43.7	52.3	62.0	68.9	68.6	68.6
Other personal health care	11.3	15.3	37.1	45.9	48.5	49.2
Home health care	7.3	19.1	30.5	40.6	43.6	46.6
Nursing home care	43.0	71.7	95.3	101.4	101.7	103.2
Non-durable medical products	70.6	90.5	150.4	193.5	202.0	209.1
Prescription drugs	47.4	63.3	120.6	160.0	167.9	173.7
Other non-durable medical products	23.1	27.2	29.8	33.5	34.1	35.5
Durable medical equipment	8.1	14.4	19.4	21.8	21.6	21.3

SOURCE: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

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