National Health Accounts: Definitions, Sources, and Methods Used in the NHE 2002

Introduction

U.S. National Health Accounts

Since 1964, the United States Department of Health and Human Services has published an annual series of statistics presenting total national health expenditures. The basic aim of these statistics, termed National Health Accounts (NHA), is to "identify all goods and services that can be characterized as relating to health care in the nation, and determine the amount of money used for the purchase of these goods and services...." (Rice et al, 1982).

The NHA are compatible with the National Income and Product Accounts (NIPA) generally, 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 NHA flow from this framework. First, the National Health Accounts are comprehensive because they contain within a unified structure all of the main components of the health care system. Second, the Accounts are multidimensional, encompassing not only expenditures for medical goods and services, but also the source of funds that finance the purchases. Third, the Accounts are consistent because they apply a common set of definitions that allow comparisons among categories and over time. Periodically, subsets of the NHA are estimated by state and by age cohorts to further the analytic dimensions of the statistics.

Table 1 provides an example of the accounting matrix used in the U.S. to classify health care spending. In 2002, $1.6 trillion was spent on health care services and products, over half of which purchased hospital care and physician and clinical services. Private expenditures totaled $839.6 billion, or 54.1 percent of all health spending. Private health insurance paid for 35.4 percent, out-of-pocket sources for 13.7 percent, and other private sources such as philanthropy for 5.0 percent. Government paid for the remaining 45.9 percent of spending, or $713.4 billion, through programs such as Medicaid and Medicare. The participation of government in financing health care varies by type of personal health expenditures, ranging from 6.5 percent of dental expenditures to more than half of expenditures for hospital, nursing home, home health and other personal health care services.

Health Accounts and the Health Economy

The NHA are a representation of the economic activity within the health sector of the national economy. The classifications used are those which 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 NHA 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 a nation chooses to spend on health care relative to the amount spent for all goods and services purchased represents a collective decision by

the nation's citizens on the allocation of resources. The amount of economic resources devoted to the production of health care may preclude other societal options. This amount may be considered too large or too small, based on the amount of "health" actually purchased for the population, or it may be growing too rapidly or not quickly enough. The NHA make such issues explicit and quantitative.

- Expenditures by various sources of funds. The NHA bring into focus the share and magnitude of public and private financing for various types of health services. This allows consideration of the relative resources that should be spent from public and private sources, given their sources of revenue and competing priorities.
- Changes over time in sources of funds. The availability of a consistent series of accounts over time allows observation of changes in revenue sources. 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. Differential growth in public and private third party payments on a per enrollee basis may also alert users to reimbursement and access imbalances.
- 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 in 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.
- Projections. Historical trends provide a basis for projections of what 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 (Heffler et al., 2003).
- Specialized estimates. Specialized accounts fulfill a variety of informational needs. Health Spending by Age, (Keehan et al., 2004) let policymakers focus on the differential expenditure, use, access, and financing mechanisms available to various age groups. Health accounts by "final payer" array the burden of national health care costs by their ultimate sources of payment: Government, business, or households (Cowan et al., 2002). State level health accounts (Martin et al., 2001 and Martin et al., 2002) highlight regional differences in expenditures, service mix, and financing sources, and how these change over time.

Table 1: National Health Expenditures, by Source of Funds and Type of Expenditure: Calendar Year 2002

Amounts in Billions

Year and Type of Expenditure	Total	Private					Public		
		All Private Funds	Consumer						
			Total	Out-of-Pocket Payments	Private Health Insurance	Other	Total	Federal[1]	State and Local[2]
National Health Expenditures	$1,553.0	$839.6	$762.1	$212.5	$549.6	$77.5	$713.4	$504.7	$208.7
Health Services and Supplies	1,496.3	819.7	762.1	212.5	549.6	57.7	676.6	476.5	200.1
Personal Health Care	1,340.2	748.1	691.8	212.5	479.3	56.2	592.2	450.5	141.7
Hospital Care	486.5	200.1	179.8	14.7	165.0	20.3	286.4	229.9	56.5
Professional services	501.5	328.4	297.0	78.2	218.9	31.3	173.2	129.7	43.4
Physician and clinical services	339.5	224.7	201.1	34.3	166.9	23.6	114.8	94.7	20.1
Other Professional Services	45.9	33.2	30.2	13.0	17.2	3.0	12.6	8.2	4.4
Dental Services	70.3	65.8	65.7	30.9	34.8	0.1	4.5	2.7	1.8
Other Personal Health Care	45.8	4.7	--	--	--	4.7	41.2	24.1	17.1
Nursing home and home health	139.3	51.4	46.8	32.4	14.4	4.6	87.9	61.7	26.2
Home Health Care	36.1	14.3	13.2	6.5	6.7	1.1	21.9	16.2	5.7
Nursing Home Care	103.2	37.1	33.6	25.9	7.7	3.5	66.1	45.5	20.5
Retail outlet sales of medical products	212.9	168.2	168.2	87.2	81.0	--	44.7	29.1	15.6
Prescription drugs	162.4	126.2	126.2	48.6	77.6	--	36.2	20.9	15.4
Other medical products	50.5	42.1	42.1	38.6	3.5	--	8.4	8.2	0.2
Durable Medical Equipment	18.8	11.9	11.9	8.5	3.5	--	6.8	6.6	0.2
Other Non-Durable Medical Products	31.7	30.1	30.1	30.1	--	--	1.6	1.6	--
Government Administration and net Cost of Private Health Insurance	105.0	71.7	70.2	--	70.2	1.4	33.3	19.0	14.3
Government Public Health Activities	51.2	--	--	--	--	--	51.2	7.0	44.1
Investment	56.7	19.8	--	--	--	19.8	36.8	28.3	8.6
Research	34.3	2.7	--	--	--	2.7	31.6	27.4	4.2
Construction	22.4	17.1	--	--	--	17.1	5.2	0.8	4.4

[1]Detailed estimates are made for these Federal Government programs: Medicare, Workers' Compensation, Medicaid, Department of Defense, Maternal and Child Health, Vocational Rehabilitation, Alcohol, Drug Abuse, and Mental Health Administration, Indian Health Service, State Children's Health Insurance Program, and miscellaneous general hospital and medical programs.

[2]Detailed estimates are made 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. Numbers may not add to totals because of rounding.

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

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Issues in Health Accounting

The structure of the health care system is not static, but constantly evolving to incorporate advances in medicine and to meet the needs of a diverse population. These changes require identification of variables that will best define and measure the current system and meet the data demands of policymakers. Therefore, we periodically reexamine the structure of the National Health Accounts (NHA) and the methods and data sources used to produce estimates within that structure.

Changes in available data sources also drive periodic review. Since the NHA estimates typically rely on information collected by public and private organizations for other purposes, access to accurate information sometimes changes: surveys can deteriorate in sample size producing less reliable statistics; questions used to solicit data may be altered; or new, more reliable sources of information may emerge. For the NHA, this reexamination process is formalized in periodic conferences. These provide a forum where data experts and major users of the NHA review the advances in the accounts, discuss alternatives, and help to formulate future directions (Huskamp and Newhouse, 1999; Haber and Newhouse, 1991; Lindsey and Newhouse, 1986).

The NHA measure the cost of production and consumption of health care services in the US. Thus, estimates shown in this report cover the United States but do not cover any of the outlying territories (Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Marshall Islands). No attempt has been made to either increase expenditures by the value of health care "imports" (care rendered to U.S. citizens by providers in foreign countries) or to reduce expenditures by the value of "exports" (care rendered to foreign citizens by U.S. providers).

A key issue in health accounting is the determination of the "boundaries" of a nation's health care sector. As is any accounting construct, the NHA of necessity must adhere to a set of definitional boundaries. Around the world, "Health care systems have undergone overlapping generations of reforms in the past 100 years, including the founding of national health systems and the extension of social insurance schemes" (World Health Organization, 2000). The boundaries chosen to define the health sector in each nation differ according to the evolution of its health care system and to the nature of the data systems created to measure economic activity. In the United States, the NHA has developed using data gathered for administrative purposes (Medicare and Medicaid records systems, Internal Revenue statistics on taxable income and other data from government programs that administer funds expended for health care) and survey data provided by federal agencies charged with collecting data on economic activity (Bureau of the Census, Bureau of Labor Statistics and Bureau of Economic Analysis). As such, the NHA use coding systems that reflect the industrial and demographic characteristics of data sources distinctive to the United States (see discussion on the Standard Industrial Code and the North American Industrial Coding System).

The health care system might be envisioned as a series of boundaries. The first spending boundary encompasses provider establishments and product classes that define the current NHA accounts. The second boundary might include health care

spending as defined in NHA plus spending for health care that would be included in the NHA if data and resources to develop these estimates were available. Examples of this type of health care spending are expenditures for movable medical equipment (capital) or for the cost of medical transportation. The third boundary might include all spending for health care in the first two sets of definitions plus some types of spending that are recognized in some international standards that the U.S. does not currently include, such as spending for medical training that is sometimes considered investment in *human* medical capital. A fourth, even larger set of definitions would set the boundary of the health sector to include spending for public and private activities whose functions overlap the health sector. Examples would include nutrition and food safety programs, sanitary water and sewage systems, and social assistance programs that contain a large, although not dominant, health care component. The latter would cover old age homes, group homes for the disabled and vocational rehabilitation training programs. Finally, some would expand the boundaries to include more general public safety programs such as spending for road safety, police and fire protection and other programs benefiting the public. However, these programs do not involve any aspect of medical accreditation (licensing), medical training, or the use of medical technology. While clearly providing for public well-being, these activities are not typically considered part of the health sector.

The breadth of these alternative boundaries are neither right nor wrong, but should be based on the ultimate purpose of the Health Account and on the availability of data upon which estimates are based.

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Definitions

In an 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 NHA estimates in the United States. The NHA constitute the framework for 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; 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 NHA recognize several types of health care spending within this broad aggregate. "Health services and supplies," which represents spending for care rendered during the year, is the sum of personal health care expenditures, government public health activity, and program administration, which includes the net cost of private health insurance. It is distinguished from National Health Expenditures by excluding investment, the sum of research and construction expenditures.

"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" involves spending to organize and deliver health services and to prevent or control health problems. "Program administration" covers spending for the cost of running various government health care programs, plus the net cost of private health insurance (the difference between premiums earned by insurers and the claims or losses incurred for which insurers become liable). Finally, the category “Investment" includes spending for noncommercial biomedical research and the construction of health care facilities. This category will be revised and expanded in future releases of the NHA to include not only construction of medical facilities but also investment in health sector producers' durable equipment. In this way, the investment component of the NHA will more closely approximate the measures of investment in the National Income and Product Accounts.

In the NHA, 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 that fall into North American Industrial Classification System (NAICS) sector 62 *Health Care and Social Assistance* or through government operations that parallel that classification. The NAICS classify business enterprises whose production processes are similar. Each business is assigned a code that identifies the specific nature of its operation within the broader industrial classification scheme. For the health care and social services industry, NAICS is also structured to capture a continuum of medical and social care that often blends seamlessly from one type of facility to another. For example, the structure transitions from the most acute medical care facilities, such as offices of physicians and hospitals, to non-acute medical care facilities, such as nursing homes, to those

facilities providing little or no medical care, such as certain residential facilities and those offices providing social services only.

Prior to the introduction of 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 NHA were those in major group 80, the SIC designation for health services. The transition between SIC and NAICS is important because some data inputs continue to be classified by SIC, while other data sources employ the newer NAICS. The NHA represents a merged SIC and NAICS classification structure to maintain consistency and continuity of the data series over time. However, using different classification systems over time to classify data introduces some estimating problems into the NHA. SIC and NAICS structures are not identical, and individual SIC categories in one structure do not map directly into NAICS categories. For example, some establishments not previously defined as health establishments in the NHA are now included as health care and social services in 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 NHA, 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 NAICS. The detailed categories of health care establishments listed under NAICS Sector 62 are described in Table 2.

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

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

NAICS Code	NAICS Industry Title	National Health Accounts Category
62	Health Care and Social Assistance (Part)	Personal Health Care [1]
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 [2]
622	Hospitals	Hospital Care
623110	Nursing Care Facilities	Nursing Home Care

[1] Personal Health Care (PHC) is the NHA 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 under NHA categories as non-durable medical products and durable medical products are not included in NAICS code 62 - Health Care and Social Insurance. Rather, they are part of the inventory of retail pharmacies and other retail businesses. Classified in NAICS-44-45.

[2] For various reasons, none of the industries classified in NAICS 62199 are counted separately as medical services recognized in the NHA. First, services such a physical fitness evaluation services and smoking cessation do not meet the definition of health care within the NHA. 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) may 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.

623311	Continuing care retirement communities	Nursing Home Care

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, US. Government Printing Office, 1987; and Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

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Services and Products

Hospital Care

In the NHA, 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 NHA. Expenditures are estimated separately for Federal hospitals and non-federal hospitals. The value of hospital output is measured by total net revenue.[1] 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 NHA 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 through 1999 and the Census Bureau's Service Annual Survey (SAS) for 2000 through 2002.

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 service is provided. Thus, the NHA "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

field services of the Armed Forces, their professional salaries are included with "other personal health care services."

NHA 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. However, the IRS data gradually deteriorated in timeliness and in statistical reliability in the late 1970s. As a result of budget cuts, 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 resulted in erratic estimates of year-to-year growth that severely limited the usefulness of the SOI to make time-series estimates of health spending. Fortunately, new data sources emerged to supplement data formerly received from the IRS. The SAS of the Bureau of the Census (1984-2001) provides estimates of the year-to-year change in the business receipts of these professional services.

Data on professional services is also available from the Bureau of the Census (1977, 1982, 1987, 1992 and 1997) 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. [2] Second, the SAS data for 1993-97 must be calibrated to the new Census of Service Industries that reflects a more complete sample for that industry in 1997. Finally, results from the 1998, 1999, 2000, 2001 and 2002 SAS are added to complete the time series.

Another issue resulting from the conversion to the NAICS is the addition of new health care categories. Ambulance services were moved from the transportation industry to the health care industry. Since we do not have historical data on ambulance services we were unable to include these receipts in the NHA at this time.

In addition to Census data, other information is used to corroborate the physician and clinical services expenditures in the NHA: data on employment, hours and earnings in private health establishments, provided by the Current Employment Statistics (Bureau of Labor Statistics, 1972-2001); estimates of price inflation provided by the Consumer Price Index and Producer Price Index (Bureau of Labor Statistics, 1960-2002); and indirect measures such as hospital admissions and inpatient days that require complementary professional services.

The physician and clinical services estimates reported in the NHA contain some modifications to the Census source data. For example, an adjustment is made 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. 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 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 (1980-2002) on dental office expenditures, figures on employment from both the employment and earnings statistics (Bureau of Labor Statistics, 1972-2001) and the Consumer Price Index for 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 reported under spending for Durable Medical Equipment (DME) as eyeglasses and appliances. The Medicare reimbursement for ambulance services also was included in other professional services.

Other Personal Health Care

This category of spending covers two types of expenditure. One is industrial in-plant services, and the other is government expenditure for medical care not specified by kind.

Industrial in-plant services are facilities or supplies provided by employers for the health care needs of their employees. The services may be offered either onsite or offsite. The industrial in-plant 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; that cost was extrapolated backward (to 1960) and forward through the most current year using the medical care component of the Consumer Price Index. The Bureau of Labor Statistics reports the number of people employed in the civilian labor force. The cost per covered employee was multiplied by the number of employed civilians to produce the estimates of industrial in-plant health services.

The second type of medical expenditure included in Other Personal Health Care are those expenditures for medical care not delivered in traditional medical provider 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 projects under the Medicaid program. In these projects, 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. 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 NHA 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 1987 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, and 1997 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 SAS (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 blow-up factor is calculated using a ratio of Medicare reimbursements for government-owned HHAs to Medicare reimbursements for all privately owned HHAs. This ratio, multiplied by Census receipts, produces an estimate of revenue for 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 to 1967 based on data available from Medicare and Medicaid. Approximations of national spending for Medicare-provider 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 copayment 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).

Estimated Medicare-provider home health spending for 1984-86 was inflated to reflect higher levels of spending for home health care by Medicaid. In fiscal year

1984, Medicaid funded almost 32 percent of the estimated spending for home health care. The fiscal year 1984 share of total spending was applied to estimates for each year, 1984-86. The additional amount of Medicaid spending obtained was then added to the Medicare-provider estimate to produce new levels of total spending for home health care.

Medicaid's share of total spending for home health care grew rapidly in 1985 and later because of a new category of service called "personal care." Medicaid-covered services delivered in the home by qualified professionals are classified as personal care. The care provided must be prescribed by a physician, as is the case when care is provided by HHA personnel.

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 North American Industry Classification System as 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). Hospital-based nursing homes are implicitly included with hospitals and classified as hospitals (NAICS 622). In the NHA, hospital-based nursing home spending is included with hospital care expenditures.

The expenditure estimates presented here include estimated revenue to State and local government nursing homes. State and local government nursing home wages reported to the Bureau of Labor Statistics are inflated to revenues based on wage to revenue ratios for private industry nursing establishments. Also included here are Government outlays for care provided in nursing facilities operated by the Department of Veterans Affairs (DVA), and for nursing home services 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 1977, 1982, 1987, 1992, and 1997 are based on business receipts of service establishments collected in the Census Bureau's quinquennial Census of Service Industries (CSI). Information from the SAS (SAS) is used to interpolate between the CSI benchmark years and extrapolate to later periods.

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 times growth in input prices were used to extrapolate 1972 revenue data to earlier years and interpolate from 1972 to 1976. Estimates of average weekly work hours are derived from data reported by employers and published monthly by the Bureau of Labor Statistics (1972-91) for nursing and personal care facilities (SIC 805). 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. See *Federal Register* July 31, 2000 (65 FR 46788-46789).

Retail Outlet Sales of Medical Products

Retail Purchase of Medical Products

This class of expenditure is limited to spending for products purchased or leased from retail outlets. The value of drugs and other products provided to patients by hospitals (on an inpatient or outpatient basis) and nursing homes, and by health care practitioners as part of a provider contact, 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

The category of prescription drugs includes retail sales of human-use dosage-form drugs, biologicals and diagnostic products. The transactions to purchase prescription drugs occur in community pharmacies, grocery store pharmacies, mail-order establishments, and mass-merchandising establishments. The current methodology estimates drug purchases by consumers from these retail establishments using detailed data from the Census of Retail Trade. The 1992 and 1997 Census of Retail Trade (Census 1992, 1997) have been incorporated into the estimates. Estimates for years following 1997 are prepared by extrapolating the 1997 levels with data on retail and wholesale purchases from IMS America 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 NHA 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 overcounting prescription drug spending in NHA.

Other Non-Durable Medical Products

The category of other non-durable medical products includes such items as rubber medical sundries, heating pads, bandages, and nonprescription drugs and analgesics.

Nonprescription drugs sold over the counter include those marketed to the general public and those promoted to the medical professions and comprise products such as analgesics, and cough and allergy medications. Finally, medical sundries primarily include such items as sanitary napkins and tampons, surgical and medical instruments, surgical dressings, and diagnostic products such as needles and thermometers. The estimate is based on estimates of personal consumption expenditures (PCE) for non-durable goods (Bureau of Economic Analysis 1967-2000). The PCE estimates include spending for that portion of the category that matches the NHA definition for other non-durable medical products. The portion of PCE matching NHA definitions was established using detailed Input /Output data on PCE in each of several National Income and Product Accounts benchmark years (Bureau of Economic Analysis tables for 1963, 1967, 1972, 1977, 1982, 1987, and 1992). The most recent benchmark PCE data is extrapolated forward using data on non-durable medical products compiled by Kline Company.

Durable Medical Products

Expenditures in this category are for items such as contact lenses, eyeglasses and other ophthalmic products, surgical and orthopedic products, equipment rental and hearing aids. Durable products tend to have a shelf life of over three years whereas non-durable products last less than three years. The estimate of durable goods expenditures are based upon personal consumption expenditures (PCE) for ophthalmic and orthopedic appliances, which constitutes a category of the gross domestic product (GDP). To accommodate the NHA definitions, adjustments were made to this PCE category in the GDP benchmark years, using Input/Output Table-Final Demand data for 1963, 1967, 1972, 1977, 1982, 1987, 1992, and 1997 (Bureau of Economic Analysis). To interpolate and extrapolate the adjusted benchmark levels, the published PCE estimates were used in years 1960 to 1984 and other data such as the Consumer Expenditure Survey (CE), National Medical Care Expenditure Survey (NMCES), Medical Expenditure Panel Survey (MEPS), the CPI for eyeglasses and eye-care, real GDP growth and the resident population were used in years 1985 to 2002.

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 part is comprised of the administrative expenses of government programs. Although all programs incur administrative expenses, not all report them separately from other items. Typically, those that do report administration are the bigger programs, accounting for 98 percent of Federal personal health care expenditures in 1990, and for 72 percent of State and local personal health care expenditures.

The smallest part 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. Estimates of the level of administrative expense were made for philanthropic foundations, for voluntary health agencies, and for United Way campaigns, based on published and unpublished data from national associations of the various groups.

Government Public Health Activity

In addition to funding the care of individual citizens, governments are involved in organizing and delivering health care in general, in the prevention and control of clinical health problems in the population, and in other such functions. In the NHA, spending for these activities is reported in government public health activity. Funding for health research and for construction of facilities is reported in their respective categories; spending for environmental functions (air and water pollution abatement, sanitation and sewage treatment, water supplies, and so on) is excluded.

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 an overwhelming majority of Federal spending in the area.

State and local expenditures are principally those made by state and local health departments. Federal payments are deducted to avoid double counting, as are expenditures made through the Maternal and Child Health Program and the Crippled Children's Program. State and local government departments for environmental functions (sewer authorities, for example) are excluded.

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, 1960-2002). State and local government spending is estimated using data from the Bureau of the Census (1957, 1962, 1967, 1972, 1977, 1982, 1987, 1992, and 1997) quinquennial (5-year) Census of Governments and from its annual survey of State and local government finances. (The latter surveys all State governments and a sample of local government units drawn from the 5-year census [Bureau of the Census, 1960-99].)

Investment

Research

Research shown separately in the NHA is that of non-profit or government entities. Research and development expenditures by drug 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.

Through 1994, estimates of noncommercial research in the NHA 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, 1993). Training and construction are excluded, but general support is included. Figures 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 by nonlinear interpolation.

After 1994, NIH estimates are extrapolated to recent years using several different data sources. For Federal research funds, data from the National Science Foundation (NSF) on federal funds for research and development was used (2002). For state

research funding, NSF data on nonfederal spending in academic institutions was used. For private funds, data comes from the H. Hughes Medical Institute, National Health Council information on voluntary health agencies' support of medical research,[3] and the Foundation Center.[4]

Construction

The construction component of the NHA is limited to the value of new construction put in place for hospitals and nursing homes. Estimates are taken from the Bureau of the Census (1960-2002) C-30 survey of new construction. The measure includes new buildings; additions, alterations, and major replacements; mechanical and electric installations; and site preparation. Maintenance and repairs are excluded, as are non-structural equipment such as X-ray machines and beds. 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.

According to the Bureau of the Census, the figures reported include "health care and institutional facilities except housing for nurses and doctors. Also included are sanitoria, convalescent and rest homes, nursing homes, orphanages, and similar establishments for prolonged care" (Bureau of the Census, 1964-2001). Surgical or outpatient clinics are also covered, but office buildings that are used primarily for medical providers' offices are excluded. The value of new construction put in place is divided among the various sources of construction funds on the basis of periodic surveys conducted by the American Hospital Association (Mullner et al., 1981).

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[1]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.

[2]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).

[3]Available at www.nhcouncil.org.

[4]Foundation Giving Trends (2002), The Foundation Center. http://fdncenter.org/fc_stats/pdf/04_fund_sub/2000/10_00.pdf (10K Bytes)

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computer can read these files, visit our File Formats and Plug-Ins page.

National Health Accounts: Definitions, Sources, and Methods Used in the NHE 2002

Sources of Funds

Out-of-pocket expenditure

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 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 supplementary medical insurance (SMI) are not included with this funding category because the out-of-pocket payment is paid to the third party insurer (private health insurance or Medicare) that is classified in the NHA as the source of funds. Similarly, coinsurance and deductible amounts paid by supplementary Medicare policies 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 was available for all the above services for 1998 and later years 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 trade associations such as Visiting Nurses Association (1988) and its predecessor (Voluntary Public Health Nurses Association), the American Hospital Association (1980-2001), the American Medical Association (1984-2001), the American Dental Association (1980-2002) and various nursing home surveys.

In addition, data from surveys of the noninstitutional 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 and Utilization Survey (National Center for Health Statistics, 1980), and in 1987 by the National Medical Expenditure Survey (National Center for Health Services Research, 1987) and in 1996-1999 by data from the most recent household survey, the Medical Expenditure Panel Survey - Household component (Agency for Healthcare Research and Quality, 1996).

Private health insurance

At the NHE level, private health insurance expenditures equal the premiums earned by private health insurers. This figure is decomposed into benefits incurred (personal health care expenditures) and net cost. The net cost of insurance is the difference between benefits and premiums. This difference, which includes administrative costs, and for some sources of data, additions to reserves, rate credits and dividends, premium taxes, and profits or losses, is estimated separately for the various types of insurers.

Private health insurance expenditures measure individually purchased and employer sponsored insurance premiums. In addition to the traditional health care plans

insured by commercial carriers and Blue Cross and Blue Shield, there 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 copayment but must receive their care from an HMO 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 enrollees may go outside the network by paying 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 copayments 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. Some self-insured plans bear the entire risk. Other self-insured groups 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). 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. Included in the self-insured health plan category are Minimum Premium Plans (MPP). In a MPP, the employer self-funds a fixed percentage of the estimated claims and the insurer covers the remainder. Processing claims and other administrative services are also included. Self-insured plans including MPP's were popular in the late 1980's and early 1990's. By the late 1990's, many employers had abandoned the more traditional commercial and self-insured plans and had moved to managed care plans because of their ability to hold down costs.

There are three approaches to calculating private health insurance estimates.

The first approach, labeled "the insurance industry method," gathers data 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, 1960-2002) 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. is used to develop commercial plan 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 American which later became American Association of Health Plans, (GHAA, 1987-94), and InterStudy (1994 forward). Self-insured health plan estimates for later years build on data from the 1996-2001 Medical Expenditure Panel Survey-Insurance Component. The overlap in the insurance industry method may sometimes lead to double counting. For example Blue Cross and Blue Shield statistics may also include some HMO data. Commercial insurance companies often provide administrative services for self-insured plans, which may be included in the commercial data. Because of possible overlap, the NHA estimate of private health insurance only uses the relationship between premiums and net cost from the insurance industry methodology.

Employing a second approach, estimates of private health insurance benefits by type of service are developed 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 Expenditure Survey (1987) and later, the Medical Expenditure Panel Survey (1996-99). After the benefits are estimated, the net cost ratio developed from the insurance industry method is used to inflate these benefit estimates to premiums.

The third methodology estimates premiums by combining Private Health Insurance (PHI) premium cost estimates from employers using the Employer Costs for Employee Compensation survey results (Bureau of Labor Statistics, 1980-2003) with individually-paid PHI premium cost data from the Consumer Expenditure Survey (Bureau of Labor Statistics, 1984-2001).

Premium estimates developed from all three methodologies are then compared for reasonableness. Recently available premium estimates from the Medical Expenditure Survey-Insurance Component for 1996-2001 provide an additional check for reasonableness. 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. These comparisons are used to adjust benefit and premium estimates from the second approach to produce the final estimates and trends for NHE.

Other private funds

Other private funds are those revenues received for which no direct patient care services are rendered. 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 in general 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 received from Medicare actuaries, 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.

Medicare actuaries prepare cash-flow and incurred-benefit estimates for fee-for-service spending and of 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. A series of adjustments to the actuarial estimates of FFS incurred benefits are necessary to achieve consistency between estimates of Medicare spending and the definitions and concepts of the NHA. An initial conceptual adjustment is the elimination of small amounts of spending occurring outside the United States for each incurred benefit service category.

Hospital care is a summation of incurred benefits for inpatient hospital care, outpatient hospital care, and hospice, nursing home care and home health care furnished by hospital-based facilities. 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 benefits were adjusted to exclude estimated payments to freestanding end-stage renal disease (FS/ESRD) facilities.

Estimates of spending for physician and clinic services, other professional services, and for 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. Categorizations were based on proportional distributions of provider specialty and procedure designations coded on various administrative and statistical records. Physician and clinic services include the estimated physician and laboratory services portions of incurred benefits for physicians and Part B supplier services and payments to FS/ESRD facilities. The supplier share of incurred benefits for physician and Part B supplier services is subdivided into "other health professionals" and ambulance services, and durable medical equipment (DME) based on provider specialty designations. The DME share is further subdivided into outpatient prescription drugs, other non-durable medical supplies, and durable medical equipment based on CMS's healthcare common procedure coding system (HCPCS) designations. The category of other professional services includes payments for the services of other health professionals and ambulance services. Incurred benefits for skilled-nursing facility services and home health care are adjusted to exclude the share of spending accounted for by hospital-based facilities. Medical durable expenditures include payments for the purchase or rental of DME from Medicare Part B suppliers and payments for oxygen and oxygen-related equipment.

Incurred-benefit estimates for freestanding skilled-nursing facility services and freestanding home health care include spending for hospice care furnished by these facilities.

Medicare outlays for administrative expenses are obtained from Department of the Treasury reports submitted to Medicare actuaries.

Medicare actuaries report total Medicare payments to managed care plans and separate amounts for services covered by the Hospital Insurance (Part A) and the Supplementary Medical Insurance (Part B) parts of the program. Financial information for managed care plans is available from CMS's Center for Medicare Management. All Medicare enrollees receive coverage for a standard package of benefits. Medicare managed care enrollees may be covered for a wide variety of additional services such as routine physicals, preventive care, and prescription drugs.

Medicare managed care payments are allocated to both services and administrative expenses in the NHE estimates. These estimates represent a portion of expenditures funded by Medicare through capitation payments to managed care plans for Medicare beneficiaries who choose to enroll in managed care. Additional premiums paid by Medicare managed care enrollees for services beyond those covered by the Medicare capitated payment are excluded from the Medicare estimate. Instead, these premiums are included with all other private health insurance premiums.

Comprehensive statistics on specific services used by managed care enrollees are not reported to CMS. Therefore, the service distribution of Medicare capitated payments was estimated from Adjusted Community Rate (ACR) proposals submitted to CMS annually by risk-type managed care plans. 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.

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, 1960-2002; Bureau of Government Financial Operations, 1960-2002).

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

The second series of adjustments relate primarily to capitated and other insurance premium payments recorded on the HCFA-64 and the creation of NHA service distributions for these premiums. First, an estimate of the administrative costs of Medicaid HMO's is prepared using total premiums paid and administrative cost ratios developed for the PHI estimates. These estimates of private insurers' administrative 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 NHA 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 in 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 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. Currently, States are using two devices--disproportionate share hospital (DSH) and upper payment limit (UPL) payments--for this purpose. States accomplish 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. These facilities, typically owned by state and local governments, then transfer some

of these increased payments to the state, effectively reducing the State's matching contribution to Medicaid. To the extent that States divert portions of DSH and UPL payments to general revenue for other uses, NHE estimates of State Medicaid hospital and nursing home expenditures are lowered by the estimated amount of these diversions.

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 NHA, 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 64c for Medicaid expansions. Service distributions are derived from program payment data reported on these forms, crosswalked to NHA 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 64c.

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 (1960-2000). Information on State and local expenditures to hospitals were adjusted to exclude State and local expenditures counted elsewhere in the NHA, such as maternal and child health, medical vocational rehabilitation, general assistance and Medicaid payments to State and local hospitals. For 1983 through 2001, 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 NHA. 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, expenditure, 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.

To be included in the NHA, 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 NHA 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 NHA. Expenditures for education and training of health professionals (including direct support of health professional schools and student assistance through loans and scholarships) are excluded from NHE. 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 health care costs (Department of Defense, 1981-2002) are taken from Department of Defense's (DOD) FY 2004 President's Budget Submission. DOD's health care program, TRICARE, covers members of the uniformed services and their families and survivors, and retired members and their families[5]. Adjustments are made to remove items outside the scope of the NHA (payroll of patients, for example) and to convert data to a calendar year basis. In addition, unpublished data provided by the DOD (Department of Defense, 1984-2002) are used to separate hospital care from other services for active duty dollars. Finally, data for the non-active duty populations (Department of Defense, 1980-2002) are provided directly by the program administrators, 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, and Department of Veterans Affairs (1960-2002) *Annual Reports*. In addition, administrators of the Civilian Health and Medical Program of the Veterans Administration (CHAMPVA) provide unpublished information on that program (Financial Reports Division, 1960-2002).

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 (2003). The National Center for Educational Statistics (2000) furnishes data used to estimate school health program expenditures. There are non-Federal sources of information, as well: the Public Health Foundation (1977-88) (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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[5] 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.

National Health Accounts: Definitions, Sources, and Methods Used in the NHE 2002

Deflating personal health care expenditures

Health care spending has grown more rapidly than other sectors of the economy. While increased spending does reflect increases in use per person, technological innovation, aging of the population an d population growth, much of this increase is 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 meaning of these deflated or "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 Gross Domestic Product chain-type annual-weighted price index (GDP-CWPI). The GDP-CWPI is the most comprehensive measure of pure price inflation for the economy as a whole. Personal health care expenditures per capita deflated by the GDP-CWPI 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. [6]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 chain-weighted price index (PHCE-CWPI) as a tool to deflate personal health care expenditures per capita. Table 2 lists price proxies assigned to each component of PHCE.

Table 2: Price proxies for the personal health care expenditure chain-type annual-weighted price index

Industry/Commodity or Service	Price proxy
Personal health care	
Hospital care	PPI, hospitals[1]
Physician and clinical services	CPI[2], physician services
Other professional services	CPI[2], professional services
Dental services	CPI[2], dental services
Other personal health care	CPI[2], medical care

Home health care	CPI[2], professional services
Nursing home care	National Nursing Home Input Price Index[3]
Prescription drugs	CPI[2], prescription drugs and medical supplies
Other non-durable medical products	CPI[2], internal & respiratory over-the-counter drugs
Durable medical equipment	CPI[2], eyeglasses and eye care

[1]Producer Price Index for hospitals, U.S. Department of Labor, Bureau of Labor Statistics. Used beginning in 1994 and scaled to 100.0 in 1996. Indexes for 1960-93 are based on a CMS developed output or transaction price index.

[2]Consumer Price Index for all urban consumers, U.S. Department of Labor, Bureau of Labor Statistics. Indexes are scaled so that the 1996 value is 100.0.

[3]NNHIPI developed and maintained by CMS.

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

In our judgment, this PHCE-CWPI is a more appropriate measure of medical price inflation associated with PHCE than two other available indexes--the Consumer Price Index (CPI) or personal consumption 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 7 percent of all out-of-pocket expenditures while overall hospital spending represents 36 percent of personal health care spending in 2002. 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. Only the PPI for hospitals, starting in December 1992, has provided enough data for a useful time series. This series is used to measure price changes for the hospital care component of PHCE.[7]

Each component of PHCE can be deflated by its assigned price index to produce a constant dollar estimate of that component (Table 3). Summing all of the deflated components yields a constant dollar estimate of PHCE.

Table 3: Personal health care expenditures in current and constant dollars and associated price indexes, by type of spending: Selected years 1970-2002.

Current dollars in billions

Type of spending	1970	1980	1990	1996	2000	2001	2002
Personal health care	$63.2	$214.6	$609.4	$911.1	$1,135.3	$1,231.4	$1,340.2
Hospital care	27.6	101.5	253.9	355.2	413.2	444.3	486.5
Physician and clinical services	14.0	47.1	157.5	229.4	290.3	315.1	339.5
Other professional services	0.7	3.6	18.2	30.9	38.8	42.6	45.9
Dental services	4.7	13.3	31.5	46.8	60.7	65.6	70.3
Other personal health care	1.3	3.3	9.6	25.8	36.7	40.9	45.8
Home health care	0.2	2.4	12.6	33.6	31.7	33.7	36.1
Nursing home care	4.2	17.7	52.7	79.9	93.8	99.1	103.2
Non-durable medical products	8.8	21.8	62.7	94.3	152.3	171.8	194.1
Prescription drugs	5.5	12.0	40.3	67.2	121.5	140.8	162.4
Other non-durable medical products	3.3	9.8	22.5	27.1	30.8	31.0	31.7
Durable medical equipment	1.6	3.9	10.6	15.3	17.7	18.2	18.8

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

Price Indexes

Type of spending	1970	1980	1990	1996	2000	2001	2002
Hospital care	16.8	38.6	79.6	100.0	106.0	109.7	115.1
Physician and clinical services	15.9	35.4	74.4	100.0	113.1	117.2	120.5
Other professional services	17.8	37.5	75.0	100.0	114.2	118.4	122.0
Dental services	18.1	36.4	71.9	100.0	119.5	124.4	130.0
Other personal health care	14.9	32.8	71.4	100.0	114.3	119.6	125.2
Home health care	17.8	37.5	75.0	100.0	114.2	118.4	122.0
Nursing home care	22.5	47.7	82.1	100.0	113.3	118.6	122.4
Prescription drugs	19.5	29.9	74.8	100.0	117.5	123.9	130.3
Other non-durable medical products	24.9	44.0	85.7	100.0	103.9	105.1	105.1
Durable medical equipment	27.2	50.8	84.2	100.0	107.5	110.9	111.6

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

Constant 1996 dollars in billions

Type of spending	1970	1980	1990	1996	2000	2001	2002
Personal health care	$358.1	$566.4	$786.0	$911.2	$1,023.5	$1,068.4	$1,118.4
Hospital care	164.3	263.4	319.1	355.2	389.7	404.9	422.6
Physician and clinical services	87.7	133.2	211.9	229.4	256.7	269.0	281.9
Other professional services	4.2	9.6	24.2	30.9	34.0	36.0	37.6
Dental services	25.8	36.6	43.8	46.8	50.8	52.8	54.1
Other personal health care	8.5	10.0	13.5	25.8	32.1	34.2	36.6
Home health care	1.2	6.4	16.8	33.6	27.8	28.5	29.6
Nursing home care	18.8	37.0	64.2	79.9	82.8	83.6	84.3
Non-durable medical products	41.6	62.6	80.1	94.3	133.1	143.2	154.9
Prescription drugs	28.2	40.4	53.9	67.2	103.4	113.7	124.6
Other non-durable medical products	13.4	22.3	26.2	27.1	29.6	29.5	30.2
Durable medical equipment	6.1	7.6	12.6	15.3	16.5	16.4	16.8

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

[6]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.

[7]For more information, see http://cms.hhs.gov/statistics/health-indicators/

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