

# Revisions to the National Health Accounts and methodology

## Background

The need to implement revisions to the National Health Accounts (NHA) has been brewing for several years. During the past decade, major, dramatic changes have been occurring in the structure of the health care industry. Among those changes are the shift of many services from inpatient settings to outpatient hospital and freestanding facilities; the rise of outpatient clinics; and the dispensing of prescription drugs at sites other than community pharmacies (e.g., through grocery and department store pharmacies and through mail-order pharmacies).

Accompanying these structural changes have been innovations in the mechanisms used to finance health care. These changes were prompted primarily by business, which sponsors a large proportion of private health insurance and which was facing substantial increases in the cost of this fringe benefit. In an effort to contain costs, employers experimented with delivery of care through health maintenance organizations (HMOs) and preferred provider organizations; with utilization reviews, mandatory second opinions, and required outpatient treatment for specific procedures; and with higher copayments and deductibles for services. In addition, many companies opted to self-insure, turning to the insurance industry for administrative services and/or insurance against excessive losses. Recent changes in law require employers who offer health insurance to cover working people over age 64; further, those policies must pay before Medicare pays. In addition, changes to accounting standards will force employers to make allowances for anticipated costs of retiree health benefits, with a significantly adverse effect on balance sheet bottom lines.

Simultaneously, the deterioration of data upon which the historical methodology had been based, as well as the arrival of new data sources, necessitated development of revised methods. As a result of budget cuts in the mid- to late 1970s, the Internal Revenue Service (IRS) was forced to reduce the size of the sample of income tax returns used to prepare its *Statistics of Income* (SOI). This annual tabulation had formed the basis for estimates of national expenditures for professional services, but 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. During this same period, existing insurance industry measures were unable to cope with the rapid changes that occurred in the health insurance marketplace.

Fortunately, new data sources have emerged to supplement the traditional data sources used to estimate national health expenditures (NHE). The Bureau of the Census enlarged the sample in its survey of service establishments, providing good estimates of the year-to-year change in business receipts. The Bureau of Labor Statistics (1960-88) Consumer Expenditure Survey was converted from an intermittent survey into a quarterly

one, providing a continuous flow of information for out-of-pocket spending by type of service. The American Hospital Association (1980-87), American Medical Association (1984-88), and American Dental Association (1980-87) now conduct surveys that provide valuable insights into the sources of revenue received by their members. Finally, the Employment Cost Index (ECI), which began in 1980, coupled with the Consumer Expenditure Survey, can be used to validate insurance premium levels (Bureau of Labor Statistics, 1980-88).

The historical methods made the best of data that was available at that time. New methods and sources have enhanced the ability to accurately measure health care spending trends.

## Benchmark process

In 1984, a group of NHA experts met to determine the future direction of the NHA (Lindsey and Newhouse, 1986). This meeting initiated the benchmark process. At the conclusion of the current benchmark efforts, a similar meeting was convened to review accomplishments and to offer suggestions for future directions.

The revised NHA figures for national health expenditures incorporate new categories, new methods, and the results of using previously untapped data sources. In addition, the current data base now extends back to 1960, replacing estimates from 1960 to 1964 that were inconsistent in methodology or definition with estimates from 1965 onward.

Three new categories of expenditures appear in the revised estimates. First, spending for home health care has been separated from the category of other professional services. Second, expenditures for outpatient clinics have been gathered from various parts of the accounts and now are located with other professional services. This included movement of spending for federally funded clinics and Medicare funding of kidney dialysis centers out of other personal care, and movement of Medicaid funding of clinics out of physician services. Third, a new source-of-funds category called "nonpatient revenues" has been created. This category includes estimates of philanthropic support for health care and estimates of other nonpatient revenues generated by hospitals, nursing homes, and home health agencies to cover patient care expenses.

In addition to new categories of spending and financing of health care, revisions to existing services and sources of funds have been created. The single largest revision to the NHA occurred in the private payment component of out-of-pocket spending for health care. Overall, out-of-pocket estimates are lower for 1987 than those estimates released with the 1987 update under the category "direct patient payments."

Although it was not appropriate to do so, direct patient payments were commonly referred to as "out-of-pocket" spending. Prior to the availability of time-series information, the NHA estimated direct patient payments as a residual. That is, out-of-pocket spending consisted of what was left over after all known sources of financing were subtracted from the total. This method forced all data errors, sampling flaws, and statistical discrepancies into the direct patient payment estimate.

Beyond the data-related problems, the direct patient payment category also suffered from a definitional shortcoming. The residual nature of the direct patient payments meant that the category included some nonpatient revenues that had not been separately identified in the NHA (Waldo, Levit, and Lazenby, 1986). These revenues included income from services unrelated to patient care (such as television rental, educational programs, or sales through a gift shop or cafeteria), as well as interest income, grants, contributions, and other non-operating income.

Now that time-series data have become available, the old residual approach has been replaced by a direct estimate of out-of-pocket spending and of total nonpatient revenues. (Philanthropy was the only subset of nonpatient revenue previously tabulated in the NHA.)

A simultaneous revision to estimates of private health insurance activity has been incorporated into estimates of NHE. The new benefit levels result from an iterative balancing of the service control totals and the level of out-of-pocket spending with the overall level of benefits reported by traditional insurance industry sources.

These revisions raised the 1987 private health insurance benefit payment by \$0.7 billion or 0.5 percent, although downward revisions to benefit levels for 1975-82 were more substantial (in 1978, private health insurance estimates were revised downward by 5 percent). The period from 1975 through 1982 was when most self-insured employers made the shift away from purchased insurance. In many cases, these employers still contracted with traditional insurers for administrative services, some purchased insurance, or a combination thereof. This situation led to accounting confusion, including overlaps in the counts reported by traditional insurance industry data sources. The iterative process mentioned above has helped to resolve this confusion.

Revisions to public sources of funding are numerous but smaller in magnitude than those affecting private sources. Public funding for health care in 1987 is now estimated to have been higher than previously reported. Major revisions to public funding include the following:

- Medicare funding has been converted from a paid to an incurred basis, eliminating the cash-flow disturbances formerly incorporated in the accounts. These disturbances directly affected the old direct patient payment estimates.
- Medicaid payment of Medicare supplementary medical insurance (SMI) premiums on behalf of beneficiaries eligible for both programs has been removed from Medicaid estimates and is now counted only as benefits paid by Medicare.
- General assistance benefit payments now incorporate data supplied by State agencies managing these State-only funded programs for the poor. This replaces incomplete information reported on a discontinued monthly Medicaid reporting form.
- Estimates of State and local funds used to subsidize hospital operations rely on information reported by hospitals to the American Hospital Association (AHA). This method replaces information previously obtained from a survey of State and local governments conducted by the Bureau of the Census.

In addition to changes in funding for health care, health care service and product estimates have been revised. Significant downward revisions have been incorporated into the physician, dental, and other professional services estimates as a result of a new estimating methodology, definitional changes, and elimination of double counting. First, the methodological changes were designed to blend the best of available data sources: the level of business receipts received by these medical professionals as reported to the IRS with the business receipt growth reported in surveys conducted by the Bureau of the Census.

Second, for other professional services, the reduction in expenditure level resulting from methodological revisions is more than offset by a definitional change: Until this revision, other professional services counted only for-profit clinics. Now nonprofit clinics are counted as well, resulting in a net increase to other professional services.

Third, an additional downward revision to physician services expenditures results from the removal of fees paid by hospitals to physicians. These fees take the form of guaranteed income and other contractual arrangements that are part of hospital expenses. This change eliminates double counting that existed between physicians and hospitals.

Revised estimates of spending for drugs and other medical nondurables are higher than those previously published. Formerly, estimates covered prescription drugs purchased in retail pharmacies. Inclusion of prescription drugs purchased through retail outlets other than pharmacies (e.g., grocery store pharmacies and mail-order houses) accounts for the difference.

Other personal health care includes revisions to exclude Medicaid buy-ins and to transfer Federal clinic funding and Medicare ambulance and kidney dialysis center payments to other professional services as previously discussed. Reductions in estimates for Department of Defense other personal care (and redistribution in general among services funded by the Department) result from data obtained from a new information system used by the Department to track its medical care spending.

## Methods, concepts, and definitions

### National health expenditures

The NHA constitute the framework in which estimates of spending for health care are constructed. The framework can be considered as a two-dimension matrix; along one dimension are types of providers or services, and along the other dimension are sources of funds.

The NHA recognize several types of spending. "Personal health care" comprises therapeutic goods or services rendered to treat or prevent a specific disease or condition in a given 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 for which insurers become liable). Finally, "research and construction" spending includes noncommercial biomedical research and the construction of health care facilities.

In addition to these types of expenditure, two layers of aggregation are shown. "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. It is distinguished from research and construction expenditures, which represent an investment in the future health care system. The combined value of health services and supplies, research, and construction in the NHA is known as national health expenditures.

The NHA attempt to show how much is spent on the health of U.S. citizens. Thus, estimates shown in this article cover the United States and its outlying territories (Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Marshall Islands). Medical services provided by the Department of Defense to military and civilian personnel overseas are included as well. However, no attempt has been made to increase expenditures by the value of health care "imports" (care rendered to U.S. citizens by providers in foreign countries) nor to reduce expenditures by the value of "exports" (care rendered to foreign citizens by U.S. providers).

As is any construct, the NHA are of necessity arbitrary in their boundaries. Under the NHA definitions, a considerable amount of spending is excluded that many feel to be part of expenditure for health. For example, nutrition programs such as the Women, Infants, and Children program are excluded. So, too, are programs designed to improve environmental and sanitation conditions. Carried to an extreme, however, one could argue for the inclusion of spending for groceries and housing on the grounds that they, too, add to one's health. Such inclusions or exclusions are neither right nor wrong, but depend solely upon the purpose to which the results are to be put.

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 the NHA. In the case of both goods and services, the taxonomies used 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 establishments that fall into Standard Industrial Classification (SIC) 80 or through government operations that mimic that classification. The SIC is a scheme that groups together businesses producing like products. Each business is assigned a code that identifies the broad and specific nature of its operation. Until very recently, the 1972 version of the SIC was used for data-gathering purposes. The 1972 SIC codes recognized in the NHA are those in group 80—Health Services:

SIC 801	Offices of physicians.
SIC 802	Offices of dentists.
SIC 803	Offices of osteopathic physicians.
SIC 804	Offices of other health practitioners (chiropractors, optometrists, podiatrists, therapists, etc.).

SIC 805	Nursing and personal care facilities.
SIC 806	Hospitals.
SIC 807	Medical and dental laboratories.
SIC 808	Outpatient care facilities.
SIC 809	Health and allied services, not elsewhere classified.

Revisions to the SIC made in 1987 refine and make more clear the distinctions among various types of health providers (Executive Office of the President, 1987), but it will be several years before data gathered under the new SIC become available.

## Hospital care

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

All hospitals in the United States and its outlying territories are included in the scope of the NHA. Expenditures are estimated separately for community hospitals and noncommunity hospitals. (Community hospitals are those non-Federal acute care hospitals whose average length of stay is less than 30 days and whose facilities and services are open to the general public.)

The value of hospital output is measured by total net revenue. This includes gross patient revenues (charges) less contractual adjustments, bad debts, and charity care. It also includes government tax appropriations, nonpatient operating revenue (gift shop and parking lot receipts, 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 intends to receive, rather than what it charged. Nonpatient revenues are included in the value of NHE because, by tradition, hospitals take anticipated levels of these revenues into account when setting patient revenue targets or charges.

Except for Federal hospitals, the basic data source used to prepare the estimates shown in this report is the AHA Annual Survey. This survey elicits information from each hospital in the United States and its outlying territories and experiences a response rate of about 90 percent (American Hospital Association, 1960-89). Data for nonresponding hospitals are imputed by AHA analysts. Federal hospital estimates are based on data from the Federal agencies that administer them.

The AHA data must be modified for the purposes of the NHA. These modifications fall into four parts. First, allowance must be made for the fact that the AHA Annual Survey is designed to be cross-sectional rather than longitudinal. Thus, these cross-sectional survey reports must be combined into one longitudinal file, creating one record for each hospital. During this process, a certain amount of editing is performed on classification codes to ensure consistent reporting across time by individual hospitals. Second, revenues are imputed to each hospital on the basis of reported (or estimated)

expenses. Expenses are inflated to revenues using aggregate revenue-to-expense ratios provided by the AHA. Community hospitals are differentiated by State and by broad type of control (nonprofit or other), and noncommunity hospitals are differentiated by type of service and by type of control. Third, individual hospitals' imputed accounting year revenues are apportioned among calendar years. For community hospitals, expenditure patterns from the AHA's National Hospital Panel Survey are used to make that split; noncommunity hospitals are assumed to spend one-twelfth of accounting year revenues in each month of that year (American Hospital Association, 1963-88). At this stage, imputations are made to account for missing periods or overlapping periods in a hospital's report stream. Finally, data are extrapolated through 1988, using patterns of acceleration and deceleration observed in the panel survey data previously mentioned.

### **Physician, 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 1972 SIC of the establishment in which service is provided. Thus, "physicians" comprise the offices of doctors of medicine (M.D.) (SIC 801) and of doctors of osteopathy (D.O.) (SIC 803), plus independent medical laboratories (SIC 8071). "Dentists" comprise offices of doctors of dental surgery (D.D.S.) or doctors of dental medicine (D.M.D.) (SIC 802). "Other professional services" comprise services provided by establishments falling into SIC 804 or part of SIC 808. Exceptions to this rule, principally treatment of staff-model HMOs, are discussed later.

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. As described in the companion article in the discussion of physician trends, professional fees paid by hospitals to physicians are counted with hospital care rather than with physician services. If the medical professionals are serving in the field services of the Armed Forces, their professional salaries are included with "other health services."

Through the estimates for the late 1970s, expenditures for professional services were based primarily on statistics compiled and published by the IRS. Business receipts (which exclude nonpractice income) were summed for sole proprietorships, partnerships, and incorporated practices to form the bulk of the estimate. However, the gradual deterioration of the timeliness and statistical variability of the IRS data in the late 1970s induced a modification of the estimation techniques used to compile NHE.

The Services Annual Survey (SAS) of the Bureau of the Census (1984-88a) provides important data on the movement of spending for physician services. In addition,

the following are used to verify the physician services expenditures estimates in this article: figures on employment, hours, and earnings in nongovernment health establishments, provided by the Bureau of Labor Statistics (1972-89); estimates of price inflation provided by the Consumer Price Index (Bureau of Labor Statistics, 1960-88); and indirect measures of professional services, such as hospital admissions, inpatient days, and so on.

The physician services estimates reported here contain some modifications to the raw figures for SICs 801, 803, and 8071. For example, an adjustment is made for the portion of independent laboratory services billed through the physician (and thus appearing in the receipts of both establishments). An estimate of salaried physician services provided through staff-model prepaid health plans such as HMOs is added, because those establishments do not fall into SICs 801 or 803.

As is the case for physician services, spending for dental services is based upon IRS data (Internal Revenue Service, 1960-87), supplemented with the Bureau of the Census SAS. Additional information from the American Dental Association (1980-87) on dental office expenditures, figures on employment from both the employment and earnings statistics and the Current Population Survey (Bureau of Labor Statistics, 1979-88), the Consumer Price Index for dental expenses, and dental visits from the Health Interview Survey conducted by the National Center for Health Statistics (1966-87) are considered as the final estimates are prepared.

The receipts of dental laboratories (SIC 8072) 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 of licensed health practitioners other than physicians and dentists and expenditures for services rendered in outpatient clinics. (Expenditures for home health agencies [HHAs], which previously were included in this category, are now shown separately.)

Professional services include those provided by private-duty nurses, chiropractors, podiatrists, and optometrists, 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 eyeglasses and appliances.

Expenditures in clinics (SIC 808) are estimated in two parts. Figures for community health centers, which are federally funded clinics that provide outpatient care for the poor, are prepared using information from Federal budget documents and data from the Health Resources and Services Administration (1983-88). Spending for these services previously was included in the other personal health care category.

The rest of outpatient clinic expenditures are estimated using the Bureau of the Census SAS. Prior to these revisions, the clinic estimate was based primarily on statistics from the IRS for SIC 808. Because business receipts for tax-exempt establishments are not included in the IRS statistics, expenditures for tax-exempt outpatient clinics were omitted from this category. Data from the Bureau of the Census (1984-88a) show that business

receipts for tax-exempt facilities were \$1.8 billion in 1977, 64 percent of total outpatient clinic receipts. This proportion has declined over time to about 36 percent in 1988 with receipts of \$8.9 billion.

An adjustment is made to the Bureau of the Census data to remove HMO expenditures, as information exists to apportion these expenditures among explicit provider types elsewhere in the NHA.

Beginning with this article, and in an attempt to more closely align the sources of payment for these services with the expenditures estimates, Medicare reimbursement for freestanding end stage renal disease facilities has been moved from the other personal health care category, and, along with Medicaid funding of clinics (which previously was included in physician services), has been moved into the other professional health services category. Medicare reimbursement for ambulance services also was moved to other professional services from other personal health care.

Despite the progress made in refining the measurement of the other professional health services category, work remains to be done. For example, the Bureau of the Census SAS data for clinics include some network HMOs. Further improvements in methodology are being explored for the next benchmark effort.

## Home health care

The home health component of the NHA measures annual expenditures for medical care services delivered in the home by non-facility-based HHAs. The 1987 SIC 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.

Data used to prepare the estimates in this article are based on information obtained from cost reports submitted to the Health Care Financing Administration (HCFA) (1974-76, 1981-84) by Medicare-certified home health agencies. Information covering the full scope of medical services provided by certified and noncertified home health agencies is not yet available. Although a specific code was established for home health agencies in the 1987 SIC, it will be several years before data become available. In the meantime, home health services are provided by organizations in the 1972 SIC 809, as well as agencies operating through establishments outside SIC 80 (usually through temporary help agencies). Information on the industry will also become available from the National Center for Health Statistics (NCHS), which will conduct an inventory of about 10,000 HHAs beginning in 1991.

As defined in the NHA, home health care excludes services provided by facility-based home health agencies; medical equipment sales or rentals not billed through Medicare HHAs; and services provided by agencies not certified by the Medicare program. Services traditionally considered home health care that are not included in this component or in any other component of the NHA include: nonmedical types of care such as Meals on Wheels, chore-worker services, friendly visits, or other social or custodial services; and nursing services provided

by nurse registries (those that fall outside SIC 80, classified as temporary help agencies).

Total HHA costs and the share 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 represent 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 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.)

Estimated Medicare-provider home health spending for each year from 1985 through 1988 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 after 1984. 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 from 1985 through 1988 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 from 1958 through 1968 (Freeman, 1969).

## Drugs and other nondurable products

This class of expenditure is limited to spending for products purchased 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 category of prescription drugs includes retail sales of human-use dosage-form drugs, biologicals, and diagnostic products. These transactions can occur in

community or HMO pharmacies, grocery store pharmacies, mail-order establishments, etc. Using a methodology originally developed by the Actuarial Research Corporation (Trapnell and Genuardi, 1987), manufacturers' domestic drug sales were augmented by wholesale and retail markups and by inventory changes to arrive at final consumption by various classes of end users (hospitals, pharmacies, etc.). Those classes of users that are included in the NHA were aggregated to the NHE figure.

Nonprescription drugs and medical sundries comprise a long list of products. The estimate is based on personal consumption expenditures (PCE) for nondurable goods, which constitute a category of the gross national product (GNP). PCE includes spending for such items as rubber medical sundries, heating pads, bandages, and nonprescription drugs and analgesics. That portion of the PCE category that matches the NHA definition was established in each of several GNP benchmark years, using detailed PCE tables for 1963, 1967, 1972, and 1977. Published PCE estimates were used to interpolate and extrapolate those benchmarked figures.

### **Vision products and other medical durables**

These expenditures are for such items as eyeglasses, hearing aids, surgical appliances and supplies, bulk and cylinder oxygen, and equipment rental. As in the case of nondurables, estimates of durable goods expenditures are based upon PCE. To accommodate the NHA definitions, adjustments were made to the PCE categories for ophthalmic and orthopedic appliances and other professional services in the GNP benchmark years just mentioned. An additional benchmark was set in 1982 using economic census data. Published PCE estimates were used to interpolate and then extrapolate the adjusted benchmark levels.

### **Nursing home care**

The nursing home care component of the NHA measures the Nation's annual expenditures for inpatient nursing care. In the 1972 SIC, nursing and personal care facilities (SIC 805) are establishments primarily engaged in providing inpatient nursing and health-related personal care through active treatment programs for medical and health-related conditions. In addition to skilled nursing facilities and intermediate care facilities, the estimates presented here include 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.

Information on nursing homes was obtained primarily from surveys conducted by NCHS in 1972, 1977, and 1985. Estimates of spending for nursing home care in 1972 and 1976 were derived from NCHS's estimated average revenue per day for all facilities providing some nursing care. (National average revenue per day in 1985

was not benchmarked because of the relatively low response rate by nursing facilities to revenue questions in the 1985 National Nursing Home Survey.)

Growth in the number of nursing home employee work hours and in input prices were used to extrapolate 1972 revenue data to earlier years and 1976 revenue to later years. Estimates of average weekly work hours are derived from data reported by employers and published monthly by the Bureau of Labor Statistics (1972-89), for nursing and personal care facilities (SIC 805). Growth in costs of nursing home industry goods and services (labor and nonlabor expenses) are maintained by HCFA in the national nursing home input price index.

### **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 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 were 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 and forward in time using the medical care component of the Consumer Price Index (CPI).

The Bureau of Labor Statistics reports the number of people in the employed civilian labor force. The cost per covered employee was multiplied by the number of employed civilians to produce the estimated cost of in-plant health services reported in the companion article in this issue.

Government budget data provide the basis of most of the estimates of government spending in this category.

### **Administration and the net cost of private health insurance**

This category of expenditure can be broken into three parts. The largest part comprises the difference between earned premiums and incurred benefits of private health insurers. This difference, which accounts for administrative costs, net additions to reserves, rate credits and dividends, premium taxes, and profits or losses, is estimated separately for the various types of insurers. Data from the National Association of Blue Cross and Blue Shield (1960-88) plans 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 (National Underwriter Company, 1989). Data for self-insured and prepaid plans come from a variety of sources, primarily the Survey of Health Insurance Plans conducted by HCFA (McDonnell et al., 1987).

The next largest part comprises the administrative expenses of government programs. Although all programs

incur administrative expenses, not all report them as an identifiable item. Typically, those that do report administration are the bigger programs, accounting for 98 percent of Federal personal health care expenditures in 1988 and for 68 percent of State and local personal health care expenditures.

The smallest part comprises 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 as 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, 1960-89). State and local government spending is estimated using data from the Bureau of the Census quinquennial (5-year) Census of Governments and from its annual survey of State government and local government finances. (The latter survey is made of all State governments and a random sample of local government units drawn from the 5-year census [Bureau of the Census, 1960-88b].)

## Research

Research shown separately in the NHA is that activity carried out by nonprofit 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 in the same year through the companies' sales.

Estimates reported in the companion article were provided by the National Institutes of Health (NIH), which accounts for about two-thirds of the total expended (National Institutes of Health, 1988). 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 in a variety of timeframes (Federal fiscal years, June fiscal years, and calendar years) and are converted to calendar years where necessary by nonlinear interpolation.

## 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 (1960-88a) C-30 survey of new construction. The measure includes new buildings; additions, alterations, major replacements, and so on; mechanical and electrical installations; and site preparation. Maintenance and repairs are excluded, as are nonstructural 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 sanatoria, convalescent and rest homes, nursing homes, orphanages, and similar establishments for prolonged care" (Bureau of the Census, 1960-88a). Surgical or outpatient clinics are also included, but buildings that are used primarily for 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 AHA (Mullner et al., 1981).

As of this benchmark of the NHA, national health expenditures still does not include purchases of producers' durable equipment (PDE). Work is under way to produce a time series for PDE in the health sector, which includes beds, X-ray equipment, computers, and so on. The inclusion of PDE in the accounts with the next benchmark is contemplated.

## Out-of-pocket expenditure

Out-of-pocket spending for health care includes 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, 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), and the payment to providers for services and goods that exceed the usual, customary, or reasonable charges reimbursed by third parties.

Enrollee premiums for private health insurance and Medicare SMI are not included in this funding category. Counting the cost of the premiums and the benefits paid by the insurer would overstate the funding received by the provider of care. Similarly, coinsurance and deductible amounts paid by supplementary medigap insurance policies are excluded.

For most services, out-of-pocket spending estimates for 1980 through 1988 are based on information from the Consumer Expenditure Survey (CEX) conducted by the Department of Labor. This survey tracks the spending patterns of the noninstitutional population for all goods and services purchased during the year. In the CEX, out-of-pocket spending is reduced by the amount of insurance reimbursement received by individuals.

Sources other than the CEX form the basis for out-of-pocket spending in two categories. Because the majority of nursing home care services is delivered to institutionalized people, out-of-pocket spending for this service is not adequately represented in the CEX. In this case, information from the periodic nursing home surveys mentioned earlier was used to make the estimates. Out-of-pocket spending for home health care in the CEX is included within a spending category that covers all licensed professionals except physicians and dentists. For that reason, out-of-pocket spending estimates for home health care were based on historical and current surveys conducted by the Visiting Nurse Association and its predecessor, Voluntary Public Health Nurses Association.

For several categories of spending, other information from trade associations is used to supplement the CEX. The American Hospital Association, the American Medical Association, and the American Dental Association survey their respective memberships for sources of revenue received by these providers.

Surveys of the noninstitutional population's health care use and financing patterns have been conducted periodically over the past three decades. 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) and in 1980 by the National Medical Care Utilization and Expenditure Survey (National Center for Health Statistics, 1980). (Expenditure information from the National Medical Expenditure Survey covering 1987 is not yet available.) These surveys have provided information used to determine the amount of out-of-pocket spending in historical periods.

### **Private health insurance**

At the NHE level, private health insurance expenditures equal the premiums earned by private health insurers. This figure is decomposed to benefits incurred (personal health care expenditures) and net cost, the difference between premiums and benefits.

In addition to the traditional insurers such as commercial carriers and Blue Cross and Blue Shield, the NHA category for private health insurance includes a number of other plans. Health maintenance organizations are included here, as are self-insured plans. The latter are composed of 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. Others purchase stop-loss insurance or look to traditional carriers for minimum-premium plans furnishing administrative services and insurance against large claims. Some self-insured plans contract with traditional carriers or third-party administrators for claims processing and other administrative services; others are self-administered.

Estimates of private health insurance benefits by type of service were developed in conjunction with out-of-pocket spending. Both relied on periodic historical surveys to determine the relative share of private health insurance and out-of-pocket spending. Surveys by medical trade associations, the Visiting Nurse Association, and the Federal Government augmented the person survey data.

Estimates of total premiums earned by private health insurers are derived from the data series on the financial experience of private health insurance organizations compiled and analyzed by HCFA (Arnett and Trapnell, 1984). Data for these estimates are furnished by the Health Insurance Association of America, the National Underwriter Company, Blue Cross and Blue Shield Association, Group Health Association of America, and a survey of self-insured and prepaid health plans conducted by HCFA. These estimates are verified using the Bureau of Labor Statistics Employment Cost Index and Consumer Expenditure Survey.

### **Nonpatient revenue and philanthropy**

Nonpatient revenues are those revenues received for which no direct patient care services are rendered. The most widely recognized source of nonpatient revenues 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, nonpatient revenues also include income from the operation of gift shops, cafeterias, parking lots, and educational programs, as well as investment income.

For hospitals, estimates of nonpatient revenue are based on data gathered by AHA in its annual survey of all hospitals and in its National Hospital Panel Survey of community hospitals. For physicians, estimates are based on historical percentages of philanthropic funding supporting these services. The Bureau of the Census (1984-88), in unpublished data from its Services Annual Survey, provides information on philanthropic source of funds for other professional services. Nonpatient revenue information for home health care comes from historical surveys by the Voluntary Public Health Nurses Association (Freeman, 1969) and current surveys by the



Visiting Nurse Association. For nursing home care, nonpatient revenues are based upon data supplied in the periodic national nursing home surveys.

Current fund-raising expenses of philanthropic organizations, carried in the NHA as part of administration, are derived from estimates of administrative expense of philanthropic foundations, voluntary health agencies, and the United Way (Greenberg, 1990). Estimates of philanthropic support of research are based on data from NIH (National Institutes of Health, 1988). Philanthropic funds used in the construction of hospitals are estimated using periodic survey reports on hospital construction as reported by AHA (Mullner et al., 1981).

## 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 actuaries prepare cash-flow and incurred-benefit estimates by type of benefit based on program information from the Medicare reporting system. A series of adjustments to the actuarial estimates of incurred benefits are necessary to achieve consistency between estimates of Medicare spending and the definitions and concepts of the NHA.

Hospital care is a summation of incurred benefits for inpatient hospital care, outpatient hospital care, home health care furnished by hospital-based HHAs, and 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 services and for 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 designations coded on various administrative and statistical records.

Physician services include the estimated physician portion of incurred benefits for physicians and Part B supplier services, and laboratory services furnished by independently billing laboratories. Payments to group practice prepayment plans (which include HMOs, competitive medical plans, and health care prepayment plans) are also included.

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). Again, categorizations were based on provider specialty designations.

The category of other professional services includes payments for the services of other health professionals, ambulance services, and FS/ESRD facilities. Incurred benefits for home health care are adjusted to exclude the share of spending accounted for by hospital-based HHAs. 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.

No adjustments are made to incurred-benefit estimates for skilled nursing facility (SNF) services.

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

## Medicaid

Medicaid estimates are based primarily on financial information reports filed by the State Medicaid agencies on Form HCFA-64. These reports provide total program expenditures and service distributions. Prior to the availability of the Form HCFA-64 in 1979, State statistical reports (Form HCFA-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, 1960-89; Bureau of Government Financial Operations, 1960-89).

Several adjustments to reported program data are necessary to fit the estimates into the framework of the NHA. An estimate of Medicaid buy-ins to Medicare is deducted to avoid double counting when the programs are presented together. An estimate of hospital-based home health care spending is added to hospital care expenditures and subtracted from home health care expenditures. That portion of reported program expenditures for intermediate care facilities for the mentally retarded estimated to cover services in hospital-based facilities (40 percent of the total) is counted as hospital care rather than nursing home care.

## State and local government hospital subsidy

State and local governments subsidize the operation of hospitals through tax appropriations. These revenues assist hospitals in meeting the revenue shortfall between patient revenues 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 (1960-88b). 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 1988, tax subsidies were estimated using American Hospital Association (1980-87) 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 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 for care or treatment of disease as its primary focus. For this reason, nutrition, sanitation, and antipollution programs are excluded. An 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 from spending reported in the Federal budget because of the conceptual framework on which the NHA are based. 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. Breakdowns by type of goods or services are based on information obtained from the agencies that administer each program.

In particular, data on direct health care costs for the Department of Defense are taken from annual budget documents. 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. Unpublished data provided by the Department of Defense (1984-86) are used to separate hospital care from other services. Data for the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) (Department of Defense, 1980-88) are provided directly by the program administrators, including data to separate hospital care from other services.

Estimates of health expenditures by DVA 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 (1960-89) *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, 1960-88).

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. Reports to HCFA from State Medicaid agencies provide data on that program. State agencies handling general assistance programs supply information on State-specific programs; this information replaces data

**Table 1**

**Derivation of the personal health care expenditure fixed-weight price index**

Commodity or service	Price proxy	1982 weight
All personal health care	—	100.0
Hospital care	Hospital input price index <sup>1</sup>	47.8
Physician services	CPI <sup>2</sup> , physician services	18.9
Dental services	CPI <sup>2</sup> , dental services	6.5
Other professional services and home health care <sup>3</sup>	CPI <sup>2</sup> , professional services	4.9
Drugs and other medical nondurables	CPI <sup>2</sup> , medical care commodities	8.6
Vision products and other medical durables	Weighted average of CPI <sup>2</sup> , other professional services, and CPI <sup>2</sup> , eyeglasses	2.1
Nursing home care	National nursing home input price index	9.2
Other personal care	CPI <sup>2</sup> , medical care	2.0

<sup>1</sup>The specific hospital input price index is all hospitals with capital and medical fees (Wages = AHE806NS, Fringes = PanelFB).

<sup>2</sup>CPI for all urban consumers, Bureau of Labor Statistics (Department of Labor). Indexes are scaled so that 1982 is 100.0.

<sup>3</sup>Two categories combined because no price proxy is available for home health care for entire time period.

NOTES: CPI is Consumer Price Index. No continuous CPI component is available to accurately measure price inflation of hospital spending; and no index of nursing home outputs currently exists.

SOURCE: Health Care Financing Administration, Office of the Actuary; Data from the Office of National Cost Estimates.

formerly reported to HCFA via Medicaid reports. 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 Center for Educational Statistics (1989) 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 Childrens' programs.

**Deflation of personal health care expenditures**

In order to remove the effect of price inflation upon the growth in spending for health care, it is necessary to construct a measure of inflation of medical prices. A byproduct of that process is a time series of constant-dollar personal health care spending—expenditures from which the effects of price inflation are removed.

One measure of inflation used in the companion article is the personal health care expenditure fixed-weight price index. This index is a Laspeyres index with 1982 as a base year. It is called a fixed-weight index because it answers the question: "How much would it cost today to purchase the same mix of goods and services that was purchased in the base period?" The effects on expenditures of shifts in the proportion of services

Table 2

**Personal health care expenditures in current and constant dollars and associated price indexes, by type of service:  
Selected calendar years 1960-88**

Type of service	1960	1965	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	
Personal health care	\$23.9	\$35.6	\$64.9	\$116.6	\$218.3	\$253.2	\$284.1	\$312.4	\$338.6	\$367.2	\$397.7	\$434.7	\$478.3	
Hospital care	9.3	14.0	27.9	52.4	102.4	119.6	135.9	147.2	157.2	167.9	179.3	193.7	211.8	
Physician services	5.3	8.2	13.6	23.3	41.9	48.8	53.8	60.6	67.1	74.0	82.1	93.0	105.1	
Dental services	2.0	2.8	4.7	8.2	14.4	17.0	18.4	19.8	21.4	23.3	24.7	27.1	29.4	
Other professional services	0.6	0.9	1.7	3.9	10.0	11.9	14.0	16.2	18.5	20.5	22.3	24.3	26.9	
Drugs and other medical nondurables	4.2	5.9	8.8	13.0	20.1	22.3	24.5	27.5	29.8	32.3	35.6	38.6	41.9	
Vision products and other medical durables	0.8	1.2	2.0	3.1	5.0	5.3	5.9	6.3	7.2	8.4	9.5	9.8	10.8	
Nursing home care	1.0	1.7	4.9	9.9	20.0	23.3	26.1	28.9	31.2	34.1	36.7	39.7	43.1	
Other personal health care	0.7	0.8	1.4	2.7	4.6	5.1	5.6	6.0	6.3	6.8	7.6	8.4	9.3	
						Price indexes								
Hospital care	22.71	26.40	36.20	52.70	81.70	91.10	100.00	106.60	112.50	118.00	122.30	128.40	136.80	
Physician services	23.54	26.99	37.11	51.79	82.33	91.41	100.00	107.70	115.19	121.92	130.76	140.43	150.54	
Dental services	28.95	32.51	42.07	57.09	84.70	92.84	100.00	106.73	115.41	122.67	129.51	138.19	147.59	
Other professional services	25.48	29.22	39.70	54.56	83.58	92.17	100.00	107.20	114.81	121.93	129.73	138.30	147.56	
Drugs and other medical nondurables	50.80	48.71	50.32	57.75	81.72	90.67	100.00	108.56	116.53	124.79	133.01	141.86	151.65	
Vision products and other medical durables	34.81	37.96	46.42	61.19	86.67	94.23	100.00	105.44	109.82	116.56	122.25	126.55	133.00	
Nursing home care	24.77	28.64	39.70	55.92	83.91	92.41	100.00	105.86	111.20	115.57	119.05	123.42	130.37	
Other personal health care	24.06	27.23	36.69	51.29	80.89	89.60	100.00	108.70	115.45	122.63	131.88	140.61	149.75	
						Constant 1982 dollars in billions								
Personal health care	\$90.1	\$119.6	\$166.9	\$216.6	\$265.0	\$276.9	\$284.1	\$292.1	\$298.2	\$306.8	\$316.7	\$327.5	\$337.8	
Hospital care	40.8	53.2	77.2	99.4	125.3	131.2	135.9	138.1	139.7	142.3	146.6	150.9	154.8	
Physician services	22.4	30.3	36.6	44.9	50.9	53.3	53.8	56.3	58.3	60.7	62.7	66.2	69.8	
Dental services	6.8	8.6	11.1	14.4	17.0	18.3	18.4	18.5	18.5	19.0	19.1	19.6	19.9	
Other professional services	2.5	3.2	4.2	7.2	12.0	13.0	14.0	15.1	16.1	16.8	17.2	17.6	18.2	
Drugs and other medical nondurables	8.4	12.1	17.5	22.5	24.6	24.6	24.5	25.3	25.6	25.8	26.7	27.2	27.6	
Vision products and other medical durables	2.3	3.3	4.4	5.0	5.7	5.6	5.9	6.0	6.5	7.2	7.8	7.8	8.1	
Nursing home care	4.0	5.9	12.3	17.8	23.8	25.2	26.1	27.3	28.0	29.5	30.8	32.2	33.0	
Other personal health care	2.9	3.0	3.7	5.3	5.6	5.7	5.6	5.5	5.4	5.6	5.8	6.0	6.2	
						Price indexes for personal health care expenditures								
Implicit price deflator	26.5	29.8	38.9	53.8	82.4	91.4	100.0	107.0	113.5	119.7	125.6	132.8	141.6	
Fixed-weight price index	26.3	29.4	38.7	53.8	82.4	91.4	100.0	107.0	113.5	119.7	125.5	132.7	141.5	

SOURCE: Health Care Financing Administration, Office of the Actuary; Data from the Office of National Cost Estimates.

consumed—from inpatient to outpatient care, for example—are ignored.

A price index is assigned to each component of personal health care expenditures, along with a weight that is the proportion of all personal health care expenditures that component represented in the base year 1982. The price proxies used, along with their relative weights, are shown in Table 1.

This index is a more appropriate measure of medical price inflation than are the two other available indexes. First, the medical care component of CPI is weighted based on consumer out-of-pocket expenditures. Because a large proportion of health care is paid for by third parties, certain health care services are assigned weights that under-represent their shares if all payers are considered. For example, hospital financing, only 5 percent of which comes from out of pocket, is undervalued. Second, the medical care component of the personal consumption expenditure fixed-weight price index, estimated and published as part of the national income and product accounts, does not include public expenditures when its price weights are determined.

Although this index has been constructed to measure outputs, it was necessary to use input price indexes as price proxies for the two institutional components. No continuous CPI component is available to accurately measure price inflation of hospital spending; and no index of nursing home outputs currently exists. The prices of hospital and nursing home care are approximated by HCFA's input price indexes for hospital care and SNF care. The price index values, which have been scaled to equal 100 in 1982, are shown in Table 2.

A byproduct of the calculation of a fixed-weight price index is an estimate of "real" or constant-dollar personal health care spending. This time series measures growth in spending as if prices had remained unchanged from the base period. It is calculated by dividing each component of personal health care spending by the appropriate price index, then summing these pieces to a total.

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