

# Special Report

## Recent revisions to and recommendations for national health expenditures accounting

by Susan G. Haber and Joseph P. Newhouse

*The Health Care Financing Administration (HCFA) has importantly revised the methodology for estimating annual national health expenditures. Among other changes, the revisions estimated out-of-pocket spending directly, disaggregated expenditures to a greater degree, and reduced undercounting and double counting. Estimates of total spending and out-of-pocket spending changed. This article summarizes a meeting of a technical advisory panel, convened by HCFA, that reviewed the modifications adopted and made recommendations for future revisions.*

### Introduction

The Health Care Financing Administration (HCFA) has importantly revised the methodology used to calculate its annual estimate of national health expenditures (Office of National Cost Estimates, 1990a; Levit, Freeland, and Waldo, 1990). This "benchmark" revision is the first major review of the national health accounts definitions and expenditure estimation methodologies since the initial estimates in the mid-1960s. Before undertaking the revisions, which produced estimates of 1988 expenditures as well as revised expenditure estimates from 1960 through 1987, HCFA convened a technical advisory panel in 1984 to review national health expenditures accounting. After completing the revised estimates, HCFA reconvened a technical advisory panel in May 1990 to review the modifications adopted and to consider the directions that further revisions to the expenditure estimates might take. The panel consisted of Joseph Newhouse (chair), Gerard Anderson, Joseph Anderson, Charles Fisher, John Gorman, Ruth Hanft, Mark Pauly, Dorothy Rice, George Schieber, and Anne Scitovsky. Susan Haber served as rapporteur.

### Conference recommendations, 1984

The 1984 conference produced a list of desirable revisions, although no attempt was made to estimate implementation costs, so that recommendations for action were contingent upon subsequent consideration of relative costs and benefits and HCFA's resources. A summary of the 1984 conference, including a complete list of recommendations, has been published (Lindsey and Newhouse, 1986). Some of the issues discussed included:

- Better dissemination of and presentation of more detailed information on data sources, assumptions, data adjustments, and methodology used to prepare the estimates.
- Use of survey data to augment or validate HCFA estimates, especially for out-of-pocket expenditures.
- Separate estimates of inpatient and outpatient costs within the hospital and physician categories.
- Disaggregation of expenditures for skilled nursing and intermediate care facilities, eyeglasses and appliances, other professional services (such as chiropractors and optometrists), private drug company research, health maintenance organizations (HMOs), and resident and full-time hospital-based physicians.
- Disaggregation of personal health expenditures by State and age.
- Development of an input-output table.
- Development of a capital account, including investment in training and research.

Several of these issues are addressed in the 1988 revision.

### 1988 revisions

The 1988 revisions were motivated by two related concerns: Changes in the structure and financing of the health care industry made revisions in certain categories of expenditure and data collection desirable; furthermore, the quality of some of the traditional data sources had deteriorated, raising concerns about the validity of certain components of the estimates. Diversification of hospital and physician lines of business, growth in physician-hospital joint ventures, service shifts from inpatient settings to outpatient hospital and freestanding facilities, and the growing HMO market share blurred distinctions in some traditional classifications and increased the likelihood of double counting or undercounting expenses. The increasing prevalence of self-insured employer health benefit programs weakened confidence in private insurance benefit estimates, which were based on insurance industry data.

Undercounting private insurance payments also had serious consequences for the accuracy of out-of-pocket estimates. Out-of-pocket expenditures had been estimated as the residual remaining after estimated third-party payments were subtracted from total estimated provider revenues. As a result, estimated out-of-pocket expenditures included measurement error in third-party payment estimates and non-patient care revenues such as endowment income and income from gift shops and parking lots, as well as true out-of-pocket costs.

Estimates of receipts for many professionals come from a sample of income tax returns. During the 1980s, the Internal Revenue Service reduced the size of the tax return sample, causing its reliability to fall. At the same time, new data sources had emerged that had not been incorporated in the traditional estimation methodology.

The 1988 revisions reduced the total 1987 expenditure estimate by 2 percent (\$11.5 billion). (These and other estimates of expenditure changes are based on the

Reprint requests: Joseph P. Newhouse, Ph.D., Harvard University, 25 Shattuck Street, Parcel B, First Floor, Boston, Massachusetts 02115.

authors' calculations from the 1987 national health expenditures estimates and revisions published in the 1988 estimates.) Within expenditure categories, the most important change was in the estimate of out-of-pocket expenditures, which fell by 17 percent (\$20.6 billion) as a result of adopting a direct estimation method rather than treating such expenditures as a residual. Almost one-half of this reduction was offset by an increase in identified non-patient revenues, which previously had been attributed to out-of-pocket expenses.

Among the types of service accounts, the major changes were to estimates of expenditures for physician and other professional services. These changes were made mainly because of the availability of more reliable data sources, removal of previously double-counted professional fees paid by hospitals to physicians from the physician services estimate (which now are reported under the hospital expenditure category only), and inclusion of expenditures for non-profit clinic services (which were not captured in earlier estimates). The estimate of physician services declined by 9 percent (\$9.7 billion), while the estimate of other professional and home health services increased 50 percent (\$8.1 billion). Prescription drugs and other medical non-durables expenditure estimates also increased (14 percent, or \$4.6 billion) because of inclusion for the first time of prescription drugs purchased through mail order houses and retail outlets other than pharmacies, such as grocery and department store pharmacies.

## Status of 1984 recommendations

Several of the recommendations from the 1984 meeting are fully or substantially addressed in the 1988 revisions:

- An article describing the estimation methodology was published as a companion to the article on national health expenditures for 1988 (Office of National Cost Estimates, 1990b).
- Commercial research conducted by private drug companies is identified separately in the text of the article.
- Expenditures for prescription drugs are disaggregated.
- Expenditures for other licensed health practitioners are disaggregated from outpatient clinics.
- Personal health care expenditure estimates by age (Waldo et al., 1989) and by State (Levit, 1985) have been published.

Other recommendations could not be implemented because of data, methodologic, or resource limitations. These included:

- Development of an input-output table.
- Construction of a capital account that includes capital equipment and investment in training and research.
- Separation of resident and full-time physicians from hospital expenditures.
- Separation of inpatient and outpatient physician expenses, as well as inpatient and outpatient hospital expenses, although estimates of inpatient and outpatient community hospital revenues have been published (Office of National Cost Estimates, 1990a).
- Separation of skilled nursing facilities (SNFs) and intermediate care facilities (ICFs) expenses.

- Disaggregation of expenditures by the age categories 75–84 years and 85 years or over.
- Disaggregation of expenditures on HMOs.
- Estimation of costs of medical education outside of hospitals.

## Plans for future revisions

HCFA intends to undertake further revisions to incorporate data from new sources, such as updates from the National Medical Expenditures Survey (NMES), and new data from some of the sources used to prepare the 1988 estimates, such as the Bureau of the Census' survey of service establishments. In addition, efforts will be made to improve estimates of private health insurance benefits using new data from the Bureau of Labor Statistics that merge the Employee Benefit Survey and Employment Cost Survey, as well as insurance coverage data from sources such as the Current Population Survey, the Survey of Income and Program Participation, and the Health Interview Survey to supplement expenditure data.

## Major revisions proposed in 1990

### Capital

The method of accounting for capital expenditures has not changed since the 1984 conference. The issues that were discussed at that time were again raised by panel members at the conference in 1990. Currently, the only capital expenditures explicitly recognized are gross expenditures for construction of medical facilities.

Three main issues were raised. First, it was argued by some that the current methodology double counts capital expenditures. Expenditures are recognized in full during the year in which construction is completed, but interest payments for financing and depreciation expenses increase future revenue streams and thus are effectively counted there. Second, a capital account should include expenditures for movable equipment and capital expenditures by non-institutional providers, all of which are not currently captured except through their incorporation into revenue received by those providers. Third, some panel members felt that a capital account should, ideally, include investment in training and research as well as in capital equipment.

Currently available data do not support construction of a capital account, although HCFA is continuing to explore possible sources of data. HCFA has argued for the full-cost accounting method on the grounds that it more accurately represents the percentage of the gross national product that is spent on health care in a given year. This argument has particular force in high inflation years, when use of depreciation based on historical cost may importantly understate the true economic cost of depreciation. The current treatment also conforms with the national income and products accounts (NIPA).

### Types of service accounts

The taxonomy used to categorize national health expenditures has two main levels: type of service and source of funds. However, the type of service accounts

are actually a type of provider or type of establishment. The use of establishment-based categories makes it impossible to distinguish inpatient from outpatient expenses for both hospitals and physicians. As a result, changes in health care delivery patterns, which might be reflected in shifts in expenditure trends for hospital inpatient and ambulatory care, are obscured.

Furthermore, expenditures for salaried hospital physicians, inpatient prescription drugs, and hospital-based SNFs and home health agencies are all included in the hospital account rather than in the physician services, drugs, nursing home, and home health accounts respectively. Similarly, dispensing fees charged by physicians for drugs are currently included in the physician services, rather than drug, account. Because expenditures for physicians, drugs, nursing homes, and home health agencies appear in multiple categories, it is not possible to identify total expenditures for these services.

The inability to calculate total expenditure by type of service clearly makes it difficult to evaluate expenditure trends if the organization of services and provider financial relationships change over time. For example, if the proportion of physicians practicing in hospitals under salaried arrangements changes over time, apparent trends in hospital and physician expenditures could be an artifact of changing fee arrangements. Greater vertical integration in the health care industry will make the nursing home and home health accounts increasingly inaccurate reflections of total national health expenditures in these areas because larger amounts will be embedded in the hospital account.

Unfortunately, data are not readily available to support disaggregation by type of service in the time-series annual estimates. For example, it is unlikely that source of funds estimates could be produced because most source of funds information is obtained from provider bills. Many panel members felt that it would be worthwhile for HCFA to pursue more accurate service classifications, preferably on a periodic basis, but at least on a one-time basis, so that the extent of bias could be estimated. Nonetheless, the "correct" definition of service categories remains somewhat arbitrary. For example, should the salary of the hospital pharmacist be allocated to drug or hospital expenditures?

## Non-patient revenues

Until the 1988 revisions, the only non-patient care revenue explicitly recognized in the source of funds accounts was philanthropy. Because hospital estimates are based on revenues, rather than costs, it was argued that other sources of funds that subsidize patient care should be recognized. Revenues from sources like hospital gift shops, parking garages, and hospital cafeterias were assumed to cover the costs of patient care. One panel member noted that if non-patient revenues are excluded, the hospital industry overall would show substantial losses.

As hospitals increasingly diversify into lines of business that are not clearly related to medical care or, alternatively, become integrated with entities that have substantial non-medical product lines, the logic of assuming that all non-patient care revenues subsidize

patient care becomes more problematic. Moreover, allocating management costs that are joint across lines of business is arbitrary. Although panel members generally agreed that this was not yet a serious problem, some felt that it might become one in the future.

## Price index

Each year HCFA computes a personal health care expenditures price index, which is used to decompose expenditure changes into general inflation in the economy, inflation specific to the medical care sector, population growth, and all other factors (Office of National Cost Estimates, 1990a). The final element is a residual category that captures changes in the use and intensity of services caused by a variety of factors, as well as measurement error.

Some panel members expressed concern about the quality of the price indexes used and the validity of the resultant decomposition of factors contributing to expenditure change. Several problems in the definition of price used undermine the validity of the decomposition. First, the hospital and nursing home components of the medical care price index are constructed using input prices, although a price index, in principle, should use output prices. Second, list prices rather than transaction amounts are used for physicians, dentists, and drugs, so that the index does not take into account discounts and unreimbursed billed amounts in excess of reasonable charges. (The Bureau of Labor Statistics is developing a physician price index that measures transaction prices, which is expected to be completed in 1992.) Third, the unit priced is not the treatment of a given problem, but a specific service such as a physician visit. If the method for treating a problem changes (i.e., fewer visits, shift to outpatient), this will not register as a change in price (Scitovsky, 1967, 1985; Newhouse, 1989).

Some panel members felt that attention needed to be devoted to development of improved price measures, perhaps in conjunction with the Bureau of Labor Statistics. In the absence of such improvement, some panel members proposed that less emphasis be placed on the decomposition of expenditure increases between inflation specific to the medical care sector and intensity changes.

## Modifications proposed at 1990 conference

### Out-of-pocket payments

Although there was general consensus that the 1988 revisions represented important progress toward accurately capturing out-of-pocket payments, possible sources of understatement were noted by several panel members. As currently defined, out-of-pocket payments include copayments, deductibles, and payments for services not covered by insurance, but do not include insurance premiums paid directly by policyholders because the source of funds accounts are based on final payer rather than source of payment. As a result, Medicare Part B premiums are included in the Medicare account, and health insurance premiums paid by

individuals, including medigap policy premiums, are included in the private insurance account.

One suggestion for resolving this problem was to disaggregate the source of funds to final payer by source of payment. Thus, Medicare Part B payments could be broken into consumer and government expenditures, and private health insurance payments could report employer and consumer payments separately. However, other panelists supported the current method of keeping out-of-pocket payments restricted to those made at the time of service, arguing that consumers were the ultimate payer of all expenditures; for example, consumers pay taxes to finance the Medicare program. HCFA has published estimates of total expenditures for health services and supplies by source of payment (Levit, Freeland, and Waldo, 1989; Levit and Cowan, 1990). However, source of payment estimates have not been produced by type of service.

Some skepticism was expressed about the accuracy that could ever be attained for out-of-pocket expenditure estimates. Surveyors have found that it is difficult for respondents to identify out-of-pocket payments when insurance payments may be received many months after the bill is paid. Moreover, attributing out-of-pocket costs to service categories is arbitrary if there is a deductible common to several services.

## Double counting

Elimination of double counting of expenditures was a major focus of the 1988 revisions and accounted for much of the drop in total spending. Many sources of double counting in previous estimates (most notably professional fees paid by hospitals to physicians) were eliminated. Although some double counting remains, the amounts are thought to be small relative to total health expenditures.

For example, some fees paid by hospitals to physicians, such as for conducting utilization reviews, are probably still recognized in both the hospital and physician accounts. Expenditures for hospital-based skilled nursing beds and wings are double-counted if the expenses are reported both in the American Hospital Association survey, which is a source for hospital expenditure data, and the National Nursing Home Survey, which is used to derive nursing home expenditure estimates. Clinical research conducted in hospitals may be double-counted if the research funds are funneled through the hospital. The proportion of research funds going directly to hospitals, however, is likely to be small because most are awarded to medical schools.

## Hospice

Expenditures for hospice services from freestanding facilities are not captured in the expenditure estimates. Only services provided by institutional providers, such as hospitals and Visiting Nurse Associations, are included in the estimates. In the case of hospice, there is no Standard Industrial Classification, the establishment grouping used by Federal statistical agencies, because hospice is considered a type of service, rather than a facility. Therefore, hospice is not an identified category in the U.S. Bureau of the Census' survey of service establishments.

## Public health clinics

Expenditures for public health clinics have traditionally been included in government public health activities, which are not considered part of personal health care expenditures. As public health clinics increasingly expand their scope of services beyond traditional public health services into patient care services, this treatment will understate personal health care expenditures and overstate public health services.

## Reconciliation with other expenditure accounts

Health expenditures included in the NIPA are estimated separately from HCFA's annual national health expenditures estimates. Differences in their methods for measuring health expenditures make the estimates from these two sources incomparable. Although these discrepancies are not necessarily a problem per se, calculations of the percent of gross national product spent on health often use the national health expenditures estimates for the numerator and the NIPA for the denominator without correcting for the lack of comparability between the two measures. It was suggested that HCFA prepare a reconciliation between the national health expenditures estimates and the NIPA so that consistent data could be used in the numerator and denominator for these calculations.

Sources of inconsistency include:

- Non-profit hospital output, which is measured by revenues in the national health expenditures but measured by expenditures in the NIPA.
- Health insurance carriers' policy dividends, which are included in the national health expenditures but excluded from the NIPA.
- Health expenditures in Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Marshall Islands, which are included in the national health expenditures but excluded from the NIPA.
- Industrial inplant services, which are included in the national health expenditures but excluded from the NIPA.
- Differences in procedures for estimating the receipts of physicians, dentists, and other professional services.

## Special studies

A principal objective of the annual national health expenditures estimates is to produce consistent time-series estimates. The time series extends back to 1929 and has been revised back to 1960. In general, numbers that cannot be replicated for the entire time series are not reported, although the report makes increasing use of "side-bars" to present data for which time-series estimates are not available or for which all elements of the taxonomy cannot be completed. HCFA has adopted the time series as the primary focus because there are other avenues for reporting cross-sectional data, such as reports from NMES.

The main elements of the taxonomy for estimating annual national health expenditures are type of service and source of funds. Although agreeing with this general

strategy, several panel members expressed interest in and support for HCFA's increased use of periodic studies or subanalyses in side-bars. The types of additional special studies discussed were State-level expenditure estimates, finer breakdowns of expenditure estimates by age group (currently estimates are produced for ages 0-18, ages 19-64, and 65 years or over), estimates for particular diseases, and estimates for particular categories of expenditure that may not be clearly or fully identified in the annual estimates.

The feasibility of such special studies is limited by resources and by the availability of data, particularly if the constraint is imposed that disaggregation must be possible within both the source of funds and the type of service categories. The samples used by many of the data sources for the expenditure estimates, such as the Health Interview Survey and NIPA, are national and do not support estimates for smaller areas. Others do not report data by age or other demographic groups. Although it may be possible to manipulate the data to develop estimates for these special studies, the reliability of the estimates becomes more suspect the further the limitations of the data are pushed.

## Evolution of the health care industry

Panel members were asked to comment on implications for the national health expenditure estimates of the evolution of the health care industry. The most important changes noted were concurrent movements toward increasing vertical integration within the industry and continuing splintering of providers. Both changes will make the current disaggregation by type of provider, rather than by type of service, more problematic. These trends will further weaken the correspondence between type of service and type of provider, as well as the fit between traditional provider-type categories and emerging providers. The net effect of this will be to increase the importance of developing type of service accounts. It will also make the "other professional services" account less meaningful as institutional providers that do not fit under the hospital or nursing home rubric are placed in this category.

The growing prevalence of self-insurance and emphasis on managed care was expected to continue, further weakening traditional data sources used to estimate private health insurance benefits and premiums. Use of new data sources on insurance coverage may address the problems caused by this trend.

Continued growth of home health services use was predicted. Although the separate identification of expenditures for home health services was an important step toward recognizing this change in the health care industry, it becomes increasingly necessary to develop a definition of these services that accurately circumscribes these services and distinguishes personal care from health care. In addition, it will be important to expand the current definition of home health provider to include non-Medicare-certified multiservice agencies to ensure that expenditures for all health care services from home health providers are captured.

## Recommendations

Technical advisory panel members were asked to make recommendations for directions that future revisions to the expenditure estimates might take. No attempt was made to reach a consensus on these recommendations, and the panel did not evaluate the relative costs and benefits or even the feasibility of the recommendations. Following is a list of recommendations that at least one panel member felt would be desirable to undertake (although in some cases others disagreed):

- Disaggregate estimates by type of service, rather than by type of provider establishment. If such a disaggregation is not feasible in the annual estimates, at least a one-time estimate should be attempted to provide a basis for evaluating the bias introduced by use of establishment-based definitions. This is also the case even if source of funds information is unavailable for this disaggregation.
- Present more disaggregated estimates of hospital expenditures to permit data users to recategorize physician, prescription drugs, nursing home, and home health service expenditures if desired. Separation of physician from hospital services was considered to be of primary importance.
- Disaggregate hospital and physician estimates into inpatient and outpatient expenditures. A more detailed subanalysis on expenditures for physician services showing inpatient services, hospital outpatient department services, physician office services, and clinic services was also recommended.
- Disaggregate the "other professional services" account to differentiate between institutional providers (such as clinics) and licensed health professionals.
- Include the nursing home components of life care communities and homes for the aged in nursing home data. (Homes for the aged are not included in nursing home care except when a specific minimum level of health care services is provided.)
- Provide more complete accounting of home health services, including services provided by agencies not certified by Medicare or financed by Medicaid. Making available expenditures on services such as personal care, homemaker, and meals-on-wheels was also recommended.
- Subdivide capital expenditures for construction of medical facilities into equipment and construction.
- Estimate capital expenditures that currently are not included in the accounts, i.e., those for other than construction of medical facilities.
- Estimate expenditures for education and training and adjust estimates for personal health care services and research to avoid double counting.
- Provide more detail on administration and the net cost of private health insurance, including segregating the net costs of private insurance (such as reserve funding and profits) from direct administrative expenses.
- Estimate provider administrative expenses (such as billing clerks), which are currently part of the service sector accounts, at least on a one-time basis.

- Distinguish funds by source of payment, in addition to final payer, in annual expenditure estimates. Annual estimation of expenditures by business, individuals, and government, which provide such source of payment estimates, was also recommended (Levit and Cowan, 1990; Levit, Freeland, and Waldo, 1989).
- Disaggregate out-of-pocket expenditures into those for Medicare services and all others.
- Present finer breakdowns of expenditure by age, especially within the age 65 or over group, and present expenditure estimates by age group more frequently.
- Present State-level data more frequently and in greater detail.
- Estimate expenditures by race and sex.
- Estimate expenditures by type of illness, at least on a periodic basis.
- Develop a better medical-specific price deflator to support decomposition of expenditure trends into price and quantity increases. A specific recommendation was to develop output price indexes for the hospital and nursing home sectors.
- Present an explanation of why classical sample variances of estimates are not relevant and why confidence intervals are not presented.
- Reconsider the Medicare Cost Reports as a data source for institutional expenditures.
- Reconcile differences between the health expenditures measured in the national health expenditures accounts and the NIPA.
- Disaggregate personal health care spending on the basis of primary insurance coverage (Medicare, including Medicare as secondary payer and Medicaid crossovers; Medicaid, excluding Medicare crossovers; private health insurance, excluding Medicare as secondary payer and medigap subset; other).

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