

Health Care Expenditures in the National Health Expenditures Accounts and in Gross Domestic Product: A Reconciliation

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Abstract

This paper provides a most detailed reconciliation to date of the National Health Expenditure Accounts (NHEA), the official estimates of health care spending in the United States from the Centers for Medicare and Medicaid Services (CMS), and the estimates of health expenditures that are part of gross domestic product (GDP) produced by the Bureau of Economic Analysis (BEA) as part of the national income and product accounts (NIPAs). For the period from 1997-2008, the estimates of total national health spending in the NHEA and in the GDP data are relatively similar, differing by less than 2 percent annually. Well over 90 percent of the total estimated expenditures in the two accounts appear to consist of the same expenditures. The differences in the estimates of expenditures for specific categories of health care – physician services, hospitals, drugs, health insurance, investment in equipment, and government programs – are, however, proportionately larger. The differences in the estimates of spending for specific categories of health care partly reflect differences in the way CMS and BEA classify certain health-related expenditures that are included in both accounts. The differences in the two estimates of health care spending also reflect some differences in the composition of health care spending in the two accounts, the use of some different estimation methods, and the use of some different data sources.

Health Care Expenditures in the National Health Expenditures Accounts and in Gross Domestic Product: A Reconciliation

I. Overview – Purpose of the Reconciliation Project

The decentralized United States statistical system provides numerous estimates of health care spending. These multiple estimates of health care spending provide a comprehensive view of the U.S. health sector but can confound analysts who need to compare the estimates and choose the one most appropriate for their needs. This reconciliation provides a crosswalk between two prominent estimates of health spending. The Centers for Medicare and Medicaid Services (CMS) produce the National Health Expenditure Accounts (NHEA), the official estimates of health care spending in the U.S., The Bureau of Economic Analysis (BEA) produces estimates of health care expenditures as part of its estimates of Gross Domestic Product (GDP), within the framework of the National Income and Product Accounts (NIPAs). Both measures of health care spending have risen rapidly over time. CMS estimates that health care expenditures rose to roughly one-sixth of GDP in 2008 (Fig. 1) from one-twentieth in 1960.¹ The National Health Statistics Group predicts that this share will grow to over 19 percent in 2019.² Given these trends, analysts need to understand how CMS and BEA measure health care spending.

The estimates of total spending for health care in the NHEA and the GDP data are well-correlated over time, and both measure a broadly similar array of expenditures. Below the level of total health care spending, however, the estimates of specific categories of spending – such as hospitals and health insurance – differ markedly, and these discrepancies can be especially confusing to analysts. The purpose of this reconciliation is to explain, where possible, the similarities and differences of the estimates of health care spending in the NHEA and the GDP data for the years 1997-2008 so that analysts can understand what the two estimates measure, do a rough crosswalk between the two series, and use the series most appropriate for their needs.

¹ CMS (2010)..

² CMS, Office of the Actuary, Health Spending Projections Through 2019, Truffer, et al. Health Affairs, published online February 4, 2010.

II. Health Care Expenditures in the NHEA and the GDP Estimates

The measures of health care spending in the NHEA and in GDP are broadly consistent with the *System of National Accounts* (SNA) and the *System of Health Accounts* (SHA).³ The SNA is a conceptual framework that sets the international statistical standard for the measurement of the market economy. The SHA provides a framework for producing internationally comparable accounts of health expenditures that are compatible with other economic statistics, including the SNA. The SHA defines health expenditures as follows:

Total expenditure on health measures the final use of resident units of health care goods and services plus gross capital formation in health care provider industries (institutions where health care is the predominant activity).

The SHA defines health care as⁴:

Activities of health care in a country comprises the sum of activities performed either by institutions or individuals pursuing, through the application of medical, paramedical and nursing knowledge and technology, the goals of:

- promoting health and preventing disease;
- curing illness and reducing premature mortality;
- caring for persons affected by chronic illness who require nursing care;
- caring for persons with health-related impairment, disability, and handicaps who require nursing care;
- assisting patients to die with dignity;
- providing and administering public health;
- providing and administering health programmes, health insurance, and other funding arrangements

The definitions of health spending in the NHEA (Table 1) are, for the most part, consistent with the SHA. The structure of the NHEA is based primarily on the North American Industrial Classification System (NAICS)⁵ for health care (sector 62). The

³ The SNA is published by the United Nations, the International Monetary Fund, the Commission of the European Communities, the Organization for Economic Co-operation and Development (OECD), and the World Bank. The SHA is published by the OECD.

⁴ OECD, 2000.

⁵ The Census Bureau uses the NAICS to define and classify industries.

NHEA are an invaluable tool for analysts of health care spending because they show the sources of funding for each spending category in Table 1. For physician and clinical services, for example, the NHEA show the amount of spending financed by each of out-of-pocket payments, private insurance, Medicaid, Medicare, other government programs, and other private funds. The primary goal of the NHEA is to measure total health sector spending in a comprehensive and consistent way that allows for analysis of spending for health care goods and services and the sources of funds that pay for that care.

Similarly, BEA works within the general framework of the SNA to produce internationally comparable estimates of GDP, which measures the final demand for goods and services produced in the U.S. GDP is the sum of personal consumption expenditures (PCE), gross private investment in equipment and structures, government consumption expenditures and gross investment, and net exports. BEA identifies the portions of GDP that are health-related (Table 2). The GDP statistics on health care expenditures show how these expenditures fit within the entire U.S. economy. The NIPAs show funds from Medicare, Medicaid, and other government sources of funds for health care expenditures as part of government social benefits. Government social benefits are not directly included in GDP (they are reported separately); instead, these funds finance transactions that are part of GDP (such as spending for physicians). The NIPAs, unlike the NHEA, do not identify the sources of funds for each of the categories of health spending in GDP.

The general definitions of health care spending in the NHEA and the GDP data appear to be well matched, and the NHEA and the GDP estimates of total health care expenditures are very similar (Table 3 and Figure 2). The two estimates consist of expenditures for a similar array of goods and services—the services of physicians and other medical professionals, dentists, home health care agencies, nursing homes, hospitals, and health insurers; goods such as prescription and non-prescription drugs and other medical supplies; investment in structures and equipment; and government health programs. A closer examination of the two estimates, however, (Table 3 and Figure 3) reveals more substantial discrepancies in categories of health expenditures that one might expect to be similar. NHE for hospital care is, for example, far higher than household consumption

expenditures for hospital services in the GDP data. NHE for other professional services is far less than household consumption expenditures for other professional medical services in the GDP data. Similarly, the NHEA and GDP estimates of expenditures for physicians, drugs, investment, and government spending all differ noticeably.

These discrepancies may be surprising because in most instances the NHEA and the GDP estimates use many of the same data sources, such as federal budget data, the Census Bureau's Economic Census and Census of Governments (COG), Service Annual Survey (SAS), Survey of Construction spending (value put in place), and Survey of Government Finances (GF), and data from IMS Health, Inc. on spending for pharmaceuticals.

This reconciliation of health expenditures in the NHEA and the GDP statistics updates and builds on two previous efforts to reconcile the two accounts (Sensenig and Wilcox 2001; Ho and Jorgenson 2005). Sensenig and Wilcox (2001) describe the differences in the NHEA and NIPA estimates of spending for hospital and physician services from 1994-1997. This paper extends the work of Sensenig and Wilcox to reconcile the full range of annual health care expenditures from 1997-2008. Ho and Jorgenson (2005) also found persistent differences in the detailed health spending components of the NHEA and GDP health accounts and provided a plan for linking them.

III. Key Sources of Differences in Estimated Expenditures for Health-Related Services and Goods

Over 80 percent of health care spending in the NHEA and in GDP is attributed to health care services and goods. These include the services of physicians, other medical professionals, dentists, home health care, nursing homes, and hospitals; and goods such as drugs and other medical products. The estimates of spending for these goods and services differ in the two accounts for the following key reasons:

- the classification of certain industries, goods, and services in the two accounts;
- the treatment of government facilities and expenditures;
- BEA's adjustments to estimate final commodity demand;
- the treatment of non-profit institutions serving households (NPISHs); and
- the use of some different data sources and estimation methodologies.

Classification of industries. Although the definitions of health care spending in the two accounts are broadly similar, CMS and BEA classify some expenditures in different ways. Some types of expenditures are "health-related" in only one of the accounts; as a result, discrepancies in estimates of total health care spending arise. Only BEA's estimate of total health expenditures, for example, includes income loss insurance. CMS and BEA place some types of expenditures into different major categories of health care spending, creating discrepancies in these categories but not in total health care spending (Table 4). The sales of outpatient care centers are, for example, included entirely within physician and clinical services in the NHEA, but are split between physician services and other professional medical services in the GDP data.

The treatment of government facilities and expenditures: Government-owned institutions directly provide some health care services to patients. Some of these government-owned health care providers, such as government-run health clinics and Department of Veterans Affairs (DVA) hospitals, are financed mainly through general government revenues. Others, such as state and local government hospitals, receive substantial revenues from sales to households or businesses as well as government outlays. The NHEA classify government outlays for these public health care providers with spending for the related health care industry (i.e., with hospitals). The GDP

estimates classify these expenditures as part of government consumption expenditures. This different treatment of government-run health care providers results in discrepancies in estimates of some categories of health care spending (such as hospitals).

Both CMS and BEA, on the other hand, treat direct sales to patients of government facilities (such as sales of local government-owned hospitals) as spending for these services. In other words, whenever a person visits a local government-run hospital and pays for health care services (directly or through an insurer), both CMS and BEA include these sales as part of expenditures for hospital care.⁶

The two accounts have a slightly different treatment of expenditures financed by the major government insurance programs (Medicare, Medicaid, and CHIP). With few exceptions, the NHEA classify all of these expenditures, including waiver spending that is intended to improve the quality of life and reduce costly inpatient stays, as health spending. While these funds also generally pay for health-related spending in the GDP data, a portion of these funds may purchase services that BEA groups with nonhealth spending categories, such as social assistance. This different treatment of government insurance programs contributes to higher total health care spending in the NHEA.

BEA's adjustments to estimate final commodity demand. While the NHEA tend to measure the total sales of health care *industries* (such as nursing homes), the GDP data measure spending for health care *commodities* (goods or services), such as nursing home services. The expenditures for the nursing home care commodity, for example, differ from the total sales of the nursing home industry because the commodity sales include the sales of nursing home services from providers other than nursing homes (such as hospitals), and because the commodity sales exclude nursing home receipts for other commodities, such as drugs. BEA's GDP estimates reflect many adjustments to move from the industry sales that are commonly reported in source data to commodity sales.

⁶ See section VI for an explanation of how BEA and CMS treat government health care providers in estimates of expenditures for government programs.

In general, BEA and CMS produce comparable measures of aggregate health care spending, but tend to define detailed “health spending” by type of service in different ways because they have different core responsibilities. BEA measures spending for commodities partly because one of its main goals is to measure changes in the “real” or inflation-adjusted value of the final demand for current-period output (GDP). In the NIPAs, “final demand” refers to the expenditures of final users (such as households) rather than “intermediate demand” for inputs to production. To measure real GDP, BEA analysts measure spending by final users for numerous commodities and match commodities to relevant price indexes (which are generally defined for commodities)⁷.

A key goal of the NHEA is to measure trends in the revenue of health care providers (such as hospitals and nursing homes) and the source of funds that pay for that care. In the NHE, provider revenue includes patient, non-patient, and non-operating revenue. Consequently, the measures of health care spending in the NHEA are generally closer to estimates of industry sales. The NHEA, like the GDP data, are carefully constructed to avoid double-counting expenditures.

The source data that BEA uses to make its adjustments to estimate GDP are most complete for “benchmark” years in which the Economic Census occurs. For these years, BEA’s benchmark Input-Output (I-O) accounts establish the benchmark level of GDP and show the domestic output of each commodity and its disposition as final demand or intermediate consumption.⁸ BEA’s adjustments, which are extrapolated to non-benchmark years as well, generally differ from the estimation procedures of CMS and are a reason for the differences in estimates of health spending in the two accounts. A few of BEA’s adjustments are especially important for the reconciliation.

⁷ For example, BLS Producer Price Indexes (PPIs) are defined for commodities; industry PPIs reflect a constant set of commodities that represent industry output (BLS 2008).

⁸ For more information, see Horowitz and Planting (2009). In addition to the adjustments listed here, the GDP estimates include an estimate of sales and excise taxes, but this adjustment has a minor effect on total health care spending.

Non-patient revenue. In the GDP statistics, the estimates of final expenditures for health care commodities exclude the non-patient revenue of health care providers. Non-patient revenues, which are especially important for nonprofit hospitals and nursing homes, consist of capital gains, grants, philanthropic contributions, and revenues from parking lots, cafeterias, and gift shops. The NHEA include non-patient revenues because health care providers take these revenues into account when setting patient charges.⁹

Income-misreporting. Only the GDP estimates include an income-misreporting adjustment that extends the coverage of the Economic Census by correcting for the underreporting of income and for non-filing of tax returns (McCully and Payson, 2009). The correction is intended to produce a more accurate picture of total production and is relatively more important for small firms.

Secondary products. Each industry produces a primary product and possibly additional secondary products. Physicians' offices, for example, sell a primary product (physician services) and secondary products such as drugs. As explained previously, BEA's I-O tables regroup secondary products with similar commodities to provide more homogeneous groupings of commodities.¹⁰ The NHEA tend to measure all revenues of a health care industry, with few adjustments for secondary products.

Intermediate sales. The GDP and NHEA estimates both ensure that intermediate sales are not double counted, but may do so in different ways. In some cases the two accounts make similar adjustments: for example, both the GDP data and the NHEA count sales of the services of medical labs to hospitals as intermediate demand for the services of medical labs and part of final demand for hospitals. In other cases the two accounts make different adjustments. The two accounts, for example, have a different treatment of intermediate sales to government, which consist of payments by government agencies (such as DVA) to private facilities for the direct provision of health care. The GDP data

⁹ In the NIPAs, these non-patient revenues may finance the expenditures of NPISHs.

¹⁰ The Economic Census reports sales of many secondary products. See U.S. Census Bureau, 2005. BEA makes additional adjustments based on unpublished data from the Economic Census and other sources.

classify these sales as government consumption expenditures, while the NHEA include these sales as part of the sales of the industry to which the private facilities belong.

Adjustments to estimate final demand in non-Economic Census years. For the estimates of GDP in these years, the detailed data to make these adjustments from industry sales to final commodity sales are unavailable, so BEA tends to rely on extrapolations of the benchmark-year adjustments. These extrapolations are based on trends of an indicator series which is believed to reflect trends in final commodity sales that we cannot directly observe. In the tables of this paper, the “adjustments to estimate final demand” in non-Economic Census years reflects this extrapolation and is the difference between BEA’s estimate of final commodity sales and industry sales, after removing other adjustments. The NHEA tend to incorporate fewer adjustments in Economic Census years. Because BEA’s indicator series and the NHEA estimates may grow at different rates, the discrepancy between the two estimates may increase or decrease in non-Economic Census years.

Non-profit institutions serving households (NPISHs): In the GDP data, the large portion of PCE for services known as *household consumption expenditures* (HCE) consists of receipts from sales of services to households. The GDP data also report a second category of PCE for services that is not reported explicitly in the NHEA: final consumption expenditures of non-profit institutions serving households, or NPISHs.¹¹ These expenditures are measured residually as gross output (the cost of inputs to produce the service, including compensation, depreciation, and intermediate purchases) less sales to households and other sectors and less own-account investment (construction and software produced by NPISHs for their own use). Final consumption expenditures by NPISHs measure the production of services provided to households without charge.

To the extent that these expenditures are offset through non-patient revenue sources (which are captured in the NHEA) there may be no large material difference between the

¹¹ This classification of PCE was introduced in the 2009 comprehensive revision of the NIPAs and follows recommendations by the SNA. See McCully and Teensma (2008).

BEA and CMS measures of spending for the services of nonprofits. The different treatment of NPISHs can nevertheless lead to discrepancies in the estimates of total health spending in the two accounts. The non-patient revenue reported in the NHEA most likely reflects more than the gap between expenses and sales for one particular service. Also, final consumption expenditures of NPISHs can be less than zero if sales exceed expenses for the commodity, even when non-profits receive non-patient revenue.

Data sources and methodologies. For some estimates of health spending, such as hospital care, CMS and BEA rely on different data sources.. CMS and BEA sometimes make minor adjustments to their estimates based on information from different sources. The two agencies have different revision schedules, which stipulate the release dates for revised data (which incorporate revisions of source data and other changes) and the years of estimates that are open to revision. At any time, the estimates from CMS and BEA may reflect different revision schedules and different “vintages” of source data. Even when the two accounts use the same data sources and vintages, minor differences in methodologies (other than those described above) can lead to different estimates.

IV. Expenditures for Services and Goods in the NHEA and in GDP: Summary of Major Differences¹²

For the reasons described previously, the NHEA and the GDP statistics provide different estimates of expenditures for services and goods. This section explains the key reasons for the discrepancies in health care expenditures for each of the categories of services and goods in the NHEA and the GDP statistics. The discussion of expenditures for services compares National Health Expenditures (NHE) for each type of service and the comparable portion of personal consumption expenditures (PCE) known as “household consumption expenditures” (HCE) because the NHE and HCE estimates are based mainly on sales receipts of service providers, including for-profit, non-profit, and “nonemployer” (i.e. small) establishments. The other portion of PCE for services, final consumption expenditures of NPISHs, is shown separately.

NHE for Physician and Clinical Services and HCE for Physician Services and Medical Laboratories

Summary: NHE for physician and clinical services exceed HCE for physician services and medical labs by \$38.6 - \$83.7 billion (16-20 percent) annually for 1997-2008 (Table 5). The estimate of NHE for physician and clinical services is relatively higher mainly because it includes sales of a broader array of outpatient care centers. The NHE estimate also includes government spending for public health clinics run by the DVA, the Indian Health Services (IHS), and the Coast Guard Academy¹³; the GDP statistics classify this spending as part of government consumption expenditures. The HCE estimate also

¹² The data in the tables of this paper (from census or other sources) reflect the available data as of early 2010. They do not incorporate the results of BEA’s 2010 annual revision of the NIPAs. The tables in this paper rely on approximations of any unpublished (suppressed, confidential, etc) source data from the Census Bureau.

¹³ The NHE estimate includes small judgmental adjustments that are based on other data sources, including data on employment, hours and earnings from the Current Employment Statistics (Bureau of Labor Statistics); estimates of price inflation (PPIs and CPIs) from the BLS; and indirect measures such as hospital admissions, and inpatient days that require complementary professional services and other data and information.

incorporates several adjustments which, on balance, subtract from the level of total industry sales to derive an estimate of final demand.

Industry classification: Both estimates consist mainly of receipts of the offices of physicians (NAICS 6211), HMO medical centers (621491), ambulatory surgical & emergency centers (621493), and medical labs (6215), as reported by the Economic Census and the SAS. NHE for physician and clinical services consists of receipts of these same industries plus additional receipts of family planning centers (621410), outpatient mental health and substance abuse centers (621420), kidney dialysis centers (621492), and other outpatient care centers (621498). The GDP statistics classify most of the sales of these other outpatient care centers as other professional medical services.

Adjustments to estimate final commodity demand. Both CMS and BEA remove some receipts from these estimates to avoid double-counting. CMS and BEA both remove from physicians receipts an estimate of physicians' fees from hospitals, which are captured as spending for hospitals. CMS and BEA also remove the sales of medical labs to other health care providers (physicians, hospitals, etc.), and classify these receipts with the other health care providers.¹⁴

The HCE estimates incorporate additional adjustments to estimate final commodity demand that reduce estimated spending by \$7.5 billion in 1997 and \$3.1 billion in 2002 (the benchmark years). These adjustments are the net effect of relatively small downward and upward adjustments, so that the estimate of spending in these years still consists mainly of census-reported industry sales. For the 2002 estimate of HCE for physician services, the income misreporting adjustment adds receipts but is more than offset by the exclusion of non-patient revenue, sales of drugs and medical appliances (counted as sales of goods), equipment leasing (counted as sales of rental and leasing services), sales to government hospitals (government consumption expenditures), and other sales. For the

¹⁴ Specifically, the NHEA count the sales of labs that bill through other health care providers as the sales of the other providers, and only report the portion of lab revenues from direct billing to patients (or their insurers) as spending for physicians and clinics. The NIPA treatment is similar, although the estimates of this adjustment differ slightly.

2002 estimate of HCE for medical labs, the income misreporting adjustment is more than offset by the exclusion of sales of drugs and equipment, and by the removal of intermediate sales. For the 1997 estimates, the types of adjustments are roughly similar.

For the estimates in non-benchmark years, the estimated net effect of the adjustments to estimate final household commodity demand is the difference between the estimate of HCE for physician services and census-reported industry sales (after other adjustments). The net effect of these downward adjustments grows after 2002. This growing downward adjustment reflects the use of an extrapolator that is equal to total industry sales less non-patient revenue and other government revenue, as reported by the SAS. Because non-patient revenue grows more rapidly than other revenue sources after 2002, the chosen extrapolator grows at a slower rate than total revenues.

NHE for Other Professional Services and HCE for Other Professional Medical Services

Summary: HCE for other professional medical services exceeds NHE for other professional services by an amount that grows from \$36.8 billion in 1997 to \$87.6 billion in 2008 (Table 6). The estimate of HCE for these services is larger mainly because it includes spending for services from a wider array of industries. BEA's adjustments to estimate final commodity demand have the net effect of raising the HCE estimate slightly above the level of industry sales in most years. The NHEA adds an estimate of ambulance services funded by Medicare¹⁵, while the HCE estimate consists mainly of SAS- and Census-reported sales of ambulance services by private institutions.

Industry classification: Both the NHE and HCE estimates include receipts from offices of other health practitioners (NAICS 6213) other than optometrists (621320). The two accounts have a different treatment of the optometrists' sales. NHE for other professional services includes sales of optometrists services, net of receipts for eyewear, which are

¹⁵ The NHE estimate also includes small judgmental adjustments that are based on other data sources from the IRS and BLS.

grouped with sales of goods. HCE for other professional medical services excludes all sales of optometrists (goods and services) because BEA classifies all of these sales with durable goods. The HCE estimate also includes receipts of family planning centers (621410), mental health and substance abuse centers (621420), kidney dialysis centers (621492), other outpatient care centers (621498), home health equipment rental (532291), ambulance services (621910), and other miscellaneous ambulatory health care services (621999). The NHEA classify most of the sales of outpatient care centers as physician and clinical services; an estimate of home health equipment rental is included with durable medical equipment. The NHEA only count Medicare- funded ambulance services under other professional services and Medicaid-funded ambulance services under other personal services.¹⁶

Adjustments to estimate final commodity demand. These adjustments raise the estimates of HCE for other professional medical services above industry sales by \$1.7 billion in 1997 and \$3.2 billion in 2002. The upward and downward adjustments are relatively small, so that HCE in these years still consists mainly of Census-reported industry sales. For the 2002 estimate of HCE for other health practitioners, the income misreporting adjustment is partly offset by the exclusion of sales of consumer goods and some intermediate sales. The 2002 estimate of spending for ambulatory health care services slightly exceeds industry sales mainly because it includes additional sales of similar services by other health care providers. The 2002 estimate of HCE for the outpatient care centers is, on the other hand, slightly lower than industry sales: the income misreporting adjustment and the addition of sales of similar services from government health care providers and hospitals are offset by the exclusion of non-patient revenue (mainly gifts and grants to nonprofits), goods sales, equipment leasing, and some other sales as intermediate. The adjustments in 1997 are roughly similar.

For the estimates in non-benchmark years, the net effect of the adjustments to estimate final household commodity demand is extrapolated based on trends in total industry sales

¹⁶ CMS would prefer to count spending by all payers for ambulance services in the NHEA, but lack sufficient data on spending for publicly owned ambulance services..

less non-patient revenue and other government revenue, as reported by the SAS. The growth rate of the extrapolator and industry sales are slightly different.

NHE for Physician and Clinical Services and Other Professional Services and HCE for Physician Services, Medical Labs, and Other Professional Medical Services

The annual discrepancy between the sum of the estimates of NHE and HCE for all of these professional services ranges from \$1.3 to -\$8.6 billion (Table 7). Many of the inconsistencies in the classification of industries (such as outpatient care centers) offset one another in the sum of the expenditures. The HCE estimate of these professional services includes sales of most privately owned ambulance services, other ambulatory health care services, and home health equipment rentals; the NHE estimate includes sales of optometrists' services, public clinics, and Medicare-funded ambulance services.

NHE for Dental Services and HCE for Dental Services

For 1997-2008, the estimate of HCE for dental services exceeds the estimate of NHE for dental care by \$0.7 billion to \$2.9 billion (about 2 percent; Table 8). Both estimates consist mainly of the sales of offices of dentists (NAICS 6212), as reported by the Economic Census and the SAS. The main source of the discrepancy in the two estimates in Economic Census years is BEA's adjustments to estimate final commodity demand. The income misreporting adjustment raises the estimate of HCE for dental services above industry sales in the benchmark years 1997 and 2002. This adjustment is partly offset by the removal of sales of drugs and equipment leasing, and the removal of sales of laboratory services (counted as the services of medical labs). CMS makes minor adjustments to its estimates based on data and information from the American Dental Association and the Consumer Price Index (CPI) and Current Employment Statistics from BLS.

NHE for Home Health Care and HCE for Home Health Care Services

Summary: For 1997-2008, HCE for home health care services exceed the NHE for home health care by \$11.1 - \$13.4 billion (19-41 percent) annually (Table 9). Both NHE and HCE for home health care consist mostly of the sales of for-profit and non-profit home health care agencies (NAICS 6216), as reported by the Economic Census and the SAS. The estimate of HCE for home health care is relatively larger because it includes a substantial estimate (\$9-\$13 billion annually) of sales of state and local government home health care agencies (HHAs), and a smaller upward adjustment to estimate final commodity demand by households. The NHE estimate adds an estimate (under \$2 billion annually) of sales of government-owned HHAs and some minor adjustments.

Government home health care agencies: The HCE and NHE estimates for government HHAs are based on different data sources. BEA estimates the sales of state and local government HHAs using the Census of Governments, the annual Government Finances Survey (both Census Bureau surveys), and Medicaid data from CMS. The Census Bureau surveys provide estimates of relatively small levels of sales of government HHAs financed by private insurance or out-of-pocket payments. A much larger component of BEA's estimate of sales of government HHAs consists of Medicaid vendor payments (MVPs), which BEA estimates as the difference between total Medicaid and MPPI non-hospital Medicaid transfer payments (based on Medicaid program data) and non-hospital MVPs to private entities (based on census data).¹⁷ The smaller NHEA estimate of expenditures for government-owned HHAs is estimated as the product of census-reported receipts for private HHAs and the ratio of Medicare reimbursements for government-owned HHAs to Medicare reimbursements for all privately-owned HHAs. This ratio is based on the Medicare Provider Analysis and Review (MEDPAR) database.

¹⁷ BEA infers that MVPs that do not go to private vendors must go to government health care providers. Medicaid payments for the sales of government HHAs are difficult to estimate from census data because they are reported as part of all inter or intra-governmental grants. "MPPI" means "Medical Premiums Paid for Indigents."

The NHEA and GDP data appear to include these home health care related sales in principle, but measure and classify them in different ways. A portion of the Medicaid-financed spending for government HHAs as defined in the HCE estimate may possibly appear in the NHEA (which typically consider all Medicaid spending as health care) as other personal health care (which includes Medicaid spending on Home and Community Waivers programs). Similarly, the estimate of NHE for government HHAs may appear in the GDP data as sales of home health care, but a small portion may be defined as nonhealth in another portion of GDP, such as social assistance. The two accounts estimate these expenditures as residuals or shares based on different data, so a precise description of the activities and establishments funded is unavailable.

Adjustments to estimate final commodity demand. These adjustments result in a \$1.7-\$4.9 billion annual net upward adjustment to industry sales. The upward adjustment comes from the income misreporting adjustment and the addition of sales of home health care services from other industries (hospitals, nursing homes). These additions are offset by the exclusion of non-patient income and the sales of drugs and equipment leasing.

HCE for Nursing Home Services and NHE for Nursing Home Care

Summary. NHE for nursing home services exceeds HCE for nursing home services by \$7.1- \$11.4 billion annually (Table 10). Both measures include the Economic Census- and SAS-reported sales of nursing care facilities (NAICS 623110) and continuing care retirement communities (623311). The NHE estimate is larger because it includes government outlays for DVA-operated nursing homes and because BEA's adjustments to estimate final demand reduce the estimates of HCE below the level of industry sales. Also, there is a mixed effect on the difference between these two estimates due to the different treatment of facilities for persons with developmental disabilities.

Facilities for persons with developmental disabilities. The estimated expenditures for these facilities are larger in the NHEA for 1997 and larger in the GDP statistics for 1998-2008. The NHE estimate includes all Medicaid program spending for Intermediate Care

Facilities for the Mentally Retarded (ICF/MRs). The HCE estimate includes final household demand for the services of residential mental retardation facilities (NAICS 62321), as reported by the Census.¹⁸ The extent to which the estimates of NHE and HCE for these facilities cover the same expenditures is hard to determine, in part because the Medicaid expenditures are not organized by the NAICS code of recipient establishments.

Adjustments to estimate final commodity demand. These adjustments have the net effect of reducing estimated HCE for nursing home services. They remove non-patient income of non-profit nursing homes and sales of some secondary products (drugs and leasing of medical equipment). These reductions to estimated spending for nursing homes are partly offset by increases from the income misreporting adjustment and the addition of sales of nursing home services from other industries (such as homes for the elderly).

NHE for Hospital Care and HCE for Hospital Services

Summary. Almost one-third of health care spending pays for hospital services. For 1997 to 2008, NHE for hospital care exceeds HCE for hospital services by \$16.1-\$48.4 billion (4-8 percent) annually (Table 11). The NHE estimate is relatively higher because it includes government outlays for federal, state, and local government-owned hospitals and because BEA's adjustments to estimate final commodity demand remove substantial non-patient revenues of non-profit hospitals. The BEA estimate of total revenue for non-federal hospitals from all sources is, on the other hand, higher than the CMS estimate. This discrepancy in total hospital revenues is difficult to analyze because the two accounts rely on different data sources.

Different data sources: CMS relies mainly on the Annual Survey of the American Hospital Association (AHA), a census covering all AHA registered hospitals in the

¹⁸ CMS does not include non-Medicaid spending for NAICS 63221 because some of the services provided fall outside the current boundary of health care in the NHEA. Both measures of health care spending exclude homes for the elderly (623312) and other residential care facilities (6239). These industries provide residential facilities rather than health care.

United States. CMS uses data and information from the AHA for the vast majority of non-profit, for-profit, and state and local government hospitals that are defined as “community hospitals,” or hospitals whose services are available to the public. The AHA also provide data and information for the remaining non-federal hospitals classified as “non-community hospitals.”¹⁹ NHE for federal hospitals (run by agencies including DVA, DOD, DOJ, and IHS) include government expenditures and are based on data from these Federal agencies. In non-benchmark years CMS relies on annual trend information from the SAS, QSS, and the AHA to develop an extrapolator for this series.

The NHE estimate defines spending for hospitals as “total net revenue.” This includes net patient revenues and all other revenues. Net patient revenues are revenues received for all patient services, including room and board, ancillary services such as operating room fees, services of resident physicians, inpatient pharmacy, hospital-based nursing home care, hospital-based home health care and fees for any other services billed by the hospital. Net patient revenues are calculated as gross revenue less contractual adjustments, bad debts, and charity care. Total net revenue also includes all other revenues from government tax appropriations,²⁰ non-patient operating revenue (receipts from cafeterias, gift shops and parking lots, for example), and non-operating revenue such as interest income, contributions, and grants. CMS includes non-patient revenues in the NHEA because hospitals take anticipated levels of these revenues into account when setting patient revenue targets or charges.

BEA’s estimates of HCE for hospital services rely mainly on Census Bureau surveys. The Economic Census and the SAS report revenues and expenses for non-profit and for-profit hospitals classified as general medical and surgical hospitals (NAICS 622110),

¹⁹ CMS makes several adjustments to the AHA data to estimate hospital expenditures. These adjustments impute missing values to create a consistent panel of hospitals and impute revenues on a calendar year basis for each hospital on the basis of reported (or estimated) expenses. Expenses are inflated to revenues using revenue-to-expense ratios provided by the AHA.

²⁰ State and local governments subsidize the operation of hospitals through tax appropriations; CMS estimates these tax subsidies using data from the AHA survey.

psychiatric and substance abuse hospitals (622210), and specialty hospitals (622310). For these years, estimated total revenues from all sources (including non-patient revenue and government outlays) for all non-federal hospitals are \$27.6 - \$48.2 billion higher in the Economic Census/SAS data than in the AHA/CMS data. It is not clear why the census-based revenue estimates are relatively higher. This disparity in total estimated hospital revenues in the census and AHA data is a topic for future research.²¹

The estimates of HCE for state and local government hospitals exclude government outlays and non-patient sales, and include the sales of patient services. These sales are the sum of cash and insurance payments (based on the Census of Governments and annual Government Finances surveys) and Medicaid vendor payments (MVPs), which BEA estimates as the difference between total Medicaid and MPPI hospital transfers (based on Medicaid data) and hospital MVPs to private entities (based on census data).²² Estimates of federal hospital sales to patients are based on data from federal agencies.

Adjustments to estimate final commodity demand by households. BEA removes substantial non-patient revenues from non-profit hospitals. Other adjustments to estimate final demand have a minor net effect: a small income misreporting adjustment is offset by the exclusion of sales of lab work, drugs, and equipment.

²¹ One possible though unverified explanation of the disparity is that the AHA data reflect a larger estimate of bad debt and charity care, which CMS subtracts from estimates of total revenue. The AHA survey explicitly asks respondents for an estimate of bad debt and charity care and these estimates are subtracted from total net revenue. The respondents to the Economic Census and SAS do not explicitly report an estimate of bad debt; they should exclude bad debt from their reported revenues but may not necessarily do so. Bad debt and charity care may cost hospitals \$19 to \$36 billion annually (AHA, 2009). Other possible explanations include differences in rates of gross reporting vs. net reporting of revenues in the different surveys and sampling unit differences between establishments and total hospital reporting units.

²² This method is similar to the method used to estimate government sales of home health care agencies.

NHE for Other Personal Health Care

Other personal health care (Table 12) includes “expenditures for medical care not delivered in traditional medical providers sites,” which consist of care delivered at homes, community centers, senior citizens centers, schools, and military field stations. The estimates of these expenditures are based on government program data (not Census Bureau surveys) and range from \$24.5 to \$61.5 billion per year (not including industrial in-plant services). In 2008, \$50.6 billion of \$61.5 billion of funds for this care came from Medicaid or the State Children’s Health Insurance Program (S-CHIP). The remaining spending comes from DOD and DVA, Maternal/Child Health assistance, federal hospital and medical funds, IHS, General Assistance, and state and local government funds for hospitals and schools. One of the largest categories of these expenditures is the Home and Community Waivers programs under Medicaid. In these programs, states may apply for waivers of some of the statutory provisions of Medicaid to provide care to beneficiaries who would otherwise require long-term inpatient care in a hospital or nursing home. Examples of services provided are periodic screening and diagnostic treatment, rehabilitation, respite care, community supported living arrangements, case management, and environmental modifications.

Other personal health care includes some expenditures that are not explicitly reported in the GDP data. Employers spend an estimated \$3.6-\$6.6 billion per year on industrial in-plant services for employees at work (worksites healthcare), for example. These expenditures are not included in BEA’s estimates of health care spending in GDP.²³

Some, but probably not all, of these “expenditures for medical care not delivered in traditional medical providers sites” may appear as part of other categories of health spending in GDP. Some of these Medicaid funds may be counted as part of BEA’s estimate of the sales of state and local government home health care agencies, part of HCE for home health care. BEA’s estimate of government home health care sales is,

²³ The estimates of these expenditures are based on private surveys and are not based on the Economic Census or the SAS.

however, well below the Medicaid-funded portion of other personal health care. Some spending for medical care delivered by non-traditional medical providers may pay for the services of industries that BEA does not classify as health-related, such as social assistance agencies or other residential care facilities. In addition, the GDP data tend to classify DOD spending as defense-related and school spending as education-related. A full reconciliation of NHE for other personal health care and the GDP data is not possible because we do not have NAICS codes for all establishments that receive these funds.

NHE for Prescription Drugs and PCE for Prescription Drugs

Summary. The estimates of both PCE and NHE for prescription drugs are based on the Economic Census and sales data from IMS Health, Inc. Both estimates include sales of drug stores, grocery stores, department stores, mail-order, and other retailers. For 1997-2008, the annual estimates of PCE for prescription drugs are nevertheless \$4.5-\$19.9 billion (4-12 percent) higher than the NHE estimates (Table 13). While both CMS and BEA estimate prescription drug sales in Economic Census years by combining estimates of the same two data sources (Economic Census and IMS health), the two agencies use slightly different methodologies. BEA estimates that a certain share of total drug sales are for prescription drugs rather than for nonprescription drugs, and this method results in a relatively higher estimate of spending for prescription drugs. The PCE estimates are also relatively higher because BEA includes prescription drug receipts of several health care service providers, while CMS does not. In addition, only the NHE estimate removes manufacturers' rebates. Only the NHE estimate, on the other hand, adds government outlays for drugs provided by government-owned mail-order facilities not included in the source data; the GDP data include these outlays as defense-related government consumption expenditures.

Manufacturers' rebates. The treatment of manufacturers' rebates reflects the NHEA's emphasis on measuring the revenues of health care providers. The NHEA remove an estimate of manufacturers' rebates that reduce insurers' net payments for drugs. In recent years, providers and insurers who are responsible for the purchase of large volumes of

drugs have been able to negotiate rebates with manufacturers for the use of specific drugs. In retail purchases of prescription drugs, the retail outlet is not a party to the rebate transaction that takes place between the insurer who pays the retail outlet and the manufacturer that produces the drug. Because the source data for prescription drug sales are based on retail sales, CMS reduces the estimate of sales to account for the rebates. BEA does not remove the rebates because households do not directly receive them.

NHE for Other Non-Durable Medical Products and PCE for Other Non-Durables

In both the NHEA and the PCE estimates in GDP, non-durable medical products consist of non-prescription drugs, medical sundries, and related products. Medical sundries include items such as surgical and medical instruments, surgical dressing, and diagnostic products. The NIPA PCE estimates of spending on other non-durables are based on the Economic Census, drug sales data from IMS Health, Inc., and the annual survey of retail sales. The PCE estimates include sales of health care providers and other adjustments to estimate final commodity demand by households. The NHEA estimates are based partly on BEA's benchmark I-O tables and PCE estimates. In the non-benchmark years, CMS extrapolates spending on non-prescription drugs using data from Kline & Company.

From 1997-2008, the NHE for non-durable medical goods exceeds PCE for non-durable medical goods by \$3.9-\$5.8 billion (11-27 percent) annually (Table 14). The main reason for the higher estimate of NHE for non-durables is that it includes a higher estimate of spending for non-prescription drugs. In addition, CMS includes the purchases of a slightly different array of goods.

NHE for Durable Medical Equipment and PCE for Therapeutic Appliances and Equipment

Expenditures in this category are for retail sales of health-related items that have a useful life of more than three years such as contact lenses, eyeglasses and other ophthalmic products, surgical and orthopedic products, medical equipment, and hearing aids. The

NHEA estimates are based partly on BEA's benchmark I-O tables and PCE estimates. From 1997-2008, the PCE estimate is \$7.2-\$18.0 billion larger (Table 15). Some of the discrepancy arises because only the PCE estimate includes the services of optometrists, which the NHEA classify as part of other professional services. Only the NHE estimate, on the other hand, includes sales of home health equipment rental, which the GDP estimates include under other professional medical services. The rest of the discrepancy results from a different selection of other goods for this category.

NHE for Net Cost of Private Health Insurance and HCE for Net Health Insurance Services

Both NHE and HCE for insurance services are estimated as the difference between estimated premiums (paid by employers and employees) and estimated benefits. Net health insurance services reflect spending on individually purchased and employer sponsored health insurance premiums, for both private and public sector employees. For 1997-2008, the HCE estimate exceeds the NHE estimate by \$28.9 to \$69.8 billion annually (Table 16). This discrepancy results from the use of different source data and the inclusion of a wider range of insurance plans in the HCE estimate.

Additional insurance services in the HCE estimate. The HCE estimate, unlike the NHEA estimate, also includes the services for income loss insurance and workers' compensation. (Only the health portion is included in the government administration estimate in the NHEA). In addition, the HCE estimate, which is based mainly on the MEPS, also includes the administrative costs of private plans that administer Medicare Advantage plans and Medicare Part D as well as managed care plans for the Medicaid program. As Section VI explains, the NHEA include the administrative costs of privately managed Medicaid and Medicare and some of the administrative costs of privately managed workers' compensation as part of spending for government administration of health programs. Other estimates in both the NHEA and the GDP data include estimates of the government's costs to administer workers' compensation: the NHEA include these

costs within government administration, and the GDP statistics include these costs within government consumption expenditures.

Data sources. The annual discrepancy between the estimates of NHE and HCE for health insurance services (including accident insurance but excluding income loss insurance and workers' compensation) is \$11.5 to \$41.4 billion and arises not only from the inclusion of the private administration of Medicare and Medicaid in the NHE estimate, but also from the use of different data sources.²⁴ The HCE estimate is based on the Medical Expenditure Panel Surveys (MEPS) from the Agency for Healthcare Research and Quality (AHRQ) and the Economic Census. The NHE estimate is based on data for group plans from the National Association of Insurance Commissioners (NAIC) as well as the health related portion of property and casualty plans from NAIC, and data on the costs of individually-purchased plans from the NAIC and the Consumer Expenditure Survey. CMS also uses the MEPS, BLS employer cost for employee compensation survey, and third party administration associations to estimate the cost of self-insured plans.

Remaining Expenditures for Services in the GDP Statistics and the NHEA

Only the GDP data include an estimate of final consumption expenditures of non-profit institutions serving households, or NPISHs. For 1997-2008, the estimate of final consumption expenditures of NPISHs (outpatient services, hospitals, and nursing homes) ranges from roughly zero to \$13.5 billion (Table 17). These estimates are well under the levels of non-patient revenues reported by non-profits, which the NHEA include. Consequently, the different treatment of non-profit providers in the two accounts may lead to discrepancies in estimates of health care expenditures. Only the NHEA, on the other hand, include spending for the administrative expenses of philanthropic institutions and privately-funded health-related research; these expenditures range from \$2.6-\$6.3 billion and are not included in health-related final expenditures in GDP.

²⁴ The proportionately large discrepancy is perhaps not surprising because these are residual calculations. The estimates of levels of health insurance premiums and benefits in the two accounts are much closer in percentage terms..

V. NHE for Investment in Structures and Equipment and Health-Related Private and Government Investment in GDP

For 1997-2008, BEA's estimate of investment by business and government in health-related structures and equipment (in GDP) is \$4.9-\$19.6 billion higher than the CMS estimate of investment in structures and equipment (Table 18). Most of the discrepancy between the estimates of health-related investment in the NHEA and in GDP arises from a difference in estimates of investment in private equipment. The discrepancies in both private investment in structures and government investment in structures and equipment are relatively minor; for these estimates, BEA and CMS use similar data sources, including the Census Surveys of Construction spending (value put in place), the Census of Governments, the annual Survey of Government Finances, and federal budget data. The data sources for public spending do not always clearly differentiate between investment and spending for other purposes, and some assumptions are necessary.

Private investment in equipment. NHE for investment in equipment includes all capital equipment purchased by establishments engaged in providing health care and is not limited to medical equipment. The Census Bureau's Annual Capital Expenditures Survey (ACES) collects data on capital expenditures as reported by companies, and reports these expenditures for major NAICS industries, including health care. CMS makes some additional adjustments to these data to estimate investment in private equipment.

BEA's measure of investment in health-care equipment in GDP is conceptually different: it reflects shipments of equipment classified as "medical equipment and instruments," which include electro-medical equipment and medical instruments, as reported by manufacturers. Although health care establishments purchase by far the most shipments of these products, BEA's estimates are not restricted to the equipment purchases of these health care establishments. The Census Bureau's Annual Survey of Manufacturers (ASM) and the Economic Census collect data on shipments of manufactured products, as reported by manufacturing establishments. BEA makes additional adjustments to the

shipments data (to remove exports and intermediate sales, add imports, and make other adjustments) to estimate investment in health-related equipment in GDP.

The discrepancy seems to arise at least partly because the CMS estimate comes from demand-based source data, while the BEA estimate comes from supply-based source data. According to the ACES, health care establishments reported \$40.1 billion in capital expenditures for equipment for 2008. According to the BEA's estimates (based on the ASM), manufacturers reported over \$70 billion in shipments of items BEA classifies as medical equipment and instruments. Most of this discrepancy still remains even after considering that health care establishments purchase over 85 percent of final sales of medical equipment (BEA estimate). This discrepancy also does not appear to be explained by the inclusion of imports and exclusion of exports in the ACES data on purchases by domestic health care companies; even after BEA adjusts the ASM-based shipments by removing exports and adding imports (and makes other adjustments), the estimate of health-related equipment investment in GDP remains far higher.

In addition, BEA also estimates (using the Economic Census, the ASM, and other sources) total private investment in equipment by the health care industry for the fixed asset accounts (which are separate from GDP). Although this measure is more comparable with the CMS estimate because it includes all equipment purchased by the health care industry, BEA's estimate for 2008 is about \$90 billion, far higher than the CMS estimate. Thus, the supply-based estimates of investment seem to exceed the demand-based estimates of investment. The reasons for these different estimates of investment in equipment are a topic for future research.²⁵

²⁵ See Grimm, Moulton, and Wasshausen (2002) for evidence that supply-based estimates of investment in software exceed demand-based estimates of investment in software.

VI. NHE for Government Administration of Health Programs, Public Health Activity, and Research; Government Consumption Expenditures in GDP

The remaining expenditures for health care in the two accounts pay for a range of government health-related programs. These expenditures do not include expenditures from Medicaid, Medicare, and CHIP, which are “sources of funds” at the Personal Health Care level for the goods and services in the NHEA and “government social benefits” that finance PCE in the NIPAs.

NHE for government administration of health programs, public health activity, and research. In the NHE, administrative expenses of government programs pay for the operation of numerous health programs – Medicare, Medicaid, S-CHIP, vocational rehabilitation programs, maternal/child health programs, the Substance Abuse and Mental Health Services Administration (SAMHSA), IHS, and programs run by the DOD and the VA. The estimates are based many sources, including the federal budget, the Census of Governments (COG), and the Census Bureau’s Survey of Government Finances (GF).²⁶

Government public health activity includes health services such as epidemiological surveillance, inoculations, immunizations, disease prevention programs, public health laboratories, and related functions. Government spending for environmental functions and public works (pollution abatement, sanitation and sewage treatment, water supplies) are excluded. The Food and Drug Administration (FDA), Centers for Disease Control (CDC), other agencies in the Department of Health and Human Services (DHHS), and (since 2001) the Department of Homeland Security (DHS) run most of these programs. State and local government public health spending is primarily for the operation of state and local health departments; CMS deducts federal payments to state and local governments for these programs to avoid double counting.

²⁶ The Census of Governments is a quinquennial survey; the annual Government Finances Surveys request similar data. The GF Surveys have separate instruments for states, cities, counties, towns, and special districts.

Government-sponsored research funds non-profit, private, and government entities. Most federal government spending for research comes from the National Institutes of Health (NIH), which conducts research “in-house” and funds research conducted at public and private academic and nonacademic institutions. CMS estimates outlays for research funded by other federal agencies as a percentage of NIH outlays, based on their relationship in expenditures for all research activity, as reported by the National Science Foundation (NSF). CMS also uses NSF data to estimate state and local government funding for research performed by academic institutions and non-academic non-profits.

NIPA government consumption expenditures for health. BEA’s estimates of government consumption expenditures for health care are based on similar data sources – the federal budget, COG and GF – and measure the expenditures of many similar programs. BEA’s estimates begin with an adjusted estimate of total government expenditures based on these sources.²⁷ BEA then classifies specific types of expenditures as government social benefits (such as Medicare and Medicaid), grants-in-aid to state and local governments (such as Medicaid grants to states²⁸ and research grants to public universities), grants to nonprofits, and capital transfers (the acquisition or disposal of assets). The remaining expenditures are directly included in GDP and are classified as either government consumption expenditures or as gross investment. Following the international “Classification of Functions of Government (COFOG),” BEA classifies a portion of each of these broad categories of expenditures as health-related.²⁹

In the NIPAs, government consumption expenditures is not simply “spending;” it is defined as gross output of general government, less own account investment and less

²⁷ BEA first makes some adjustments to the federal budget (for the annual budget translation) and to total state and local government expenditures (as reported by the COG and GF). See Mandel and Williams (2009) and NIPA tables 3.18B and 3.19.

²⁸ In the NIPAs, Medicaid grants are shown as a federal grant and a receipt by state and local governments. The combined federal plus additional state and local expenditures for Medicaid are then shown as expenditures at the state and local level.

²⁹ See Baker, Kelly, and Robinson (2004) for a description of this process.

sales to other sectors.³⁰ Gross output of general government consists of the goods and services produced by general government, as measured by the cost of the inputs used for production. These input costs in theory include the expenses of the government agencies such as DHHS and also the expenses incurred by government health care providers (hospitals, home health care centers, etc.) to produce services sold to the public. These input costs include not only compensation of general government employees and intermediate goods and services purchased, but also consumption of fixed capital (CFC), a depreciation-like estimate of the services of government fixed assets, such as equipment and buildings. Sales to other sectors measure revenues from the public in payment for goods and services. These sales are recorded as PCE if purchased by households and as intermediate inputs if purchased by business. BEA subtracts sales from government consumption expenditures to avoid double-counting them in the estimate of GDP.

Although the measures of spending for government programs in the NHEA and GDP accounts include spending for many similar government programs, the NHEA estimate is \$12.3-\$46.5 billion higher for 1997-2008. (Table 19). The estimates differ because of

- the treatment of government-owned health care providers;
- the classification of different types of outlays as “health-related;”
- the classification of outlays as consumption expenditures versus investment;
- the inclusion of the benefits of retired employees and CFC in the GDP data; and
- the measurement of administrative expenditures in the two accounts.

Government-owned health care providers. It is useful to distinguish two broad types of “government health care providers” that serve individual patients.³¹ One category of government health care consists of government provided public health care that is funded

³⁰ Own-account investment is spending for construction and software produced by government for its own use. It is a relatively small category of government fixed investment and is not a significant source of discrepancies in the two accounts.

³¹ In the NHEA and the GDP statistics, “government provided public health care” generally serves individual patients and thus differs from public health agencies (such as CDC and public health departments) that serve the public at large. The expenditures for these public health agencies are classified as government consumption expenditures in GDP and as NHE for public health or government administration. Whenever BEA and CMS classify these programs as health-related and produce similar estimates of these expenditures, they generally do not account for the discrepancies in Table 19.

mainly by taxpayers. VA hospitals and nursing homes and some public clinics are examples. As previous sections have explained, the NHEA, in most cases, record government outlays for these health care providers as part of spending for the particular service (such as hospitals). The GDP statistics generally record these outlays as part of government consumption expenditures. This difference in treatment tends to lead to differences in estimates of categories of health expenditures (government, hospitals) in the two accounts but not to differences in total health care spending (unless BEA and CMS produce different estimates of the size of these outlays).

Another category of government-owned health providers includes state and local government hospitals and other health care providers that serve patients and that receive a substantial portion of revenues from direct sales to the public, financed by payments from patients, insurers, public programs (such as Medicaid), or businesses. The NHEA include all revenues (rather than expenses) of these providers, including government outlays and sales to the public, as part of the expenditures for the specific service (e.g., hospitals), and *not* as part of government administration, public health, or government research. The estimates of government consumption expenditures in GDP, on the other hand, include the estimated expenses of these government health care providers (gross output), *less* sales; BEA classifies the sales as PCE or as intermediate sales.

The effect of this different treatment for government health care providers that receive substantial sales revenues on discrepancies in government health care expenditures in the two accounts depends on the relationship between expenses and sales. If these health care providers sell everything they produce exactly at cost, then discrepancies in the estimates of government programs in the two accounts may be minimal (except for CFC). If these health care providers incur expenses that exceed sales, then government consumption expenditures in GDP will include the difference between government expenses (gross output) and sales as a measure of services provided without charge; accordingly, (all else constant), government consumption expenditures in GDP would exceed government spending for public health, administration, and research in the NHEA. If these health care providers receive sales revenue in excess of expenses, then (all else constant),

government consumption expenditures in GDP would be less than government spending for public health, administration, and research in the NHEA.

Additional discrepancies in estimates of spending for government health care providers may arise from discrepancies in BEA's and CMS's measures of sales revenues. Because of ambiguities in the data sources, the most appropriate method for classifying and measuring sales is not always clear (see the description of state and local expenditures).

Other reasons for discrepancies. Classification rules. The two accounts do not always classify the same programs as health-related. For example, the NHEA classify some spending by DOD as health-related, but the GDP data classify all DOD spending as defense-related. The NHEA include government grants to fund health-related research; the NIPAs classify these grants under the education COFOG function (not health) or in the personal sector. The two accounts may classify other programs in different ways, leading to additional discrepancies between the two estimates.

Investment or consumption: The federal budget may provide limited information on the portions of health spending that should be classified as consumption expenditures and as gross investment in fixed assets. The two accounts may have a different allocation of the shares of health-related spending.

Spending for the benefits of retired employees and CFC: The estimate of federal government consumption expenditures in GDP includes an estimate of spending for the retirement benefits of former government employees who used to provide health care services (former HHS employees, for example). The NHEA exclude these outlays. Only the GDP estimate includes consumption of fixed capital as a measure of the services provided by the government's stock of fixed assets, such as equipment and buildings.

Administrative expenses of government programs: Both accounts include expenditures for the government administration of government insurance programs such as Medicare, Medicaid, and workers' compensation. Only the NHE estimate of government

administration of health programs, however, also includes an estimate of the administrative costs of private insurers managing Medicare (Medicare Advantage and Part D), Medicaid, and workers' compensation. In the NIPAs, the private administration of these programs is part of health insurance services in GDP (the private administrative costs of Medicaid and Medicare are also part of government social benefits).

Federal government programs. For 1997-2001, estimates of federal government consumption expenditures in the GDP exceed estimates of NHE for federal government administration of programs, public health, and publicly funded research. For 2002-2008, the reverse is true (Table 20).

Several items within the NHE estimate are not included in government consumption expenditures within GDP. NHE for the administration of DOD and DHS health programs is defense-related in GDP. The portion of NHE for federal research that funds research grants is classified as education-related in the NIPAs; only the expenses for NIH "in-house" programs are included as health-related government consumption expenditures. Only federal NHE for the public administration of Medicare and other smaller programs is included in federal government consumption expenditures in GDP. Federal NHE for the public administration of Medicaid (mainly a state function) is part of grants to state governments and state and local government consumption expenditures in the NIPAs. Federal NHE for the private administration of Medicare (Medicare Advantage and Part D) and Medicaid is part of private health insurance services in the GDP.

Other items within the estimate of federal government consumption expenditures in GDP are excluded from federal NHE for administration, public health, and research. These expenditures consist of spending for physicians in public clinics (part of physician services in the NHEA), VA nursing homes (part of NHE for nursing home care), VA hospitals (part of NHE for federal hospitals), some EPA-administered programs (not included in the NHEA), CFC, and payments to the retirement funds of retired federal health care workers. After taking all of these differences into account, the NHEA

estimates remain \$3-\$9 billion higher annually. Several classification and measurement issues could account for the remaining discrepancy and are a topic for future research.

State and local government programs. For 1997-2008, NHE for the state and local government administration of government programs, public health programs, and publicly funded research exceed state and local government consumption expenditures for health in GDP by \$20.2 to \$31.6 billion annually. Only the NHEA estimate includes state and local government research funding (education-related in GDP) and the private administrative expenses of Medicaid and workers' compensation. Only the GDP estimate of state and local government consumption expenditures includes state government (non-private) Medicaid administration costs (federal administration in the NHEA). Only the GDP estimate includes the consumption expenditures of state and local government hospitals, which tend to reduce government consumption expenditures in GDP because sales of these hospitals slightly exceed costs (or gross output).

A discrepancy between the two accounts also arises because of the different treatment of expenditures and sales of non-hospital health care providers. The COG and GF data do not explicitly identify these sales; BEA's methodology estimates the sales of government-owned home health care agencies and some other ambulatory health care as the difference between total non-hospital Medicaid transfer payments (based on Medicaid program data) and non-hospital Medicaid vendor payments to private entities (based on census data). BEA interprets the state and local government health spending reported in the GF and COG as consisting of the expenses (gross output) of government home health care providers as well as government health agencies. Accordingly, BEA subtracts its estimate of sales of government home health care agencies from these expenses to derive consumption expenditures. CMS, on the other hand, utilizes health expenditures reported in the GF and COG for a portion of the government expenditures for public health programs, excluding the health care providers that sell services to the public. These two reasonable but different methodologies are a topic for future research.

VII. Conclusions

This reconciliation of estimates of annual health care expenditures in the NHEA and the GDP estimates shows that the two measures capture many similar expenditures. The estimates of spending for specific categories of goods and services in the two accounts differ for several key reasons (Table 21):

- different classification rules for particular industries, goods, and services;
- different treatment of government facilities and expenditures;
- BEA's adjustments to estimate final commodity demand;
- the treatment of non-profit institutions serving households (NPISHs); and
- the use of different data sources and estimation methodologies.

The estimates of government spending for public health, administration of programs, and research differ from the estimates of health-related government consumption expenditures in GDP for several key reasons:

- different treatment of government-owned health care providers;
- the classification of different types of outlays as health-related;
- different classification of outlays as consumption expenditures versus investment;
- the inclusion of the benefits of retired employees and CFC in the GDP data; and
- different treatment of administrative expenditures in the two accounts.

BEA and CMS generally have different approaches for estimating health care expenditures because the two agencies have fundamentally different goals. BEA measures final expenditures for commodities for the purpose of estimating current-period production (GDP) in a way that facilitates international comparisons. CMS generally seeks to measure revenues of providers of health care, including all expenditures for Medicare and Medicaid, and the sources of funding for each type of health care expenditures. As this paper makes clear, there is no single way to measure spending for health care.

Differences in total health care spending. During these years, total health care spending in the NHEA exceeds health-related spending in GDP by as much as two percent annually. As this paper explains, many differences in the estimates of narrower categories of health care spending cancel one another in the aggregate and do not account for differences in total health care spending. The discrepancy in total spending, in principle,

arises from several major sources – differences in the definition of health care spending (some expenditures are only in one of the two accounts), the use of different data sources to measure similar types of expenditures, and differences in estimation methods. The main sources of differences in total health care spending in the two accounts (Table 22) are, for several reasons, somewhat difficult to identify precisely.

Several types of expenditures are clearly included in the NHEA but not in health-related GDP. These expenditures include spending for federal research grants and state and local government research (education-related in GDP), DOD and DHS health-related programs (defense-related in GDP), industrial inplant services within other personal health care, the administration of philanthropic organizations, and privately-funded health research.

Similarly, other types of expenditures are clearly included in health-related GDP and excluded from the NHEA. These expenditures include spending for additional ambulance services and other miscellaneous ambulatory health care services that are not funded by Medicare and Medicaid, some health-related EPA programs, OPM payments to federal civil service retirement funds of retired federal employees, consumption of government fixed capital, the services of income loss insurance and the portion of workers compensation that is not health related. The estimate of health spending in GDP tends to include, in most years, spending for services from a slightly broader range of nursing home facilities for persons with developmental disabilities.

Differences in three major categories of expenditures appear to be driven partly by the use of different data sources. To estimate receipts for non-federal hospital services, BEA uses Census and Medicaid data, while CMS uses the AHA survey data. For health insurance services, BEA uses data from the MEPS, while CMS relies on data from the NAIC and other sources. To estimate private investment in equipment; BEA relies on shipments of health-related equipment reported by manufacturers to the ASM; CMS relies on investment reported by healthcare companies to the ACES. For these estimates, it is not straightforward to determine the precise extent to which the different data sources capture spending for a slightly dissimilar set of commodities or provide unequal estimates

of spending for the same commodities.

In addition, many expenditures that appear to be counted only in NHEA or only in the GDP measure of health spending may in fact appear in the other estimate, under a different label. NHE for other personal health care, which is mostly funded by Medicaid, may appear as additional spending for government home health care services in GDP, or as spending for a range of goods and ambulatory care services in GDP data. Nonpatient revenues are in principle included only in the NHEA but may finance some expenditures in GDP, such as the final consumption expenditures of NPISHs or possibly as sales of hospital services in GDP that are removed as unrecovered debts in the NHEA. In general, the procedures CMS and BEA employ to estimate government spending may ultimately track some similar expenditures in different ways.

The discrepancies in estimates of other categories of health care expenditures in Table 22 arise partly because the two accounts employ slightly different estimation methods, and partly because the two accounts may reflect a slightly different definition of health-related commodities. Accordingly, the top panels of table 22 show lower bounds of expenditures that are “only in the NHEA” and “only in health-related GDP.” A lesson one might draw from Table 22 is that even though these two measures of total health care expenditures are broadly similar, some important compositional differences are present.

Future research. This reconciliation explains many of the similarities and differences in the estimates of health expenditures in the NHEA and GDP statistics, and hopefully enables analysts to choose which measure of health care expenditures is most appropriate for their purposes. This work also raises several topics for further research. The reasons for differences in estimates of spending for hospital care, the treatment of many government programs in the two accounts, the measurement of private investment in equipment in the two accounts, and the nature of services funded by NHE for other personal health care are some of the topics that require additional exploration.

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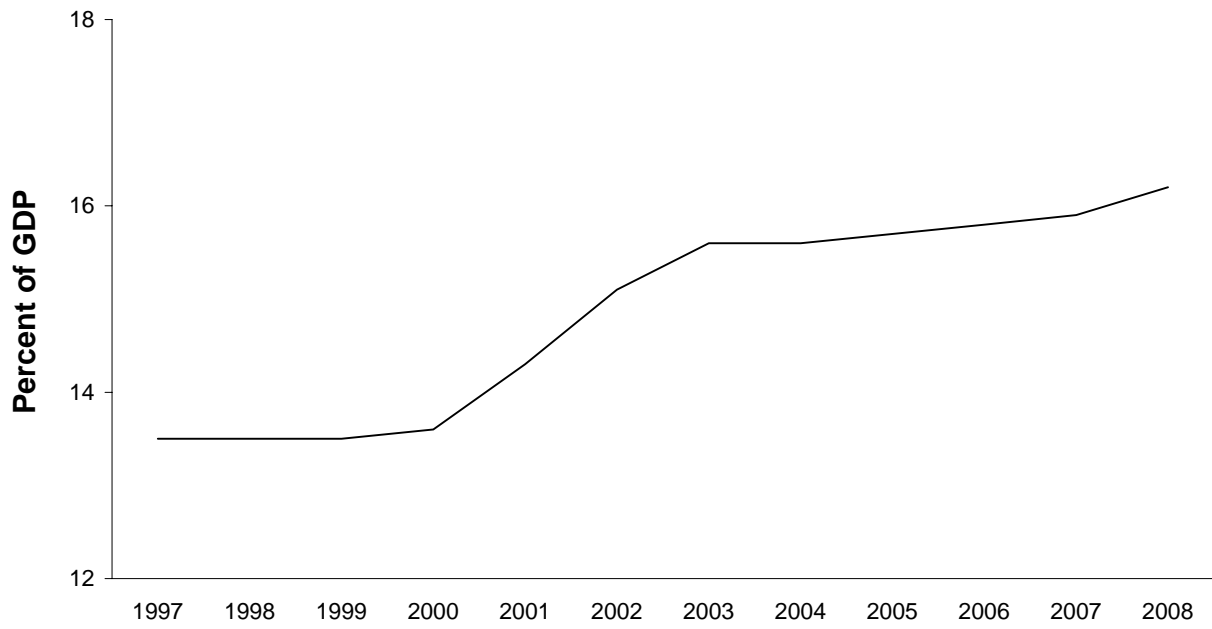
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**Figure 1:
National Health Expenditures as a Percent of GDP**



**Figure 2:
National Health Expenditures (CMS) and Health Expenditures in GDP (BEA):
1997-2008**

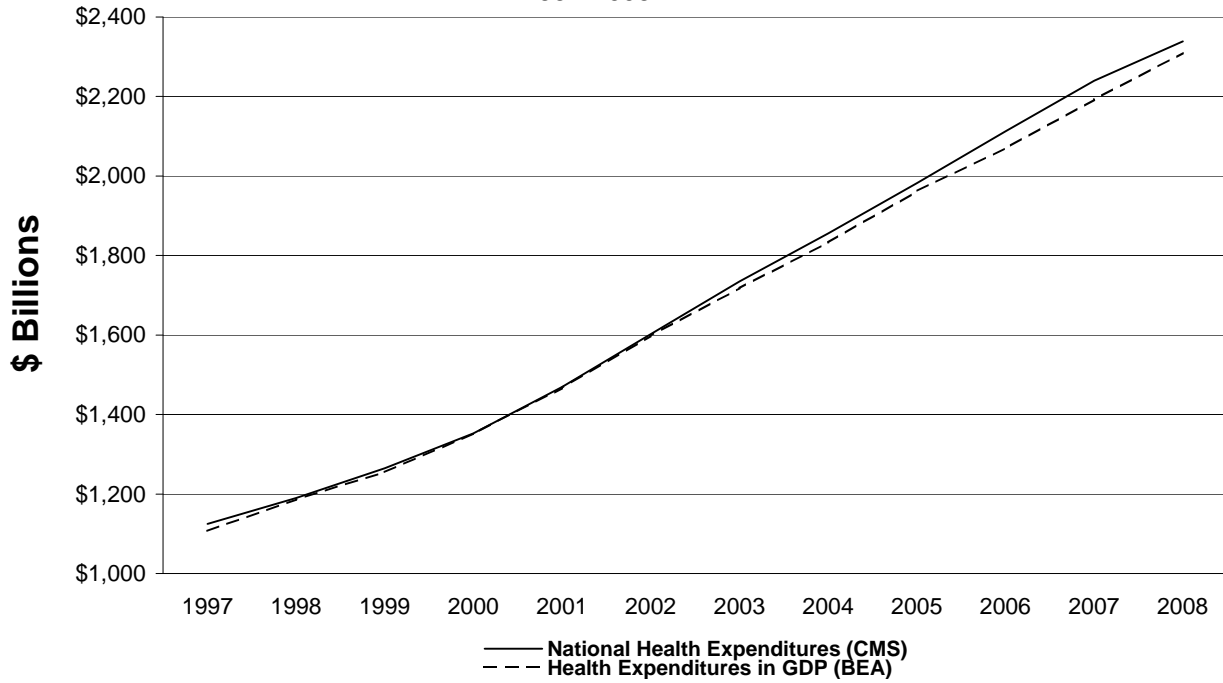


Table 1: National Health Expenditure Accounts, 1997-2008

[Billions of current dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
National Health Expenditures	1,125.1	1,190.0	1,265.2	1,352.9	1,469.2	1,602.4	1,735.2	1,855.4	1,982.5	2,112.5	2,239.7	2,338.7
Health Services and Supplies	1,053.8	1,110.7	1,179.8	1,264.1	1,375.7	1,498.4	1,623.5	1,733.6	1,851.9	1,975.4	2,089.7	2,181.3
Personal Health Care	959.3	1,010.0	1,067.8	1,139.2	1,238.3	1,340.3	1,447.5	1,549.9	1,655.2	1,762.9	1,866.4	1,952.3
Hospital Care	364.7	376.2	394.8	416.9	451.2	488.4	527.4	566.5	607.5	649.4	687.6	718.4
Professional Services	352.6	375.9	397.9	426.8	465.4	503.2	543.0	581.2	621.5	658.4	697.5	731.2
Physician and Clinical Services	241.0	256.4	269.6	288.6	313.2	337.9	366.7	393.6	422.4	446.5	472.6	496.2
Other Professional Services	33.4	35.7	37.1	39.1	42.8	45.6	49.0	52.9	55.9	58.4	62.2	65.7
Dental Services	50.2	53.5	57.1	62.0	67.5	73.3	76.9	81.5	86.3	90.7	96.4	101.2
Other Personal Health Care	28.1	30.3	34.0	37.1	41.9	46.4	50.4	53.3	56.9	62.7	66.3	68.1
Nursing Home and Home Health	119.0	122.8	122.0	125.8	133.7	139.9	148.5	157.9	168.8	178.1	191.7	203.1
Home Health Care	34.5	33.2	31.5	30.5	32.2	34.2	38.0	42.7	48.1	53.0	59.3	64.7
Nursing Home Care	84.5	89.5	90.5	95.3	101.5	105.7	110.5	115.2	120.7	125.1	132.4	138.4
Retail Outlet Sales of Medical Products	123.0	135.2	153.1	169.8	188.0	208.9	228.7	244.3	257.4	277.0	289.7	299.6
Prescription Drugs	77.6	88.5	104.6	120.6	138.3	157.6	174.2	188.8	199.7	217.0	226.8	234.1
Other Medical Products	45.4	46.6	48.5	49.2	49.7	51.2	54.5	55.5	57.7	60.0	62.9	65.5
Durable Medical Equipment	18.1	18.7	19.1	19.4	19.7	20.8	22.4	22.8	23.8	24.7	25.5	26.6
Other Non-Durable Medical Products	27.3	27.9	29.4	29.8	30.0	30.4	32.1	32.7	34.0	35.3	37.4	39.0
Government Administration and Net Cost of Private Health Insurance	59.7	63.3	71.2	81.8	90.2	105.7	122.3	129.8	140.3	152.0	158.4	159.6
Government Administration	19.4	22.1	24.4	28.8	32.4	35.9	38.5	42.7	47.7	57.4	62.2	65.9
Administration of Philanthropy	0.8	0.9	1.0	1.1	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.7
Net Cost of Private Health Insurance	39.5	40.3	45.9	52.0	56.6	68.6	82.6	85.8	91.2	93.0	94.6	92.0
Government Public Health Activities	34.8	37.5	40.7	43.0	47.1	52.4	53.6	53.8	56.4	60.6	64.8	69.4
Investment	71.3	79.2	85.4	88.8	93.5	104.0	111.7	121.8	130.6	137.1	150.0	157.5
Research	19.6	21.5	23.4	25.6	28.8	32.5	35.5	38.9	40.7	41.8	42.5	43.6
Private	1.9	2.1	2.2	2.5	2.8	3.1	3.3	3.4	3.7	4.0	4.3	4.7
Government	17.8	19.5	21.2	23.0	26.0	29.5	32.1	35.5	37.0	37.8	38.2	38.9
Structures and Equipment	51.7	57.7	62.0	63.2	64.7	71.5	76.3	83.0	90.0	95.3	107.5	113.9

Source: CMS (2010).

Table 2: Health Care Expenditures in Gross Domestic Product (GDP), National Income and Product Accounts (NIPAs), 1997-2008

[Billions of current dollars]

	NIPA Table Reference	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Selected health expenditures in GDP, total		1107.3	1185.8	1255.4	1351.5	1466.7	1597.9	1718.5	1832.8	1961.7	2070.2	2191.9	2309.5
Personal consumption expenditures (PCE), health		988.9	1060.7	1122.3	1208.3	1316.6	1428.6	1534.2	1639.5	1745.9	1845.9	1951.9	2048.3
PCE, durable goods, therapeutic appliances & equipment	T. 2.4.5U Ln 64	25.3	27.8	29.7	32.2	31.8	34.0	35.0	36.4	38.2	40.2	43.2	44.6
PCE, nondurable goods		103.7	119.8	140.0	159.0	181.0	200.2	219.6	234.5	247.3	267.1	277.6	279.4
Pharmaceutical products	T. 2.4.5U Ln 120	102.3	118.3	138.3	157.1	178.9	198.0	217.3	232.1	244.7	264.4	274.7	276.2
Prescription drugs	T. 2.4.5U Ln 121	82.1	97.3	115.9	133.8	154.9	172.3	191.3	207.5	218.9	236.9	245.2	244.4
Nonprescription drugs	T. 2.4.5U Ln 122	20.3	21.0	22.4	23.2	24.0	25.7	26.1	24.5	25.8	27.5	29.4	31.9
Other medical products	T. 2.4.5U LN 123	1.3	1.5	1.7	2.0	2.1	2.2	2.3	2.4	2.5	2.7	3.0	3.2
Household consumption expenditures (HCE), services		859.9	913.1	952.6	1017.1	1103.7	1194.4	1279.7	1368.6	1460.4	1538.5	1631.1	1724.3
Health care	T. 2.4.5U Ln 168	790.9	832.0	863.6	918.4	996.6	1082.9	1149.3	1229.7	1316.0	1380.7	1469.6	1554.2
Physician services	T. 2.4.5U Ln 170	190.9	202.0	212.1	229.2	249.3	269.3	291.3	311.4	332.4	346.8	365.6	381.8
Dental services	T. 2.4.5U Ln 171	50.9	54.6	58.5	63.6	69.3	75.6	78.1	83.9	89.0	93.5	99.3	103.5
Paramedical services	T. 2.4.5U Ln 172	127.3	133.8	136.5	143.8	157.2	169.8	182.6	198.4	215.1	224.7	242.3	261.9
Home health care	T. 2.4.5U Ln 173	45.7	45.3	43.2	42.8	45.4	47.0	50.2	56.1	61.2	64.1	70.9	77.9
Medical laboratories	T. 2.4.5U Ln 174	11.4	13.2	14.5	16.9	19.7	21.0	23.0	24.8	26.7	28.1	29.1	30.7
Other professional medical services	T. 2.4.5U Ln 175	70.2	75.2	78.8	84.1	92.0	101.8	109.4	117.5	127.1	132.5	142.3	153.3
Hospitals	T. 2.4.5U Ln 179	345.5	360.1	373.2	393.9	427.1	469.5	493.8	528.8	567.0	601.0	639.7	680.0
Nursing homes	T. 2.4.5U Ln 183	76.3	81.5	83.2	87.9	93.7	98.6	103.4	107.2	112.5	114.7	122.6	127.0
Health insurance	T. 2.4.5U Ln 269	68.4	74.7	79.2	88.1	94.1	100.9	117.0	134.4	145.1	150.6	156.3	161.8
Final consumption expenditures of non-profit health services providers		0.6	6.4	9.8	10.6	13.0	10.5	13.5	4.4	-0.7	7.2	5.3	8.3
Gross output	T. 2.4.5U Ln 338	287.7	308.4	324.6	342.3	369.0	403.4	427.6	453.7	484.1	515.1	544.6	574.9
Less: receipts from sales	T. 2.4.5U Ln 351	287.1	302.0	314.9	331.7	356.0	392.9	414.2	449.3	484.8	507.9	539.3	566.6
Federal gov't consumption expenditures and gross investment in health		43.1	44.9	45.1	49.8	53.9	58.6	65.0	65.5	67.1	68.8	72.8	81.2
Federal gov't consumption expenditures	T. 3.17, Line 17	37.9	39.1	39	43.9	48.2	52.8	58.5	59.8	60.6	62.8	65.8	73.2
Federal gov't gross investment	T. 3.17, Line 114	5.2	5.8	6.1	5.9	5.7	5.8	6.5	5.7	6.5	6.0	7.0	8.0
State and local gov't consumption expenditures and gross investment in health		29.3	29.9	35.1	36.3	35.8	41.8	44.4	47.2	58.1	58.8	62.9	67.4
State and local gov't consumption expenditures	T. 3.17 Ln 26	21.8	22	27.2	28.1	27.2	32.5	34.7	36.9	46.8	47.4	50.4	54.6
State and local gov't gross investment	T. 3.17 Ln 123	7.5	7.9	7.9	8.2	8.6	9.3	9.7	10.3	11.3	11.4	12.5	12.8
Private health-related fixed investment in health		46.0	50.3	52.9	57.1	60.4	69.0	74.9	80.6	90.7	96.7	104.3	112.7
Health care structures	T. 5.4.5U, Line 5	19.6	20.0	20.7	21.9	22.0	25.2	27.3	29.6	32.1	36.0	40.1	44.0
Medical equipment and instruments	T. 5.5.5U, Line 8	26.4	30.3	32.2	35.2	38.5	43.8	47.6	51.1	58.6	60.7	64.3	68.7

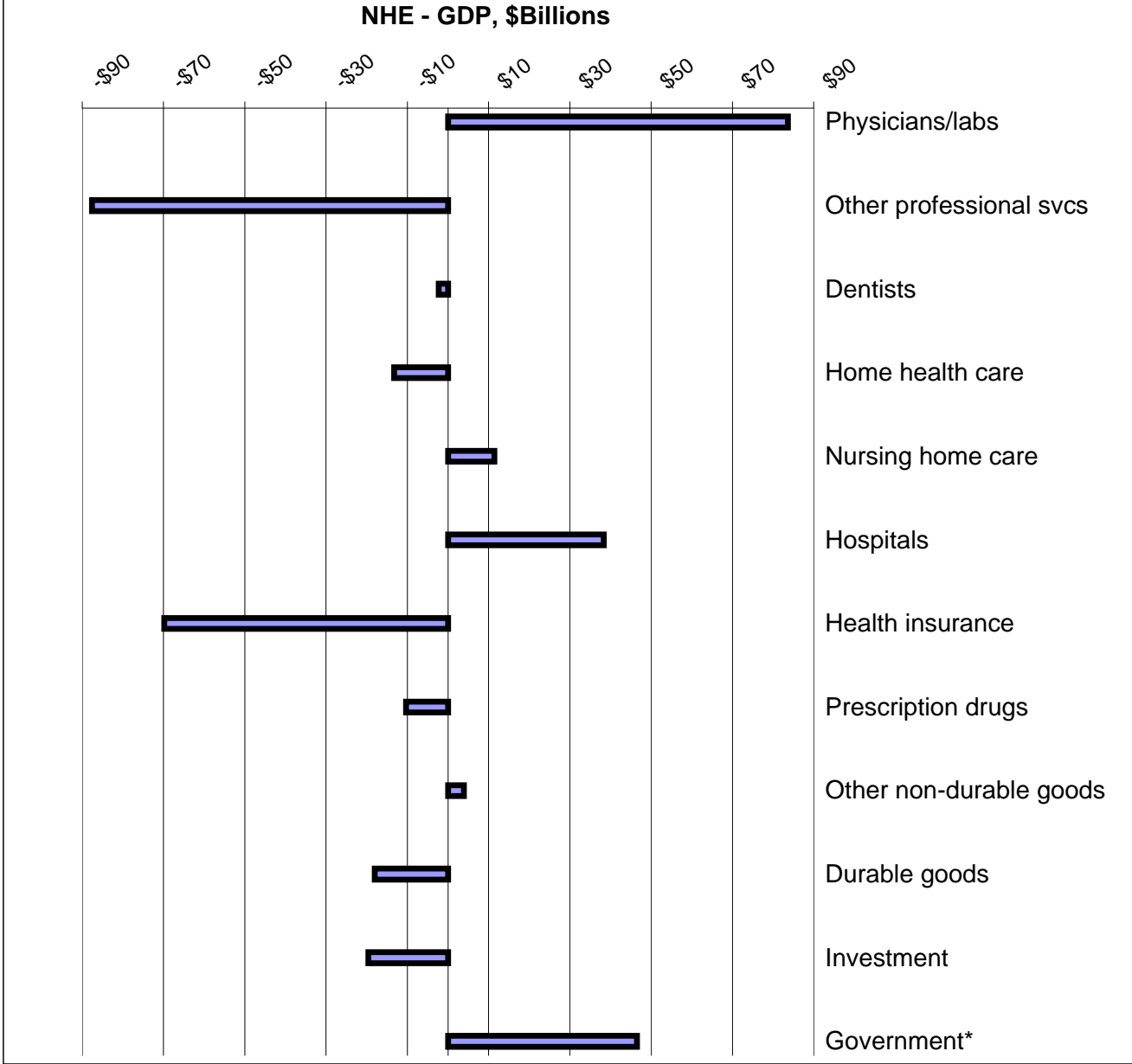
Source: U.S. Bureau of Economic Analysis. The BEA data cited in this paper reflect BEA's published estimates as of early 2010; they do not incorporate the results of the 2010 annual revision of the NIPAs.

Table 3: Differences in Estimated Health Care Expenditures: National Health Expenditures (CMS) - Health Expenditures in GDP (BEA), 1997-2008

	[Billions of current dollars]											
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Difference in total health expenditures, CMS - BEA	17.8	4.2	9.8	1.4	2.5	4.5	16.7	22.5	20.8	42.3	47.8	29.2
NHE for physician and clinical services - HCE for physician services and medical labs	38.6	41.2	43.0	42.5	44.2	47.6	52.4	57.4	63.3	71.6	77.9	83.7
NHE for other professional services - HCE for other professional medical services	-36.8	-39.5	-41.7	-45.0	-49.2	-56.2	-60.4	-64.6	-71.2	-74.1	-80.1	-87.6
NHE for dental services - HCE for dental services	-0.7	-1.1	-1.4	-1.6	-1.8	-2.3	-1.2	-2.4	-2.7	-2.8	-2.9	-2.3
NHE for home health care HCE for home health care services	-11.2	-12.1	-11.7	-12.3	-13.2	-12.8	-12.2	-13.4	-13.1	-11.1	-11.6	-13.2
NHE for nursing home care - HCE for nursing home services	8.2	8.0	7.3	7.4	7.8	7.1	7.1	8.0	8.2	10.4	9.8	11.4
NHE for hospital care - HCE for hospital services	19.2	16.1	21.6	23.0	24.1	18.9	33.6	37.7	40.5	48.4	47.9	38.4
NHE for net cost of private health insurance - HCE for health insurance services	-28.9	-34.4	-33.3	-36.1	-37.5	-32.3	-34.4	-48.6	-53.9	-57.6	-61.7	-69.8
NHE for prescription drugs - PCE for prescription drugs	-4.5	-8.7	-11.3	-13.2	-16.6	-14.6	-17.1	-18.8	-19.2	-19.9	-18.5	-10.3
NHE for other non-durable medical products - PCE for other non-durable goods	5.7	5.3	5.3	4.6	3.9	2.5	3.8	5.8	5.6	5.1	5.0	3.9
NHE for durable medical equipment - PCE for durable goods	-7.2	-9.1	-10.6	-12.8	-12.1	-13.2	-12.6	-13.6	-14.5	-15.5	-17.7	-18.0
NHE for investment in structures and equipment - Gov't gross investment and private fixed investment in GDP	-7.0	-6.2	-4.9	-8.0	-10.0	-12.6	-14.8	-13.7	-18.5	-18.8	-16.3	-19.6
NHE for public health activities, gov't administration, public investment in research - Government consumption expenditures in GDP	12.3	17.9	20.1	22.9	30.1	32.4	31.0	35.4	33.7	45.6	49.0	46.5
NHE for other personal health care (NHE only)	28.1	30.3	34.0	37.1	41.9	46.4	50.4	53.3	56.9	62.7	66.3	68.1
NHE for admin of philanthropy and private research (NHE only)	2.6	2.9	3.2	3.6	4.0	4.3	4.5	4.6	5.0	5.5	6.0	6.3
NIPA Final consumption expenditures of nonprofit institutions serving households (NPISHs, GDP only)	0.6	6.4	9.8	10.6	13.0	10.5	13.5	4.4	-0.7	7.2	5.3	8.3

NHE: National Health Expenditures (CMS); NIPA: National Income and Product Accounts (BEA); PCE: Personal consumption expenditures (BEA); HCE: Household consumption expenditures (BEA)

Figure 3: Differences in Estimates of Major Categories of Health Expenditures, NHE-GDP: 2008



Data from Table 3.

* NHE for Public Health Activities, Gov't Administration, Public Investment in Research - Government Consumption Expenditures in GDP

Table 4: Classification of Receipts of NAICS Services Industries in the NHEA and in GDP

NAICS code	Industry	Type of Expenditure	
		Gross Domestic Product (BEA): Primary Commodity*	National Health Expenditures Accounts (CMS)
62	Health care and social assistance		
621	Ambulatory health care services		
6211	Offices of physicians	Physician services	Physician and clinical services
6212	Offices of dentists	Dental services	Dental services
6213	Offices of other health practitioners		
62131	Offices of chiropractors	Other professional medical services	Other professional services
62132	Offices of optometrists	Durable goods	Other professional services/durable equip.**
62133	Offices of mental health practitioners	Other professional medical services	Other professional services
62134	Offices of physical, occupational and speech therapists, and audiologists	Other professional medical services	Other professional services
62139	Offices of all other health practitioners		
621391	Offices of podiatrists	Other professional medical services	Other professional services
621399	Offices of all other miscellaneous health practitioners	Other professional medical services	Other professional services
6214	Outpatient care centers		
62141	Family planning centers	Other professional medical services	Physician and clinical services
62142	Outpatient mental health and substance abuse centers	Other professional medical services	Physician and clinical services
62149	Other outpatient care centers		
621491	HMO medical centers	Physician services	Physician and clinical services
621492	Kidney dialysis centers	Other professional medical services	Physician and clinical services
621493	Freestanding ambulatory surgical & emergency	Physician services	Physician and clinical services
621498	All other outpatient care centers	Other professional medical services	Physician and clinical services
6215	Medical and diagnostic laboratories		
621511	Medical laboratories	Medical labs	Physician and clinical services
621512	Diagnostic imaging centers	Medical labs	Physician and clinical services
6216	Home health care services	Home health care services	Home health care
6219	Other ambulatory care services		
62191	Ambulance services	Other professional medical services	Nonhealth***
621999	All other misc. ambulatory health care services	Other professional medical services	Nonhealth***
622	Hospitals		
6221	General medical and surgical hospitals	Hospital services	Hospital care
6222	Psychiatric and substance abuse hospitals	Hospital services	Hospital care
6223	Specialty (except psychiatric and substance abuse) hospitals	Hospital services	Hospital care
623	Nursing and residential care facilities		
6231	Nursing care facilities	Nursing home services	Nursing home care
6232	Residential mental retardation, mental health and substance abuse facilities		
62321	Residential mental retardation facilities	Nursing home services	Only Medicaid funding for ICFMRs (see text)
62322	Residential mental health and substance abuse facilities	Nonhealth	
6233	Community care facilities for the elderly		
623311	Continuing care retirement communities	Nursing home services	Nursing home care
623312	Homes for the elderly	Nonhealth	Nonhealth***
6239	Other residential care facilities	Nonhealth	Nonhealth***
624	Social assistance	Nonhealth	Nonhealth***
532291	Home health equipment rental	Other professional medical services	Durable medical equipment

* Most of the total receipts of each of these industries are for purchases of a primary good or service, or commodity, in the GDP data. Commodity expenditures reported in the GDP data differ from industry receipts partly because commodity expenditures exclude industry receipts from other sources (sales of other commodities, income from assets, etc) and include sales of the same commodity by other industries. For example, expenditures for physician services exclude sales of drugs and equipment; spending for nursing home services includes nursing home care from hospitals.

** In the NHEA, optometrists' services are classified with other professional services, eyewear is classified with durable medical equipment.

*** Unless funded by Medicare, Medicaid, or CHIP

Table 5: NHE for Physician and Clinical Services (CMS) and HCE for Physician Services and Medical Laboratories (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for physician and clinical services (CMS)*												
1. Industry receipts (Economic Census/SAS)	248.9	264.2	277.3	296.8	322.0	347.2	376.4	403.5	431.6	457.5	483.1	506.9
<i>Less</i>												
2. Receipts from hospital professional fees and salaries and receipts of medical labs that are not independently billed***	8.9	8.6	8.8	9.4	10.4	11.0	11.3	11.9	12.4	13.4	13.8	14.5
<i>Plus</i>												
3. Physicians in public clinics	1.0	1.1	1.1	1.3	1.5	1.6	1.9	2.1	2.3	2.5	3.3	3.7
4. Other adjustments	0.0	-0.3	0.0	-0.2	0.0	0.0	-0.3	0.0	0.9	0.0	0.0	0.2
<i>Equals</i>												
5. NHE for physician and clinical services (1-2+3+4)	241.0	256.4	269.6	288.6	313.2	337.9	366.7	393.6	422.4	446.5	472.6	496.2
HCE for physician services and medical labs (BEA)**												
6. Industry receipts included in the NHE estimate (line 1)	248.9	264.2	277.3	296.8	322.0	347.2	376.4	403.5	431.6	457.5	483.1	506.9
<i>Less</i>												
7. Industry receipts that BEA classifies with HCE for "other professional medical services" (Economic Census/SAS)	30.4	33.0	35.2	37.1	39.4	43.1	46.1	49.0	52.3	57.0	60.8	65.6
8. Receipts from hospital professional fees and salaries and receipts of medical labs that are not independently billed***	8.7	8.8	8.8	9.3	10.3	10.7	11.0	11.9	12.5	13.4	13.8	14.7
<i>Plus</i>												
9. Adjustments to estimate final commodity demand; other adjustments	-7.5	-7.2	-6.7	-4.2	-3.3	-3.1	-4.9	-6.5	-7.7	-12.1	-13.7	-14.0
<i>Equals</i>												
10. HCE for physician services and medical labs (6-7-8+9)	202.3	215.3	226.6	246.2	269.0	290.3	314.3	336.1	359.1	374.9	394.7	412.5
11. Difference, NHE-HCE (5-10)	38.6	41.2	43.0	42.5	44.2	47.6	52.4	57.4	63.3	71.6	77.9	83.7

* NHE for physician and clinical services consist mainly of the receipts of NAICS 6211 (offices of physicians), 621410 (family planning centers), 621420 (outpatient mental health and substance abuse centers), 621491 (HMO medical centers), 621492 (kidney dialysis centers), 621493 (ambulatory surgical & emergency centers), 621498 (all other outpatient care centers), and 6215 (medical and diagnostic laboratories).

** HCE for physician services consist mainly of the receipts of NAICS 6211, 621491, and 621493 (receipts of 621410, 621420, 621492, and 621498 are mainly included in other professional medical services). HCE for medical laboratories consist mainly of the sales of NAICS 6215.

*** For the estimates of physicians' receipts, both CMS and BEA remove receipts from hospital professional fees and salaries. For the estimates of receipts of medical labs, both CMS and BEA remove receipts that are not independently billed (SAS-based estimates of receipts from hospitals, health practitioners, outpatient care facilities, all other providers). The CMS and BEA estimates of these adjustments are slightly different.

HCE for physician services and medical labs are shown in NIPA table 2.4.5U, lines 170 and 174.

The data in the tables of this paper reflect the available source data as of early 2010 and rely on approximations of any unpublished (suppressed, confidential, etc) source data from the Census Bureau.

Table 6: NHE for Other Professional Services (CMS) and HCE for Other Professional Medical Services (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for other professional services (CMS)*												
1. Industry receipts (Economic Census/SAS)	35.4	37.5	38.9	41.2	44.9	48.0	51.3	55.2	58.0	60.6	64.6	68.0
<i>Less</i>												
2. Value of optical goods sold (corrective eyewear)	3.7	4.0	4.2	4.5	4.6	4.8	5.0	5.4	5.6	5.9	6.3	6.7
<i>Plus</i>												
3. Medicare ambulance funding	1.7	1.7	1.7	1.8	2.0	2.4	2.7	3.1	3.5	3.7	3.9	4.2
4. Other adjustments	0.0	0.5	0.8	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2
<i>Equals</i>												
5. NHE for other professional services (1-2+3+4)	33.4	35.7	37.1	39.1	42.8	45.6	49.0	52.9	55.9	58.4	62.2	65.7
HCE for other professional medical services (BEA)**												
6. Industry receipts included in the NHE estimate (line 1)	35.4	37.5	38.9	41.2	44.9	48.0	51.3	55.2	58.0	60.6	64.6	68.0
<i>Less</i>												
7. Optometrists' receipts (BEA classifies as durable goods)	6.9	7.2	7.7	8.3	8.6	9.1	9.4	10.1	10.6	11.1	12.0	12.8
<i>Plus</i>												
8. Additional industry receipts that CMS classifies as physician and clinical services	30.4	33.0	35.2	37.1	39.4	43.1	46.1	49.0	52.3	57.0	60.8	65.6
9. Additional industry receipts that CMS classifies as non-health	7.8	10.3	10.7	11.1	11.6	12.6	13.6	15.2	16.4	17.8	19.7	22.0
10. Additional industry receipts that CMS classifies as durable medical equipment	1.9	3.0	3.0	3.3	3.7	3.9	4.3	4.8	5.0	5.3	5.6	5.6
11. Adjustments to estimate final commodity demand; other adjustments	1.7	-1.4	-1.4	-0.3	1.2	3.2	3.5	3.5	6.0	2.9	3.5	4.8
<i>Equals</i>												
12. HCE for other professional medical services (6-7+8+9+10+11)	70.2	75.2	78.8	84.1	92.0	101.8	109.4	117.5	127.1	132.5	142.3	153.3
13. Difference, NHE-HCE (5-12)	-36.8	-39.5	-41.7	-45.0	-49.2	-56.2	-60.4	-64.6	-71.2	-74.1	-80.1	-87.6

* NHE for other professional services consist mainly of the receipts for NAICS 6213 (other health practitioners, including optometrists).

** HCE for other professional medical services consist mainly of the receipts of NAICS 6213 (other health practitioners, except for optometrists), 621410 (family planning centers), 621420 (outpatient mental health and substance abuse centers), 621492 (kidney dialysis centers), 621498 (all other outpatient care centers), 621910 (ambulance services), 621999 (all other miscellaneous ambulatory health care services), and 532291 (home health equipment rental). In the NHEA, receipts of 621410, 621420, 621492, and 621498 are classified as physician and clinical services; receipts of 621910 and 621999 are mostly not health-related (unless funded by Medicare or Medicaid); and receipts of 532291 are mainly classified as durable medical equipment.

HCE for other professional medical services are shown in NIPA table 2.4.5U line 175.

The data in the tables of this paper reflect the available source data as of early 2010 and rely on approximations of any unpublished (suppressed, confidential, etc) source data from the Census Bureau.

Table 7: NHE for Physician and Clinical Services and Other Professional Services (CMS) and HCE for Physician Services, Medical Laboratories, and Other Professional Medical Services (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for physician and clinical services, other professional services (CMS)*												
1. Industry receipts (Economic Census/SAS)*	284.3	301.7	316.2	338.0	366.9	395.2	427.7	458.7	489.7	518.0	547.7	574.9
Less												
2. Receipts from hospital professional fees and salaries and receipts of medical labs that are not independently billed***	8.9	8.6	8.8	9.4	10.4	11.0	11.3	11.9	12.4	13.4	13.8	14.5
3. Value of optical goods sold (corrective eyewear)	3.7	4.0	4.2	4.5	4.6	4.8	5.0	5.4	5.6	5.9	6.3	6.7
Plus												
4. Physicians in public clinics	1.0	1.1	1.1	1.3	1.5	1.6	1.9	2.1	2.3	2.5	3.3	3.7
5. Medicare ambulance funding	1.7	1.7	1.7	1.8	2.0	2.4	2.7	3.1	3.5	3.7	3.9	4.2
6. Other adjustments	0.0	0.2	0.8	0.4	0.5	0.0	-0.3	0.0	0.9	0.0	0.0	0.4
Equals												
7. NHE for physician and clinical services and other professional services (1-2-3+4+5+6)	274.3	292.1	306.7	327.7	355.9	383.5	415.8	446.5	478.3	504.9	534.8	561.9
HCE for physician services, medical labs, other professional medical services (BEA)**												
8. Industry receipts included in the NHE estimate (line 1)	284.3	301.7	316.2	338.0	366.9	395.2	427.7	458.7	489.7	518.0	547.7	574.9
Less												
9. Receipts from hospital professional fees and salaries and receipts of medical labs that are not independently billed***	8.7	8.8	8.8	9.3	10.3	10.7	11.0	11.9	12.5	13.4	13.8	14.7
10. Optometrists' receipts (BEA classifies as durable goods)	6.9	7.2	7.7	8.3	8.6	9.1	9.4	10.1	10.6	11.1	12.0	12.8
Plus												
11. Additional industry receipts that CMS classifies as non-health or durable equipment	9.7	13.3	13.8	14.4	15.2	16.5	17.9	20.0	21.4	23.2	25.3	27.6
12. Adjustments to estimate final commodity demand; other adjustments	-5.8	-8.5	-8.0	-4.5	-2.2	0.1	-1.5	-3.0	-1.7	-9.2	-10.2	-9.3
Equals												
13. HCE for physician services and medical labs and other professional medical services (8-9-10+11+12)	272.5	290.5	305.5	330.3	361.0	392.1	423.8	453.6	486.3	507.4	537.1	565.8
14. Difference, NHE-HCE (7-13)	1.8	1.7	1.3	-2.5	-5.1	-8.6	-7.9	-7.2	-7.9	-2.5	-2.2	-3.9

* NHE for physician and clinical services and other professional medical services consist mainly of the receipts of NAICS 6211 (offices of physicians), 6213 (other health practitioners, including optometrists), 6214 (outpatient care centers), and 6215 (medical labs).

** HCE for physician services, medical labs, and other professional medical services consist mainly of the sales of NAICS 6211, 6213 (except optometrists), 6214, 6215, 621910 (ambulance services), 621999 (all other miscellaneous ambulatory health care services) and 532291 (home health equipment rental). In the NHEA, receipts 621910 and 621999 are mostly not health-related (unless funded by Medicare or Medicaid); and receipts of 532291 are mainly classified as durable medical equipment.

*** For the estimates of physicians' receipts, both CMS and BEA remove receipts from hospital professional fees and salaries. For the estimates of receipts of medical labs, both CMS and BEA remove receipts that are not independently billed (SAS-based estimates of receipts from hospitals, health practitioners, outpatient care facilities, all other providers). The CMS and BEA estimates of these adjustments are slightly different.

HCE for physician services, medical labs, and other professional medical services are shown in NIPA table 2.4.5U, lines 170, 174, and 175.

The data in the tables of this paper reflect the available source data as of early 2010 and rely on approximations of any unpublished (suppressed, confidential, etc) source data from the Census Bureau.

Table 8: NHE for Dental Services (CMS) and HCE for Dental Services (BEA)
 [Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for dental services (CMS)												
1. Industry receipts (Economic Census/SAS)	50.0	55.0	58.4	62.8	67.9	73.3	75.8	81.5	86.3	90.7	96.4	100.4
<i>Plus</i>												
2. Other adjustments	0.1	-1.5	-1.2	-0.9	-0.4	0.0	1.0	0.0	0.0	0.0	0.0	0.8
<i>Equals</i>												
3. NHE for dental services (1+2)	50.2	53.5	57.1	62.0	67.5	73.3	76.9	81.5	86.3	90.7	96.4	101.2
HCE for dental services (BEA)												
4. Industry receipts included in the NHE estimate (line 1)	50.0	55.0	58.4	62.8	67.9	73.3	75.8	81.5	86.3	90.7	96.4	100.4
<i>Plus</i>												
5. Adjustments to estimate final commodity demand; other adjustments	0.9	-0.4	0.1	0.7	1.4	2.2	2.3	2.5	2.7	2.8	3.0	3.1
<i>Equals</i>												
6. HCE for dental services (4+5)	50.9	54.6	58.5	63.6	69.3	75.6	78.1	83.9	89.0	93.5	99.3	103.5
7. Difference, NHE-HCE (3-6)	-0.7	-1.1	-1.4	-1.6	-1.8	-2.3	-1.2	-2.4	-2.7	-2.8	-2.9	-2.3

NHE for dental services and HCE for dental services consist mainly of the receipts of NAICS 6212 (offices of dentists). HCE for dental services is shown on NIPA table 2.4.5u, line 171.

Table 9: NHE for Home Health Care (CMS) and HCE for Home Health Care Services (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for home health care (CMS)												
1. Industry receipts (Economic Census/SAS)	32.9	30.4	29.1	28.6	30.4	32.5	36.5	41.1	47.2	50.6	57.1	63.0
<i>Plus</i>												
2. Estimated revenue of government-owned home health care agencies	1.7	1.6	1.6	1.5	1.7	1.7	1.6	1.6	1.6	1.4	1.4	1.5
3. Other adjustments	0.0	1.3	0.8	0.4	0.1	0.0	0.0	0.0	-0.7	1.0	0.8	0.1
<i>Equals</i>												
4. NHE for home health care (1+2+3)	34.5	33.2	31.5	30.5	32.2	34.2	38.0	42.7	48.1	53.0	59.3	64.7
HCE for home health care services (BEA)												
5. Industry receipts included in the NHE estimate (line 1)	32.9	30.4	29.1	28.6	30.4	32.5	36.5	41.1	47.2	50.6	57.1	63.0
<i>Plus</i>												
6. State and local government sales of home health care	9.3	10.1	10.5	11.1	12.7	12.7	12.0	11.6	10.9	10.1	10.1	11.1
7. Adjustments to estimate final commodity demand; other adjustments	3.5	4.9	3.6	3.1	2.4	1.8	1.7	3.5	3.1	3.4	3.6	3.8
8. Equals: HCE for home health care services (5+6+7)	45.7	45.3	43.2	42.8	45.4	47.0	50.2	56.1	61.2	64.1	70.9	77.9
9. Difference, NHE-HCE (4-8)	-11.2	-12.1	-11.7	-12.3	-13.2	-12.8	-12.2	-13.4	-13.1	-11.1	-11.6	-13.2

NHE for home health care and HCE for home health care services consist mainly of the receipts of NAICS 6216 (offices of home health care services). HCE for home health care services is shown on NIPA table 2.4.5u, line 173.

Table 10: NHE for Nursing Home Care (CMS) and HCE for Nursing Home Services (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for nursing home care (CMS)												
1. Industry receipts (Economic Census/SAS)*	70.1	76.2	77.1	80.8	85.5	89.6	93.7	97.3	102.2	104.6	112.0	115.4
<i>Plus</i>												
2. Estimated revenue of VA-owned nursing homes	4.0	4.2	4.1	4.3	4.6	4.9	5.4	5.7	6.1	6.2	6.8	7.2
3. Medicaid funds for ICF/MRs.	10.1	10.1	9.7	10.1	10.7	11.2	11.4	12.2	12.4	12.7	12.2	12.3
4. Other adjustments	0.3	-1.0	-0.5	0.1	0.7	0.0	0.0	0.0	0.0	1.5	1.3	3.5
<i>Equals</i>												
5. NHE for nursing home care (1+2+3+4)	84.5	89.5	90.5	95.3	101.5	105.7	110.5	115.2	120.7	125.1	132.4	138.4
HCE for nursing home services (BEA)												
6. Industry receipts included in the NHE estimate (line 1)	70.1	76.2	77.1	80.8	85.5	89.6	93.7	97.3	102.2	104.6	112.0	115.4
<i>Plus</i>												
7. Additional industry receipts for other nursing home facilities (NAICS 62321)**	7.9	10.4	10.8	11.7	12.6	13.4	14.3	14.9	15.8	16.6	17.8	19.2
8. Adjustments to estimate final commodity demand; other adjustments	-1.7	-5.1	-4.8	-4.6	-4.4	-4.4	-4.5	-5.0	-5.5	-6.5	-7.3	-7.6
<i>Equals</i>												
9. HCE for nursing home services (6+7+8)	76.3	81.5	83.2	87.9	93.7	98.6	103.4	107.2	112.5	114.7	122.6	127.0
10. Difference, NHE-HCE (5-9)	8.2	8.0	7.3	7.4	7.8	7.1	7.1	8.0	8.2	10.4	9.8	11.4

* NHE for nursing home care consist mainly of the sum of receipts for NAICS 6231 (nursing care facilities) and 623311 (continuing care retirement communities). In addition, the NHE estimate includes receipts of ICF/MRs (intermediate care facilities for the mentally retarded).

** HCE for nursing home services consist mainly of the sum of receipts for NAICS 6231, 623311, and 62321 (residential mental retardation facilities). HCE for nursing home services is shown on NIPA table 2.4.5u, line 183.

The data in the tables of this paper reflect the available source data as of early 2010 and rely on approximations of any unpublished (suppressed, confidential, etc) source data from the Census Bureau.

Table 11: NHE for Hospital Care (CMS) and HCE for Hospital Services (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for hospital care (CMS)												
1. Total net revenue of non-federal hospitals (AHA)*	341.7	352.4	365.6	388.4	416.6	451.7	490.1	525.7	563.0	605.5	645.7	663.6
2. Adjustments to the AHA estimate, CMS	2.7	3.2	8.2	6.7	11.1	11.2	8.8	10.5	12.6	9.9	5.5	15.1
3. Total net revenue of non-federal hospitals, CMS/AHA estimate (1+2)	344.3	355.5	373.8	395.0	427.7	462.9	498.9	536.2	575.6	615.4	651.2	678.7
<i>Plus</i>												
4. Federal hospitals (Federal budget)	20.3	20.6	21.1	21.9	23.5	25.5	28.5	30.3	31.9	34.0	36.3	39.7
5. Department of Defense	7.8	7.8	7.4	7.3	7.8	8.9	9.8	10.9	11.6	12.4	13.2	12.9
6. VA/other	12.5	12.8	13.6	14.5	15.7	16.6	18.7	19.4	20.4	21.6	23.2	26.8
<i>Equals</i>												
7. NHE for hospital care (3+4)	364.7	376.2	394.8	416.9	451.2	488.4	527.4	566.5	607.5	649.4	687.6	718.4
HCE for hospital services (BEA)												
8. Industry receipts (Economic Census/SAS)**	379.2	391.6	406.7	423.9	455.3	500.1	529.2	569.5	611.5	644.9	686.1	726.9
<i>Less</i>												
9. Industry receipts, government hospitals (Economic Census/SAS)	88.5	89.0	92.3	93.5	99.1	103.4	108.8	116.2	122.1	125.9	132.7	140.9
<i>Plus</i>												
10. Sales of government hospital services	73.9	76.1	78.6	84.8	94.3	99.3	101.4	111.4	114.9	121.4	128.2	137.9
11. Federal government sales of hospital services	0.4	0.6	0.5	0.6	0.8	1.2	1.9	2.2	3.2	3.4	3.7	4.0
12. State & local government hospital sales	73.5	75.6	78.1	84.2	93.5	98.1	99.5	109.2	111.7	118.0	124.5	133.9
13. Adjustments to estimate final commodity demand; other adjustments	-19.1	-18.7	-19.8	-21.3	-23.4	-26.5	-28.0	-35.8	-37.3	-39.4	-41.8	-43.9
<i>Equals</i>												
14. HCE for hospital services (8-9+10+13)	345.5	360.1	373.2	393.9	427.1	469.5	493.8	528.8	567.0	601.0	639.7	680.0
15. Difference, NHE-HCE (7-14)	19.2	16.1	21.6	23.0	24.1	18.9	33.6	37.7	40.5	48.4	47.9	38.4
16. Difference, non-federal hospitals, AHA/CMS-Economic Census/SAS (3-8)	-34.8	-36.0	-33.0	-28.9	-27.6	-37.2	-30.3	-33.3	-36.0	-29.5	-34.9	-48.2
17. Difference, total revenue, non-federal hospitals, AHA-BEA estimate (3-8)-(12-9)	-19.8	-22.6	-18.8	-19.6	-22.0	-32.0	-21.0	-26.2	-25.6	-21.5	-26.6	-41.2

* Total revenue for NHE for non-federal hospital care is equal to total net revenue less bad debt, as reported by the AHA survey of hospitals, and includes revenue from all sources.

** HCE for non-federal hospital services consist mainly of the sum of receipts for NAICS 622110 (general medical and surgical hospitals), 622210 (psychiatric and substance abuse hospitals) and 622310 (specialty except psychiatric and substance abuse hospitals). Industry receipts include revenue from all sources. HCE for hospital services is shown on NIPA Table 2.4.5u line 179.

The data in the tables of this paper reflect the available source data as of early 2010 and rely on approximations of any unpublished (suppressed, confidential, etc) source data from the Census Bureau.

Table 12: NHE for Other Personal Health Care (CMS)
 [Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for other personal health care (CMS)												
1. Industrial inplant services	3.6	3.8	4.0	4.3	4.5	4.7	5.0	5.3	5.6	5.9	6.3	6.6
2. Medicaid, SCHIP, General Assistance (federal and state funds)	17.7	19.2	22.2	24.3	28.3	32.0	35.1	37.2	40.2	45.4	49.0	50.9
3. Maternal and child health (federal and state funds)	1.2	1.2	1.3	1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.4
4. Department of Defense	0.9	1.0	1.0	1.1	1.3	1.3	1.4	1.4	1.4	1.5	1.6	1.6
5. Veterans' Administration	0.8	0.9	1.0	1.1	1.2	1.4	1.7	1.9	2.0	2.0	1.2	0.4
6. Indian Health Services	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
7. General hospital/medical, federal	1.8	2.0	2.2	2.5	2.7	2.8	2.9	3.0	3.0	3.0	3.1	3.2
8. State and Local government assistance to hospitals and school health programs	1.8	1.9	2.1	2.2	2.4	2.6	2.7	2.8	3.0	3.2	3.4	3.7
<i>Equals</i>												
9. NHE for other personal health care (sum of 1-8)	28.1	30.3	34.0	37.1	41.9	46.4	50.4	53.3	56.9	62.7	66.3	68.1

Table 13: NHE for Prescription Drugs (CMS) and PCE for Prescription Drugs (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for prescription drugs (CMS)												
1. NHE estimate of prescription drug sales of private retailers (taxes and sales of health care providers omitted) <i>Plus</i>	79.8	90.6	107.2	123.3	141.8	161.5	179.1	196.5	209.3	225.1	236.8	246.1
2. VA/DOD Consolidated Mail Outpatient Pharmacy (CMOP) revenues <i>Less</i>	1.2	1.9	2.6	3.2	3.9	4.6	5.1	5.5	5.8	6.3	6.6	6.8
3. Estimated rebates <i>Equals</i>	3.4	4.0	5.1	5.9	7.4	8.5	10.0	13.2	15.5	14.4	16.7	18.9
4. NHE for prescription drugs (1+2-3)	77.6	88.5	104.6	120.6	138.3	157.6	174.2	188.8	199.7	217.0	226.8	234.1
5. PCE for prescription drugs (BEA)												
PCE estimate of prescription drug sales (with taxes) of private retailers, wholesalers, and health care providers to consumers	82.1	97.3	115.9	133.8	154.9	172.3	191.3	207.5	218.9	236.9	245.2	244.4
6. Difference, NHE-PCE (4-5)	-4.5	-8.7	-11.3	-13.2	-16.6	-14.6	-17.1	-18.8	-19.2	-19.9	-18.5	-10.3

PCE for prescription drugs is shown on NIPA Table 2.4.5u line 121.

Table 14: NHE for Other Non-Durable Medical Products (CMS) and PCE for Other Non-Durable Medical Products (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. NHE for other nondurable medical products	27.3	27.9	29.4	29.8	30.0	30.4	32.1	32.7	34.0	35.3	37.4	39.0
PCE for other nondurable medical products												
2. PCE for nonprescription drugs	20.3	21.0	22.4	23.2	24.0	25.7	26.1	24.5	25.8	27.5	29.4	31.9
3. PCE for other medical products	1.3	1.5	1.7	2.0	2.1	2.2	2.3	2.4	2.5	2.7	3.0	3.2
4. PCE for other nondurable medical products (2+3)	21.6	22.5	24.1	25.2	26.1	27.9	28.3	26.9	28.4	30.3	32.4	35.1
5. Difference, NHE-PCE (1-4)	5.7	5.3	5.3	4.6	3.9	2.5	3.8	5.8	5.6	5.1	5.0	3.9

PCE for nonprescription drugs and other medical products are shown on NIPA Table 2.4.5u lines 122 and 123.

Table 15: NHE for Durable Medical Equipment (CMS) and PCE for Therapeutic Appliances and Equipment (BEA)
 [Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. NHE for durable medical equipment (CMS)	18.1	18.7	19.1	19.4	19.7	20.8	22.4	22.8	23.8	24.7	25.5	26.6
PCE for therapeutic appliances and equipment (BEA)												
2. Therapeutic medical equipment	8.0	9.4	10.8	12.3	13.0	13.8	14.4	15.4	16.2	17.5	18.9	20.4
3. Corrective eyeglasses and contact lenses <i>Equals</i>	17.2	18.4	18.9	19.9	18.8	20.3	20.6	21.1	22.0	22.7	24.3	24.2
4. PCE for therapeutic appliances and equipment (2 + 3)	25.3	27.8	29.7	32.2	31.8	34.0	35.0	36.4	38.2	40.2	43.2	44.6
5. Difference, NHE-PCE (1-4)	-7.2	-9.1	-10.6	-12.8	-12.1	-13.2	-12.6	-13.6	-14.5	-15.5	-17.7	-18.0

PCE for therapeutic appliances and equipment is shown on NIPA Table 2.4.5u line 64.

Table 16: NHE for the Net Cost of Private Health Insurance (CMS) and HCE for Net Health Insurance Services (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. NHE for the net cost of private health insurance (CMS)	39.5	40.3	45.9	52.0	56.6	68.6	82.6	85.8	91.2	93.0	94.6	92.0
HCE for net health insurance services (BEA)												
2. Private health insurance and accident insurance, premiums less benefits <i>Plus</i>	51.0	57.3	62.1	69.2	73.8	80.9	94.6	110.3	117.8	121.4	127.2	133.4
3. HCE for income loss	1.2	1.4	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
4. HCE for workers' compensation <i>Equals</i>	16.2	16.0	15.6	17.2	18.5	18.0	20.2	21.8	24.7	26.4	26.0	25.2
5. HCE for net health insurance services (2+3+4)	68.4	74.7	79.2	88.1	94.1	101.0	116.9	134.4	145.1	150.6	156.3	161.8
6. Difference, NHE-HCE (1-5)	-28.9	-34.4	-33.4	-36.1	-37.5	-32.4	-34.3	-48.6	-53.9	-57.6	-61.7	-69.8
7. Difference, net cost of private health insurance, NHE - HCE (1-2)	-11.5	-17.0	-16.2	-17.2	-17.2	-12.3	-11.9	-24.4	-26.6	-28.4	-32.6	-41.4
8. Private administrative costs of health-related workers compensation, NHE*	2.4	1.9	2.0	2.6	3.3	3.5	3.7	3.8	3.8	3.8	3.9	4.0
9. Private administrative costs of Medicare and Medicaid, NHE*	4.7	5.5	6.0	6.8	8.0	8.9	9.4	10.9	14.4	22.9	26.7	28.7

HCE for net health insurance services is shown on NIPA Table 2.4.5u line 269. HCE for medical care and hospitalization is equal to the sum of HCE for private health insurance and accident insurance and is shown on line 270. HCE for income loss and workers' compensation are shown on lines 271 and 272.

In the NHEA, NHE for the net cost of private health insurance is the portion of "Administration & Net Cost of Private Health Insurance" that is financed by private health insurance.

* In the NHEA, the private administrative costs of workers compensation, Medicare Advantage, Medicare Part D, and Medicaid programs are included in the government portion of "Administration & Net Cost of Private Health Insurance." These are unofficial, approximate estimates from CMS.

Table 17: Remaining Expenditures for Services, NHEA (CMS) and GDP (BEA)

[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. National Health Expenditures, CMS (2 + 3)	2.6	2.9	3.2	3.6	4.0	4.3	4.5	4.6	5.0	5.5	6.0	6.3
2. Administration of philanthropic organizations	0.8	0.9	1.0	1.1	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.7
3. Privately-funded research	1.9	2.1	2.2	2.5	2.8	3.1	3.3	3.4	3.7	4.0	4.3	4.7
4. Final consumption expenditures of nonprofit institutions serving households (NPISHs), GDP statistics, BEA (5 - 9)	0.6	6.4	9.8	10.6	13.0	10.5	13.5	4.4	-0.7	7.2	5.3	8.3
5. Health, gross output (expenses)	287.7	308.4	324.6	342.3	369.0	403.4	427.6	453.7	484.1	515.1	544.6	574.9
6. Outpatient services, gross output	36.0	37.7	39.3	41.4	44.9	50.8	55.1	61.2	65.0	69.5	73.4	71.3
7. Nonprofit hospitals, gross output	223.9	240.8	253.9	267.9	288.1	314.6	332.9	352.4	376.7	401.7	426.2	456.4
8. Nonprofit nursing homes, gross output	27.9	29.8	31.4	33.0	36.0	38.1	39.6	40.0	42.4	43.9	45.0	47.3
9. Less: Receipts from sales of goods and services by nonprofit institutions, Health services to households	287.1	302.0	314.9	331.7	356.0	392.9	414.2	449.3	484.8	507.9	539.3	566.6
10. Outpatient services to households	30.3	32.2	33.3	35.9	38.8	44.6	47.9	54.4	59.8	60.3	64.4	68.5
11. Nonprofit hospitals, services to households	230.9	241.6	252.3	264.8	283.6	312.9	329.2	356.8	384.7	406.9	432.1	454.1
12. Nonprofit nursing homes' services to households	25.9	28.2	29.3	31.1	33.6	35.4	37.1	38.1	40.3	40.7	42.8	44.0

In the NHEA, administration of philanthropic organizations is the portion of "administration and net cost of private health insurance" that is funded by private sources.

In the GDP statistics, health-related final consumption expenditures of nonprofit institutions serving households is shown on NIPA Table 2.4.5u lines 338-341 and 351-354.

Table 18: NHE for Investment in Structures and Equipment (CMS) and Private Fixed Investment and Government Gross Investment in Health, GDP (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for Investment in Structures and Equipment (CMS)												
1. Private investment	38.2	43.9	47.9	48.5	49.4	55.9	59.3	64.5	70.5	74.2	84.1	89.2
2. Health care structures	17.4	18.3	20.2	20.2	20.9	23.2	24.9	27.7	30.1	34.9	38.9	42.6
3. Health care equipment	20.8	25.5	27.7	28.3	28.5	32.7	34.3	36.9	40.4	39.3	45.2	46.6
4. Federal government investment	5.8	5.9	6.0	6.1	6.4	6.3	6.9	6.8	7.6	8.2	8.5	9.5
5. State and local government investment	7.6	8.0	8.1	8.6	9.0	9.3	10.1	11.6	11.8	12.9	14.9	15.2
<i>Equals</i>												
6. NHE for investment in structures and equipment (1 + 4 + 5)	51.7	57.7	62.0	63.2	64.7	71.5	76.3	83.0	90.0	95.3	107.5	113.9
Private fixed investment and government gross investment in health, GDP (BEA)												
7. Private fixed investment in health	46.0	50.3	52.9	57.1	60.4	69.0	74.9	80.6	90.7	96.7	104.3	112.7
8. Health care structures	19.6	20.0	20.7	21.9	22.0	25.2	27.3	29.6	32.1	36.0	40.1	44.0
9. Medical equipment and instruments	26.4	30.3	32.2	35.2	38.5	43.8	47.6	51.1	58.6	60.7	64.3	68.7
10. Federal government gross investment in health	5.2	5.8	6.1	5.9	5.7	5.8	6.5	5.7	6.5	6.0	7.0	8.0
11. State and local government gross investment in health	7.5	7.9	7.9	8.2	8.6	9.3	9.7	10.3	11.3	11.4	12.5	12.8
<i>Equals</i>												
12. Private fixed investment and government gross investment in health, GDP (7 + 10 + 11)	58.7	63.9	66.9	71.2	74.7	84.1	91.1	96.7	108.5	114.1	123.8	133.5
13. Difference, NHE-GDP (6-12)	-7.0	-6.2	-4.9	-8.0	-10.0	-12.6	-14.8	-13.7	-18.5	-18.8	-16.3	-19.6
14. Private structures	-2.2	-1.6	-0.5	-1.7	-1.1	-2.0	-2.3	-1.9	-1.9	-1.1	-1.2	-1.4
15. Private equipment	-5.7	-4.8	-4.5	-6.9	-10.0	-11.1	-13.3	-14.2	-18.2	-21.4	-19.1	-22.0
16. Federal government investment	0.6	0.1	-0.1	0.3	0.6	0.4	0.3	1.1	1.1	2.2	1.5	1.4
17. State and local government investment	0.2	0.1	0.2	0.4	0.4	0.0	0.4	1.2	0.5	1.5	2.4	2.4

The BEA estimates of health-related investment in GDP are shown on NIPA Table 5.4.5u line 5 (private structures), Table 5.5.5u line 8 (equipment), Table 3.17 line 114 (federal government gross investment), and Table 3.17 line 123 (state and local government gross investment).

Table 19: NHE for Public Health Activities, Administrative Expenses of Government Programs, and Publicly-Funded Research (CMS); and Government Consumption Expenditures in GDP (BEA)

	[Billions of dollars]											
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
NHE for public health activities, administrative expenses of government programs, and publicly-funded research	72.0	79.0	86.3	94.9	105.5	117.7	124.2	132.1	141.1	155.8	165.2	174.3
1. Federal	30.0	34.1	37.5	41.7	46.8	54.5	59.0	65.6	71.4	81.3	85.5	89.5
2. State and local	42.0	44.9	48.8	53.2	58.8	63.2	65.2	66.5	69.6	74.6	79.7	84.8
3. Public health activities	34.8	37.5	40.7	43.0	47.1	52.4	53.6	53.8	56.4	60.6	64.8	69.4
4. Federal	3.9	4.1	4.5	4.9	5.8	8.0	8.9	9.0	9.2	9.5	9.7	10.5
5. State and local	30.9	33.4	36.2	38.2	41.3	44.4	44.7	44.9	47.2	51.1	55.1	59.0
6. Administrative expenses of government programs	19.4	22.1	24.4	28.8	32.4	35.9	38.5	42.7	47.7	57.4	62.2	65.9
7. Federal	11.1	13.4	14.8	17.1	18.6	21.0	22.2	25.6	29.9	38.7	42.7	45.5
8. Department of Defense	0.3	0.3	0.4	0.5	0.7	1.1	1.6	2.1	2.5	2.8	3.1	3.4
9. Other federal	10.8	13.1	14.4	16.6	17.9	19.8	20.6	23.5	27.4	36.0	39.6	42.2
10. State and local	8.3	8.7	9.5	11.6	13.8	14.9	16.3	17.1	17.8	18.7	19.5	20.4
11. Publicly funded research	17.8	19.5	21.2	23.0	26.0	29.5	32.1	35.5	37.0	37.8	38.2	38.9
12. Federal	15.0	16.6	18.1	19.7	22.4	25.6	27.9	31.0	32.4	33.0	33.0	33.5
13. State and local	2.7	2.9	3.1	3.4	3.6	3.9	4.2	4.5	4.6	4.8	5.1	5.4
14. Government consumption expenditures for health, GDP												
15. Federal government consumption expenditures for health	37.9	39.1	39.0	43.9	48.2	52.8	58.5	59.8	60.6	62.8	65.8	73.2
16. S&L government consumption expenditures for health	21.8	22.0	27.2	28.1	27.2	32.5	34.7	36.9	46.8	47.4	50.4	54.6
17. Government consumption expenditures for health, GDP	59.8	61.1	66.2	72.0	75.4	85.3	93.2	96.7	107.4	110.2	116.2	127.9
18. Difference, NHE - NIPA	12.3	17.9	20.1	22.9	30.1	32.4	31.0	35.4	33.7	45.6	49.0	46.5
19. Federal	-7.9	-5.0	-1.5	-2.1	-1.4	1.7	0.5	5.8	10.8	18.5	19.6	16.2
20. State and local	20.2	22.9	21.7	25.1	31.6	30.7	30.6	29.6	22.8	27.2	29.4	30.2

The BEA estimates of health-related government consumption expenditures are shown in NIPA Table 3.17 lines 17 and 26.

Table 20: Sources of Differences between NHE for Public Health Activities, Administrative Expenses of Government Programs, and Publicly-Funded Research (CMS); and Government Consumption Expenditures in GDP (BEA)

	[Billions of dollars]											
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. Federal gov't NHE for public health, administration, and research less federal gov't health-related consumption expenditures in GDP	-7.9	-5.0	-1.5	-2.1	-1.4	1.7	0.5	5.8	10.8	18.5	19.6	16.2
<i>Equals</i>												
2. Federal gov't NHE for public health, administration, and research that are not in federal gov't health-related consumption expenditures in GDP	15.8	18.6	21.9	23.9	27.2	31.7	33.8	37.2	41.6	50.5	54.1	57.2
3. Admin. of DOD health programs (defense spending in the NIPAs)	0.3	0.3	0.4	0.5	0.7	1.1	1.6	2.1	2.5	2.8	3.1	3.4
4. Federal research grants (education spending in the NIPAs)	8.1	8.8	11.0	11.7	13.4	15.0	16.0	17.7	18.3	18.6	18.4	18.3
5. The net cost of the private plans that administer Medicare and Medicaid, that are recorded as health insurance services in GDP; plus federal part of the cost of gov't administration of Medicaid/SCHIP	7.4	9.4	10.5	11.7	13.1	14.4	15.1	16.9	20.6	28.9	32.6	34.8
6. DHS programs (defense spending in the NIPAs)	0.0	0.0	0.0	0.0	0.0	1.0	1.1	0.5	0.3	0.3	0.1	0.6
<i>Less</i>												
7. Federal gov't health-related consumption expenditures in GDP that are not in federal gov't NHE for public health, administration, and research	26.5	27.6	29.0	30.6	32.3	33.6	36.2	37.6	38.2	40.2	43.8	48.0
8. Physicians in public clinics (Part of physicians services in the NHE)	1.0	1.1	1.1	1.3	1.5	1.6	1.9	2.1	2.3	2.5	3.3	3.7
9. Federal medical care (hospitals and nursing homes in the NHEA)*	16.0	16.4	17.2	18.2	19.5	20.3	22.2	22.9	23.3	24.4	26.3	30.0
10. Consumption of fixed capital (not in the NHEA)	2.9	3.2	3.4	3.8	4.1	4.1	4.3	4.2	4.3	4.5	4.9	5.2
11. EPA-administered programs (not in the NHEA)	3.4	3.7	3.9	3.8	3.7	3.9	4.1	4.2	4.0	4.2	4.3	4.0
12. OPM payments to civil service retirement funds (not in the NHEA)	3.1	3.2	3.4	3.5	3.5	3.6	3.7	4.3	4.2	4.6	5.1	5.2
<i>Plus</i>												
13. Remaining unexplained difference	2.8	4.0	5.6	4.6	3.7	3.7	2.9	6.2	7.4	8.1	9.3	7.1
14. State and local gov't NHE for public health, administration, and research less state and local gov't health-related consumption expenditures in GDP	20.2	22.9	21.7	25.1	31.6	30.7	30.6	29.6	22.8	27.2	29.4	30.2
<i>Equals</i>												
15. State and local gov't NHE for public health, administration, and research that are not in state and local gov't health-related consumption expenditures in GDP	6.1	5.7	6.2	7.2	8.7	9.7	10.7	11.1	11.8	12.4	13.9	14.5
16. State and local gov't research (education spending in the NIPAs)	2.7	2.9	3.1	3.4	3.6	3.9	4.2	4.5	4.6	4.8	5.1	5.4
17. The net cost of the private plans that administer Medicaid and workers' comp, that are recorded as health insurance services in GDP (excludes the federal portion of the net cost of the private plans that administer Medicaid)	3.3	2.8	3.1	3.9	5.0	5.8	6.4	6.6	7.3	7.6	8.8	9.0
<i>Less</i>												
18. State and local gov't health-related consumption expenditures in GDP that are not in state and local gov't NHE for public health, administration, and research	-14.5	-15.6	-13.3	-15.2	-19.9	-17.0	-16.7	-16.9	-9.4	-9.2	-8.0	-8.9
20. Consumption expenditures of state and local gov't hospitals**	-2.9	-3.8	-1.6	-2.9	-5.5	-3.7	-4.3	-5.5	-0.3	-1.1	1.0	0.9
21. Removal of sales of state and local gov't non-hospital health care providers**	-15.2	-16.6	-17.3	-18.4	-21.1	-21.1	-20.8	-20.0	-18.8	-17.9	-19.6	-21.0
22. Gov't administration of Medicaid (excludes the federal portion of the net cost of the private plans that administer Medicaid), counted as federal gov't admin in the NHEA.	3.6	4.8	5.6	6.2	6.8	7.8	8.4	8.7	9.6	9.9	10.7	11.2
<i>Plus</i>												
23. Remaining unexplained difference	-0.4	1.7	2.2	2.7	3.1	4.0	3.2	1.7	1.6	5.5	7.5	6.8

* Consists of federal spending for hospitals and nursing homes (Table 10 line 2 and Table 11 line 6), less federal sales (Table 11 line 11)

** State and local government CFC is included in these rows and not broken out separately.

Additional notes for Table 20

In these notes, “published NHEA tables” refer to the NHEA data published on http://www.cms.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage

Line 3 CMS estimate (from published NHEA tables) of DOD spending (also in Table 19 line 8)

Line 4. CMS estimate (from published NHEA tables) of federally funded research (also in Table 19 line 12), less BEA estimate of expenditures for “in-house” research at NIH.

Line 5. CMS estimate (from published NHEA tables) of federal spending for the (public and private) administration of Medicaid and S-CHIP, plus an additional CMS unofficial estimate (not in published data) of approximate levels of administrative expenses for the private management of Medicare Advantage and Medicare Part D.

Line 6. CMS estimate (not in published data) of spending for DHS health-related programs.

Line 8. CMS estimate (not in published data) of government expenditures for physician services in public clinics (also in Table 5 line 3).

Line 9. CMS estimate (not in published data) of federal spending for hospitals and nursing homes (also in Table 10 line 2 and Table 11 line 6), less BEA estimate of sales of federal government health care providers (Table 11 line 11).

Line 10 –Line 12 BEA estimates.

Line 16. CMS estimate (from published NHEA tables) of state and local government-funded research (also in Table 19 line 13).

Line 17. CMS unofficial estimate (not in published data) of the approximate levels of private administrative expenses of Medicaid and workers' compensation, that are included in the NHEA estimate of administrative costs of state and local governments. (This estimate excludes the private administrative expenses of Medicaid that are included in the NHEA estimate of administrative costs of the federal government.)

Line 20 – 21. BEA estimates. Line 21, total sales, exceeds sales of home health care agencies (Table 9, line 6) because total sales also includes sales of other commodities; these sales are included in “adjustments to estimate final demand,” counted as intermediate sales, etc.

Line 22. CMS estimate of federal portion of spending for the government administration of Medicaid and SCHIP. (This estimate excludes the private administrative expenses of Medicaid that are included in the NHEA estimate of administrative costs of the federal government.)

**Table 21. Some Major Reasons for Differences in Estimates of Health Expenditures:
National Health Expenditures (from CMS) - Health-Related Expenditures in GDP (from BEA), 2006**

NHE for physician and clinical services (CMS)	\$446.5	-	HCE for physicians services and medical labs (BEA)	\$374.9	=	\$71.7
NHE estimate also includes services of additional types of outpatient care centers (part of HCE for other professional medical services). BEA's adjustments to estimate final commodity demand reduce HCE estimate.						
NHE for other professional services	\$58.4	-	HCE for other professional medical services	\$132.5	=	-\$74.1
HCE estimate also includes services of additional types of outpatient care centers (part of NHE for physician and clinical services). HCE estimate also includes non-Medicare/Medicaid ambulance services and misc. ambulatory care services (excluded from the NHEA). HCE estimate also includes home health equipment rental (durable medical equipment in the NHEA). NHE estimate also includes optometrists' services (durable goods in GDP)						
NHE for dental care	\$90.7	-	HCE for dental services	\$93.5	=	-\$2.8
BEA's adjustments to estimate final commodity demand raise HCE estimate.						
NHE for home health care	\$53.0	-	HCE for home health care services	\$64.1	=	-\$11.1
HCE estimate includes a larger estimate of sales of government-owned home health care providers.						
NHE for nursing home care	\$125.1	-	HCE for nursing home services	\$114.7	=	\$10.4
NHE estimate also includes government spending for government-owned nursing homes BEA's adjustments to estimate final commodity demand reduce HCE estimate. Expenditures for nursing homes for persons with developmental disabilities tends to be relatively larger in the HCE estimate.						
NHE for hospital services	\$649.4	-	HCE for hospital care	\$601.0	=	\$48.4
NHE estimate also includes government spending for federal government-owned hospitals. BEA's adjustments to estimate final demand reduce HCE estimate. Estimated receipts of non-federal hospitals are higher in the HCE estimate (based on Census data) than in the NHE estimate (AHA data).						
NHE for prescription drugs	\$217.0	-	PCE for prescription drugs	\$236.9	=	-\$19.9
PCE estimate includes a higher estimate of total sales to prescription drugs. NHE estimate removes rebates and also includes VA/DOD CMOP sales.						
NHE for other nondurables	\$35.3	-	PCE for other nondurable medical products	\$30.3	=	\$5.1
PCE estimate includes a lower estimate of total sales of nonprescription drugs. NHE and CMS estimates include a slightly different list of commodities.						
NHE for durable medical equipment	\$24.7	-	PCE for durable medical products	\$40.2	=	-\$15.5
PCE estimate also includes optometrists' services (other professional services in the NHEA). NHE estimate also include home health equipment rental (other professional medical services in GDP) NHE and CMS estimates include a slightly different list of commodities.						
NHE for items not in health-related GDP	\$68.2	-	Health-related GDP not also included in the NHEA	\$7.2	=	\$61.0
NHE for "other personal health care" is probably partly included in non-health GDP. NHE for administration of philanthropy and private research funding is not included in health-related GDP Final consumption expenditures of non-profits serving households (NPISHs) are not directly measured in the NHEA						
NHE for net cost of private insurance	\$93.0	-	HCE for health insurance	\$150.6	=	-\$57.6
HCE estimate also includes income loss insurance, workers compensation, privately managed Medicare and Medicaid. HCE for private health insurance (based on MEPS) exceeds NHE for private health insurance (based on NAIC, other data).						
NHE for investment in private structures and gov't structures and equipment	\$56.0	-	GDP: Investment in private structures, and gov't structures and equipment	\$53.4	=	\$2.6
NHE for investment in private equipment	\$39.3	-	GDP: Investment in private equipment	\$60.7	=	-\$21.4
NHE estimate is demand-based (and relies on the ACES); GDP estimate is supply-based (and relies on the ASM.)						
NHE for federal and state and local gov't public health, admin, research	\$155.8	-	GDP: Health-related federal and state and local gov't consumption expenditures	\$110.2	=	\$45.6
NHE estimate also includes some DOD and DHS programs, federal research grants, state and local gov't research funds. NHE estimate also includes administrative costs of privately managed Medicaid, Medicare, workers' compensation, other gov't programs. GDP estimate also includes consumption expenditures of state and local gov't hospitals and removes sales of government home health care providers (counted elsewhere in GDP) GDP estimate also includes gov't outlays for hospitals and other health care providers that serve patients (these outlays are classified with specific services, such as hospital care, in the NHEA). GDP estimate also includes consumption of fixed capital, some EPA programs, payments for civil service retirement funds.						

Table 22. Major Sources of Differences between Total National Health Expenditures (CMS) and Total Health-Related Final Expenditures in GDP (BEA)
[Billions of dollars]

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1. CMS: National Health Expenditures	1,125.1	1,190.0	1,265.2	1,352.9	1,469.2	1,602.4	1,735.2	1,855.4	1,982.5	2,112.5	2,239.7	2,338.7
2. BEA: Health-Related Expenditures in GDP	1,107.3	1,185.8	1,255.4	1,351.5	1,466.7	1,597.9	1,718.5	1,832.8	1,961.7	2,070.2	2,191.9	2,309.5
3. Discrepancy, CMS - BEA (In. 4 - 9 + 15 + 19 + 26)	17.8	4.2	9.8	1.4	2.5	4.5	16.7	22.5	20.8	42.3	47.8	29.2
4. Expenditures that are included in NHE and that are excluded from health-related GDP	26.4	28.5	31.7	34.0	38.0	43.6	47.3	51.1	53.7	56.6	58.8	60.4
5. Federal research grants and state and local gov't research (education-related in GDP)	10.8	11.7	14.1	15.1	17.0	18.9	20.3	22.2	22.9	23.4	23.5	23.8
6. DOD hospitals; DOD and DHS health expenditures (defense-related in GDP)	9.3	10.0	10.4	11.1	12.4	15.6	17.6	19.0	20.2	21.8	23.0	23.7
7. Administration of private philanthropy; funds for private research	2.6	2.9	3.2	3.6	4.0	4.3	4.5	4.6	5.0	5.5	6.0	6.3
8. Industrial inplant services, other personal health care	3.6	3.8	4.0	4.3	4.5	4.7	5.0	5.3	5.6	5.9	6.3	6.6
9. Expenditures that are in health-related GDP and that are excluded from NHE	28.3	34.5	36.1	38.2	39.7	40.7	44.6	47.9	52.4	56.7	60.7	63.5
10. Additional ambulance services and ambulatory health care services in GDP	6.0	8.6	9.1	9.3	9.5	10.3	10.9	12.1	12.9	14.1	15.8	17.8
11. Portion of private workers' compensation that is not in the NHEA (non-health for the NHEA)	13.8	14.1	13.7	14.5	15.2	14.5	16.5	18.0	20.9	22.6	22.1	21.2
12. Federal government expenditures: consumption of fixed capital, EPA health programs, OPM payments to health-related federal civil service retirement funds	9.5	10.1	10.6	11.1	11.3	11.7	12.1	12.7	12.6	13.3	14.2	14.4
13. Expenditures of private nursing homes for persons with developmental disabilities (BEA's estimate of these services is larger in most years)	-2.2	0.3	1.1	1.6	1.9	2.3	2.9	2.7	3.4	3.9	5.6	6.9
14. Income loss insurance	1.2	1.4	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
15. Differences (NHE-GDP) that arise partly from the use of different data sources	-32.4	-38.9	-33.5	-37.0	-41.1	-46.5	-36.8	-53.9	-56.0	-48.5	-51.7	-76.0
16. Non-federal hospital services	-19.8	-22.6	-18.8	-19.6	-22.0	-32.0	-21.0	-26.2	-25.6	-21.5	-26.6	-41.2
17. Private health insurance (other than workers' comp and privately managed Medicare/Medicaid)	-6.9	-11.5	-10.2	-10.5	-9.2	-3.4	-2.5	-13.5	-12.2	-5.5	-6.0	-12.7
18. Private investment in equipment	-5.7	-4.8	-4.5	-6.9	-10.0	-11.1	-13.3	-14.2	-18.2	-21.4	-19.1	-22.0
19. Other differences in estimates (NHE-GDP)*	5.7	2.1	-1.4	-6.1	-6.0	-9.6	-11.8	-8.2	-15.4	-10.1	-8.3	-4.0
20. Nondurable goods	5.7	5.3	5.3	4.6	3.9	2.5	3.8	5.8	5.6	5.1	5.0	3.9
21. Prescription drug sales (net of government outlays in NHE estimate)	-5.6	-10.6	-13.8	-16.5	-20.5	-19.2	-22.2	-24.3	-25.0	-26.2	-25.1	-17.2
22. Eyewear and other durable goods, net of home health equipment rental	-5.9	-8.8	-10.2	-12.2	-11.8	-12.9	-12.5	-13.6	-14.5	-15.6	-17.6	-17.6
23. Private investment in structures	-2.2	-1.6	-0.5	-1.7	-1.1	-2.0	-2.3	-1.9	-1.9	-1.1	-1.2	-1.4
24. Government investment in structures and equipment	0.7	0.2	0.1	0.6	1.0	0.4	0.8	2.4	1.7	3.7	3.9	3.9
25. Other differences in government sales and expenditures that lead to differences in total health expenditures	13.0	17.6	17.8	19.0	22.4	21.5	20.7	23.5	18.7	24.0	26.7	24.4
26. Other estimates and adjustments (NHE - GDP)*	46.2	47.0	49.0	48.8	51.4	57.7	62.5	81.5	91.0	101.1	109.6	112.1
27. NHE: Other personal health care (not including industrial inplant services)	24.5	26.5	30.0	32.8	37.4	41.7	45.4	48.0	51.3	56.8	60.0	61.5
28. NHE: Other adjustments	0.2	-0.9	-0.2	-0.1	0.8	-0.2	0.5	0.0	0.3	2.6	2.2	5.1
29. GDP: Adjustments to estimate final commodity demand and other adjustments	-22.2	-27.8	-28.9	-26.6	-26.2	-26.8	-30.0	-37.9	-38.7	-48.9	-52.7	-53.9
30. GDP: Final consumption expenditures of NPISHs	0.6	6.4	9.8	10.6	13.0	10.5	13.5	4.4	-0.7	7.2	5.3	8.3

Line 5: Table 20, lines 4 + 16. Line 6: Table 20, lines 3 + 6 + Table 11, line 5 + Table 13, line 2. Line 7: Table 17, lines 2 + 3. Line 8: Table 12, line 1. Line 10: Table 6, line 9 - line 3. Line 11: Table 16, lines 4 - 8. Line 12: Table 20, lines 10 + 11 + 12. Line 13: Table 10, line 7 - 3. Line 14: Table 16, line 3. Line 16: Table 11, line 17. Line 17: Table 16, lines 7 + 9. Line 18: Table 18, line 15. Line 20: Table 14, line 5. Line 21: Table 13, lines 6 - 2. Line 22: Table 15, line 5 + Table 6, lines 7 - 2 - 10. Line 23: Table 18, line 14. Line 24: Table 18, line 16 + line 17. Line 25: (Table 20 lines 13+23 + Table 9, line 2) - (Table 20 lines 20 + 21 + Table 9 line 6). Line 27: Table 12, line 9 - 1. Line 28: Net sum of these adjustments in Tables 5, 6, 8, 9, 10. Line 29: Net sum of these adjustments in Tables 5, 6, 8, 9, 10, 11. Line 30: Table 17, line 4.

*Some of the differences in expenditures and adjustments in these rows may appear as offsetting differences elsewhere. As the text explains, for example, some of NHE for other personal health care may appear elsewhere in the GDP data.