

Household healthcare spending: comparing the Consumer Expenditure Survey and the National Health Expenditure Accounts, 2011-2014

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Healthcare spending has consistently increased in dollar amount and as a share of household expenditures and income, regardless of whether the overall economy is expanding or contracting. For this reason it is crucial to understand the various data sets that measure healthcare spending. Two major sources of healthcare spending data are the Bureau of Labor Statistics' Consumer Expenditure Survey (CE) and the Centers for Medicare & Medicaid Services' National Health Expenditure Accounts (NHEA).¹

This article compares annual aggregate CE and NHEA household healthcare expenditures from 2011 to 2014. For each year examined, CE-NHEA spending ratios were calculated for all relevant categories.

Findings show the following:

- CE-NHEA ratios for total healthcare ranged from 0.69 in 2011 to 0.87 in 2014.
- From 2013 to 2014, CE-NHEA ratios increased dramatically for total health insurance (0.73 to 1.04) and for private health insurance (0.67 to 1.05).
- The highest CE-NHEA ratios were for premium payments to the Medicare Supplementary Medical Insurance (SMI) Trust Fund (1.03 to 1.08).
- The lowest CE-NHEA ratios were for medical supplies and nonprescription drugs (0.45 to 0.47).

Data sources and methodology

Conducted continuously since 1980, the CE has two components, a quarterly Interview Survey and a weekly Diary Survey. Each component has an independent sample of consumer units.² The CE collects information on all spending categories such as food, clothing, housing, and transportation, as well as healthcare.³

The NHEA provide the official estimate of total healthcare spending in the United States. Dating back to 1960, the NHEA measures annual aggregate U.S. spending for healthcare goods and services, public health activities, program administration, the net cost of private insurance, and research and other investment related to healthcare.⁴

CE healthcare data represent household payments (after reimbursement) made directly to hospitals and other providers of care, and to insurance companies, for private group and individual health insurance coverage.⁵ Payments to the Federal Government for Medicare Part B and Part D coverage are also included. Like the CE, NHEA household healthcare spending includes direct payments (net of any reimbursement) to providers and third-party insurers.⁶

The CE obtains information from individual consumer units, while the NHEA uses secondary data sources, such as the Services Annual Survey and the Economic Census, both produced by the U.S. Census Bureau.⁷ The CE and NHEA also differ in how spending is categorized. In the CE, spending is categorized by the type of service provided, while in the NHEA, the type of establishment providing the service generally determines what is included in a spending category. For example, the CE has separate categories for inpatient hospitalization and other medical services (outpatient hospital care, emergency room services, etc.), but the NHEA places these services in its hospital care category.

Adjustments were made to the spending categories so that CE and NHEA components would be as comparable as possible. For example, the CE eye care services category was combined with the other professional services category to better align the data with the NHEA other professional services category.⁸

The CE and the NHEA differ in the populations they cover. The CE is designed to represent the U.S. civilian noninstitutional population and excludes those living in institutions, such as nursing homes or prisons, and active-duty members of the U.S. Armed Forces living on base. The NHEA covers the larger resident population, which includes all persons, both military and civilian, living in the United States.⁹

The NHEA estimates were adjusted so that they refer to the same population concept as the CE. A multiplier was computed for each year covered by the research by calculating the ratio of the population covered by the CE to the population covered by the NHEA.¹⁰ This method accounts for differences in population size, not for spending differences in the populations covered by the two data sources. CE-NHEA spending ratios were then computed.

Findings

Table 1 shows CE estimates of aggregate expenditures for healthcare and CE-NHEA healthcare spending ratios. In 2014, CE aggregate medical care expenditures were \$540.5 billion or 87 percent of the NHEA estimate of \$623.2 billion.¹¹

The lowest CE-NHEA ratios were found for medical supplies and nonprescription drugs (0.45 to 0.47). This is largely due to the difference in the items in the CE and the NHEA categories. For example, the CE medical supplies and nonprescription drugs category includes spending on adult diapers; nonprescription drugs; nonprescription vitamins; and topicals and dressings. NHEA spending in this category is represented by the NHEA other nondurable medical products category which includes these items, as well as heating pads; sun lamps; syringes and needles; and home testing kits which are part of the CE medical equipment category.

The CE physicians' services, lab tests or x-rays, and other medical care services categories were combined into the physician and clinical services category to provide a better alignment with the NHEA physician and clinical services category. The NHEA category includes physicians' offices, outpatient care centers, such as HMOs and freestanding clinics, and the portion of

medical and diagnostic laboratories services that are billed directly to the patient (rather than through a physician or clinic). CE-NHEA ratios for physician and clinical services ranged from 0.58 to 0.64.¹²

In the CE, physicians' charges that are part of an inpatient hospital bill are included in the hospital care category. All other physicians' charges are part of the physician and clinical services category. In the NHEA, physicians' services provided in an inpatient or outpatient hospital setting, HMO (health maintenance organization), or freestanding clinic could be included in the physician and clinical services category depending on the nature of the relationship (for example: contract or salaried employee) the physician has with the particular entity. This means that some inpatient charges included in the CE hospital care category could be included in the NHEA physician and clinical services category. Similarly, some hospital outpatient physicians' charges could be part of the NHEA physician and clinical services category not the NHEA hospital care category.¹³

The CE physician and clinical services category includes ambulance services, emergency room services, and outpatient hospital care. In the CE, emergency room services and outpatient care could be provided by a hospital, HMO, or free-standing clinic. The NHEA physician and clinical services category includes care provided by HMOs or freestanding clinics; emergency room services and outpatient care provided in a hospital setting are included in the hospital care category. Similarly, the CE lab tests or x-rays category includes treatment by hospitals, HMOs, and freestanding clinics, while the NHEA places lab tests or x-rays provided by a hospital in the hospital care category. In the NHEA, ambulance charges are not part of the physician and clinical services category.¹⁴

The CE-NHEA ratios for premium payments to the Medicare SMI Trust Fund have been quite similar over time, with a range of 1.03 to 1.08. This is probably the result of the way that the CE Interview Survey accounts for Medicare Part B (Medical Insurance) premium payments. Respondents are asked about the number of household members enrolled in Medicare. Each person with Medicare coverage is assumed to have Medicare Part A (Hospital Insurance) and is then assigned the standard Medicare Part B monthly premium (\$104.90 in 2014).¹⁵ The CE does not take into account low-income beneficiaries with state buy-in status whose Part B premiums are paid by Medicaid. The NHEA subtracts these amounts from premiums paid to the Medicare SMI. In 2014, 18.5 percent of Medicare SMI enrollees had state buy-in status for Part B and/or Part D benefits. Accounting for these subsidies in the CE would reduce CE-NHEA ratios for SMI premiums.¹⁶

In contrast, the CE does not take into account those Medicare beneficiaries with relatively high incomes (\$85,000 for a single person and \$170,000 for a married couple) who are required to pay a greater share of Part B costs. Because the proportion of Medicare enrollees subject to this income-related premium is low (around 5 percent in 2014), CE-NHEA ratios in Table 1 would probably not have increased much if the additional premiums paid were taken into account. Recent legislative changes, however, indicate that not accounting for these premiums will have a greater influence on CE-NHEA ratios in future years.¹⁷

Under Part D, individuals eligible for both Medicare and Medicaid receive a low-income subsidy for Medicare drug plan premiums. Also, some Part D enrollees with relatively high incomes pay an income-related Part D premium. These factors would not affect CE-NHEA ratios for Medicare SMI premiums because CE respondents with Part D stand-alone coverage provide information about the monthly premium paid after any reimbursement is taken into account.¹⁸

During the 2011 to 2013 period, CE-NHEA ratios for private health insurance ranged from 0.67 to 0.76, but increased to 1.05 in 2014. This increase was behind the jump in CE-NHEA ratios for total health insurance from 0.73 in 2013 to 1.04 in 2014. More consumer units reported health insurance expenditures in 2014 than in 2013 because of an improvement in interview survey questions about spending on health insurance.¹⁹

CE-NHEA ratios for prescription drug spending ranged from 0.93 to 1.01. The NHEA prescription drugs category includes spending on items from retail outlets and mail-order pharmacies only, while the CE category also includes items obtained from other sources, such as health maintenance organization and outpatient hospital pharmacies.²⁰

CE-NHEA hospital care ratios ranged from 0.47 to 0.64. These ratios reflect the fact that the CE category includes spending for inpatient care only while the NHEA category includes outpatient care, outpatient pharmacy purchases, and hospital-based home health and nursing home care.²¹

Conclusions

CE-NHEA ratios for total healthcare spending and its components varied little between 2011 and 2013. Because of an improvement in survey questions about health insurance spending, CE-NHEA ratios for total health insurance and private health insurance were substantially higher in 2014 than in 2013; the 2014 CE-NHEA ratio for total healthcare increased as a result.

The highest CE-NHEA ratios were for premiums paid to the Medicare SMI Trust Fund, while the lowest ratio was for medical supplies and nonprescription drugs. Although some alignment of the CE and NHEA data sets was possible, differences in definitions, sources, and methods appear to be responsible for differences in the estimates.

Table 1. Comparison of aggregate household healthcare expenditures: Consumer Expenditure Survey and National Health Expenditure Accounts, 2011-2014

Expenditure Category	Consumer Expenditure Survey ¹				Ratio of Consumer Expenditure Survey to National Health Expenditure Accounts ²			
	(in Billions)				2011	2012	2013	2014
	2011	2012	2013	2014				
Healthcare, total	403.9	438.2	454.1	540.5	0.69	0.73	0.73	0.87
Health insurance, total	235.1	256.4	280.2	364.3	0.73	0.76	0.81	1.04
Private insurance	182.3	198.8	219.2	299.3	0.67	0.70	0.76	1.05
Medicare SMI ³	52.7	57.6	61.0	64.9	1.03	1.08	1.03	1.03
Medical commodities, total	76.7	81.8	76.1	80.3	0.66	0.69	0.64	0.65
Prescription drugs.....	42.1	45.6	40.4	41.9	0.93	1.01	0.93	0.94
Medical supplies and nonprescription drugs.....	23.0	23.9	24.0	25.4	0.46	0.47	0.45	0.46
Medical equipment.....	11.5	12.3	11.7	13.0	0.53	0.55	0.51	0.55
Medical services, total.....	92.2	100.0	97.9	96.1	0.64	0.67	0.64	0.63
Professional services.....	76.3	80.0	80.3	81.3	0.66	0.68	0.67	0.67
Physician and clinical services	29.9	33.6	32.5	32.1	0.58	0.64	0.60	0.59
Dental services.....	34.9	33.4	33.3	35.7	0.79	0.74	0.73	0.78
Other professional services	11.5	13.0	14.4	13.5	0.61	0.65	0.71	0.63
Hospital care.....	15.8	20.1	17.6	14.7	0.55	0.64	0.54	0.47

¹ Consumer Expenditure Survey data exclude nursing home care spending.

² National Health Expenditure Accounts data exclude home health care; nursing home care; employee and self-employment contributions and voluntary premiums paid for Medicare Part A; the medical portion of property and casualty insurance; and other health, residential, and personal care expenditures.

³ Premiums paid to the Medicare Supplementary Insurance (SMI) Trust Fund for Part B and Part D coverage.

NOTE: Sums may not equal totals due to rounding. Expenditure categories have been adjusted to make the two data sources as comparable as possible.

SOURCE: The National Health Expenditure Accounts (NHEA) data used to compute CE-NHEA ratios are from the U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services, Downloads, "NHE Tables,"

<https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/nationalHealthAccountsHistorical.html>

Because retrospective adjustments are made when new NHEA data are released, CE-NHEA ratios may differ from those in previous comparison articles.

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Notes

¹See Ann C. Foster, “Household healthcare spending in 2014,” *Beyond the Numbers: Prices and Spending*, vol. 5. no. 13 (U.S. Bureau of Labor Statistics, August 2016, <http://www.bls.gov/opub/btn/volume-5/household-healthcare-spending-in-2014.htm>)

²In the Consumer Expenditure Survey (CE), the consumer unit is the entity on which expenditure reports are collected. Consumer units include families, single persons living alone or sharing a household with others but who are financially independent, or two or more persons living together who share expenses. While "consumer unit" is the proper technical term for the purposes of the CE, it is often used interchangeably with "household" or "family" for convenience.

³ See *BLS Handbook of Methods* “Consumer Expenditures and Income,” last modified date February 25, 2016, <http://www.bls.gov/opub/hom/cex/home.htm>

⁴See “National Health Expenditure Accounts: Methodology Paper, 2014: Definitions, Sources, and Methods,” Centers for Medicare & Medicaid Services, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/DSM-14.pdf>

⁵Under the Affordable Care Act (ACA), individuals are able to purchase private insurance coverage from Federal and state-run health insurance marketplaces. Although this coverage was effective on January 1, 2014, the CE did not begin collecting information about marketplace coverage until the 2015 survey year.

⁶In the CE, out-of-pocket healthcare expenses are any unreimbursed expenses paid directly to the provider of care or to a third-party insurer. The CE classification is similar to the NHEA sponsor concept where household spending includes amounts paid directly to the providers of care, such as hospitals and pharmacies, as well as premiums paid to a third party for private insurance and Medicare minus any reimbursements. For more information, see “National Health Expenditure Accounts: Methodology Paper, 2014: Definitions, Sources, and Methods,” Centers for Medicare & Medicaid Services, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/DSM-14.pdf>

⁷Every 5 years the NHEA undergoes a comprehensive revision that includes the incorporation of newly available source data, methodological and definitional changes, and benchmark estimates from the U.S. Census Bureau’s Economic Census which is available for years ending in 2 and 7. During these comprehensive revisions, the entire NHEA time series is subject to revision. For more information on changes in methods, definitions, and source data that were introduced in the 2014 comprehensive revision, see Centers for Medicare & Medicaid Services, “Summary of 2014 Comprehensive Revision to the National Health Expenditure Accounts,” <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/benchmark2014.pdf>.

The 2014 revisions reflected in this article are not strictly comparable to earlier articles that used NHEA data based on the 2009 revisions – “Household healthcare spending: comparing the Consumer Expenditure Survey and the

National Health Expenditure Accounts, 2009-2012,” http://www.bls.gov/cex/nhe_compare_200912.pdf and Ann C. Foster, “Household healthcare spending: comparing the Consumer Expenditure Survey and the National Health Expenditure Accounts,” http://www.bls.gov/cex/nhe_compare_200710.pdf

Earlier CE-NHEA comparisons based on the 2002 Economic Census include “Consumer Expenditure Survey compared with National Health Expenditure Accounts,” *Consumer Expenditure Survey, 2006-2007*, Report 1021, <http://www.bls.gov/cex/twoyear/200607/csxnhe.pdf> and Ann C. Foster, “Out-of-pocket healthcare expenditures: a comparison,” *Monthly Labor Review*, February 2010, pp. 3-19, <http://www.bls.gov/opub/mlr/2010/02/art1full.pdf>.

The estimates in these works are not strictly comparable with estimates based on the 2009 or the 2014 revisions.⁸The CE data used in this research are unpublished integrated data showing the most detailed (least aggregated) breakdowns available. The NHEA data were obtained from the Centers for Medicare & Medicaid Services, Downloads, “NHE Tables,”

<https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/nationalHealthAccountsHistorical.html>

When the Centers for Medicare & Medicaid Services publish NHEA data for subsequent years, data from previous years are often revised. The NHEA data cited in this research are those released with the 2014 estimates on December 3, 2015. Because of these revisions, data for 2011-2012 that were released with the 2012 estimates on January 07, 2014 and used in “Household healthcare spending: comparing the Consumer Expenditure Survey and the National Health Expenditure Accounts 2009-2012,” may not be the same as comparable estimates released in 2014. The 2011-2012 CE data are the same in both studies.

⁹See “Population Estimates Terms and Definitions,” U.S. Census Bureau, <http://www.census.gov/popest/about/terms.html>.

¹⁰This method has been used in previous CE data comparison research. For more information, see Ann C. Foster, “Out-of-pocket healthcare expenditures: a comparison,” <http://www.bls.gov/opub/mlr/2010/02/art1full.pdf> and Thesia I. Garner, George Janini, William Passero, Laura Paszkiewicz, and Mark Vendemia, “The CE and the PCE: a comparison,” *Monthly Labor Review*, September 2006, pp. 20-46, <http://www.bls.gov/opub/mlr/2006/09/art3full.pdf>.

The multipliers used for the years 2011–2014 were:

<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
0.983014	0.990573	0.994225	0.998475

¹¹CE estimates exclude spending on nursing home care. NHEA estimates exclude home health care; nursing home care provided in freestanding nursing homes and continuing care retirement communities; employee and self-employed contributions and voluntary premiums paid for Medicare Part A (Hospital Insurance); the medical portion of property and casualty insurance; and other health, residential, and personal care expenditures. Some out-of-pocket spending on home health and nursing home care could not be excluded from NHEA estimates because they are included in spending on hospital services and could not be separated out.

¹²In previous CE-NHEA comparison articles, the CE lab tests and x-rays; and other medical care services categories were part of the hospital care category. This change also better aligns the CE professional services category with the NHEA professional services category which include services rendered in establishments of health professionals. For more information, see “National Health Expenditure Accounts: Methodology Paper, 2014: Definitions, Sources, and Methods,” Centers for Medicare & Medicaid Services, [Op.Cit.](#)

¹³See “National Health Expenditure Accounts: Methodology Paper, 2014: Definitions, Sources, and Methods,” Centers for Medicare & Medicaid Services, [Ibid.](#)

¹⁴ The NHEA includes ambulance charges in the other health, residential, and personal care expenditures. For more information, see “National Health Expenditure Accounts: Methodology Paper, 2014: Definitions, Sources, and Methods,” Ibid.

¹⁵The Social Security Act allows some people not otherwise eligible for Medicare Part A (Hospital Insurance) to obtain coverage by paying a monthly premium. In 2014, premiums collected from such voluntary participants (or paid on their behalf by Medicaid) amounted to about \$3.3 billion. The standard monthly premium was \$426, with a reduced premium of \$234 for individuals with 30 quarters of covered employment. For more information, see “2016 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and the Federal Supplementary Medical Insurance Trust Funds,” July 11, 2016, Centers for Medicare & Medicaid Services, pp. 202-204, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2016.pdf>

It should be noted that the NHEA includes employee and self-employed contributions paid to the Medicare HI Trust Fund and voluntary premiums paid to the HI Trust Fund for Part A coverage. In the CE, employee and self-employed contributions to the HI trust funds are treated as deductions from income for Social Security purposes, while information about voluntary Part A premiums is not collected.

¹⁶In 2014, average monthly enrollment in Medicare Hospital Insurance (HI) and/or Supplementary Medical Insurance (SMI) was 55.8 million persons. Of these, 9.3 million had state buy-in status, with Medicaid providing assistance with Medicare SMI premiums. For more information, see Table I.1 and Table I.9 in “2015 CMS Statistics Reference Booklet, Centers for Medicare & Medicaid Services, November 23, 2015, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/CMS-Statistics-Reference-Booklet/2015.html>

¹⁷The Kaiser Family Foundation projected that in 2014, 5.1 percent of Part B enrollees (2.5 million persons) paid the income-related premium, but is projected to increase to 8.3 percent by 2019. This is because the income levels have not been indexed for inflation, more enrollees will be subjected to the income related premium for both Part B and Part D. In 2018, the share of Part B and Part D premium costs will increase for some groups subject to income related premium, namely those with incomes between \$133,501 and \$160,000 and those with income between \$160,001 and \$214,000. For more information, see Juliette Cubanski and Tricia Neuman, “Medicare’s Income-Related Premiums: A Data Note,” Kaiser Family Foundation, June 3, 2015, <http://kff.org/medicare/issue-brief/medicares-income-related-premiums-a-data-note/>

¹⁸For more information about the income-related Part D premium, see Juliette Cubanski and Tricia Neuman, Ibid.

¹⁹The proportion of households reporting quarterly spending on health insurance increased from 65.5 percent in 2013 to 68.0 percent in 2014. After cognitive testing, the BLS concluded that the new questions produced better estimates. For Interview Survey sample respondents who reported health insurance spending using both the old and new questions, mean spending increased 26.2 percent using the new questions. For more information, see “Consumer Expenditures – 2014,” Note on health insurance, USDL-15-1696, Bureau of Labor Statistics, September 3, 2015, <http://www.bls.gov/news.release/pdf/cesan.pdf>

²¹In the CE, hospital-based outpatient care is part of the physician and clinical services category, while outpatient pharmacy purchases are part of the prescription drugs category. Because the NHEA includes these charges in the hospital care category, it would decrease the CE-NHEA ratio. The CE does not collect information about expenses for home health care whether provided by a hospital or separate entity. Although home health care provided by freestanding agencies was subtracted from the NHEA total, it was not possible to separate hospital based home health care from the NHEA hospital care category. A similar situation occurred for nursing home care. The inclusion of home health and nursing home care in the hospital care category would increase the CE-NHEA ratio for hospital care.