

Age and Gender Estimates in the National Health Expenditure Accounts: Definitions, Sources, and Methods

Introduction

Estimates of health spending by age and gender focus on the different expenditure, utilization, and financing mechanisms unique to males and females in various age groups. These estimates are linked to the National Health Expenditure Accounts and use the same definitions for the types of service and sources of funds.¹ Thus, our age and gender estimates are on an establishment basis, grouping services together according to place of service, rather than according to type of service. For example, hospital-based nursing homes are shown in our hospital category; only freestanding nursing homes are shown in the nursing home category.

Age and gender estimates are shown for personal health care (PHC), rather than national health expenditures (NHE), because data is not available to break out the non-PHC categories by age and/or gender group. PHC expenditures include spending for hospital care, physician and clinical services, dental care, other professional services, home health care, nursing home care, other personal care, and health care products purchased in retail outlets (such as prescription drugs or over-the-counter medicines sold in pharmacies or eyeglasses sold in optical goods stores). Included in NHE but not PHC are estimates of spending for public health programs, administration, and investment.

We disaggregate PHC by gender into the following seven age categories: 0-18, 19-44, 45-54, 55-64, 65-74, 75-84, and 85 and over. Analysis and data are also provided for three broader age groupings: children (age 0-18), working-age adults (age 19-64), and the elderly (age 65 and over). We have produced estimates of health spending by age for selected years including 1987, 1996, 1999, 2002 and 2004 and by age and gender for 2004.

¹ For a complete methodology of the historical national health expenditure accounts, <http://www.cms.hhs.gov/NationalHealthExpendData/>.

Data Sources

Since no single source of comprehensive health spending by age and gender exists, we used several sources and methods to develop these estimates. The table below lists the data sources that we used to create these estimates.

#	Data Source	Years Used	Reference
1	Medical Expenditure Panel Survey (MEPS)	1996-2004	http://meps.ahrq.gov/
2	National Medical Expenditure Survey (NMES)	1987	http://www.icpsr.umich.edu/cocoon/ICPSR/SERIES/00045.xml
3	Medicare Current Beneficiary Survey (MCBS)	1992-2004	http://www.cms.hhs.gov/mcbs/
4	National Hospital Discharge Survey (NHDS)	1987-2004	http://www.cdc.gov/nchs/nhds.htm
5	National Hospital Ambulatory Medical Care Survey (NHAMCS)	1992-2004	http://www.cdc.gov/nchs/ahcd.htm
6	National Ambulatory Medical Care Survey (NAMCS)	1985, 1989-2004	http://www.cdc.gov/nchs/ahcd.htm
7	National Survey of Ambulatory Surgery (NSAS)	1994, 1996-2004	http://www.cdc.gov/nchs/nsas.htm
8	National Nursing Home Survey (NNHS)	1995, 1997, 2004	http://www.cdc.gov/nchs/nnhs.htm
9	National Home and Hospice Care Survey (NHHS)	1994, 1996, 1998	http://www.cdc.gov/nchs/nhhcs.htm
10	2000 Census Group Quarters Population	2000	http://www.census.gov/population/www/cen2000/briefs/phc-t7/index.html
11	National Claims History Files (NCH)	1992, 1993, 1996, 1999-2004	http://www.cms.gov/FilesForOrderGenInfo/
12	Medicaid Analytic eXtract (MAX) data	1995-2004	http://www.cms.hhs.gov/MedicaidDataSourcesGenInfo/07_MAXGeneralInformation.asp
13	Medicaid Statistical Information System (MSIS)	1995-2004	http://www.cms.hhs.gov/MedicaidDataSourcesGenInfo/02_MSISData.asp

General Methods

For Medicare and Medicaid we use administrative data to develop health spending estimates by age and gender. The Medicare estimates are based on data from the National Claims History Files, while the Medicaid estimates are based on data from the Medicaid Statistical Information system, with additional information from the Medicaid Analytic eXtract System. We develop all other age/gender-based spending estimates using one of two general methods.

The first method derives spending by age and gender by multiplying (i) cost per use data from household surveys, such as the Medical Expenditure Panel Survey (MEPS) times (ii) utilization counts by age and gender from provider surveys, such as the National Ambulatory Medical Care Survey. In the MEPS, source of funds data are aligned by primary payer and include all secondary sources of payments. For example, if a MEPS respondent had a doctor visit that cost \$50, private health insurance may cover \$40 with the remainder out-of-pocket. In this example, we recorded \$40 as private health

insurance (the primary payer) and \$10 as out-of-pocket spending (secondary payer). In this manner we aggregated all spending data for each payer, while also recording the number of visits/use for each primary payer. Recording payment data separately for primary and secondary payers allows us to calculate the average payment per visit/use for each payer -- total payments by source of funds (primary and secondary) divided by the number of visits (on a primary payer basis). We then multiply the average payment per use by age, gender and source of funds times the utilization data from provider surveys which include use by both institutionalized and non-institutionalized individuals. Though this method implicitly assumes that the cost per use/visit for an institutional individual is the same as for a non-institutionalized individual, it captures the higher utilization expected from the institutionalized population. Spending and utilization may be underreported in the household surveys because they predominantly rely on respondent recall to identify use, rather than provider records.

If no provider survey is available, a second method is used to calculate health spending by age and gender. For these services (which include home health, other professional, dental, prescription drugs, other personal, non-durables, and durables), we calculate total health spending by age and gender using MEPS data for the non-institutionalized population. We then adjust the resulting estimates using relative cost factors of the institutional and non-institutional population that were derived from Medicare Current Beneficiary Survey (MCBS) and MEPS data.

In some instances, source data and methodological constraints required us to average the resulting health spending estimates by age or gender over several years to reflect more reasonable trends over time and within age and gender groups. Where possible, we compared our estimates to other service specific health spending by age and or gender estimates to ensure reasonableness.

Medicare Current Beneficiary Survey (MCBS) data was used to supplement the MEPS data for the population age 65 and over. These data sets were particularly useful in the inpatient hospital and prescription drug components, where the higher sample sizes in MCBS enabled us to improve upon the reliability of the MEPS data. We use MEPS as a primary data source rather than MCBS because we need to have a consistent data source for all age groups, not just the elderly. The final step for both methods was to scale aggregate spending levels to match the control totals in the national health expenditure accounts by type of service and source of funding.

As a final check for reasonableness we compared the NHE by age and gender estimates to other published studies. For most types of service, we were able to compare our age and gender distributions with the age and gender distributions provided in the published MEPS results. Definitional differences, most specifically the exclusion of the institutionalized population in MEPS, accounted for most of the discrepancies in these series.²

² For a more complete description of these definitional differences, see Sing, M. et al.: "Reconciling Medical Expenditure Estimates from the MEPS and the NHE, 2002." *Health Care Financing Review* 28(1):25-40, Fall 2006.