



AGENCY FOR HEALTHCARE RESEARCH AND QUALITY



STATISTICAL BRIEF #531

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Healthcare Expenditures for Heart Disease among Adults Age 18 and Older in the U.S. Civilian Noninstitutionalized Population, 2017

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Highlights

- In 2017, about 1 of every 12 adults age 18 and older had healthcare expenditures for the treatment of heart disease.
- The percentage of adults with reported expenses for heart disease was higher for those age 65 and older, non-Hispanic whites, and those in poor/low-income families, and lower for those in the West region of the United States as defined by the U.S. Census Bureau.
- Annual healthcare expenditures for the treatment of heart disease for adults in the civilian noninstitutionalized population totaled \$108.7 billion in 2017 (with a mean of \$5,216 per adult with any heart disease expense).
- The largest portion of direct medical spending on heart disease in 2017 was for inpatient hospital care (54.8 percent).

Introduction

In 2017, heart disease accounted for 23.0 percent of total deaths in the United States,¹ and about 7.0 percent of total annual healthcare

¹ Heron, M. *Deaths: Leading Causes for 2017*. National Vital Statistics Reports, vol. 68, no. 6. 2019. National Center for Health Statistics, Hyattsville, MD.

expenditures were for heart disease treatment in adults.² Heart disease as defined for this Statistical Brief includes coronary artery disease, angina, heart attacks, dysrhythmias, and heart failure. For more than two decades, the Medical Expenditure Panel Survey-Household Component (MEPS-HC) has been a major data source for national estimates of healthcare expenses for the U.S. civilian noninstitutionalized population. This Statistical Brief presents estimates for healthcare expenditures for the treatment of heart disease by selected characteristics among adults based on the 2017 MEPS-HC. All analyses use MEPS full-year person-level sampling weights, which take disproportionate sampling and survey nonresponse into account. Only differences between estimates that are statistically significant at the 0.05 level are mentioned in the text of this Statistical Brief.

Findings

Expenditures for heart disease treatment by selected characteristics (figures 1 and 2)

In 2017, an estimated 8.3 percent of adults age 18 years and older in the U.S. civilian noninstitutionalized population (about 20.9 million adults) had some healthcare expenditures for the treatment of heart disease (figure 1). The percentage with expenses was highest for adults age 65 and older (24.5 percent) followed by age 45–64 (7.4 percent) and age 18–44 (1.6 percent).

About 1 of every 10 non-Hispanic white adults (9.9 percent) had expenditures for the treatment of heart disease, while a lower percentage of non-Hispanic blacks (6.8 percent), non-Hispanic Asians (5.1 percent), and Hispanics (4.5 percent) had healthcare expenses for this condition (figure 1). Men were more likely than women to have had expenses for heart disease treatment (9.6 versus 7.1 percent) (figure 1).

A higher percentage of adults in poor and low-income families had expenditures for heart disease (9.8 and 10.9 percent, respectively) than in families with middle or high incomes (7.6 and 7.5 percent, respectively) (figure 2). About 9 percent of adults had healthcare expenses for the treatment of heart disease in each geographic region except the West, where only 6.4 percent had expenses for this condition.

² Percentage equals direct medical spending for the treatment of heart disease (\$108.7 billion) multiplied by 100, over total healthcare expenditures (\$1,543.8 billion) for adults age 18 years and older in the U.S. civilian noninstitutionalized population (Medical Expenditure Panel Survey-Household Component, 2017).

Expenditures for heart disease treatment by type of services (figures 3–5)

Among all adults with any expense for the treatment of heart disease, nearly three-quarters (71.5 percent) had prescription drug expenses, and two-thirds (67.0 percent) had expenses for medical providers' office-based care (figure 3). Smaller proportions had expenses for outpatient hospital visits (15.2 percent), emergency room visits (13.6 percent), inpatient hospital stays (12.7 percent), and home health visits (6.0 percent).

Among adults with reported expenses for the treatment of heart disease, median annual total expenditures per adult for treatment of the condition were \$691, and the mean was \$5,216 (figure 4). Of the six service types, median inpatient expenses for heart disease treatment among adults with expenses for inpatient stays for the condition were highest (\$11,716). The next highest service type was home healthcare, for which median expenses for heart disease treatment among adults with expenses for home health visits for that condition were \$3,975. Median expenses for prescription medicines for treatment of heart disease among those with any expense for these medicines were lowest (\$153). Across service categories, mean expenses were 1.9 to 5.5 times higher than median expenses because a relatively small proportion of adults had very high expenses.

In 2017, an estimated \$108.7 billion was spent for treatment of heart disease among adults in the U.S. civilian noninstitutionalized population (figure 5). The largest portion (54.8 percent) of this spending was for inpatient hospital care. The remaining distribution of total spending was 12.0 percent for medical providers' office-based visits, 11.6 percent for prescription drugs, 9.8 percent for home health visits, 7.5 percent for outpatient hospital care, and 4.3 percent for emergency department care.

Data Source

The estimates reported in this Brief are based on data from the following 2017 MEPS data files:

- Medical Conditions file
- Condition-Event Link file
- Office-Based Medical Provider Visits file
- Outpatient Visits file
- Emergency Room Visits file
- Prescribed Medicines files
- Hospital Inpatient Stays file
- Home Health file
- Full-Year Consolidated Data file

The Medical Conditions file and the Condition-Event Link file used for this analysis are confidential internal use files (available to outside researchers through the Agency for Healthcare Research and Quality Data Center); the rest are public use files. The public use files noted above are downloadable from https://meps.ahrq.gov/data_stats/download_data_files.jsp.

Definitions

Heart disease

In the MEPS-HC, the medical conditions reported by respondents are recorded by the interviewer as verbatim text. Since 2016, medical conditions have been coded to fully specified *International Classification of Disease, 10th Revision, Clinical Modification* (ICD-10-CM) codes (ICD-9-CM codes that were used in prior years were phased out). For this Brief, conditions were regrouped into categories labeled as Clinical Classifications Software Refined (CCSR), which were designed to be as clinically homogeneous as possible. The following CCSR categories were used to identify heart disease.³

CCSR Category	Description
CIR001	Chronic rheumatic heart disease
CIR002	Acute rheumatic heart disease
CIR003	Nonrheumatic and unspecified valve disorders
CIR004	Endocarditis and endocardial disease
CIR005	Myocarditis and cardiomyopathy
CIR006	Pericarditis and pericardial disease
CIR009	Acute myocardial infarction
CIR010	Complications of acute myocardial infarction
CIR011	Coronary atherosclerosis and other heart disease
CIR012	Nonspecific chest pain

³ The CCSR codes are not available in the public use version of the 2017 Medical Conditions file. However, both CCSR codes and 3-character ICD-10 codes will be in the 2018 public use file.

CIR013	Acute pulmonary embolism
CIR014	Pulmonary heart disease
CIR015	Other and ill-defined heart disease
CIR016	Conduction disorders
CIR017	Cardiac dysrhythmias
CIR018	Cardiac arrest and ventricular fibrillation
CIR019	Heart failure

Unlike a previous Statistical Brief on the same topic,⁴ the present Brief excludes heart murmurs in the classification of heart disease.

Expenditures

In the MEPS, expenditures on treatment are defined as payments from all sources for prescribed medicines and for care provided in medical providers' offices, hospital outpatient departments, emergency departments, hospitals (inpatient), and patients' homes (home health) (six service types). Payments for over-the-counter drugs are not included in MEPS total expenditures. Sources of payment include direct payments from private insurance, Medicare, Medicaid, out-of-pocket payments, and miscellaneous other sources.

Expenses reported in this Brief were considered to be associated with heart disease if a visit, stay, or purchase of a prescribed medicine was for one of the conditions listed above. Expenditures related to the treatment of heart disease may include expenses associated with other conditions as well if the person received care for multiple conditions concurrently. For each of the six service-specific expenditure categories, the event-level expenditures associated with the treatment of heart disease for each person were summed to create a person-level total.

⁴ Uberoi, N. and Cohen, J. *Expenditures for Heart Disease among Adults Age 18 and Older: Estimates for the U.S. Civilian Noninstitutionalized Population, 2009*. Statistical Brief #393. October 2012. Agency for Healthcare Research and Quality, Rockville, MD.

Age

Individuals were classified into three age groups (age 18–44, age 45–64, and age 65 and older) based on their age at the last time they were eligible for data collection during the year (usually the end of the year).

Race/ethnicity

MEPS respondents were asked if each family member was Hispanic or Latino and about each member's race. Based on this information, categories of race and Hispanic origin were constructed as follows: 1) Hispanic; 2) white non-Hispanic, with no other race reported; 3) black non-Hispanic, with no other race reported; and 4) Asian non-Hispanic, with no other race reported. The "other/multiple races, non-Hispanic" category is not shown separately in this Brief due to small sample sizes or failure to meet minimum precision requirements. However, data from individuals in this category are included in the overall total.

Income

Income was classified based on the percentage of the federal poverty level for total family income, adjusted for family size and composition. A four-category income variable was used: poor (less than 100 percent of the federal poverty level), low-income (100 percent to less than 200 percent), middle-income (200 percent to less than 400 percent), and high-income (greater than or equal to 400 percent) in the year of the data collection.

Census region

The Census region variable was based on the location of the household at the end of the year. If missing, the most recent location available was used.

- Northeast: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
- Midwest: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
- South: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
- West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii

About MEPS

The Medical Expenditure Panel Survey Household Component (MEPS-HC) collects nationally representative data on healthcare use, expenditures, sources of payment, and insurance coverage for the U.S. civilian noninstitutionalized population. The MEPS-HC is co-sponsored by the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS). More information about the MEPS-HC can be found at <http://www.meps.ahrq.gov>.

References

For a detailed description of the MEPS-HC survey design, sample design, and methods used to minimize sources of nonsampling error, see the following publications:

Chowdhury, S.R., Machlin, S.R., and Gwet, K.L. *Sample Designs of the Medical Expenditure Panel Survey Household Component, 1996–2006 and 2007–2016*. Medical Expenditure Panel Survey Methodology Report No. 33. January 2019. Agency for Healthcare Research and Quality, Rockville, MD. https://meps.ahrq.gov/data_files/publications/mr33/mr33.shtml

Cohen, J. *Design and Methods of the Medical Expenditure Panel Survey Household Component*. Medical Expenditure Panel Survey Methodology Report No. 1; Agency for Health Care Policy and Research (AHCPR) Pub. No. 97-0026. 1997. AHCPR, Rockville, MD. https://meps.ahrq.gov/data_files/publications/mr1/mr1.shtml

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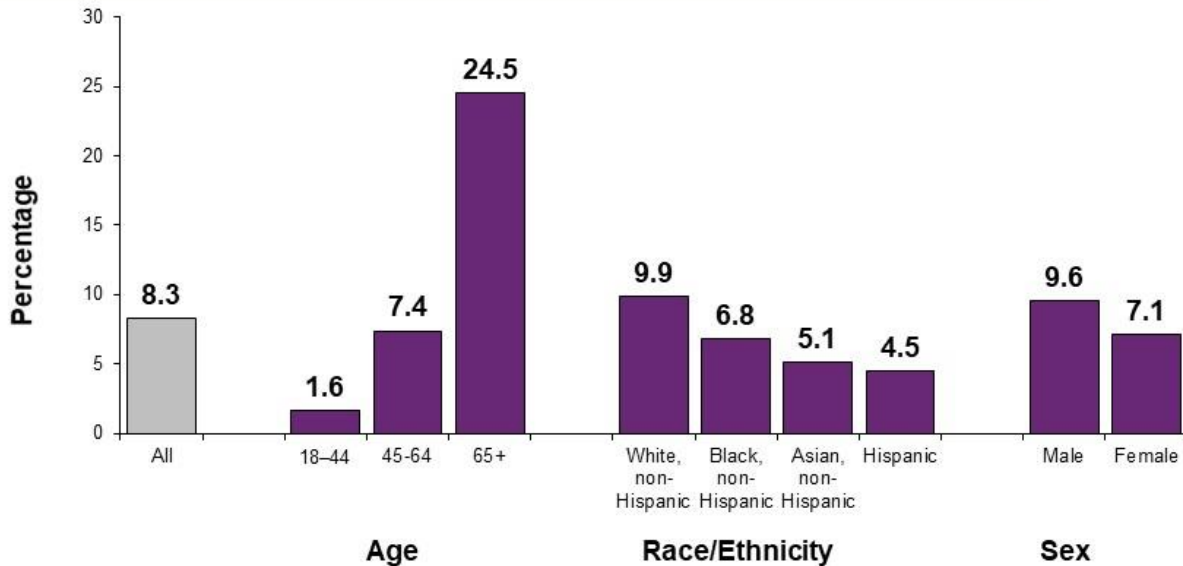
Muhuri, P.K. *Healthcare Expenditures for Heart Disease among Adults Age 18 and Older in the U.S. Civilian Noninstitutionalized Population, 2017*. Statistical Brief #531. July 2020. Agency for Healthcare Research and Quality, Rockville, MD. https://meps.ahrq.gov/data_files/publications/st531/stat531.pdf

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AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of healthcare in the United States. We also invite you to tell us how you are using this Statistical Brief and other MEPS data and tools and to share suggestions on how MEPS products might be enhanced to further meet your needs. Please email us at MEPSProjectDirector@ahrq.hhs.gov or send a letter to the address below:

Joel W. Cohen, PhD, Director
Center for Financing, Access, and Cost Trends
Agency for Healthcare Research and Quality
5600 Fishers Lane, Mailstop 07W41A
Rockville, MD 20857

Figure 1. Percentage with expenses for heart disease treatment by demographic characteristics: Adults age 18 and older, 2017



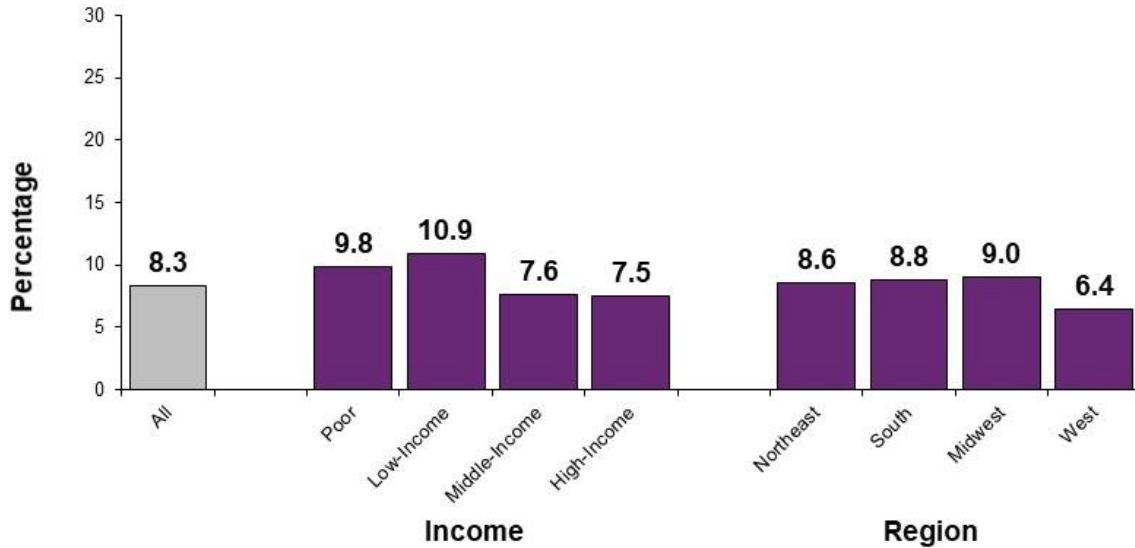
Source: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2017.

Figure 1. Percentage with expenses for heart disease treatment by demographic characteristics: Adults age 18 and older, 2017

Demographic characteristics	Percentage
All	8.3%
18-44	1.6%
45-64	7.4%
65+	24.5%
White, non-Hispanic	9.9%
Black, non-Hispanic	6.8%
Asian, non-Hispanic	5.1%
Hispanic	4.5%
Male	9.6%
Female	7.1%

Source: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2017.

Figure 2. Percentage with expenses for heart disease treatment by income and region: Adults age 18 and older, 2017



Source: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2017.

Figure 2. Percentage with expenses for heart disease treatment by income and region: Adults age 18 and older, 2017

Income and region	Percentage
All	8.3%
Poor	9.8%
Low-Income	10.9%
Middle-Income	7.6%
High-Income	7.5%
Northeast	8.6%
South	8.8%
Midwest	9.0%
West	6.4%

Source: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2017.

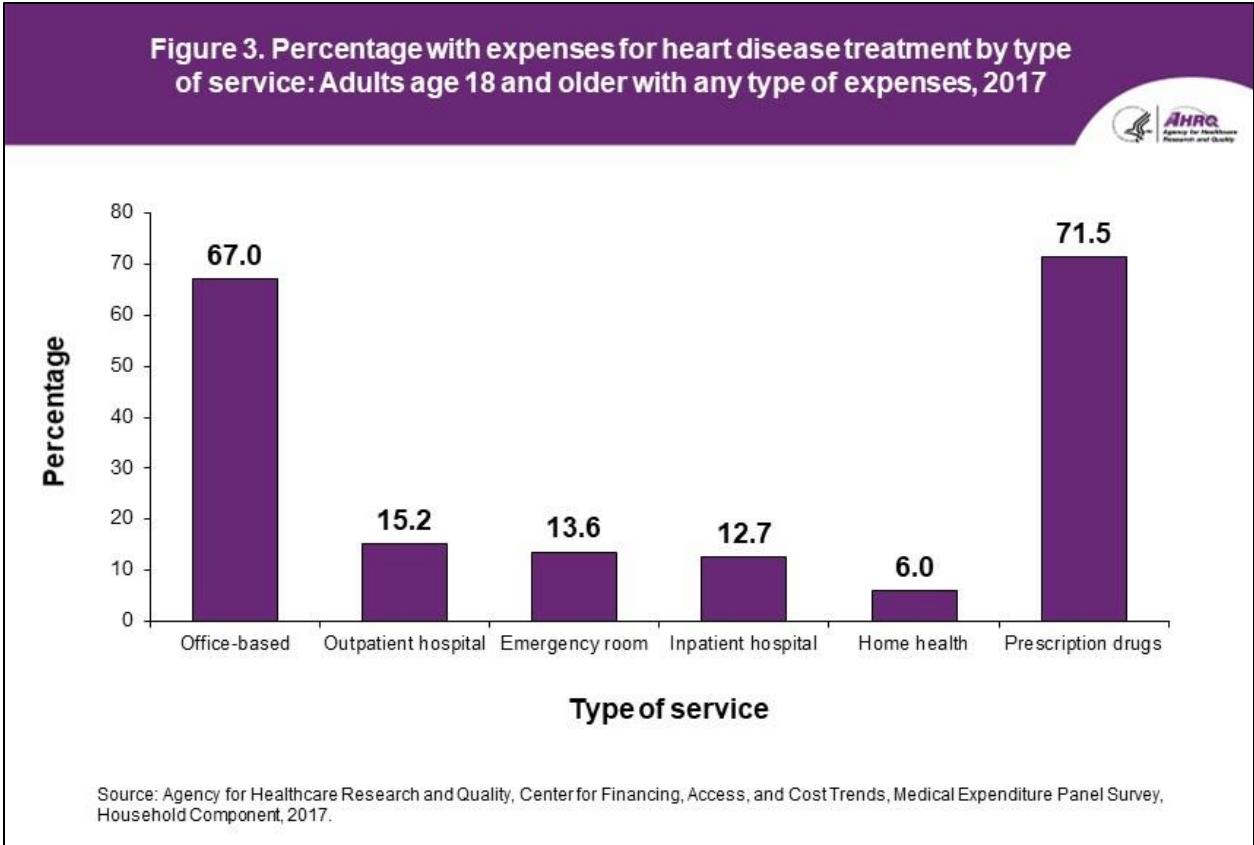


Figure 3. Percentage with expenses for heart disease treatment by type of service: Adults age 18 and older with any type of expenses, 2017

Type of service	Percentage
Office-based	67.0%
Outpatient hospital	15.2%
Emergency room	13.6%
Inpatient hospital	12.7%
Home health	6.0%
Prescription drugs	71.5%

Source: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2017.

Figure 4. Mean and median annual expenditures for heart disease treatment among adults age 18 and older with heart disease treatment expenses, overall and by service type, 2017



Service type	Median (\$)	95% CI	Mean (\$)	95% CI
All categories	691	572–811	5,216	4,498–5,933
Prescription drugs	153	128–178	847	709–986
Office-based	311	277–345	938	802–1,074
Outpatient hospital	644	450–837	2,568	1,953–3,183
Emergency room	866	690–1,043	1,651	1,149–2,152
Home health	3,975	2,130–5,820	8,469	6,459–10,479
Inpatient hospital	11,716	10,011–13,420	22,509	18,093–26,925

Source: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2017.

Notes: CI = confidence interval. For each service type, the mean/median annual expenditures for heart disease treatment are for adults with any expense associated with heart disease treatment for that service type; the N for this calculation varies by service type.

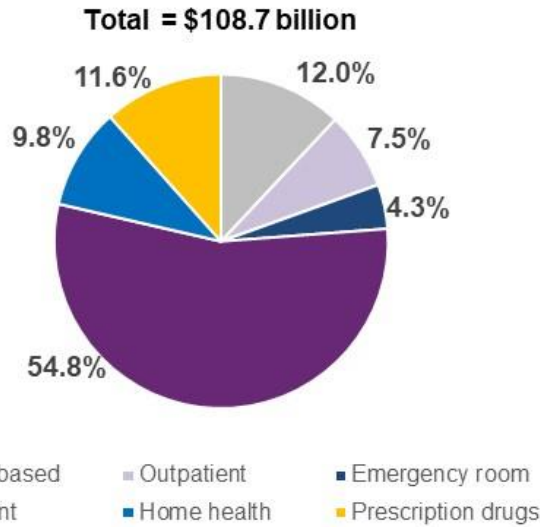
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Notes: CI = confidence interval. For each service type, the mean/median annual expenditures for heart disease treatment are for adults with any expense associated with heart disease treatment for that service type; the N for this calculation varies by service type.

Figure 5. Percentage distribution of total medical expenditures for heart disease treatment by type of service: Adults age 18 and older with heart disease treatment expenses, 2017



Source: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2017.

Figure 5. Percentage distribution of total medical expenditures for heart disease treatment by type of service: Adults age 18 and older with heart disease treatment expenses, 2017

Type of service	Percentage
Emergency room	4.3%
Home health	9.8%
Inpatient	54.8%
Office-based	12.0%
Outpatient	7.5%
Prescription drugs	11.6%

Source: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2017.