Medicare Advantage Versus the Traditional Medicare Program: Costs of Inpatient Stays, 2009–2017

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Brian J. Moore, Ph.D., and Lan Liang, Ph.D.

Introduction

Most individuals eligible for Medicare coverage administered through the Centers for Medicare & Medicaid Services (CMS), a U.S. Federal agency, have the option to receive their benefits by enrolling in either the traditional Medicare program or Medicare Advantage. Through the traditional Medicare program, CMS reimburses healthcare providers directly for the services delivered to beneficiaries. Alternatively, CMS contracts with private health plans to provide coverage to enrollees through the Medicare Advantage program. The private plan receives a set payment per beneficiary from CMS for all Medicare-covered services, adjusted for the health status of its Medicare enrollees. The proportion of Medicare beneficiaries enrolled in Medicare Advantage plans has increased over the past 15 years, from 13 percent of Medicare beneficiaries in 2004 to 34 percent in 2019.[1] The Medicare Advantage enrollment rate varies by State. In 2019, in 14 States plus the District of Columbia less than 21 percent of Medicare beneficiaries were enrolled in the Medicare Advantage program, whereas in 6 States more than 40 percent were enrolled in Medicare Advantage.[1] There are a number of differences in the two types of Medicare programs beyond payments to providers, and researchers have focused on a number of different areas for evaluation.[2,3] However, policymakers and researchers have ongoing interest in the differences in costs and patient outcomes between Medicare Advantage and traditional Medicare enrollees.[4,5]

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents statistics on the costs of hospital inpatient stays among patients aged 65 years and older with a primary expected payer of Medicare Advantage versus traditional Medicare using the 2009–2017 State Inpatient Databases (SID). Data are limited to 18 States that distinguish between Medicare Advantage plans and traditional Medicare in their expected payment source information (See Data Source for a list of the states included). Aggregate costs, average cost, and number of stays are presented separately for Medicare Advantage and traditional Medicare. Hospital charges were converted to costs using HCUP Cost-to-Charge Ratios.[6] In addition, aggregate costs are presented by age and location of patient residence; and number of stays, average cost, and length of stay are presented by clinical condition. Because of the large sample size of the SID data, small differences can be statistically significant. Thus, only

Highlights

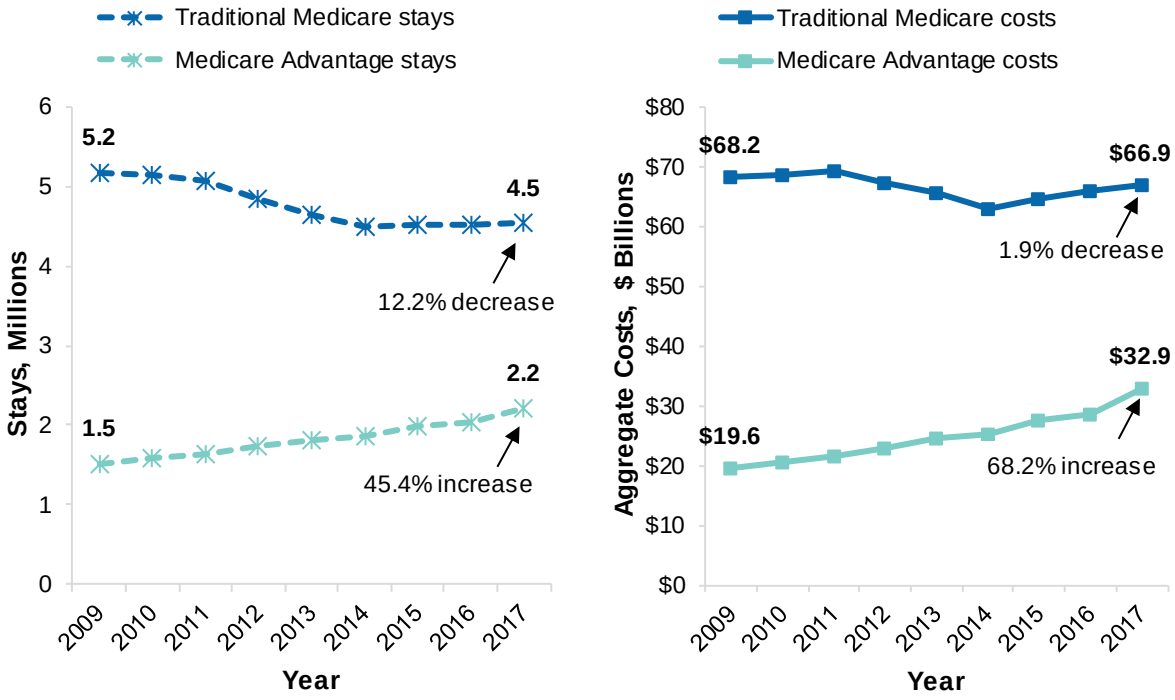
- Between 2009 and 2017, the number and inflation-adjusted aggregate costs of hospital stays with a primary expected payer of Medicare Advantage increased 45.4 and 68.2 percent, respectively. In contrast, the number and aggregate costs of stays with a primary expected payer of traditional Medicare decreased 12.2 and 1.9 percent, respectively, during this same time period.
- In 2017, average cost per stay and length of stay were similar for stays with a primary expected payer of Medicare Advantage ($14,900 per stay; 5.2 days) and traditional Medicare ($14,700 per stay; 5.3 days). This observation held across clinical conditions such as septicemia, heart failure, and osteoarthritis.
- From 2009 to 2017, average inflation-adjusted cost per stay increased 15.5 percent for stays with a primary expected payer of Medicare Advantage and 11.4 percent for traditional Medicare stays.
- Aggregate inpatient hospital costs for traditional Medicare patients aged 80 years and older decreased 13.8 percent, from $28.6 billion in 2009 to $24.7 billion in 2017.
- From 2009 to 2017, across locations of patient residence, aggregate costs among patients with Medicare Advantage increased approximately 60–100 percent, and were similar or decreased somewhat in all locations for traditional Medicare.

differences greater than or equal to 10 percent are discussed in the text.

Findings

Trends in costs and stays for Medicare Advantage and traditional Medicare, 2009–2017
Figure 1 presents trends in the number of stays and aggregate hospital costs for inpatient stays with a primary expected payer of either Medicare Advantage or traditional Medicare from 2009 to 2017 in select States.[a]

Figure 1. Number of hospital inpatient stays and aggregate costs by type of Medicare program in 18 States, 2009–2017



Notes: Hospital charges were converted to costs using HCUP Cost-to-Charge Ratios. See *Costs and Charges* in the *Definitions* section for additional information. Costs were inflation adjusted using the Gross Domestic Product Price Index with 2017 as the index year. Patients aged less than 65 years were excluded from the analysis. Percent change was calculated using unrounded numbers.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2009–2017, from 18 States

- **Hospital stays with a primary expected payer of Medicare Advantage increased 45.4 percent from 2009 to 2017, whereas stays with an expected payer of traditional Medicare decreased 12.2 percent.**

  There were more than twice as many hospital stays with a primary expected payer of traditional Medicare compared with Medicare Advantage in each year from 2009 to 2017 across the 18 States examined. During this time period, hospital stays for patients with Medicare Advantage increased 45.4 percent (from 1.5 to 2.2 million stays), whereas traditional Medicare stays decreased 12.2 percent (from 5.2 to 4.5 million stays).

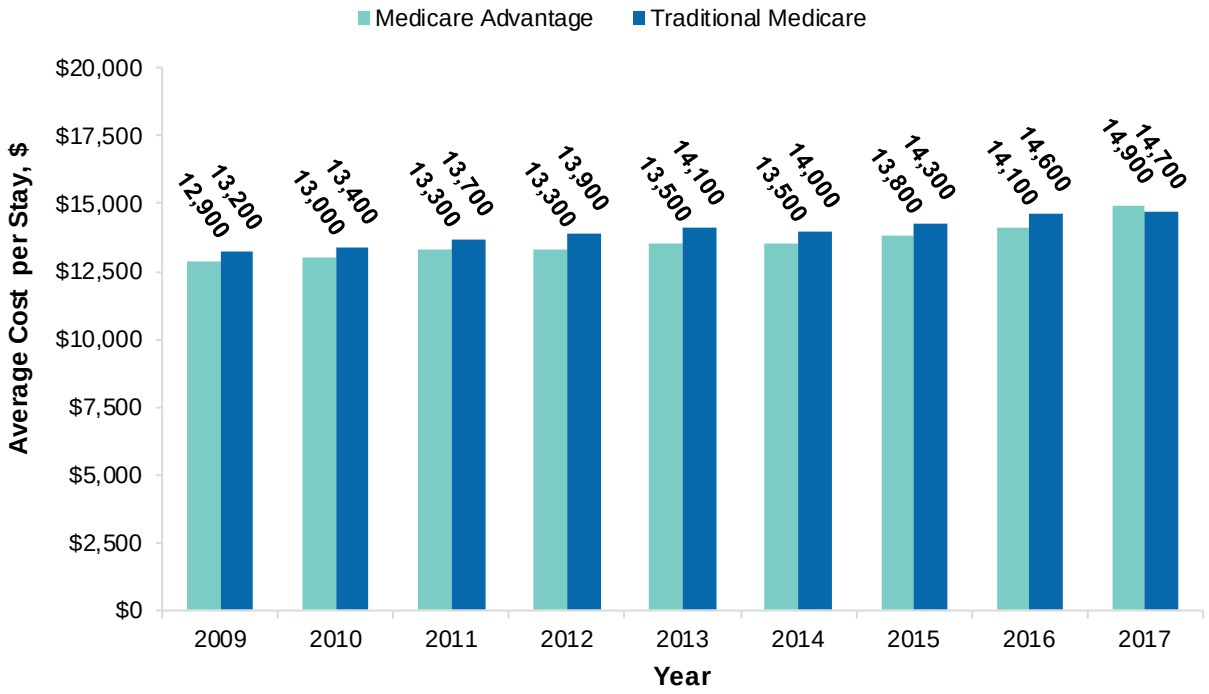
- **Aggregate costs for stays with a primary expected payer of Medicare Advantage increased 68.2 percent from 2009 to 2017.**

[a] The 18 States included in this analysis are California, Connecticut, Florida, Georgia, Iowa, Kentucky, Massachusetts, Maryland, Michigan, Nevada, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin.

Aggregate costs for hospital stays with a primary expected payer of Medicare Advantage increased 68.2 percent between 2009 and 2017 (from $19.6 billion to $32.9 billion). Even though the number of traditional Medicare stays decreased, aggregate costs for hospital stays with traditional Medicare remained stable between 2009 ($68.2 billion) and 2017 ($66.9 billion).

Figure 2 presents trends in the inflation-adjusted average cost per inpatient stay with a primary expected payer of either Medicare Advantage or traditional Medicare from 2009 to 2017 in the 18 included States.

Figure 2. Average cost per inpatient stay by type of Medicare program in 18 States, 2009–2017



Notes: Costs were inflation adjusted using the Gross Domestic Product Price Index with 2017 as the index year. Patients aged less than 65 years were excluded from the analysis.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2009–2017, from 18 States

- **Average cost was similar for stays with a primary expected payer of Medicare Advantage and traditional Medicare from 2009 to 2017 across 18 States.**

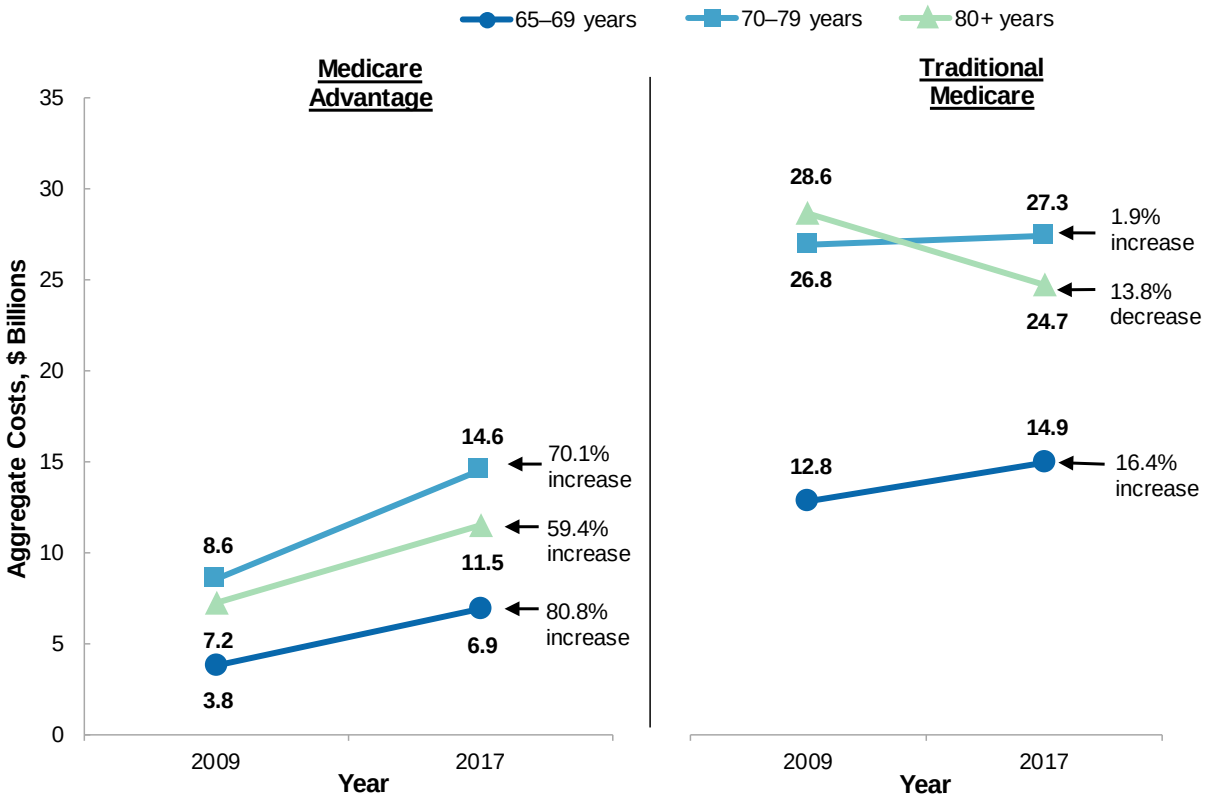
  In 2017, the average cost per hospital stay was similar among stays with Medicare Advantage ($14,900 per stay) and stays with traditional Medicare ($14,700 per stay) as the primary expected payer, a difference of 1.4 percent. The average cost per stay for Medicare Advantage and traditional Medicare stays was also similar each year from 2009 to 2016, with differences across expected Medicare payer ranging from 2.3 to 4.3 percent.

- **Average cost per stay followed an upward trend for both Medicare Advantage and traditional Medicare from 2009 to 2017.**

  The inflation-adjusted average cost for stays with a primary expected payer of Medicare Advantage increased 15.5 percent, from $12,900 in 2009 to $14,900 in 2017. Similarly, average cost for stays with an expected payer of traditional Medicare increased 11.4 percent, from $13,200 in 2009 to $14,700 in 2017.

Costs by patient characteristics for Medicare Advantage and traditional Medicare stays, 2009–2017
Figure 3 presents inflation-adjusted aggregate costs for inpatient stays with an expected payer of either Medicare Advantage or traditional Medicare by age group in 2009 and 2017.

Figure 3. Aggregate costs of Medicare Advantage and traditional Medicare inpatient stays by age group in 18 States, 2009 and 2017



Notes: Costs were inflation adjusted using the Gross Domestic Product Price Index with 2017 as the index year. Patients aged less than 65 years were excluded from the analysis. Percent change was calculated using unrounded numbers.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2009 and 2017, from 18 States

- **Between 2009 and 2017, aggregate costs for stays with a primary expected payer of Medicare Advantage increased more than 50 percent among all age groups.**

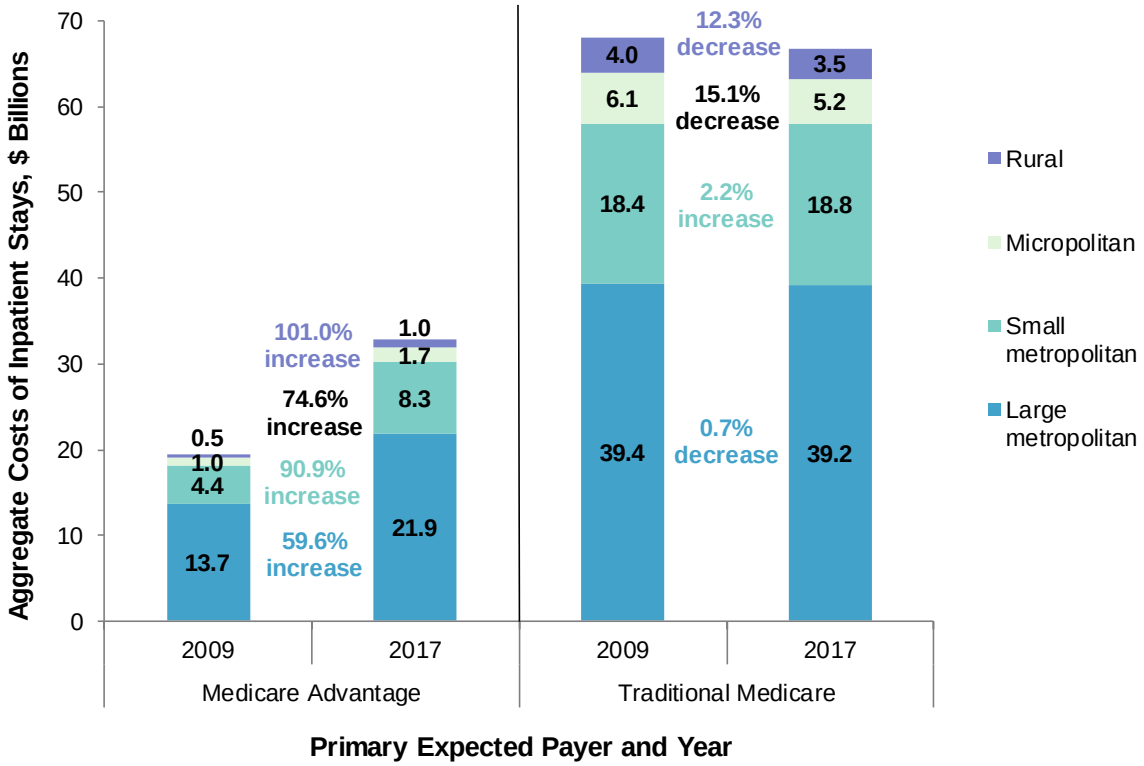
  Inflation-adjusted aggregate hospital costs for inpatient stays with an expected payer of Medicare Advantage increased approximately 60 to 80 percent across all age groups from 2009 to 2017. Aggregate costs were highest among patients aged 70–79 years overall but increased the most (80.8 percent) among patients aged 65–69 years.

- **Between 2009 and 2017, aggregate costs for stays with a primary expected payer of traditional Medicare increased among patients aged 65–69 years but remained about the same or decreased among those aged 70 years and older.**

  Between 2009 and 2017, inflation-adjusted aggregate costs increased among patients aged 65–69 years with a primary expected payer of traditional Medicare (16.4 percent). However, aggregate costs remained about the same among patients aged 70–79 years with traditional Medicare (1.9 percent increase) and decreased 13.8 percent among patients aged 80 years and older with traditional Medicare.

Figure 4 presents the aggregate costs for inpatient stays with a primary expected payer of either Medicare Advantage or traditional Medicare by location of patient residence in 2009 and 2017.

Figure 4. Aggregate costs of Medicare Advantage and traditional Medicare inpatient stays by location of patient residence in 18 States, 2009 and 2017



Notes: Costs were inflation adjusted using the Gross Domestic Product Price Index with 2017 as the index year. Patients aged less than 65 years were excluded from the analysis. Stays with missing location of patient residence are not presented; missing values represented no more than 0.3 percent of stays for any year and payer. Percent change was calculated using unrounded numbers.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2009 and 2017, from 18 States

- **Between 2009 and 2017, aggregate costs for stays with a primary expected payer of Medicare Advantage increased more than 50 percent among all location of patient residence categories.**

  Aggregate costs for inpatient stays with a primary expected payer of Medicare Advantage increased approximately 60 to 100 percent across all location of patient residence categories from 2009 to 2017. Aggregate costs were highest among patients living in large metropolitan areas, but aggregate costs increased the most (101.0 percent) among patients living in rural areas.

- **Between 2009 and 2017, aggregate costs for stays with a primary expected payer of traditional Medicare decreased among patients living in micropolitan and rural areas.**

  Between 2009 and 2017, aggregate costs decreased among patients with a primary expected payer of traditional Medicare living in micropolitan areas and rural areas (15.1 and 12.3 percent, respectively). However, aggregate costs remained about the same among patients with traditional Medicare living in large and small metropolitan areas.

Number of stays, costs, and length of stay for Medicare Advantage and traditional Medicare by clinical condition, 2017

Table 1 presents the number of inpatient stays, the average cost per stay, and the average length of stay for the 20 clinical conditions most frequently listed as the principal diagnosis during hospital stays with a primary expected payer of Medicare in 2017 in the 18 States examined. The statistics are presented separately for Medicare Advantage and traditional Medicare, but clinical conditions are ranked based on the total number of stays for Medicare Advantage and traditional Medicare combined.

Table 1. Number of stays, average cost, and length of stay for Medicare Advantage and traditional Medicare by clinical condition, 2017

Clinical condition	Medicare Advantage			Traditional Medicare		
	Inpatient stays, N	Average cost per stay, $	Length of stay, days	Inpatient stays, N	Average cost per stay, $	Length of stay, days
All stays	**2,212,500**	**14,900**	**5.2**	**4,544,400**	**14,700**	**5.3**
Septicemia	199,700	18,800	7.0	409,300	18,400	7.2
Heart failure	140,100	11,800	5.3	272,700	11,700	5.3
Osteoarthritis	123,300	15,100	2.1	233,000	16,000	2.3
Chronic obstructive pulmonary disease and bronchiectasis	81,500	9,400	4.6	166,800	9,700	4.7
Cardiac dysrhythmias	73,000	11,400	3.7	147,000	11,500	3.6
Acute myocardial infarction	70,700	21,400	4.9	121,200	21,000	4.9
Acute and unspecified renal failure	58,700	10,200	5.3	121,000	9,900	5.1
Pneumonia (except that caused by tuberculosis)	54,300	10,400	4.9	124,000	10,600	5.0
Urinary tract infections	50,100	7,700	4.3	126,000	7,700	4.2
Cerebral infarction	62,400	14,600	5.0	111,300	14,000	4.7
Respiratory failure; insufficiency; arrest	49,500	18,400	7.2	101,100	20,300	8.2
Fracture of the neck of the femur (hip), initial encounter	47,500	17,700	5.3	94,200	17,300	5.2
Gastrointestinal hemorrhage	38,600	11,300	4.5	79,300	11,000	4.4
Spondylopathies/spondyloarthropathy (including infective)	35,800	22,200	3.9	76,200	22,400	3.7
Coronary atherosclerosis and other heart disease	38,300	24,400	4.8	68,100	23,600	4.6
Diabetes mellitus with complication	35,100	13,900	5.9	63,200	14,000	5.9
Skin and subcutaneous tissue infections	29,800	7,900	4.6	66,700	8,200	4.7
Fluid and electrolyte disorders	26,900	7,800	3.9	63,800	7,700	3.7
Intestinal obstruction and ileus	30,300	13,000	5.8	59,300	12,400	5.6
Diverticulosis and diverticulitis	26,900	11,800	4.8	51,900	11,400	4.7

Abbreviation: ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification

Notes: Patients aged less than 65 years were excluded from the analysis. Clinical conditions were assigned using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses default categorizations for principal diagnoses. Conditions were ranked by number of stays with Medicare as the expected payer (i.e., Medicare Advantage + traditional Medicare).

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2017, from 18 States

- **Both average cost and length of stay were similar among inpatient stays with a primary expected payer of Medicare Advantage and traditional Medicare in 2017, and this relationship held across clinical conditions.**

  Among the top 20 most frequent clinical conditions for stays with either Medicare Advantage or traditional Medicare as the primary expected payer, both average cost per stay and length of stay were similar. Only stays for respiratory failure/insufficiency/arrest exhibited notable differences by expected payer, where the average length of stay was 13.0 percent lower among Medicare Advantage stays (7.2 days) compared with traditional Medicare stays (8.2 days).

References

[1] Kaiser Family Foundation. Medicare Advantage. Fact sheet. June 6, 2019. www.kff.org/medicare/fact-sheet/medicare-advantage/. Accessed February 12, 2020.
[2] Neuman P, Jacobson GA. Medicare Advantage checkup. New England Journal of Medicine. 2018;379(22):2163–72.
[3] Newhouse JP, McGuire TG. How successful is Medicare Advantage? The Millbank Quarterly. 2014;92(2):351–94.
[4] Henke RM, Karaca Z, Gibson TB, Cutler E, Barrett MB, Levit K, et al. Medicare Advantage and traditional Medicare hospitalization intensity and readmissions. Medical Care Research and Review. 2018;75(4):434–53.
[5] Newhouse JP, Price M, McWilliams JM, Hsu J, Souza J, Landon BE. Adjusted mortality rates are lower for Medicare Advantage than traditional Medicare, but the rates converge over time. Health Affairs (Millwood). 2019;38(4):554–60.
[6] Agency for Healthcare Research and Quality. HCUP Cost-to-Charge Ratio (CCR) Files. Healthcare Cost and Utilization Project (HCUP). 2001–2017. Agency for Healthcare Research and Quality. Updated December 2019. www.hcup-us.ahrq.gov/db/state/costtocharge.jsp. Accessed February 3, 2020.

About Statistical Briefs

Healthcare Cost and Utilization Project (HCUP) Statistical Briefs provide basic descriptive statistics on a variety of topics using HCUP administrative healthcare data. Topics include hospital inpatient, ambulatory surgery, and emergency department use and costs, quality of care, access to care, medical conditions, procedures, and patient populations, among other topics. The reports are intended to generate hypotheses that can be further explored in other research; the reports are not designed to answer in-depth research questions using multivariate methods.

Data Source

The estimates in this Statistical Brief are based upon data from the HCUP 2017 State Inpatient Databases (SID) from 18 States. Historical data were drawn from the 2009–2016 SID. The 18 States included in this analysis are California, Connecticut, Florida, Georgia, Iowa, Kentucky, Massachusetts, Maryland, Michigan, Nevada, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin. All 18 States were used in all years of analysis from 2009 to 2017. For this report, the inclusion of States was based on three criteria:

- Expected payer codes identified Medicare Advantage plans separately from the traditional Medicare program from 2009 to 2017.
- The proportion of stays with Medicare Advantage as expected payer was at least 5 percent of all stays with Medicare as expected payer from 2009 to 2017.
- The difference between the proportion of Medicare enrollment in Medicare Advantage plans as reported by the Centers for Medicare & Medicaid Services (CMS) and the proportion of HCUP stays with Medicare Advantage as expected payer did not exceed 50 percent in 2017.

Definitions

Diagnoses, ICD-10-CM, Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses
The *principal diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital. *Secondary diagnoses* are concomitant conditions that coexist at the time of admission or develop during the stay. *All-listed diagnoses* include the principal diagnosis plus these additional secondary conditions.

ICD-10-CM is the International Classification of Diseases, Tenth Revision, Clinical Modification. In October 2015, ICD-10-CM replaced the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis coding system for most inpatient and outpatient medical encounters. There are over 70,000 ICD-10-CM diagnosis codes.

The CCSR aggregates ICD-10-CM diagnosis codes into a manageable number of clinically meaningful categories.[b] The CCSR is intended to be used analytically to examine patterns of healthcare in terms of cost, utilization and outcomes, rank utilization by diagnoses, and risk-adjust by clinical condition. The CCSR capitalizes on the specificity of the ICD-10-CM coding scheme and allows ICD-10-CM codes to be classified in more than one category. Approximately 10 percent of diagnosis codes are associated with more than one CCSR category because the diagnosis code documents either multiple conditions or a condition along with a common symptom or manifestation. For this Statistical Brief, the principal diagnosis code is assigned to a single default CCSR based on clinical coding guidelines, etiology and pathology of diseases, and standards set by other Federal agencies. The assignment of the default CCSR for the principal diagnosis is available starting with version v2020.2 of the software tool. ICD-10-CM coding definitions for each CCSR category presented in this Statistical Brief can be found in the *CCSR reference file*, available at www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp#download.

Case definition

For this Statistical Brief, hospital stays were limited to those individuals aged 65 years and older with a primary expected payer of Medicare. Discharges were identified as Medicare Advantage (i.e., managed care Medicare) or traditional Medicare (i.e., fee-for-service) based on the primary expected payer as received from the State data source. The coding of managed care in HCUP data varies by State. Discharges with primary expected payer descriptions of *Medicare HMO*, *Medicare PPO*, *Medicare POS*, or *Medicare managed care*, were categorized as Medicare Advantage. All other Medicare discharges were categorized as traditional Medicare. When more than one expected payer was listed for a hospital discharge, the first-listed payer was used.[c]

Types of hospitals included in HCUP State Inpatient Databases

This analysis used State Inpatient Databases (SID) limited to data from community hospitals, which are defined as short-term, non-Federal, general, and other hospitals, excluding hospital units of other institutions (e.g., prisons). Community hospitals include obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical center hospitals. Excluded for this analysis are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. However, if a patient received long-term care, rehabilitation, or treatment for a psychiatric or chemical dependency condition in a community hospital, the discharge record for that stay was included in the analysis.

Unit of analysis

The unit of analysis is the hospital discharge (i.e., the hospital stay), not a person or patient. This means that a person who is admitted to the hospital multiple times in 1 year will be counted each time as a separate discharge from the hospital.

Percent change

Percent change between groups were calculated using the following formula:

$$\text{Percent change} = \left(\frac{\text{Group 1 value} - \text{Group 2 value}}{\text{Group 2 value}}\right) \times 100$$

Costs and charges

Total hospital charges were converted to costs using HCUP Cost-to-Charge Ratios based on hospital accounting reports from CMS.[d] *Costs* reflect the actual expenses incurred in the production of hospital services, such as wages, supplies, and utility costs; *charges* represent the amount a hospital billed for the case. For each hospital, a hospital-wide cost-to-charge ratio is used. Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include separately billed professional (physician)

[b] Agency for Healthcare Research and Quality. HCUP Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality. Updated January 2020. www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp. Accessed February 27, 2020.

[c] Barrett ML, McCarty J, Jiang J. An Examination of Expected Payer Coding in HCUP Databases (Updated for 2017 HCUP Data), User Guide. 2019. HCUP Methods Series Report #2019-03 ONLINE. December 13, 2019. U.S. Agency for Healthcare Research and Quality. www.hcup-us.ahrq.gov/reports/methods/2019-03.pdf. Accessed April 7, 2020.

[d] Agency for Healthcare Research and Quality. HCUP Cost-to-Charge Ratio (CCR) Files. Healthcare Cost and Utilization Project (HCUP). 2001–2017. Agency for Healthcare Research and Quality. Updated December 2019. www.hcup-us.ahrq.gov/db/state/costtocharge.jsp. Accessed February 3, 2020.

fees. Total charges were not available on all records. For this Statistical Brief, aggregate costs were estimated as the product of number of stays and average cost in each reporting category. Costs are reported to the nearest hundred dollars.

Annual costs were inflation adjusted using the Gross Domestic Product (GDP) Price Index from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), with 2017 as the index base.[e] That is, all costs are expressed in 2017 dollars.

Average cost per stay could not be calculated on all records because of missing values for total charges. Stays from California with an expected payer of Medicare Advantage were missing total charges on 36.5–41.6 percent of records from 2009 to 2017, but only 0.1 percent were missing total charges in 2017. Fewer than 2 percent of traditional Medicare stays in California had missing charges in each year. If a stay was missing total charges, average cost was imputed using the average cost for other stays with the same Medicare payer type in that State and year.

How HCUP estimates of costs differ from National Health Expenditure Accounts
There are a number of differences between the costs cited in this Statistical Brief and spending as measured in the National Health Expenditure Accounts (NHEA), which are produced annually by CMS.[f] The largest source of difference comes from the HCUP coverage of inpatient treatment only in contrast to the NHEA inclusion of outpatient costs associated with emergency departments and other hospital-based outpatient clinics and departments as well. The outpatient portion of hospitals' activities has been growing steadily and may exceed half of all hospital revenue in recent years. On the basis of the American Hospital Association Annual Survey, 2017 outpatient gross revenues (or charges) were about 49 percent of total hospital gross revenues.[g]

Smaller sources of differences come from the inclusion in the NHEA of hospitals that are excluded from HCUP. These include Federal hospitals (Department of Defense, Veterans Administration, Indian Health Services, and Department of Justice [prison] hospitals) as well as psychiatric, substance abuse, and long-term care hospitals. A third source of difference lies in the HCUP reliance on billed charges from hospitals to payers, adjusted to provide estimates of costs using hospital-wide cost-to-charge ratios, in contrast to the NHEA measurement of spending or revenue. HCUP costs estimate the amount of money required to produce hospital services, including expenses for wages, salaries, and benefits paid to staff as well as utilities, maintenance, and other similar expenses required to run a hospital. NHEA spending or revenue measures the amount of income received by the hospital for treatment and other services provided, including payments by insurers, patients, or government programs. The difference between revenues and costs include profit for for-profit hospitals or surpluses for nonprofit hospitals.

Expected payer
To make coding uniform across all HCUP data sources, the primary expected payer for the hospital stay combines detailed categories into general groups:

- Medicare: includes fee-for-service and managed care Medicare
- Medicaid: includes fee-for-service and managed care Medicaid
- Private insurance: includes commercial nongovernmental payers, regardless of the type of plan (e.g., private health maintenance organizations [HMOs], preferred provider organizations [PPOs])
- Self-pay/No charge: includes self-pay, no charge, charity, and no expected payment
- Other payers: includes other Federal and local government programs (e.g., TRICARE, CHAMPVA, Indian Health Service, Black Lung, Title V) and Workers' Compensation

Location of patients' residence

[e] U.S. Bureau of Economic Analysis. GDP & Personal Income Tables, Table 1.1.4 Price Indexes for Gross Domestic Product. www.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=3&isuri=1&1921=survey&1903=4. Accessed February 3, 2020.
[f] For additional information about the NHEA, see Centers for Medicare & Medicaid Services (CMS). National Health Expenditure Data. CMS website. Updated December 17, 2019. www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html?redirect=/NationalHealthExpendData/. Accessed February 3, 2020.
[g] American Hospital Association. TrendWatch Chartbook, 2019. Table 4.2. Distribution of Inpatient vs. Outpatient Revenues, 1995–2017. www.aha.org/system/files/media/file/2019/11/TrendwatchChartbook-2019-Appendices.pdf. Accessed March 19, 2020.

Place of residence is based on a simplified adaptation of the Urban Influence Codes (UIC) developed by the United States Department of Agriculture (USDA) Economic Research Service (ERS). Starting with 2014 data, the county-level designation is based on the 2013 version of the UIC. Prior to 2014, the categorization was based on the 2003 version of the UIC. The 12 categories of the UIC are combined into 4 broader categories that differentiate between large metropolitan counties (include one or more urbanized areas with at least 1 million residents), small metropolitan counties (include one or more urbanized areas with 50,000–999,999 residents), micropolitan counties (include at least one urbanized area with 10,000–49,999 residents), and nonurban residual counties (rural).

About HCUP

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of healthcare databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, and private data organizations (HCUP Partners) and the Federal government to create a national information resource of encounter-level healthcare data. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. These databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to healthcare programs, and outcomes of treatments at the national, State, and local market levels.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Alaska Department of Health and Social Services
Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
Delaware Division of Public Health
District of Columbia Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii, University of Hawai'i at Hilo
Hawaii Laulima Data Alliance
Illinois Department of Public Health
Indiana Hospital Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Louisiana Department of Health
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Center for Health Information and Analysis
Michigan Health & Hospital Association
Minnesota Hospital Association
Mississippi State Department of Health
Missouri Hospital Industry Data Institute
Montana Hospital Association
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health
New Mexico Department of Health
New York State Department of Health
North Carolina Department of Health and Human Services
North Dakota (data provided by the Minnesota Hospital Association)
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Oregon Office of Health Analytics
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina Revenue and Fiscal Affairs Office
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information
Washington State Department of Health
West Virginia Department of Health and Human Resources, West Virginia Health Care Authority
Wisconsin Department of Health Services

About the SID

The HCUP State Inpatient Databases (SID) are hospital inpatient databases from data organizations participating in HCUP. The SID contain the universe of the inpatient discharge abstracts in the participating HCUP States, translated into a uniform format to facilitate multistate comparisons and analyses. Together, the SID encompass more than 95 percent of all U.S. community hospital discharges. The SID can be used to investigate questions unique to one State, to compare data from two or more States, to conduct market-area variation analyses, and to identify State-specific trends in inpatient care utilization, access, charges, and outcomes.

For More Information

For other information on hospital costs and use in the United States focused on specific types of insurers or payers (Medicaid, Medicare, and private insurance), refer to the HCUP Statistical Briefs located at www.hcup-us.ahrq.gov/reports/statbriefs/sb_insured.jsp.

For additional HCUP statistics, visit:

- HCUP Fast Stats at www.hcup-us.ahrq.gov/faststats/landing.jsp for easy access to the latest HCUP-based statistics for healthcare information topics
- HCUPnet, HCUP's interactive query system, at www.hcupnet.ahrq.gov/

For more information about HCUP, visit www.hcup-us.ahrq.gov/.

For a detailed description of HCUP and more information on the design of the State Inpatient Databases (SID), please refer to the following database documentation:

Agency for Healthcare Research and Quality. Overview of the State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated November 2019. www.hcup-us.ahrq.gov/sidoverview.jsp. Accessed February 3, 2020.

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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 HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please email us at hcup@ahrq.gov or send a letter to the address below:

Joel W. Cohen, Ph.D., Director
Center for Financing, Access and Cost Trends
Agency for Healthcare Research and Quality
5600 Fishers Lane
Rockville, MD 20857

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