



Home Health Chartbook 2017: Prepared for the Alliance for Home Health Quality and Innovation

Avalere Health | An Inovalon Company
March, 2017

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2017 Chartbook

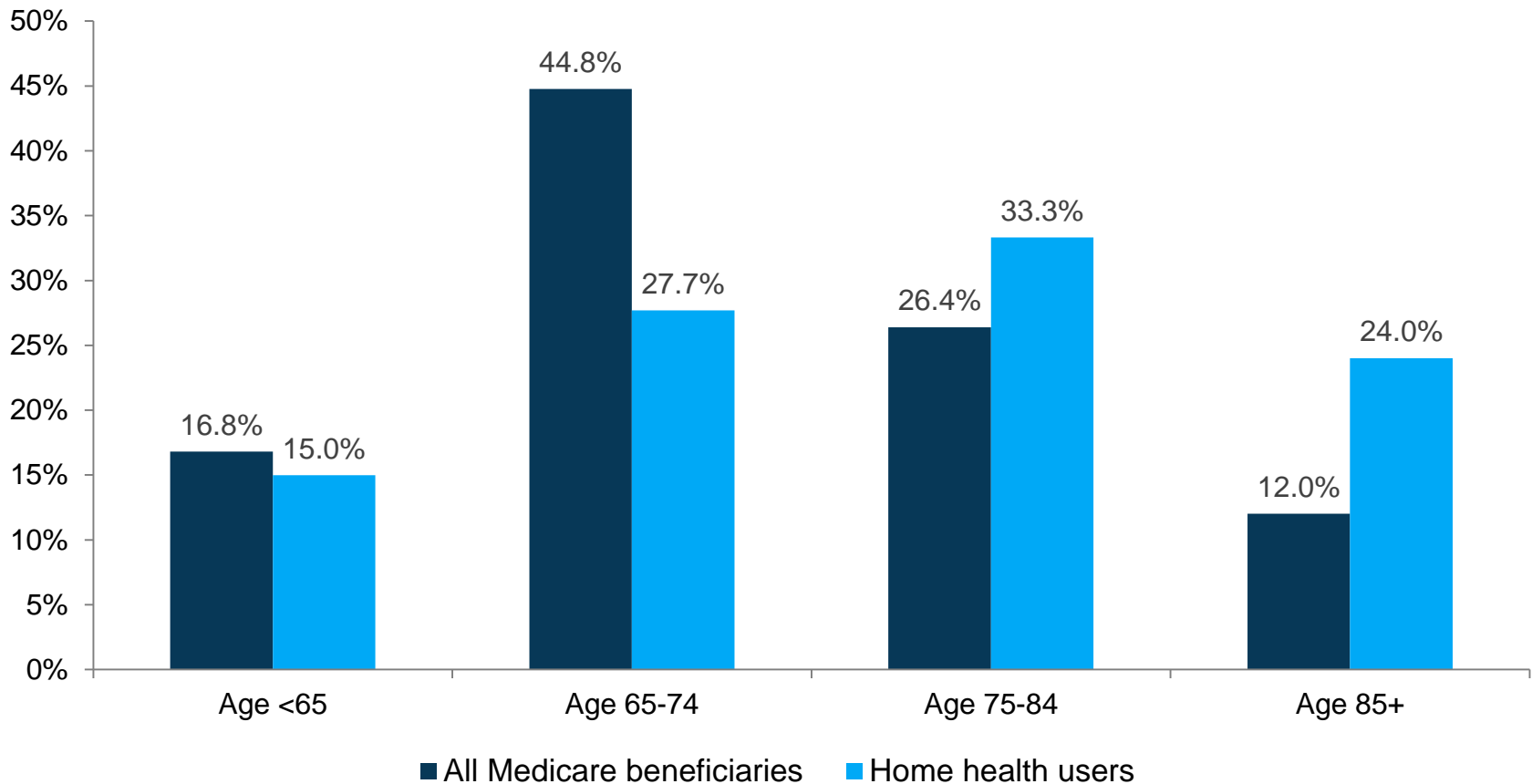
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Section 1: Demographics of Home Health Users

Demographics of Home Health Users

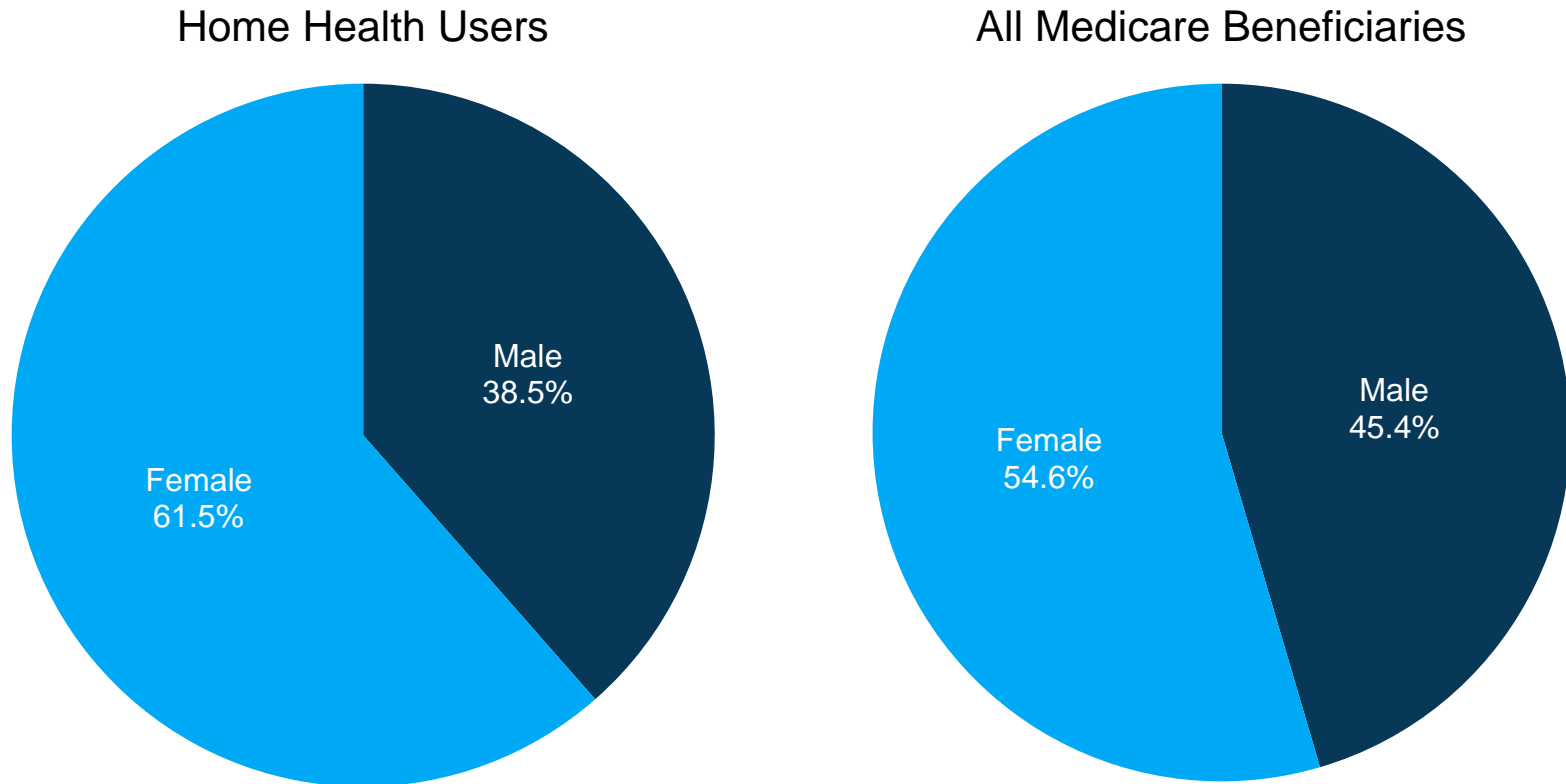
Chart 1.1: Age Distribution of Home Health Users and All Medicare Beneficiaries, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users

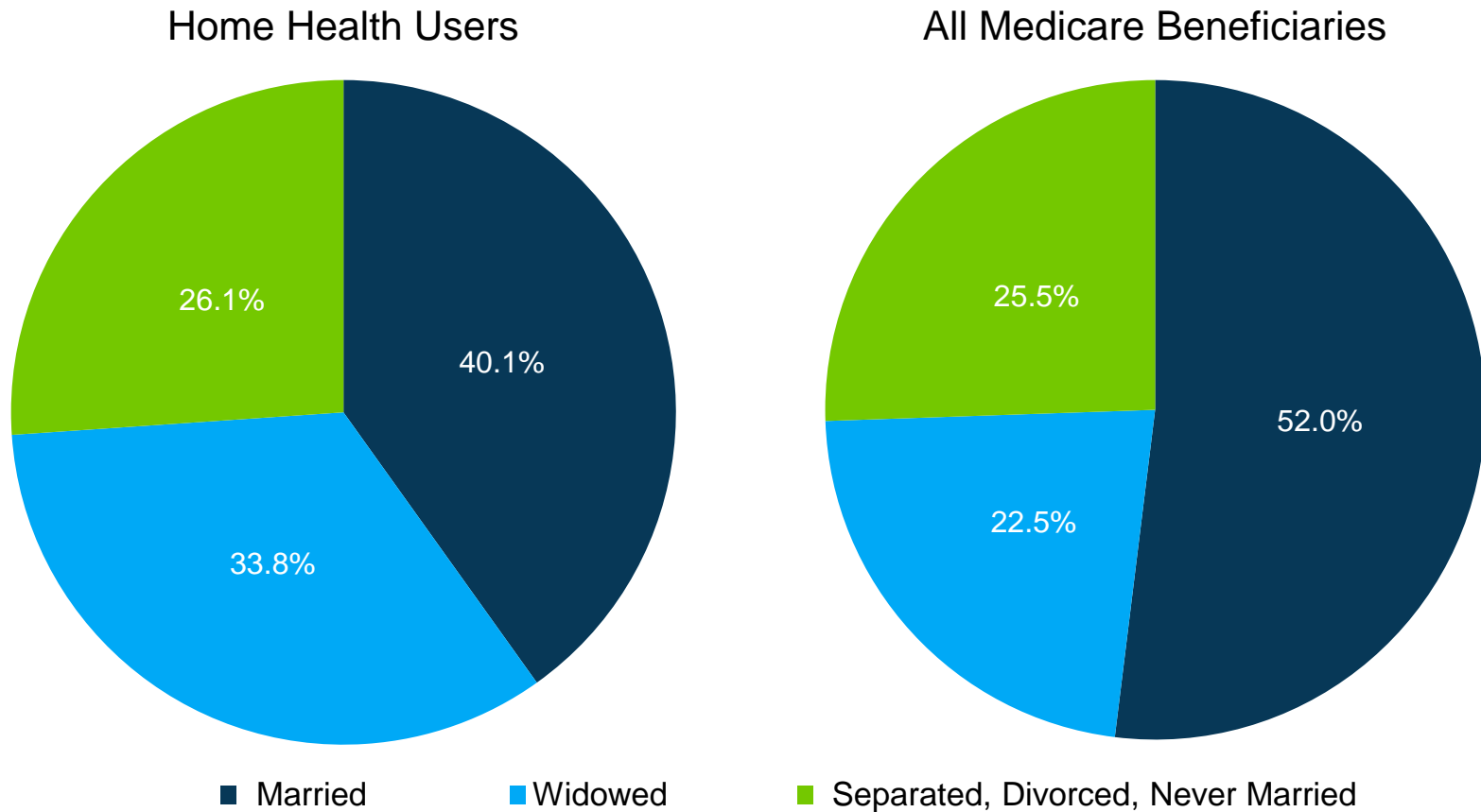
Chart 1.2: Gender Distribution of Home Health Users and All Medicare Beneficiaries, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users

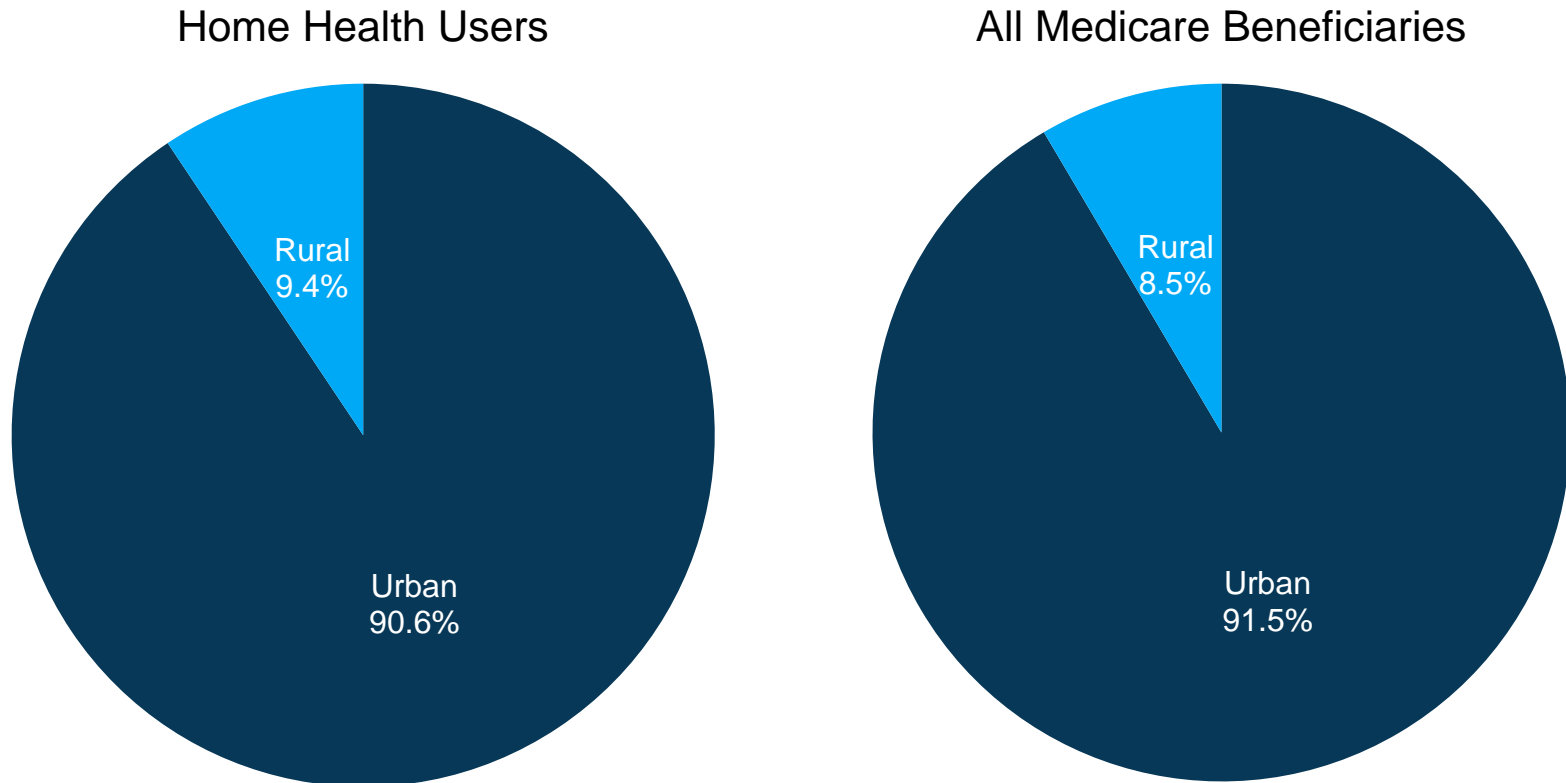
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Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users

Chart 1.4: Geographic Distribution of Home Health Users and All Medicare Beneficiaries, 2015

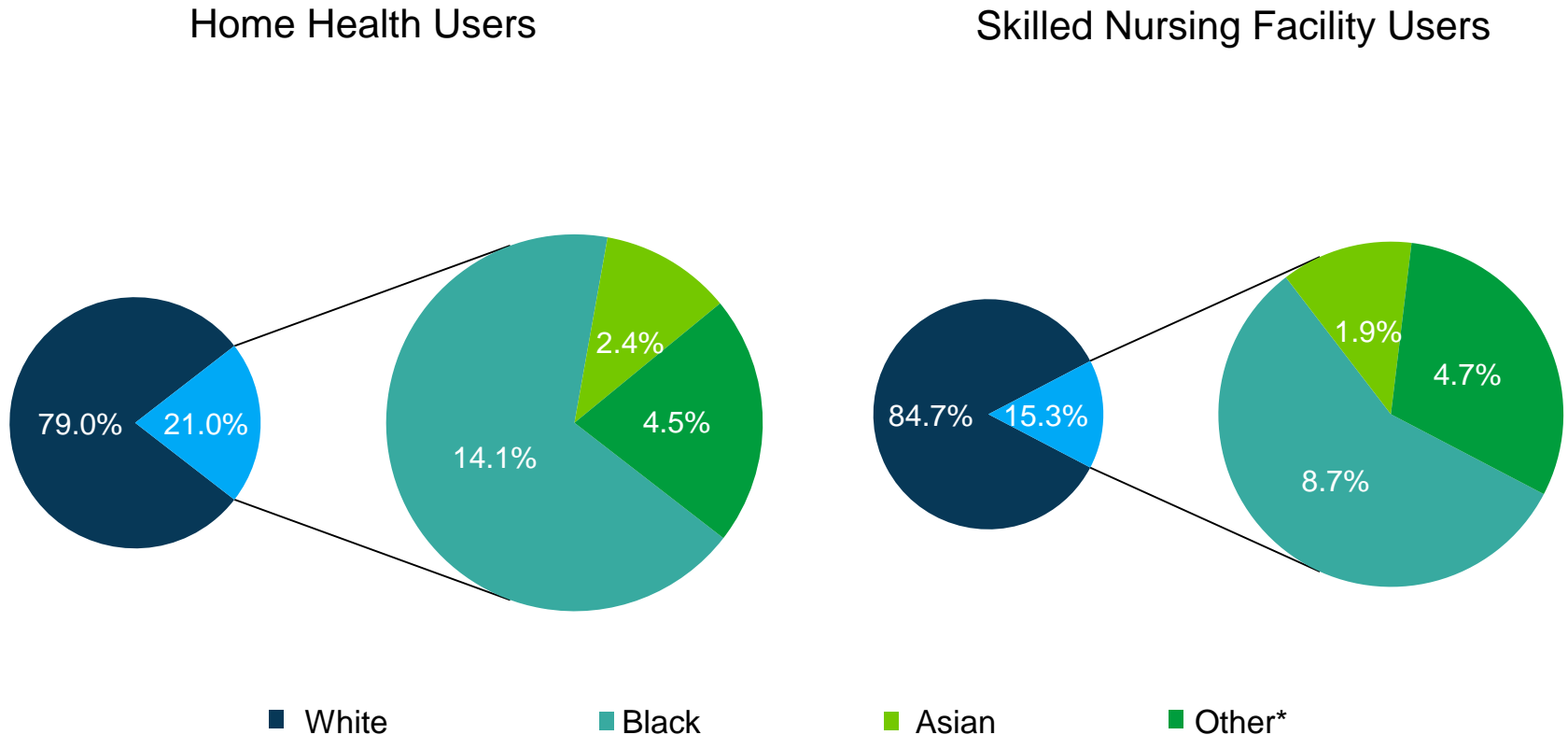


Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

Note: "Urban" counties are defined as counties that are part of a CBSA (or metropolitan area). "Rural" counties are defined as all other counties.

Demographics of Home Health Users

Chart 1.5: Race of Medicare Home Health Users and Skilled Nursing Facility Users, 2013

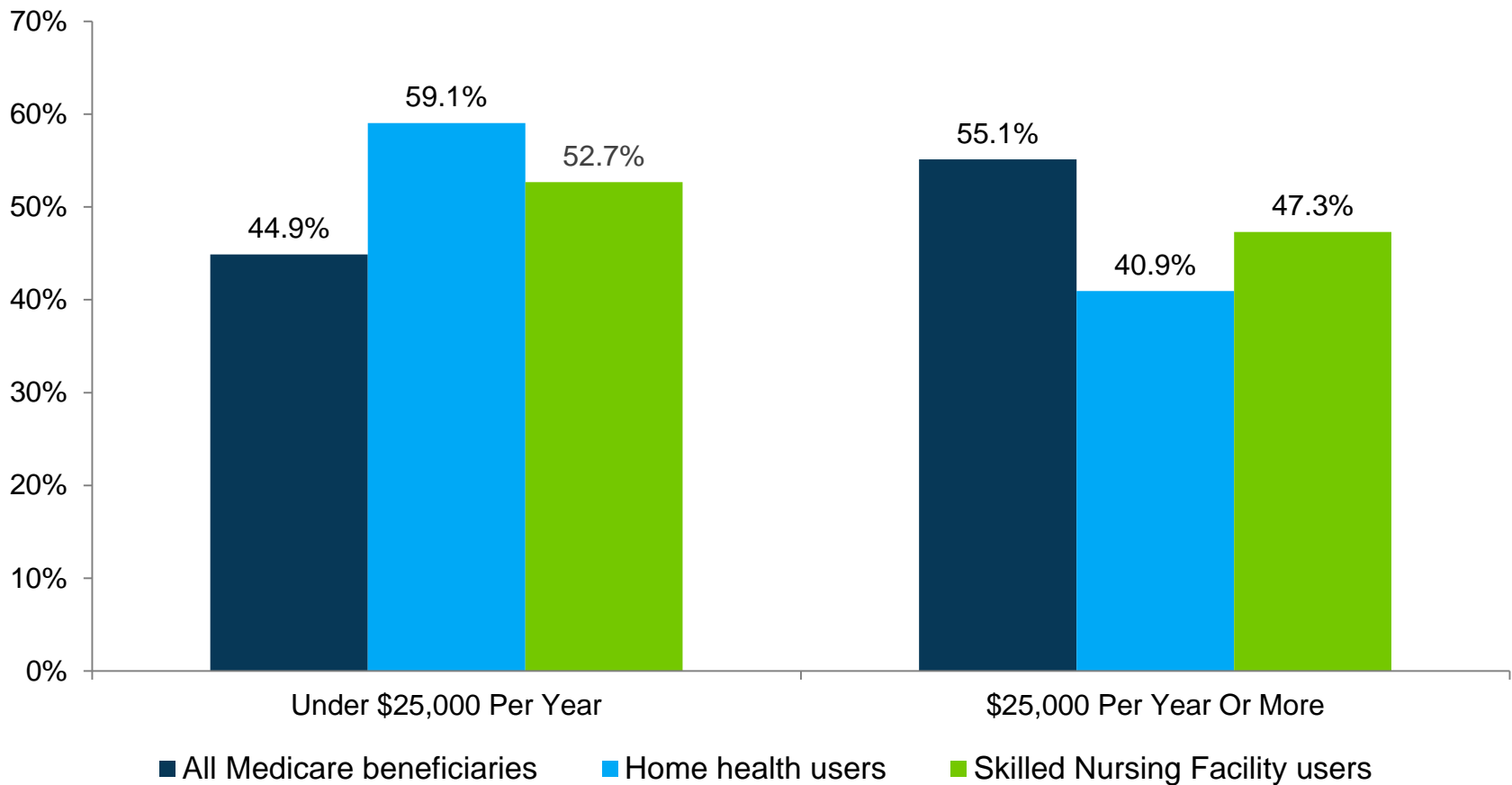


Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*Other includes American Indian, Alaska Native, Native Hawaiian, Pacific Islander, Other race, and More than one race.

Demographics of Home Health Users

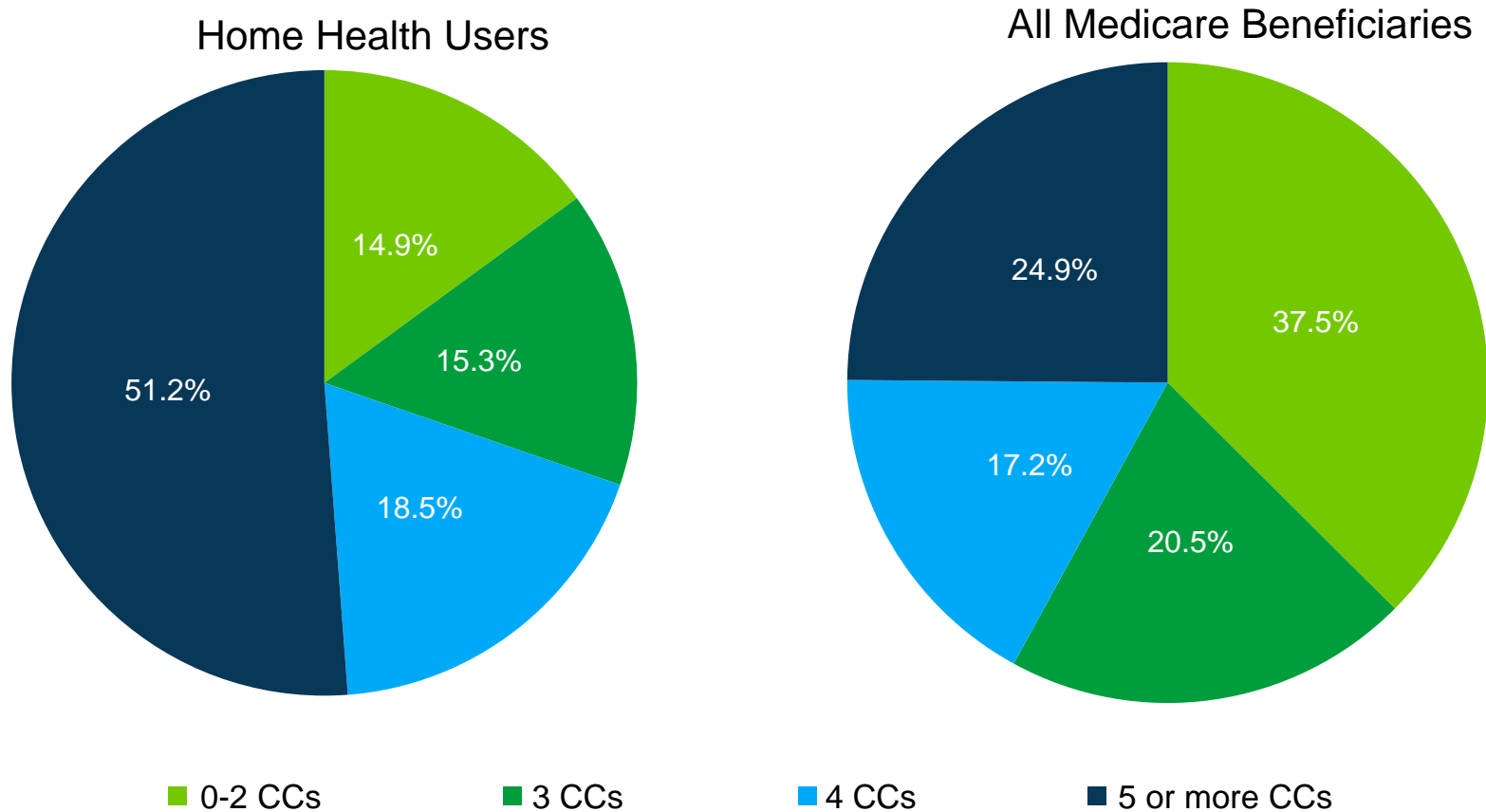
Chart 1.6: Income Distribution of Home Health Users, Skilled Nursing Facility Users, and All Medicare Beneficiaries, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users

Chart 1.7: Percentage of All Medicare Beneficiaries and Home Health Users by Number of Chronic Conditions (CCs), 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.
Totals may not sum to 100 percent due to rounding.

Demographics of Home Health Users

Table 1.8: Selected Characteristics of Medicare Home Health Users and All Medicare Beneficiaries, 2013

	All Medicare Home Health Users	All Medicare Beneficiaries
Age 85+	24.0%	12.0%
Live alone	36.7%	28.8%
Have 3 or more chronic conditions	85.1%	62.5%
Have 2 or more ADL limitations*	31.9%	12.0%
Report fair or poor health	48.7%	27.2%
Are in somewhat or much worse health than last year	41.9%	22.2%
Have incomes at or under 200% of the Federal Poverty Level (FPL)**	67.2%	52.1%
Have incomes under 100% of the Federal Poverty Level (FPL)**	31.2%	21.3%

Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*ADL = Activities of daily living, such as eating, dressing, and bathing. Limitations with at least 2 ADLs is considered a measure of moderate to severe disability and is often the eligibility threshold for a nursing home level of care.

**In 2013, 100 percent of FPL for a household of 1 was \$11,490, a household of 2 was \$15,510, a household of 3 was \$19,530, and household of 4 was \$23,550. 200 percent of FPL was double each amount.

Demographics of Home Health Users*

Table 1.9: Average Annual Living Expenses for Households with Incomes under 200 Percent of the Federal Poverty Level (FPL)** with at Least One Individual 65 Years or Older, 2014 and 2015

	2014			2015		
Living Expense	One-Person Elderly Household	Two-Person Elderly Household	All Elderly Household Sizes	One-Person Elderly Household	Two-Person Elderly Household	All Elderly Household Sizes
Housing	\$6,515	\$8,589	\$7,749	\$6,200	\$8,852	\$7,720
Food	\$2,517	\$4,368	\$3,658	\$2,372	\$4,495	\$3,655
Transportation	\$1,590	\$3,844	\$2,872	\$1,492	\$4,141	\$2,925
Health Care (out-of-pocket costs)	\$2,138	\$4,020	\$2,932	\$1,984	\$4,212	\$2,963
Total	\$12,761	\$20,820	\$17,210	\$12,048	\$21,699	\$17,263

Source: Avalere analysis of the 2014 and 2015 Bureau of Labor Statistics Consumer Expenditure Survey. The analysis includes households with one or more individuals age 65 or older and annual incomes below 200 percent of the Federal Poverty Level.

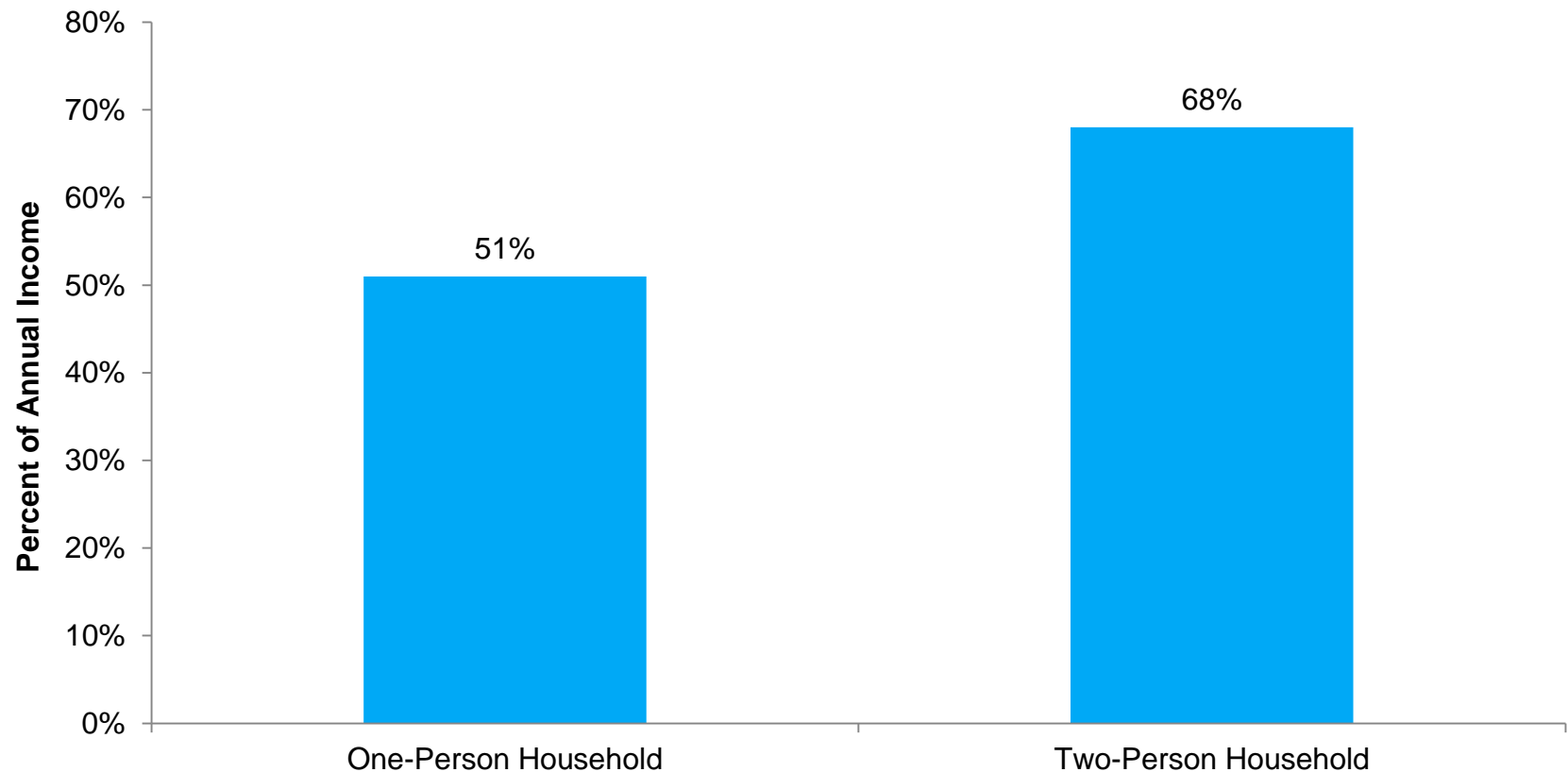
*This analysis includes, but is not limited to, home health users.

**In 2014, 200 percent of the Federal Poverty Level was \$23,340 for a one-person household and \$31,460 for a two-person household. In 2015, 200 percent of the Federal Poverty Level was \$23,540 for a one-person household and \$31,860 for a two-person household.

Totals may not sum due to rounding.

Demographics of Home Health Users*

Chart 1.10: Average Annual Living Expenses, as a Percentage of Income, for One- And Two-Person Households at 200 percent of the Federal Poverty Level (FPL)** with at Least One Individual 65 Years or Older, 2015



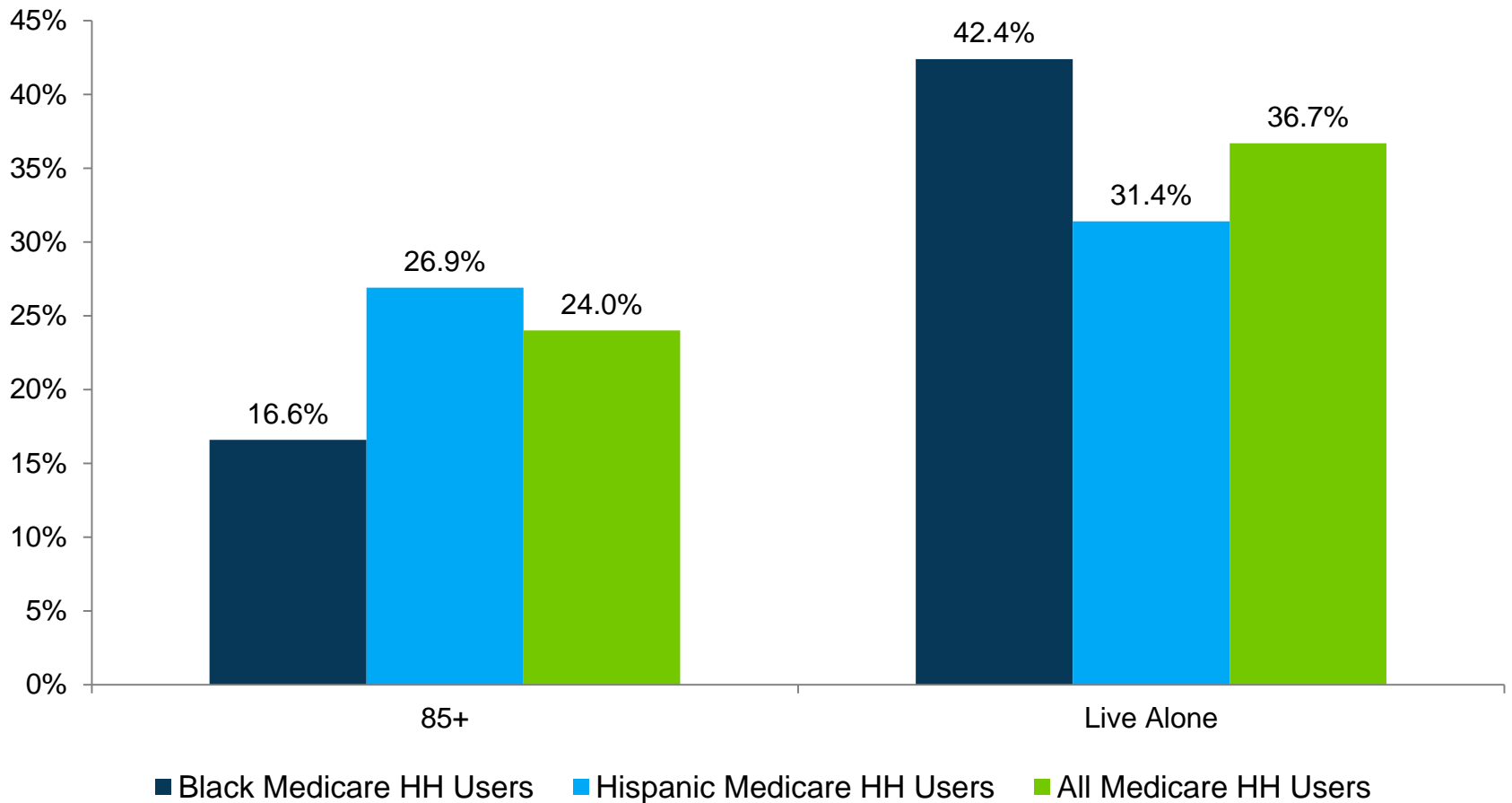
Source: Avalere analysis of the 2015 Bureau of Labor Statistics Consumer Expenditure Survey. The 2015 average annual living expenses are for one-person or two-person households, respectively, under 200 percent of the Federal Poverty Level with at least one individual 65 years or older.

*This analysis includes, but is not limited to, home health users.

**In 2015, 200 percent of the Federal Poverty Level was \$23,540 for a one-person household and \$31,860 for a two-person household.

Demographics of Home Health Users by Race and Ethnicity

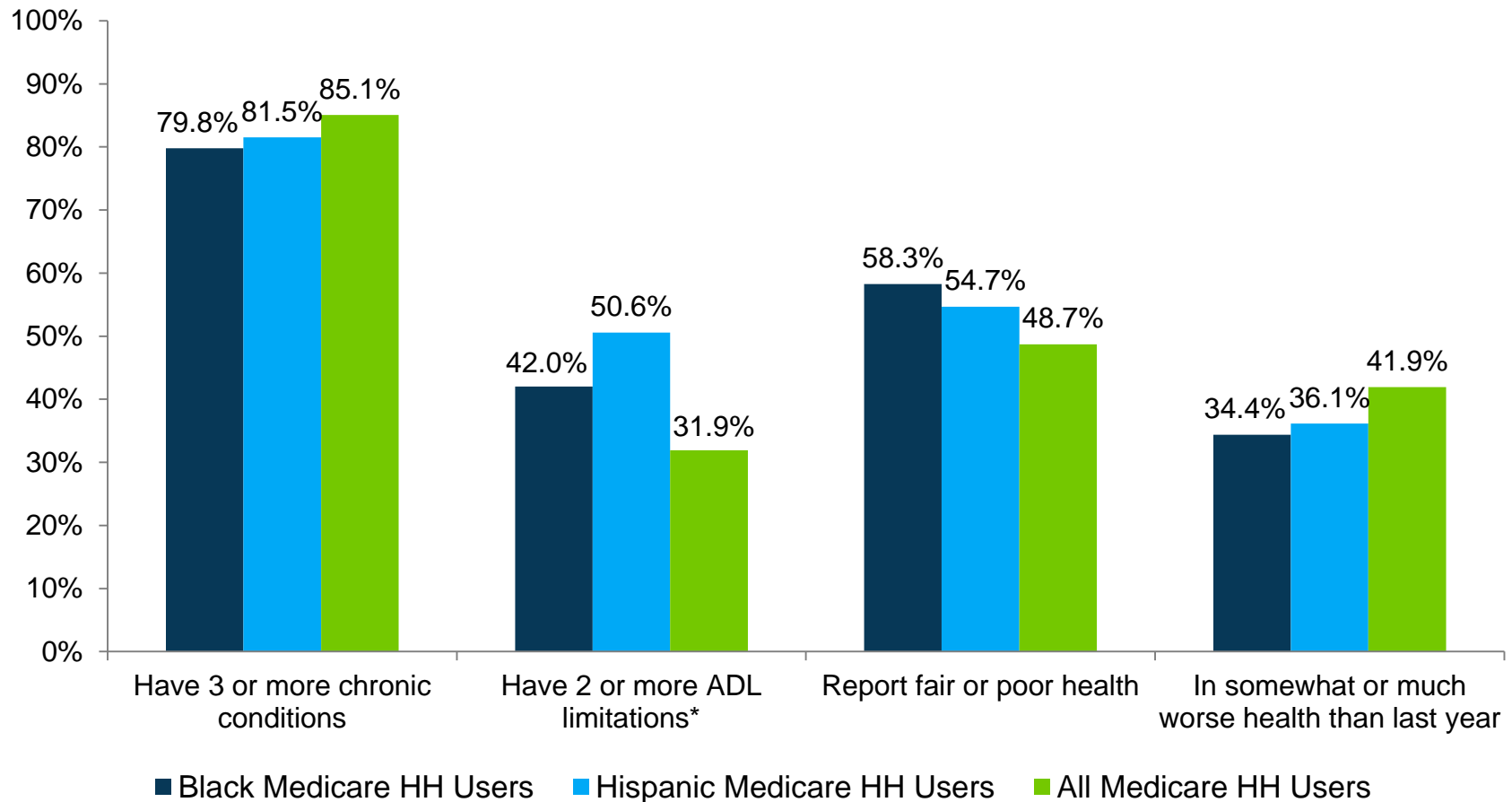
Chart 1.11: Selected Characteristics of All Medicare Home Health Users by Race and Ethnicity, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users by Race and Ethnicity

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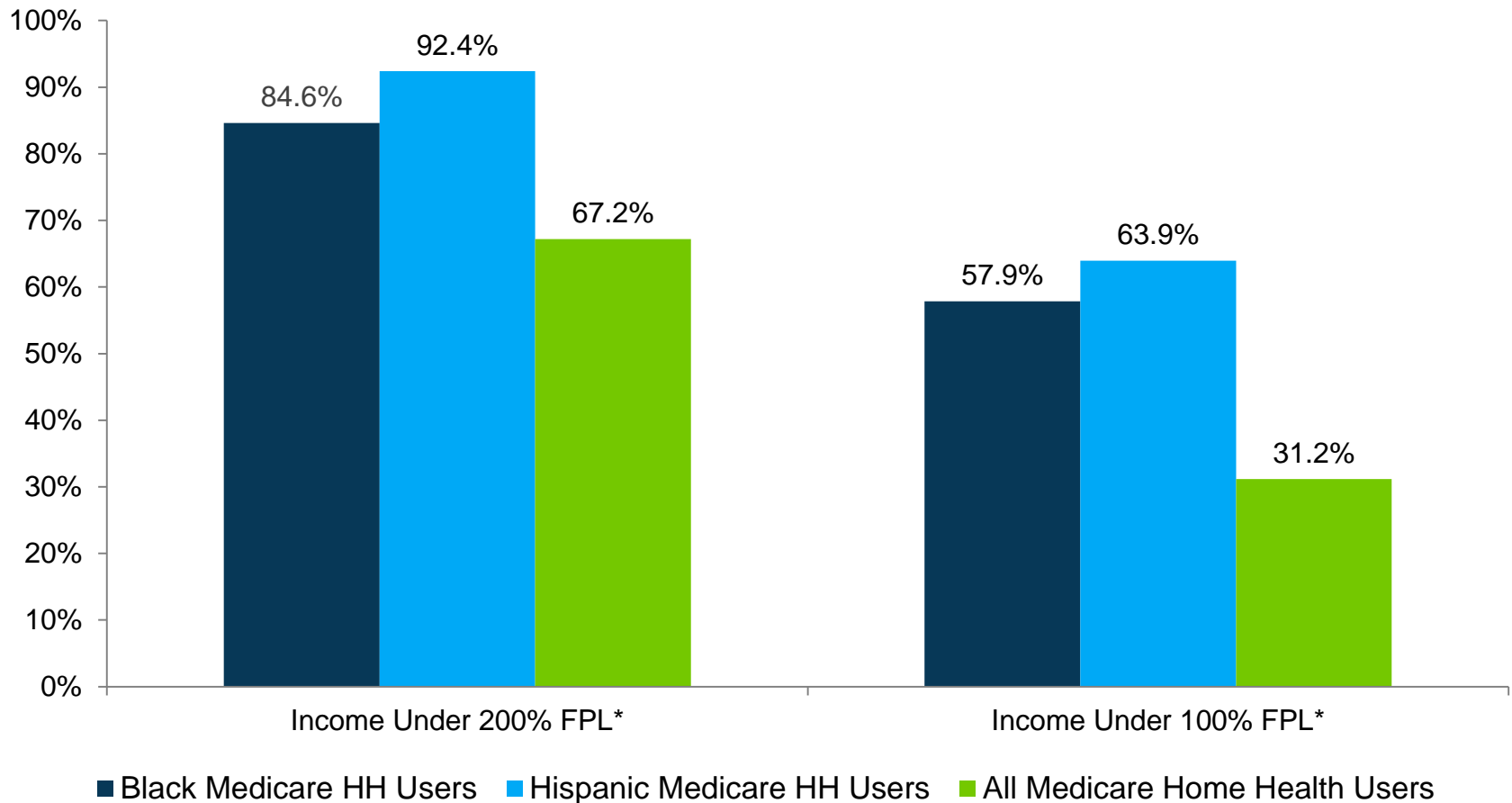


Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*ADL = Activities of daily living, such as eating, dressing, and bathing. Limitations with at least 2 ADLs is considered a measure of moderate to severe disability and is often the eligibility threshold for a nursing home level of care.

Demographics of Home Health Users by Race and Ethnicity

Chart 1.13: Income by Federal Poverty Level (FPL)* of Home Health Users by Race and Ethnicity, 2013

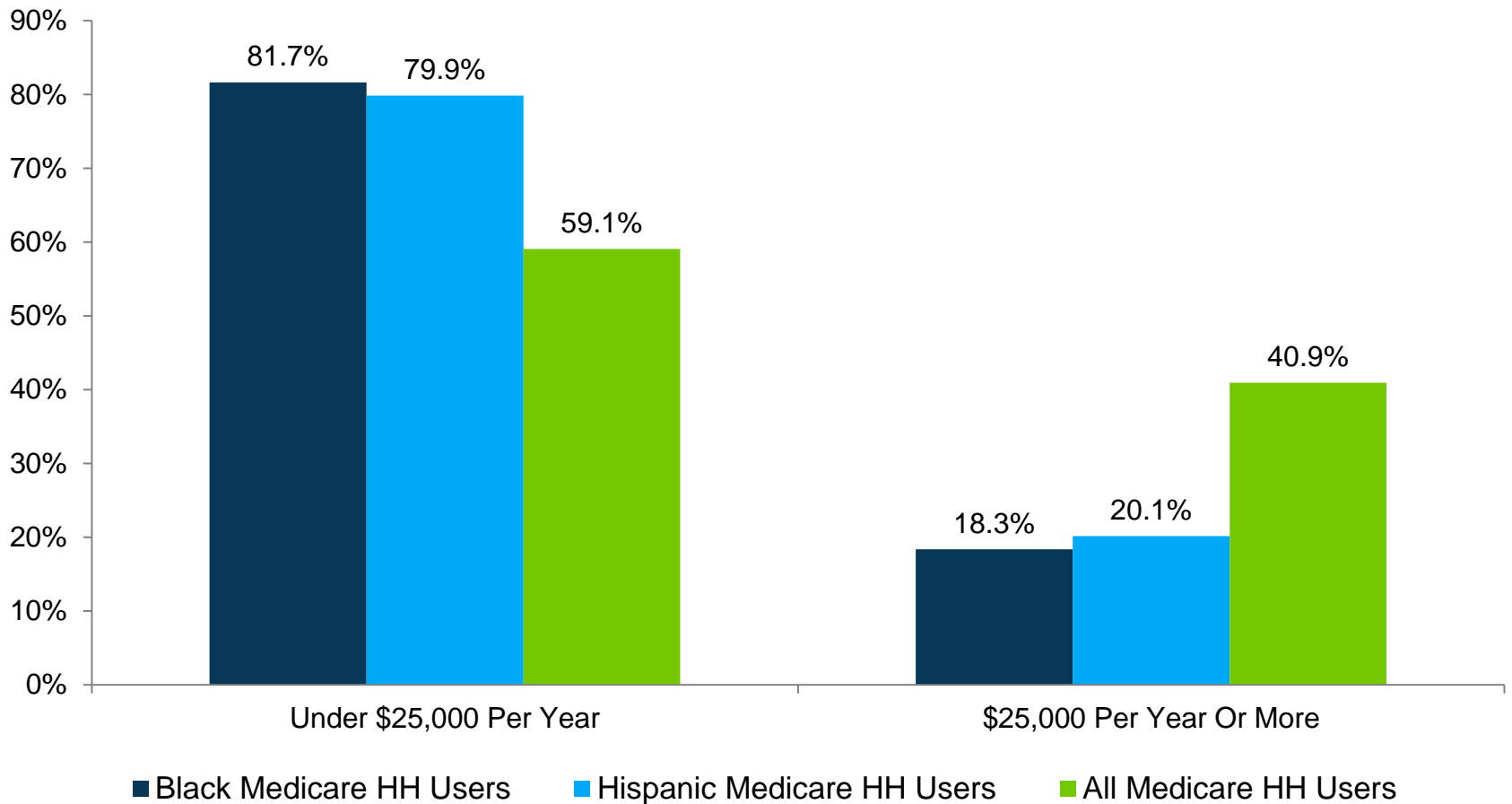


Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*In 2013, FPL for a household of 1 was \$11,490, a household of 2 was \$15,510, a household of 3 was \$19,530, and household of 4 was \$23,550. 200 percent of FPL is double those amounts.

Demographics of Home Health Users by Race and Ethnicity

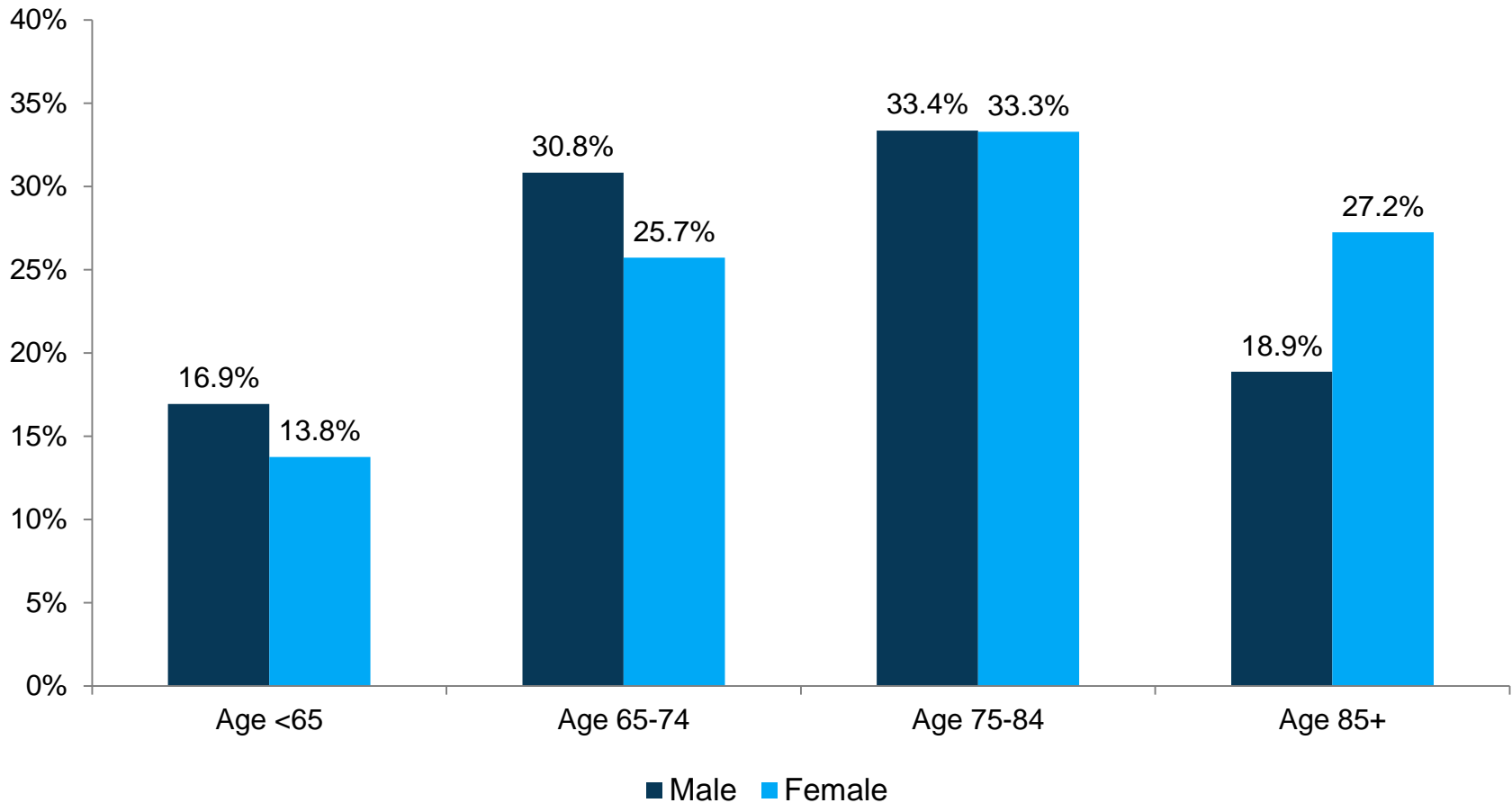
Chart 1.14: Income Distribution of Home Health Users by Race and Ethnicity, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users by Sex

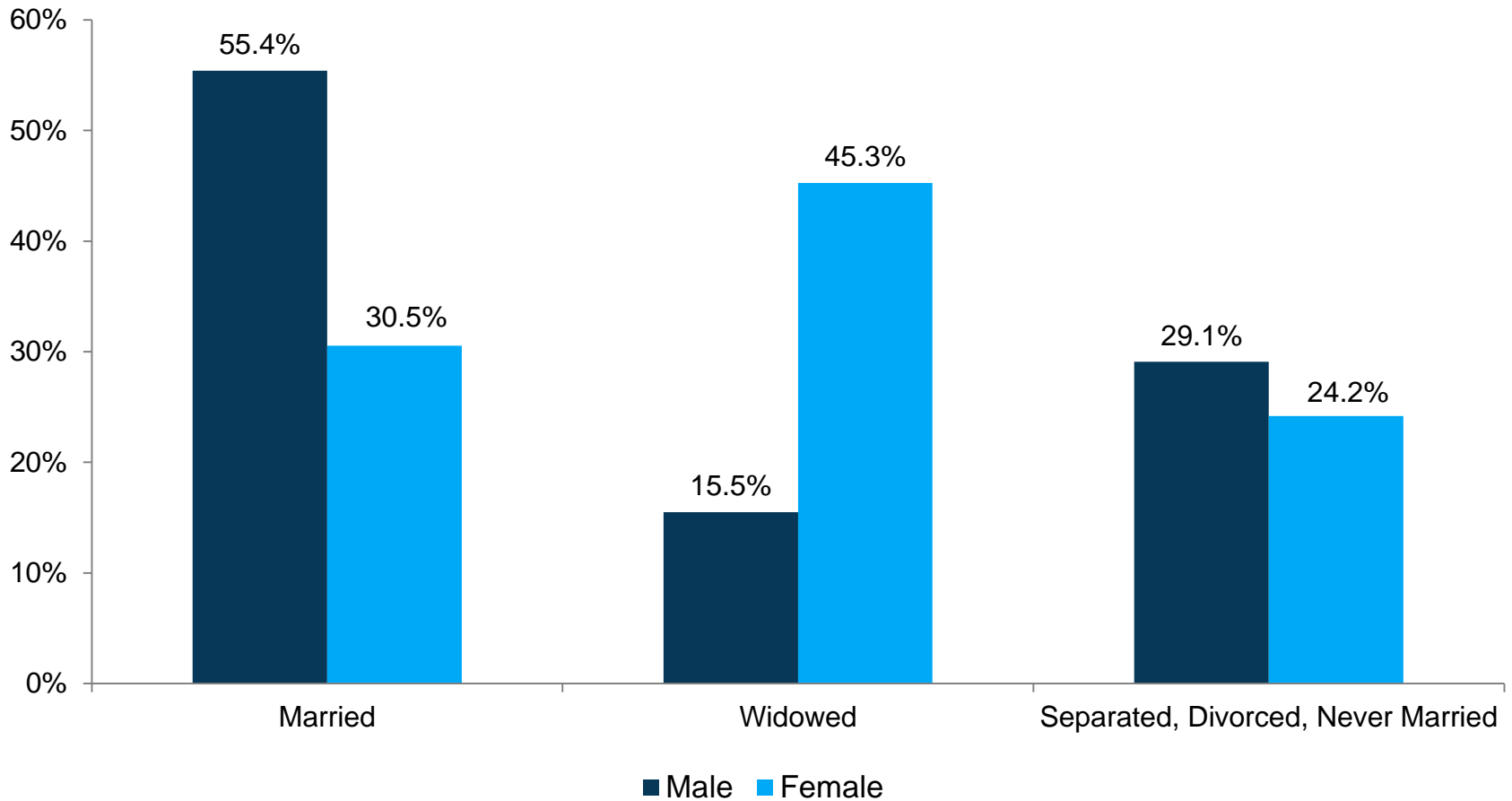
Chart 1.15: Age Distribution of Home Health Users by Sex, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users by Sex

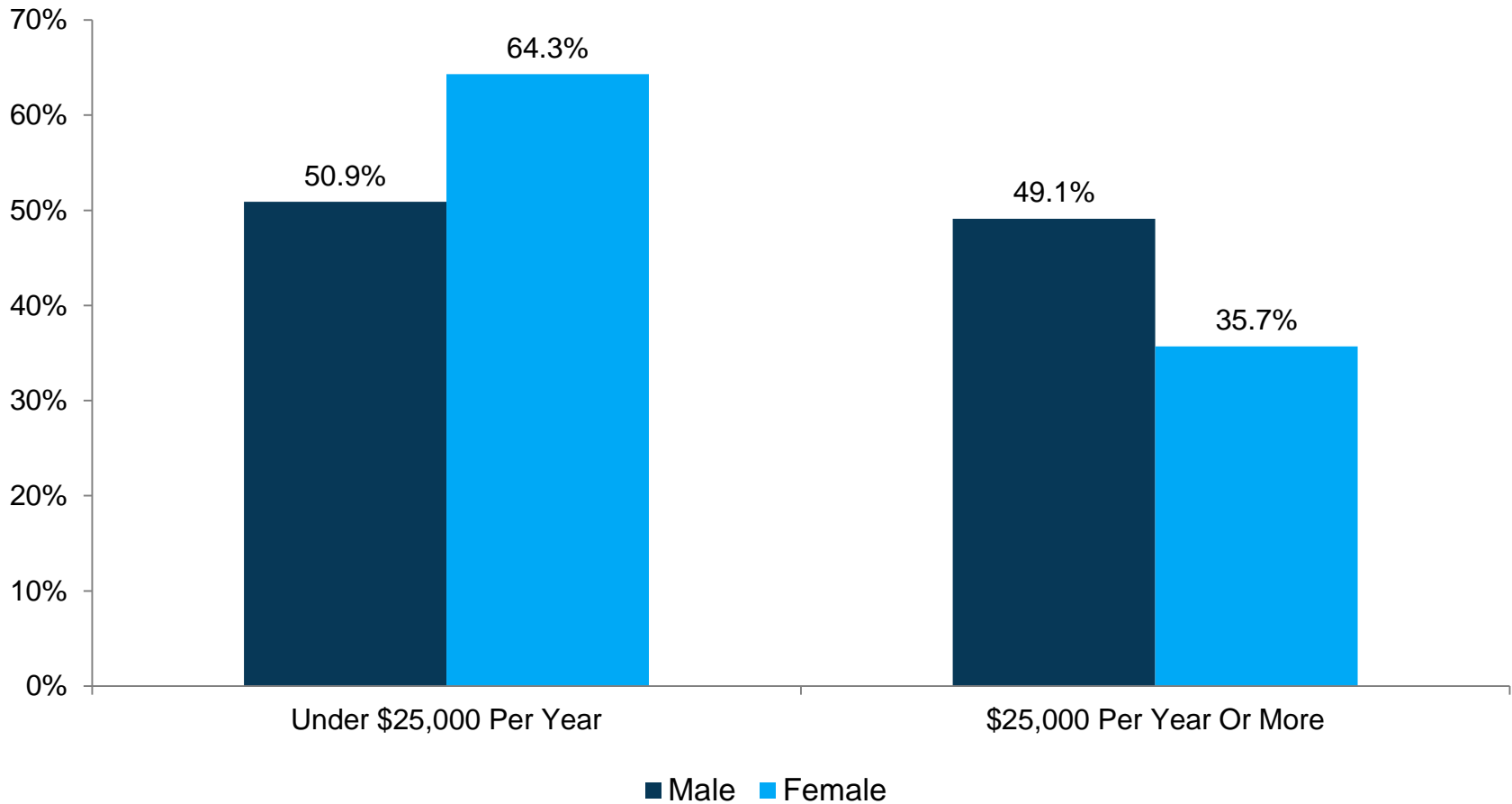
Chart 1.16: Marital Status of Home Health Users by Sex, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users by Sex

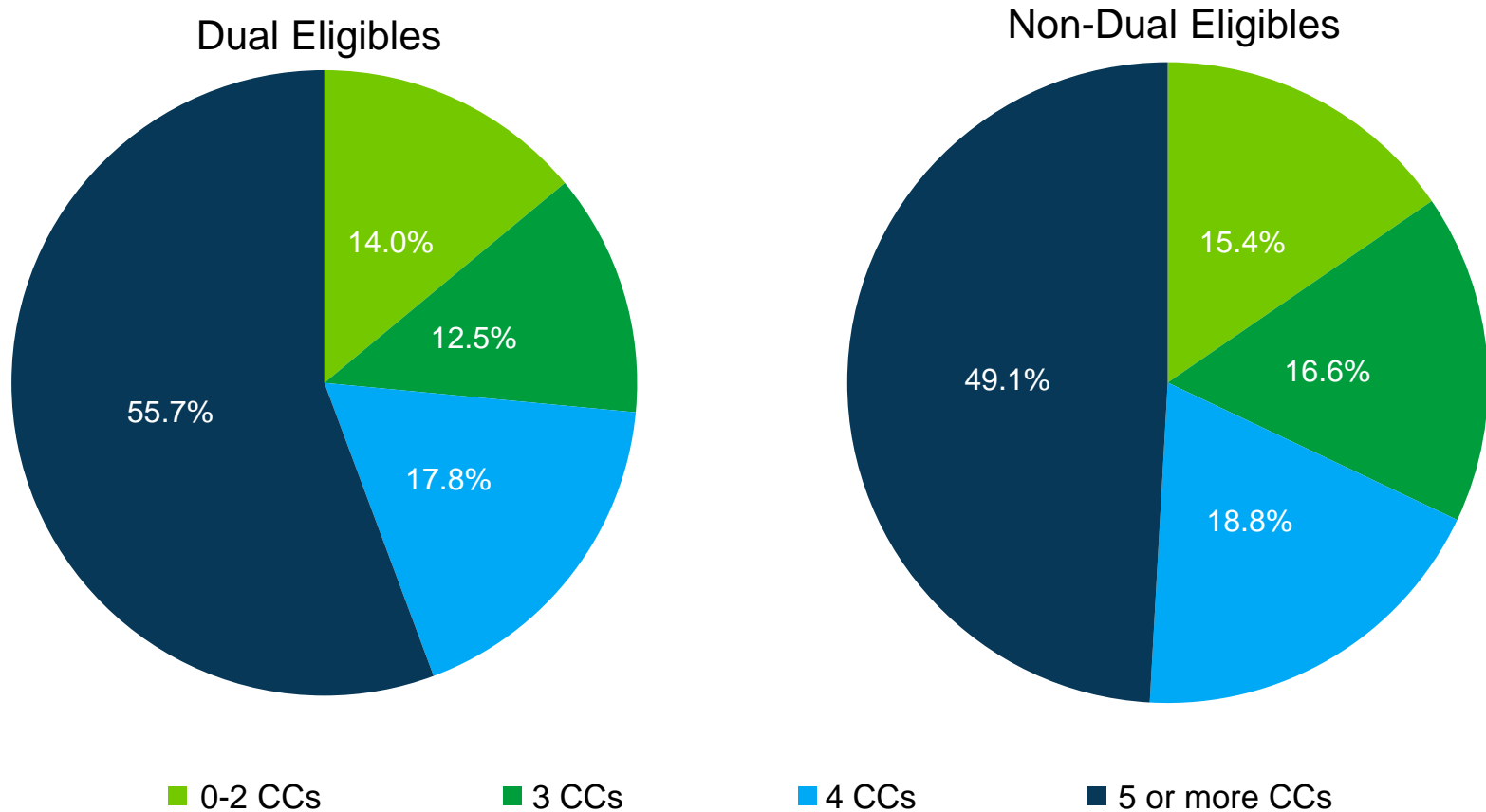
Chart 1.17: Income Distribution of Home Health Users by Sex, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

Demographics of Home Health Users by Dual Eligible Status

Chart 1.18: Percentage of Home Health Users by Dual Eligible Status and Number of Chronic Conditions (CCs), 2013*



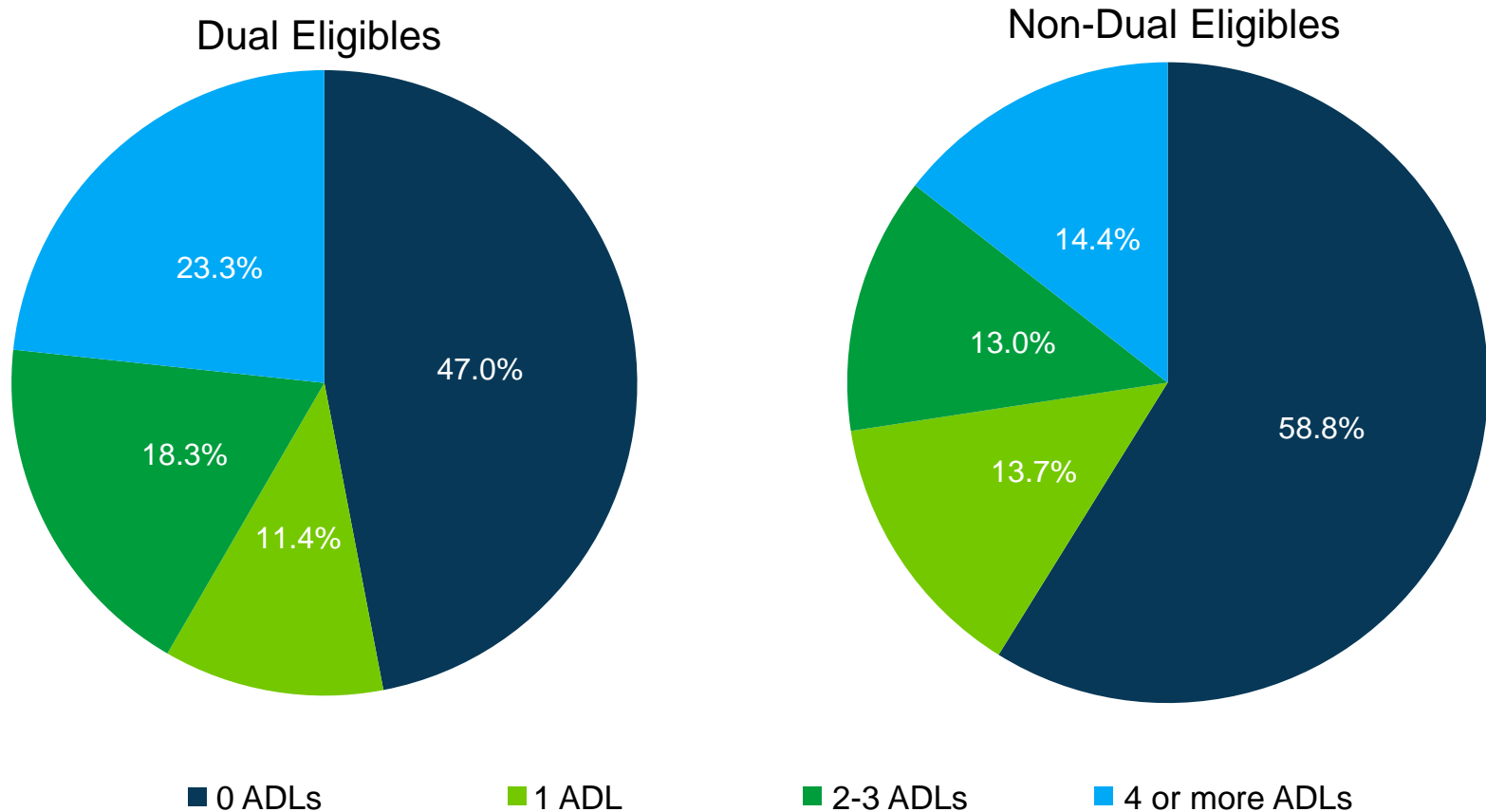
Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*Dual eligibles are defined as individuals with any state buy-in at any point during the year.

Totals may not sum to 100 percent due to rounding.

Demographics of Home Health Users by Dual Eligible Status

Chart 1.19: Percentage of Home Health Users by Dual Eligible Status and Number of Activities of Daily Living (ADLs) with Which They Require Assistance, 2013*



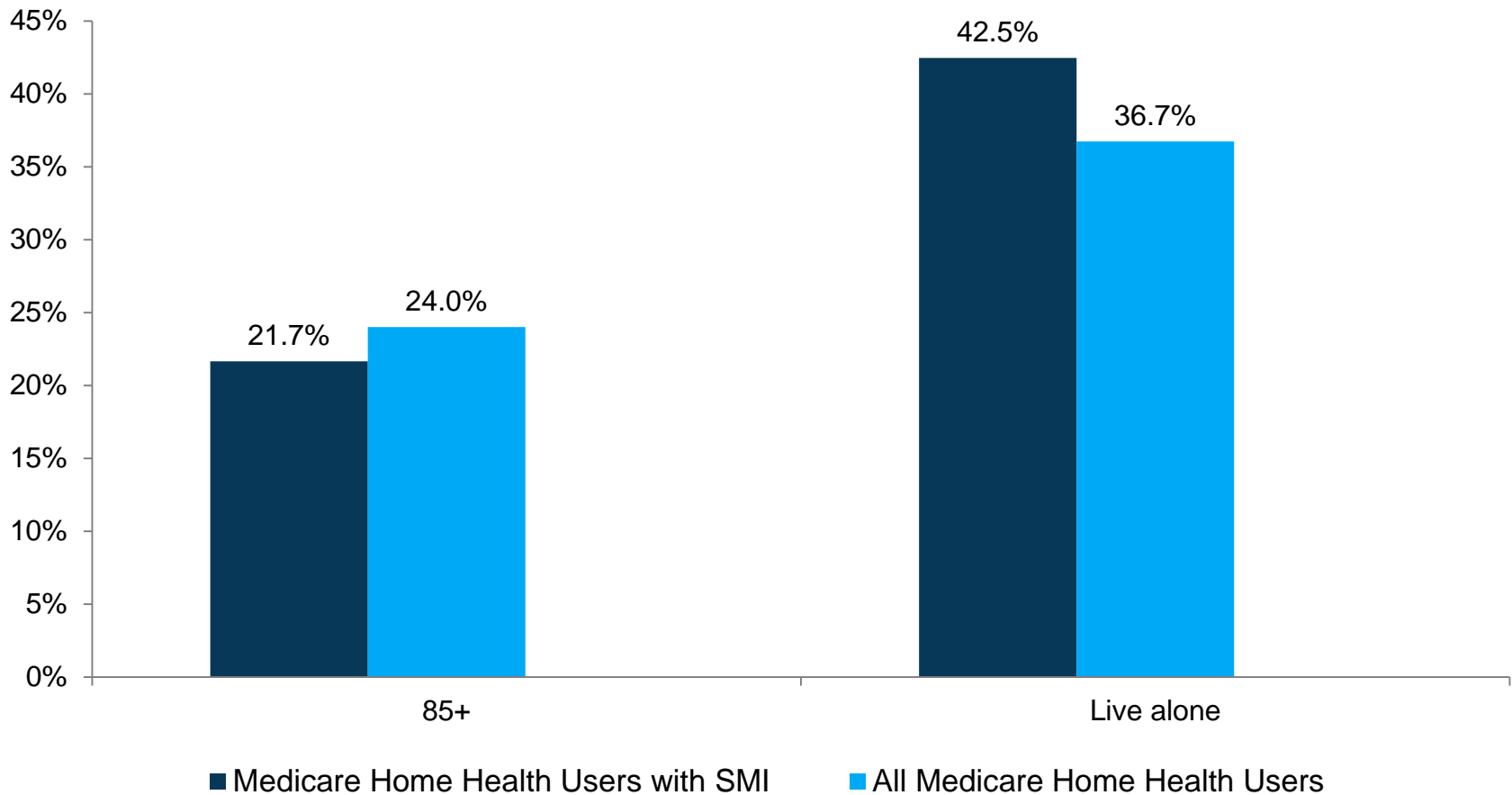
Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*Dual eligibles are defined as individuals with any state buy-in at any point during the year. Beneficiaries were classified as requiring assistance with an ADL (bathing, walking, transferring, dressing, toileting, and eating) if they reported needing at least stand-by assistance with that ADL.

Totals may not sum to 100 percent due to rounding.

Demographics of Home Health Users by Severe Mental Illness (SMI)*

Chart 1.20: Selected Characteristics of All Medicare Home Health Users and Medicare Home Health Users with SMI, 2013

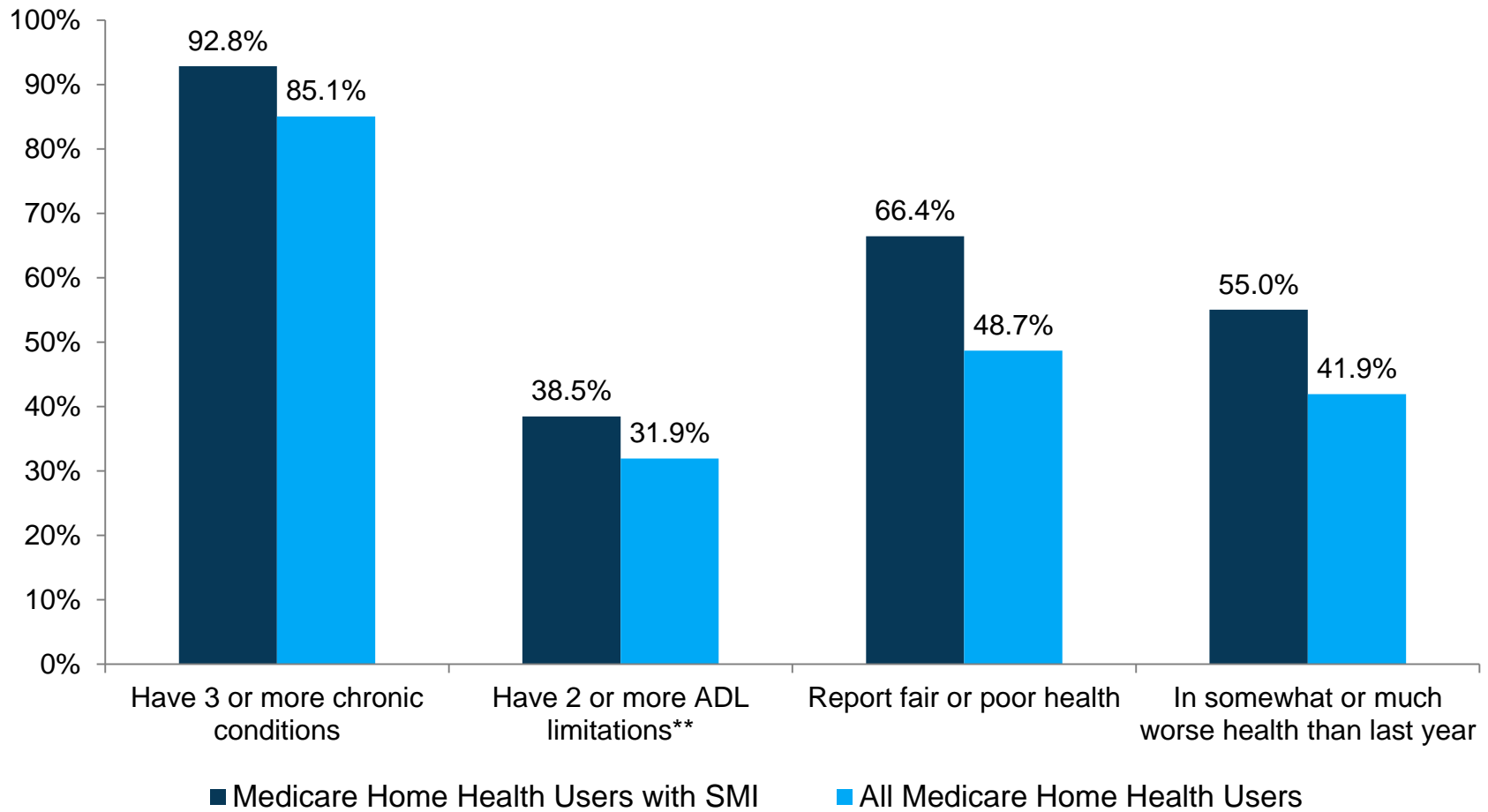


Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*Severe mental illness (SMI) is defined as having major depression or another mental illness, including bipolar disorder, schizophrenia, and other psychoses.

Demographics of Home Health Users by Severe Mental Illness (SMI)*

Chart 1.21: Selected Characteristics of All Medicare Home Health Users and Medicare Home Health Users with SMI, 2013



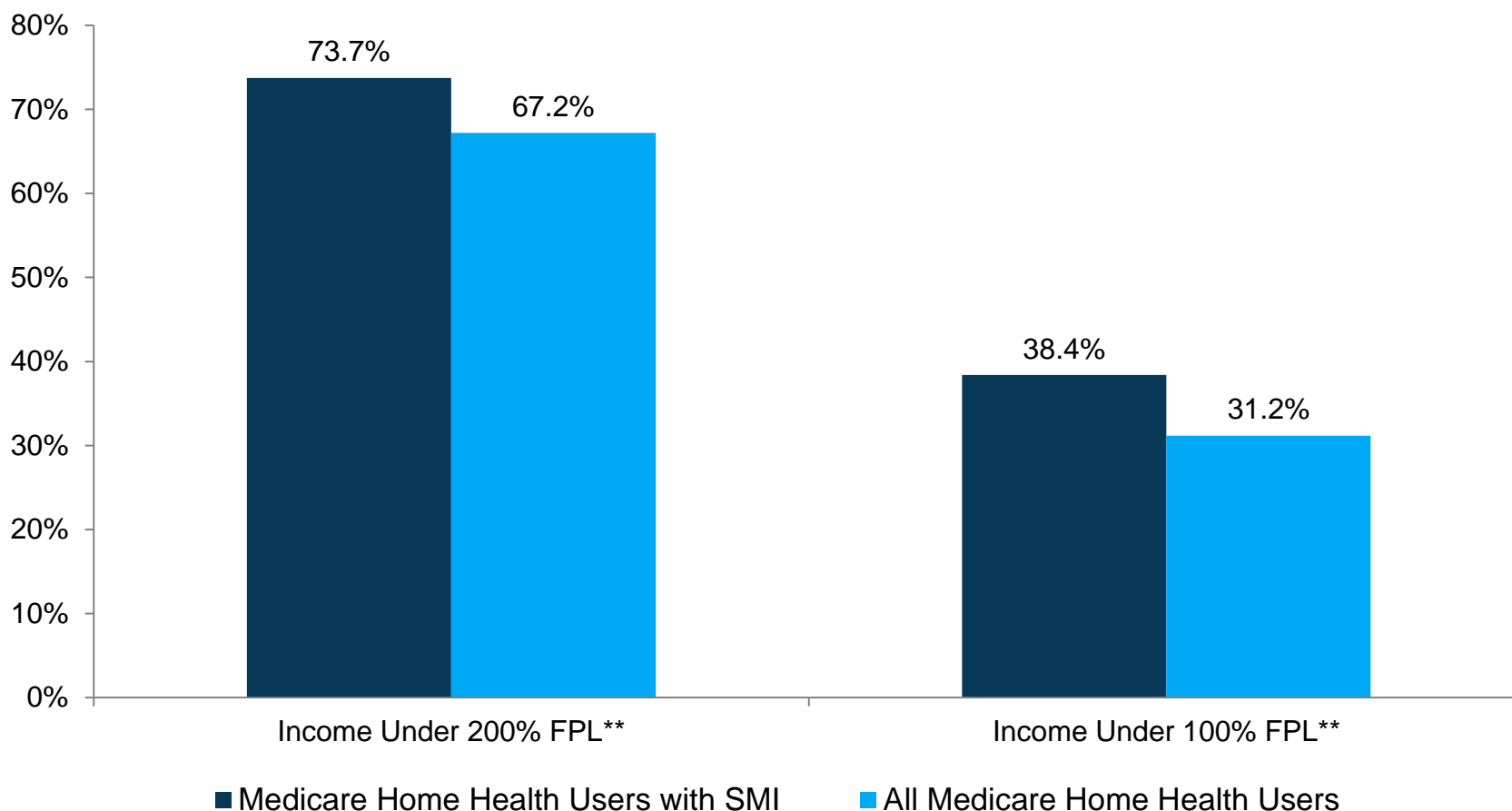
Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*Severe mental illness (SMI) is defined as having depression or another mental disorder, including bipolar disorder, schizophrenia, and other psychoses.

**ADL = Activities of daily living, such as eating, dressing, and bathing. Limitations with at least 2 ADLs is considered a measure of moderate to severe disability and is often the eligibility threshold for a nursing home level of care.

Demographics of Home Health Users by Severe Mental Illness (SMI)*

Chart 1.22: Selected Characteristics of Medicare Home Health Users with SMI and All Medicare Home Health Users, 2013



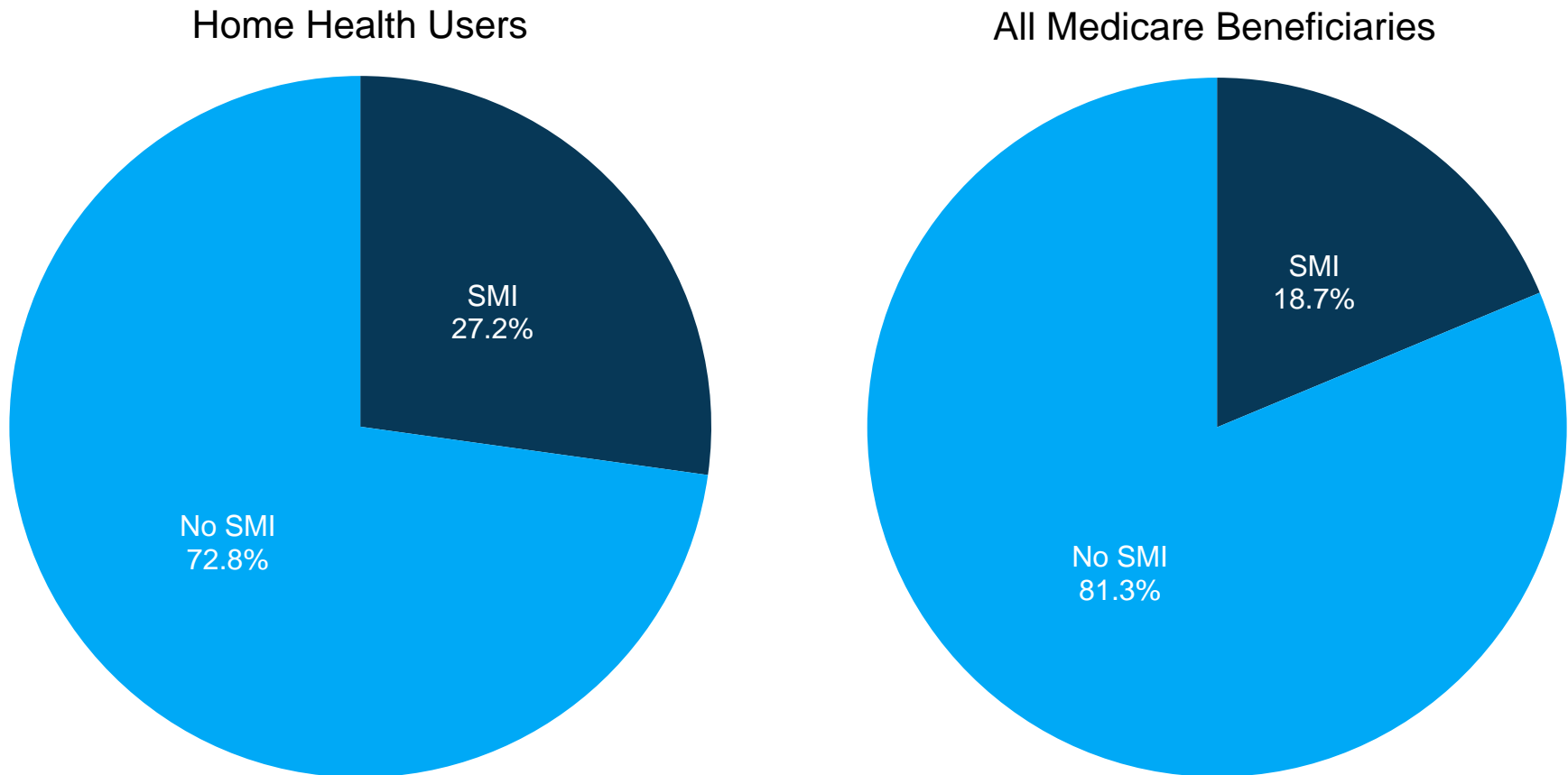
Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*Severe mental illness (SMI) is defined as having depression or another mental disorder, including bipolar disorder, schizophrenia, and other psychoses.

**In 2013, Federal Poverty Level (FPL) for a household of 1 was \$11,490, a household of 2 was \$15,510, a household of 3 was \$19,530, and household of 4 was \$23,550. 200 percent of FPL is double those amounts.

Demographics of Home Health Users by Severe Mental Illness (SMI)*

Chart 1.23: Percentage of Medicare Home Health Users with SMI Compared to the Percentage of Medicare Beneficiaries with SMI, 2013

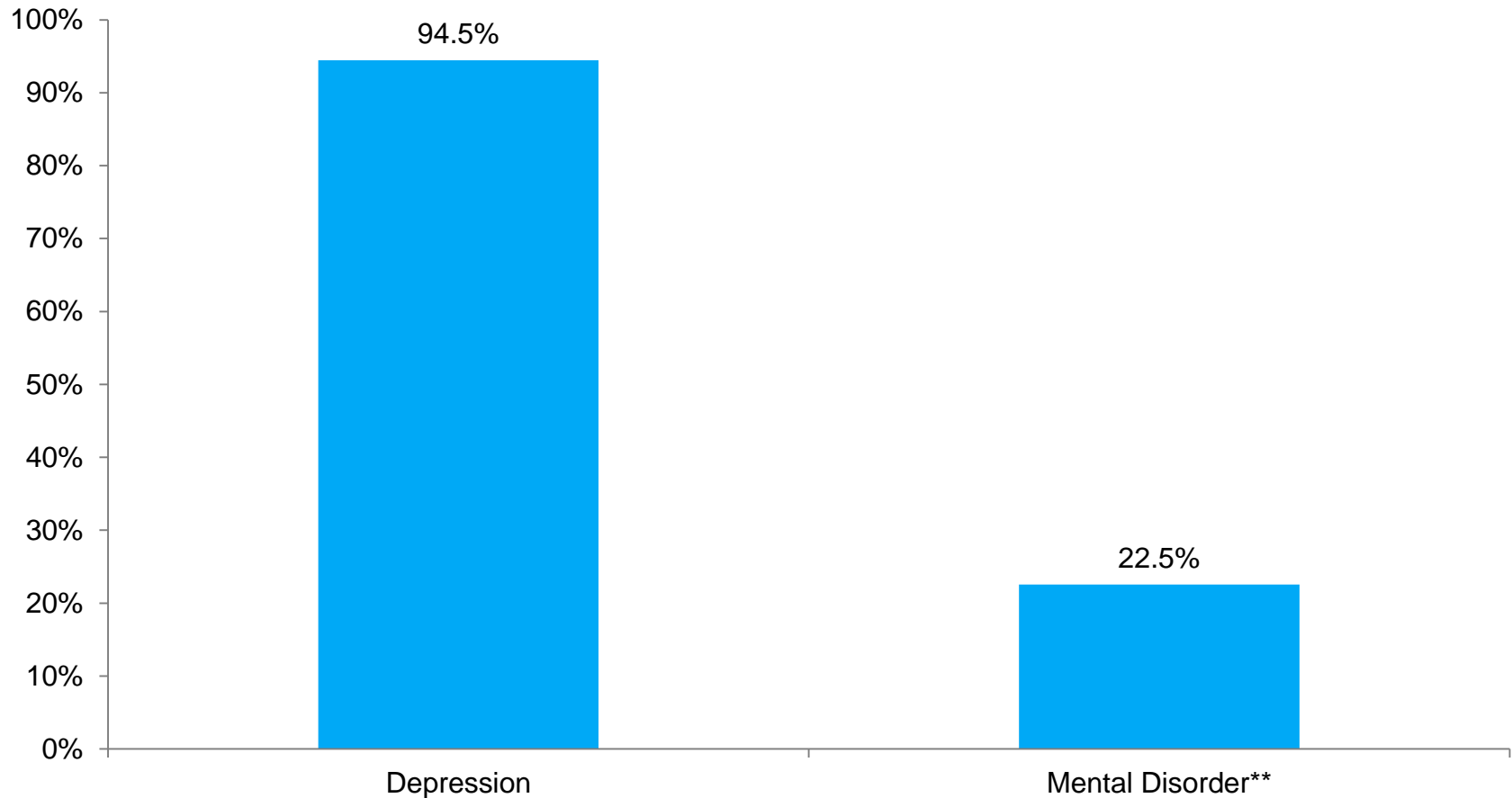


Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*Severe mental illness (SMI) is defined as having depression or other mental disorder, including bipolar disorder, schizophrenia, and other psychoses.

Demographics of Home Health Users by Severe Mental Illness (SMI)*

Chart 1.24: Breakdown of Medicare Home Health Users with SMI by Type of SMI, 2013



Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care file, 2013.

*Severe mental illness (SMI) is defined as having depression or other mental disorder, including bipolar disorder, schizophrenia, and other psychoses.

**Mental disorder includes bipolar disorder, schizophrenia, and other psychoses besides depression.

Demographic Trend of Home Health Users

Table 1.25: Selected characteristics of Medicare Home Health Users, 2010 – 2013

	2010	2011	2012	2013
Have 3 or more chronic conditions	86.0%	83.2%	85.9%	85.1%
Have 2 or more ADL limitations*	22.5%	28.7%	34.2%	31.9%
Have incomes under 200% of the Federal Poverty Level (FPL)**	62.6%	64.5%	67.9%	67.2%
Have incomes under 100% of the Federal Poverty Level (FPL)**	30.2%	34.8%	32.6%	31.2%
Are dual eligibles***	N/A	29.9%	29.9%	31.7%
Have SMI****	N/A	26.3%	27.0%	27.2%

Source: Avalere analysis of the Medicare Current Beneficiary Survey, Access to Care files, 2010 – 2013.

*ADL = Activities of daily living, such as eating, dressing, and bathing. Limitations with at least 2 ADLs is considered a measure of moderate to severe disability and is often the eligibility threshold for a nursing home level of care.

**100 percent of FPL for a household of was \$10,830 in 2010, \$10,890 in 2011, \$11,170 in 2012 and \$11,490 in 2013 . 200 percent of FPL was double each amount.

***Dual eligibles are defined as individuals with any state buy-in at any point during the year. Beneficiaries were classified as requiring assistance with an ADL (bathing, walking, transferring, dressing, toileting, and eating) if they reported needing at least stand-by assistance with that ADL.

****Severe mental illness (SMI) is defined as having depression or other mental disorder, including bipolar disorder, schizophrenia, and other psychoses.



Section 2: Clinical Profile of Home Health Users

Clinical Profile of Home Health Users

Table 2.1: Top 20 Most Common Diagnosis Related Groups (MS-DRGs) for Beneficiaries Discharged from Hospital to Part A Home Health Episodes, 2015

MS-DRG	Number of Home Health Part A Claims, 2015	Percent of Total Home Health Part A Claims, 2015
Major joint replacement or reattachment of lower extremity w/o mcc	159,905	8.55%
Septicemia or severe sepsis w/o mv 96+ hours w mcc	86,385	4.62%
Heart failure & shock w mcc	47,596	2.55%
Heart failure & shock w cc	41,161	2.20%
Hip & femur procedures except major joint w cc	35,349	1.89%
Intracranial hemorrhage or cerebral infarction w cc or tpa in 24 hours	30,463	1.63%
Simple pneumonia & pleurisy w mcc	29,793	1.59%
Septicemia or severe sepsis w/o mv 96+ hours w/o mcc	27,725	1.48%
Chronic obstructive pulmonary disease w mcc	27,669	1.48%
Kidney & urinary tract infections w/o mcc	27,205	1.45%
Simple pneumonia & pleurisy w cc	27,130	1.45%
Renal failure w cc	26,670	1.43%
Cellulitis w/o mcc	24,912	1.33%
Pulmonary edema & respiratory failure	23,978	1.28%
Spinal fusion except cervical w/o mcc	21,215	1.13%
Renal failure w mcc	20,498	1.10%
Chronic obstructive pulmonary disease w cc	19,099	1.02%
Esophagitis, gastroent & misc digest disorders w/o mcc	18,685	1.00%
G.I. hemorrhage w cc	17,886	0.96%
Infectious & parasitic diseases w O.R. procedure w mcc	17,191	0.92%
Total for Top 20 MS-DRGs	730,515	39.07%

Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

Note: CC is complication or comorbidity. MCC is major complication or comorbidity.

Clinical Profile of Home Health Users

Table 2.2: Top 20 Primary International Classification of Diseases, Version 9 (ICD-9) Diagnoses for All Home Health Claims, 2015*

ICD-9 Diagnosis	Number of Medicare Home Health Claims, 2015	Percent of Total Medicare Home Health Claims, 2015
Care involving use of rehabilitation procedures	443,817	8.75%
Diabetes mellitus	392,670	7.74%
Other orthopedic aftercare	368,932	7.27%
Other and unspecified aftercare	303,801	5.99%
Heart failure	299,652	5.91%
Essential hypertension	210,534	4.15%
Chronic ulcer of skin	210,070	4.14%
Chronic bronchitis	160,903	3.17%
Osteoarthritis and allied disorders	146,489	2.89%
Late effects of cerebrovascular disease	143,638	2.83%
Disorders of muscle, ligament, and fascia	122,711	2.42%
Cardiac dysrhythmias	103,731	2.04%
Hypertensive heart disease	73,838	1.46%
Symptoms involving nervous and musculoskeletal systems	72,676	1.43%
Other disorders of urethra and urinary tract	71,046	1.40%
Other complications of procedures, not elsewhere classified	65,310	1.29%
Other cellulitis and abscess	60,905	1.20%
Pneumonia, organism unspecified	60,449	1.19%
Hypertensive renal disease	58,829	1.16%
Other disorders of circulatory system	57,969	1.14%
Total for Top 20 Primary ICD-9 Diagnoses	3,427,970*	67.57%

Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

*On October 1, 2015 the conversion from the 9th version of the International Classification of Diseases (ICD-9-CM) to version 10 (ICD-10-CM) occurred. Regardless of when a claim was submitted for payment, services that occurred prior to October 1, 2015, use ICD-9 codes. This analysis is limited to the first three quarters of 2015 (January-September) and includes the total volume for those three quarters only and identifies chronic conditions based on ICD-9 codes.

Clinical Profile of Home Health Users

Table 2.3: Percent of Medicare Home Health Users with 3 or More Chronic Conditions* Compared to All Medicare Beneficiaries, by State, 2015

State	Percent of HH Users with 3+ CCs	Percent of Medicare Beneficiaries with 3+ CCs	State	Percent of HH Users with 3+ CCs	Percent of Medicare Beneficiaries with 3+ CCs
Alabama	88.85%	26.09%	Montana	88.69%	29.98%
Alaska	86.73%	25.57%	Nebraska	88.82%	30.68%
Arizona	85.29%	15.07%	Nevada	83.04%	15.01%
Arkansas	88.37%	26.26%	New Hampshire	90.27%	37.68%
California	86.29%	15.63%	New Jersey	88.34%	22.75%
Colorado	83.81%	17.36%	New Mexico	86.84%	22.07%
Connecticut	88.79%	24.48%	New York	87.91%	18.36%
Delaware	90.32%	32.79%	North Carolina	88.54%	24.23%
D.C.	87.13%	24.49%	North Dakota	93.41%	44.19%
Florida	85.52%	19.05%	Ohio	91.13%	23.41%
Georgia	87.88%	21.75%	Oklahoma	91.44%	30.43%
Hawaii	84.21%	11.11%	Oregon	86.81%	16.78%
Idaho	86.57%	24.06%	Pennsylvania	89.39%	21.80%
Illinois	91.90%	30.72%	Rhode Island	88.68%	22.36%
Indiana	91.06%	28.37%	South Carolina	87.93%	25.61%
Iowa	90.47%	32.60%	South Dakota	92.24%	39.72%
Kansas	89.30%	29.98%	Tennessee	88.11%	19.40%
Kentucky	89.31%	28.67%	Texas	90.65%	22.40%
Louisiana	89.93%	27.39%	Utah	82.62%	17.59%
Maine	91.89%	34.25%	Vermont	89.92%	38.86%
Maryland	88.99%	25.51%	Virginia	88.51%	26.95%
Massachusetts	89.77%	28.77%	Washington	87.47%	21.53%
Michigan	90.75%	29.54%	West Virginia	91.69%	32.95%
Minnesota	87.78%	26.77%	Wisconsin	91.51%	23.56%
Mississippi	89.26%	31.12%	Wyoming	84.75%	26.52%
Missouri	90.79%	28.77%			

Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

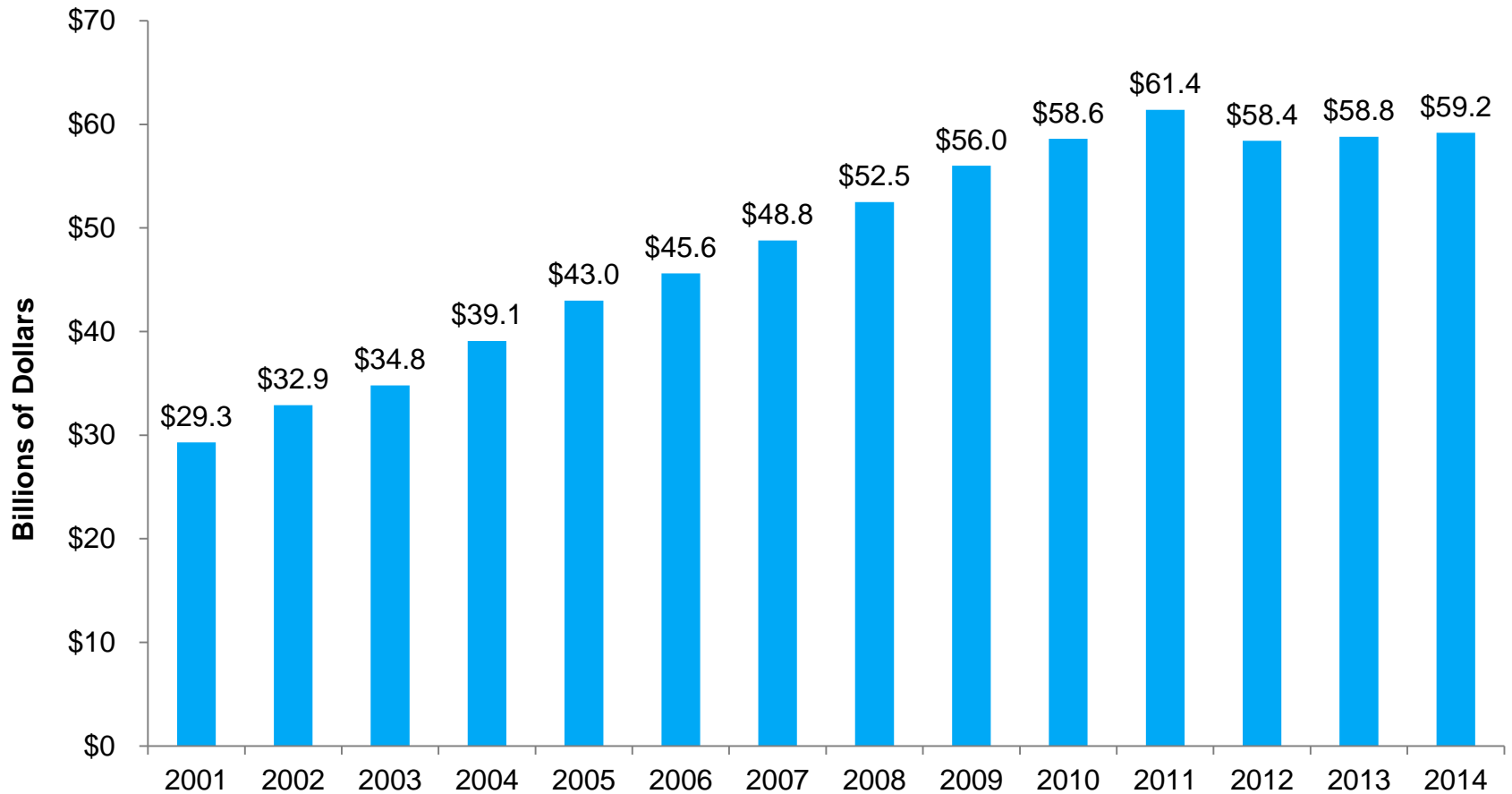
*Having a chronic condition is defined as having a Medicare claim with a chronic condition listed in 2015. Medicare beneficiaries without any claims in 2015 are categorized as having no chronic conditions in 2015. Chronic conditions are defined by the Centers for Medicare and Medicaid Services' Chronic Conditions Data Warehouse.



Section 3: Post-Acute Care Market Overview

Post-Acute Care Market Overview

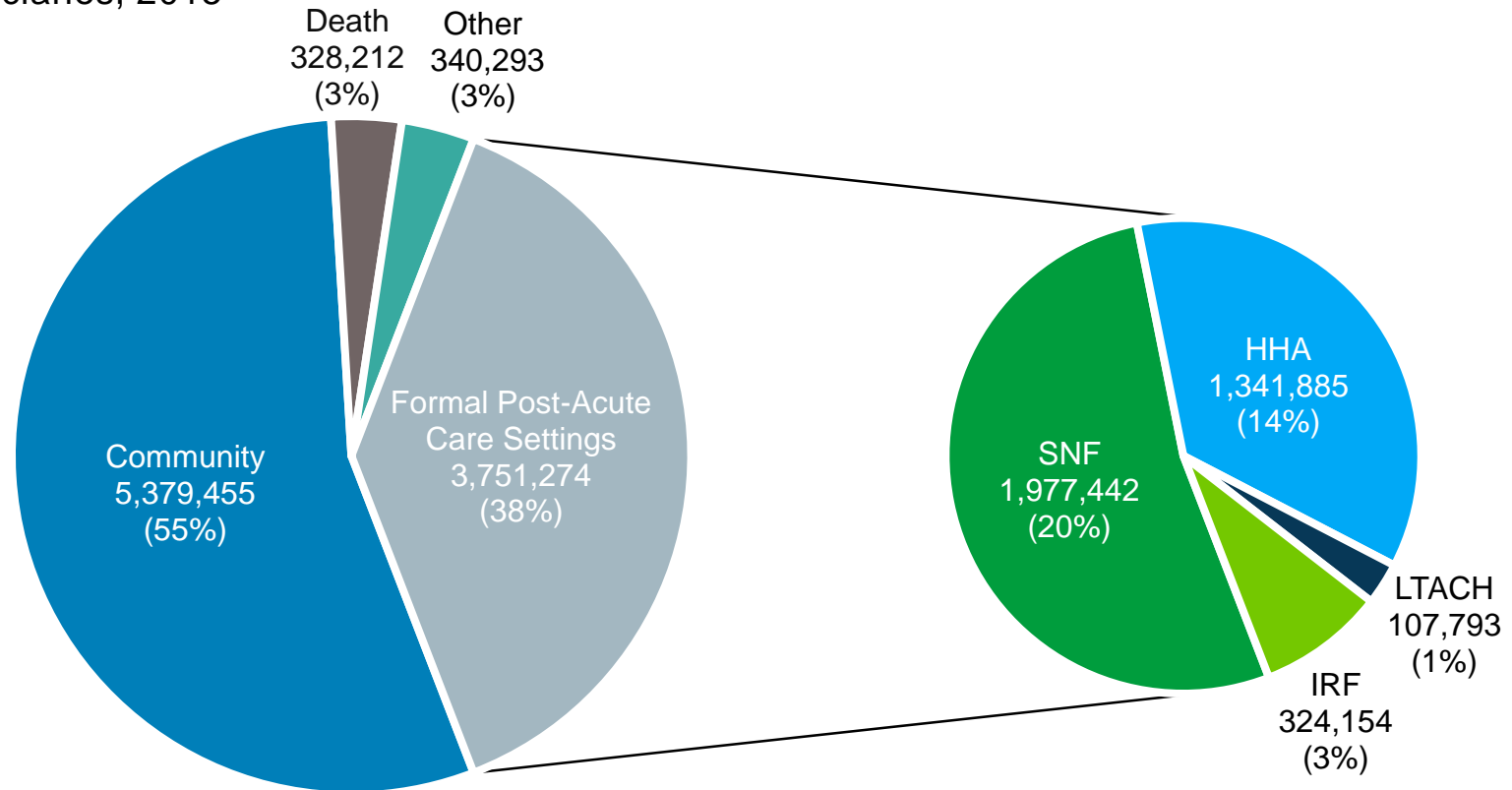
Chart 3.1: Total Medicare Post-Acute Care Expenditures, Billions of Dollars, 2001-2014



Source: Medicare Payment Advisory Commission. A Data Book: Health Care Spending and the Medicare Program, June 2016.

Post-Acute Care Market Overview

Chart 3.2: Initial Patient Destinations Following an Inpatient Hospital Stay for Medicare Beneficiaries, 2015



Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

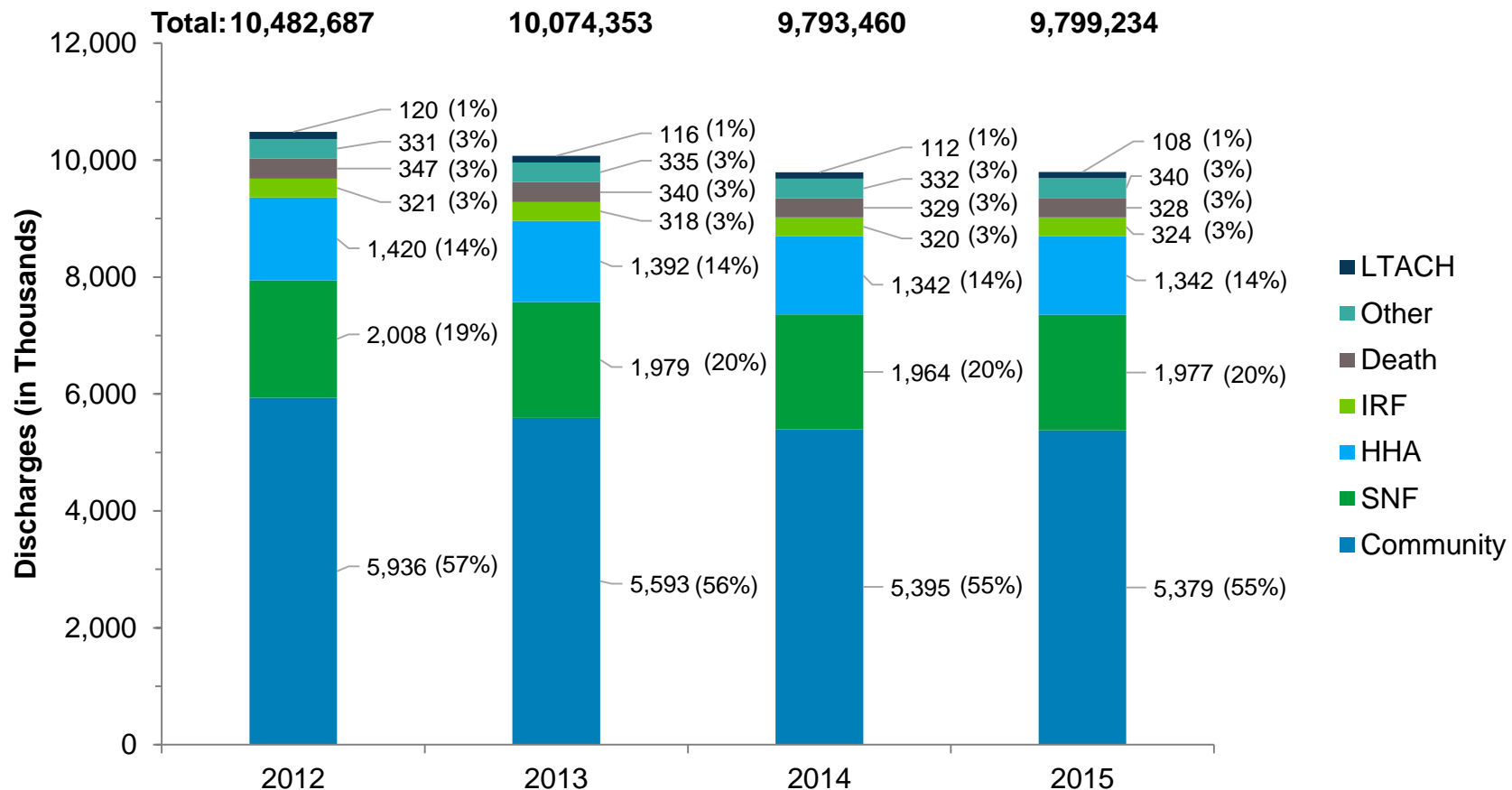
Community: Discharges to the community without skilled home health care; includes individuals living at home, assisted living facilities, and retirement communities.

Formal Post-Acute Care Settings: Settings designated as post-acute care by Medicare. Includes skilled nursing facilities (SNF), home health agencies (HHA), inpatient rehabilitation facilities (IRF), and long-term acute care hospitals (LTACH).

Other: Hospice, another inpatient hospital, or other inpatient hospitals such as inpatient psychiatric facilities.

Post-Acute Care Market Overview

Chart 3.3: Initial Patient Destinations Following an Inpatient Hospital Stay for Medicare Beneficiaries, 2012-2015



Source: Avalere analysis of Medicare Standard Analytic Files, 2012-2015.

Community: Discharges to the community without skilled home health care; includes individuals living at home, assisted living facilities, and retirement communities.

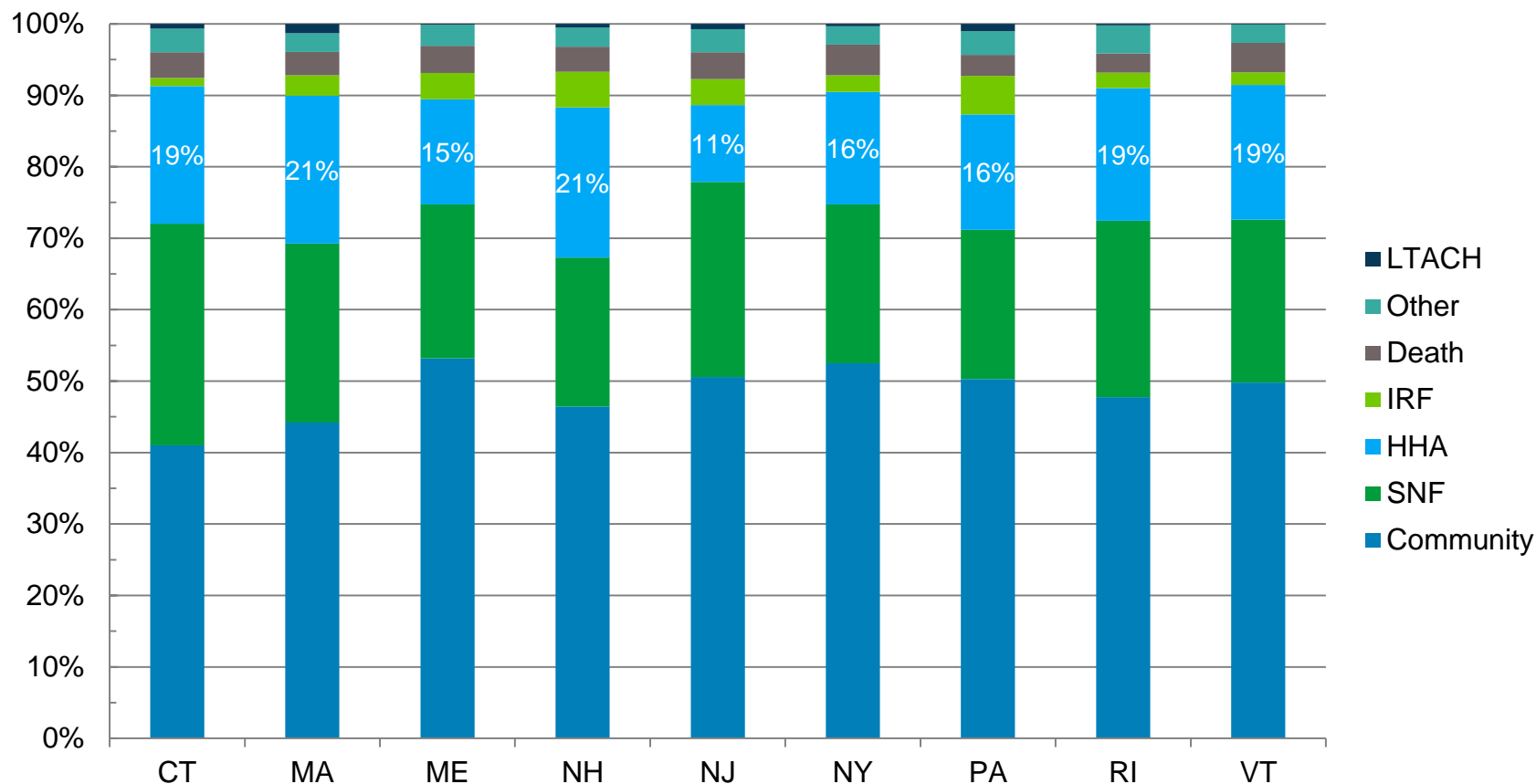
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Other: Hospice, another inpatient hospital, or other inpatient hospitals such as inpatient psychiatric facilities.

Percentages may not sum to 100 percent due to rounding.

Post-Acute Care Market Overview

Chart 3.4: Initial Patient Destinations Following an Inpatient Hospital Stay for Medicare Beneficiaries in 2015, for States in Northeastern Region



Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

Note: U.S. Census Bureau defines which states are in the Northeast Region; includes CT, MA, ME, NH, NJ, NY, PA, RI, VT.

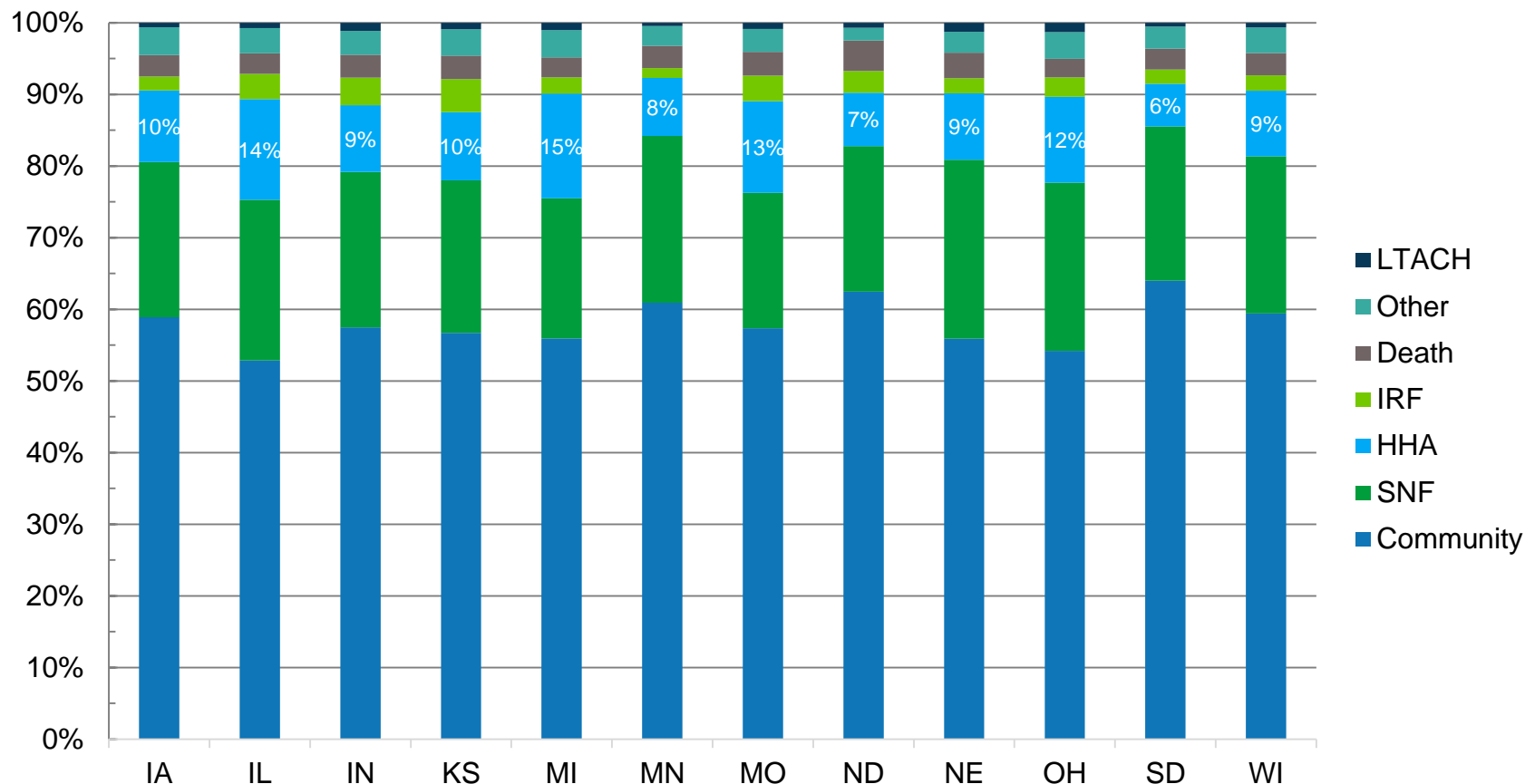
Community: Discharges to the community without skilled home health care; includes individuals living at home, assisted living facilities, and retirement communities.

Formal Post-Acute Care Settings: Settings designated as post-acute care by Medicare. Includes skilled nursing facilities (SNF), home health agencies (HHA), inpatient rehabilitation facilities (IRF), and long-term acute care hospitals (LTACH).

Other: Hospice, another inpatient hospital, or other inpatient hospitals such as inpatient psychiatric facilities.

Post-Acute Care Market Overview

Chart 3.5: Initial Patient Destinations Following an Inpatient Hospital Stay for Medicare Beneficiaries in 2015, for States in Midwestern Region



Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

Note: U.S. Census Bureau defines which states are in the Midwestern Region; includes IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI.

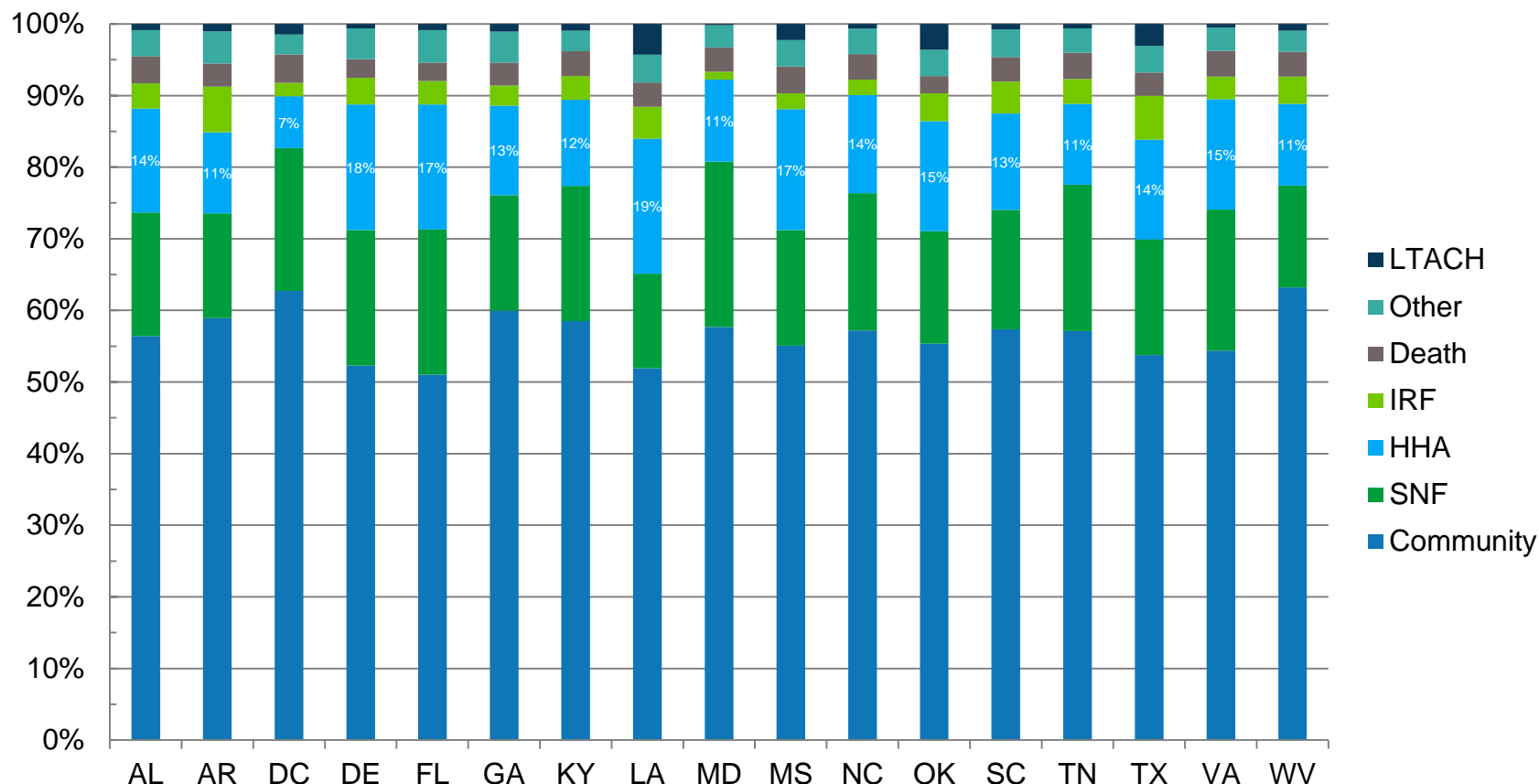
Community: Discharges to the community without skilled home health care; includes individuals living at home, assisted living facilities, and retirement communities.

Formal Post-Acute Care Settings: Settings designated as post-acute care by Medicare. Includes skilled nursing facilities (SNF), home health agencies (HHA), inpatient rehabilitation facilities (IRF), and long-term acute care hospitals (LTACH).

Other: Hospice, another inpatient hospital, or other inpatient hospitals such as inpatient psychiatric facilities.

Post-Acute Care Market Overview

Chart 3.6: Initial Patient Destinations Following an Inpatient Hospital Stay for Medicare Beneficiaries in 2015, for States in Southern Region

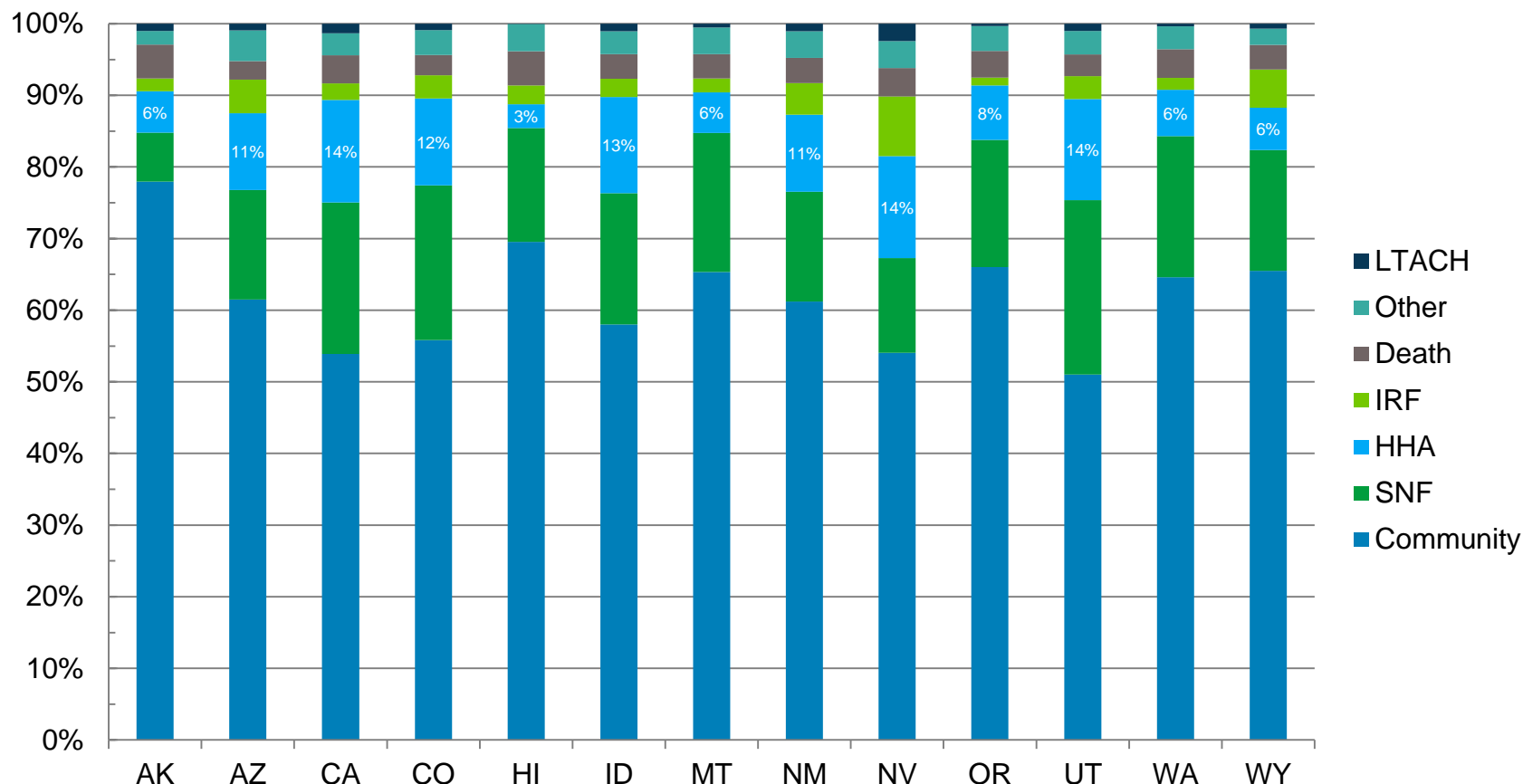


Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

Note: U.S. Census Bureau defines which states are in the Southern Region; includes AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV.
 Community: Discharges to the community without skilled home health care; includes individuals living at home, assisted living facilities, and retirement communities.
 Formal Post-Acute Care Settings: Settings designated as post-acute care by Medicare. Includes skilled nursing facilities (SNF), home health agencies (HHA), inpatient rehabilitation facilities (IRF), and long-term acute care hospitals (LTACH).
 Other: Hospice, another inpatient hospital, or other inpatient hospitals such as inpatient psychiatric facilities.

Post-Acute Care Market Overview

Chart 3.7: Initial Patient Destinations Following an Inpatient Hospital Stay for Medicare Beneficiaries in 2015, for States in Western Region



Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

Note: U.S. Census Bureau defines which states are in the Western Region; includes AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY.

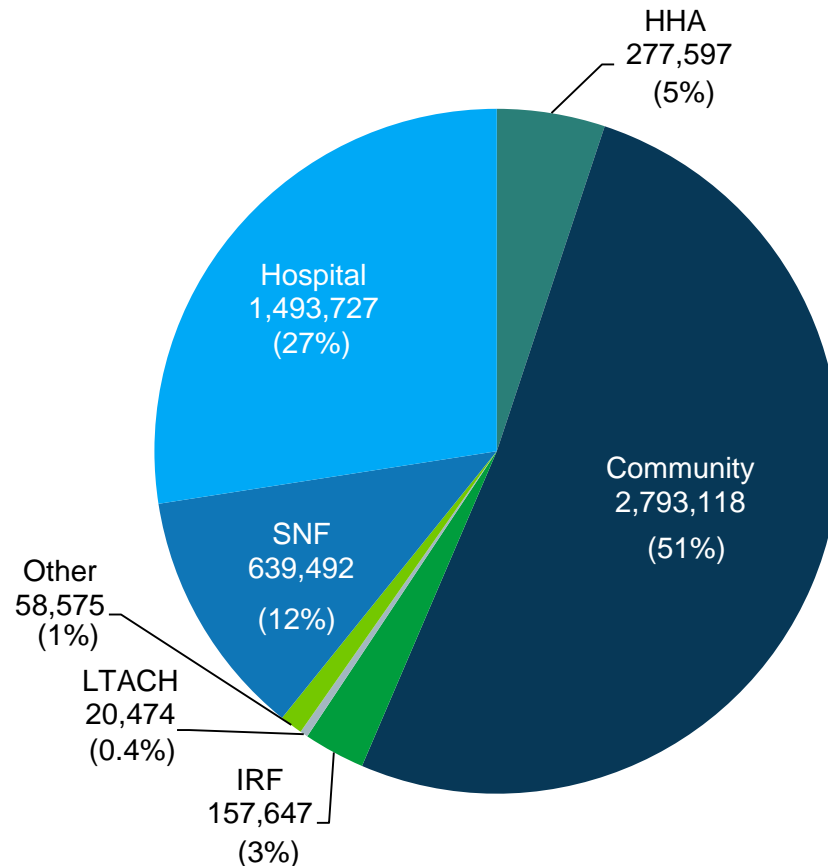
Community: Discharges to the community without skilled home health care; includes individuals living at home, assisted living facilities, and retirement communities.

Formal Post-Acute Care Settings: Settings designated as post-acute care by Medicare. Includes skilled nursing facilities (SNF), home health agencies (HHA), inpatient rehabilitation facilities (IRF), and long-term acute care hospitals (LTACH).

Other: Hospice, another inpatient hospital, or other inpatient hospitals such as inpatient psychiatric facilities.

Post-Acute Care Market Overview

Chart 3.8: Distribution of Care Settings Prior to Home Health Episodes, 2015



Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

Note: Analysis includes care setting in three days prior to home health episode.

SNF: Skilled nursing facility, HHA: Home health agency, IRF: Inpatient rehabilitation facility, LTACH: Long-term acute care hospital, Hospital: Short-term acute care hospital (STACH), Other: Hospice, another inpatient hospital, or other inpatient hospitals such as inpatient psychiatric facilities.

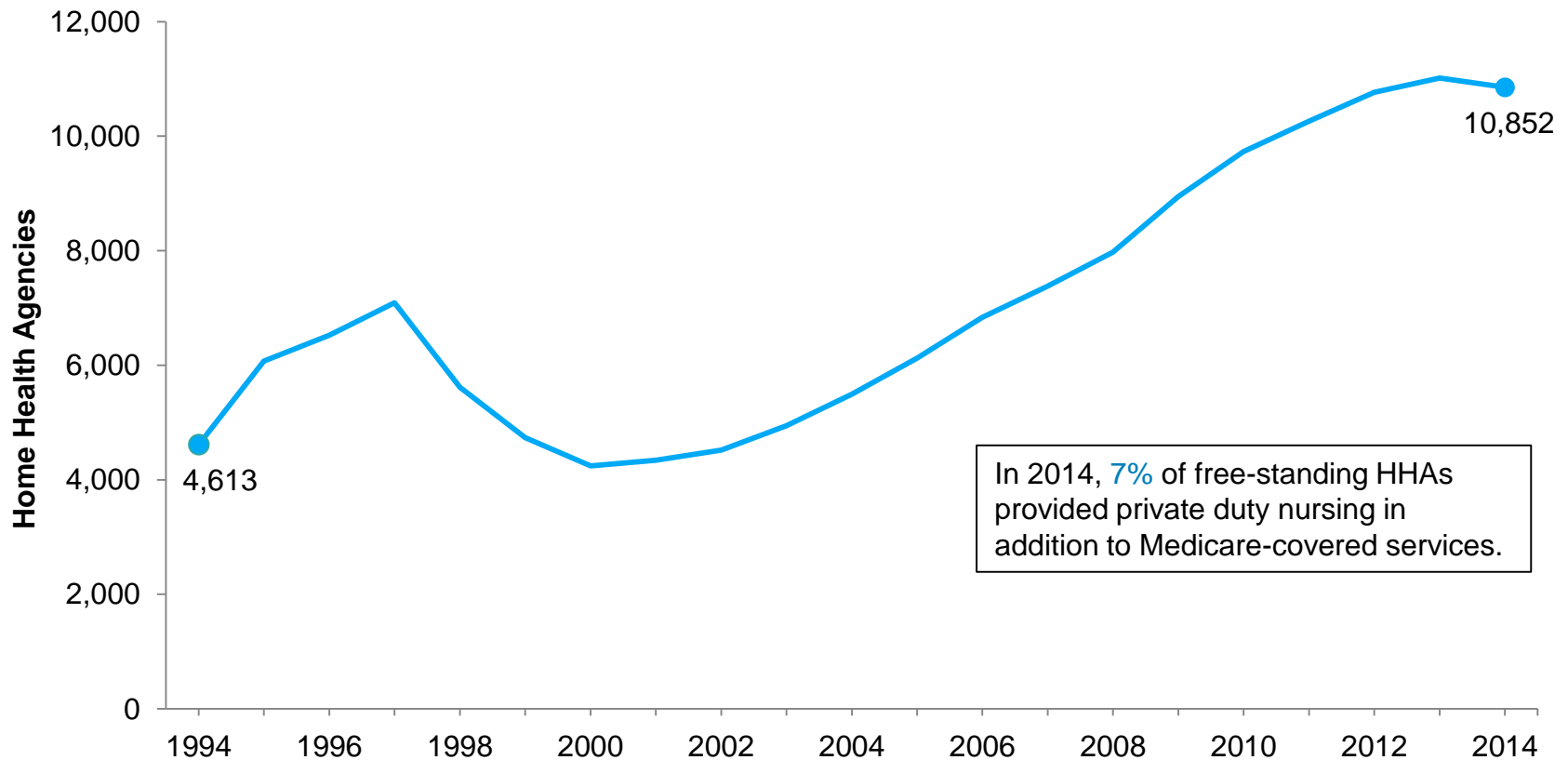
Community: Discharges to the community without skilled home health care; includes individuals living at home, assisted living facilities, and retirement communities.



Section 4: Organizational Trends in Home Health

Organizational Trends in Home Health

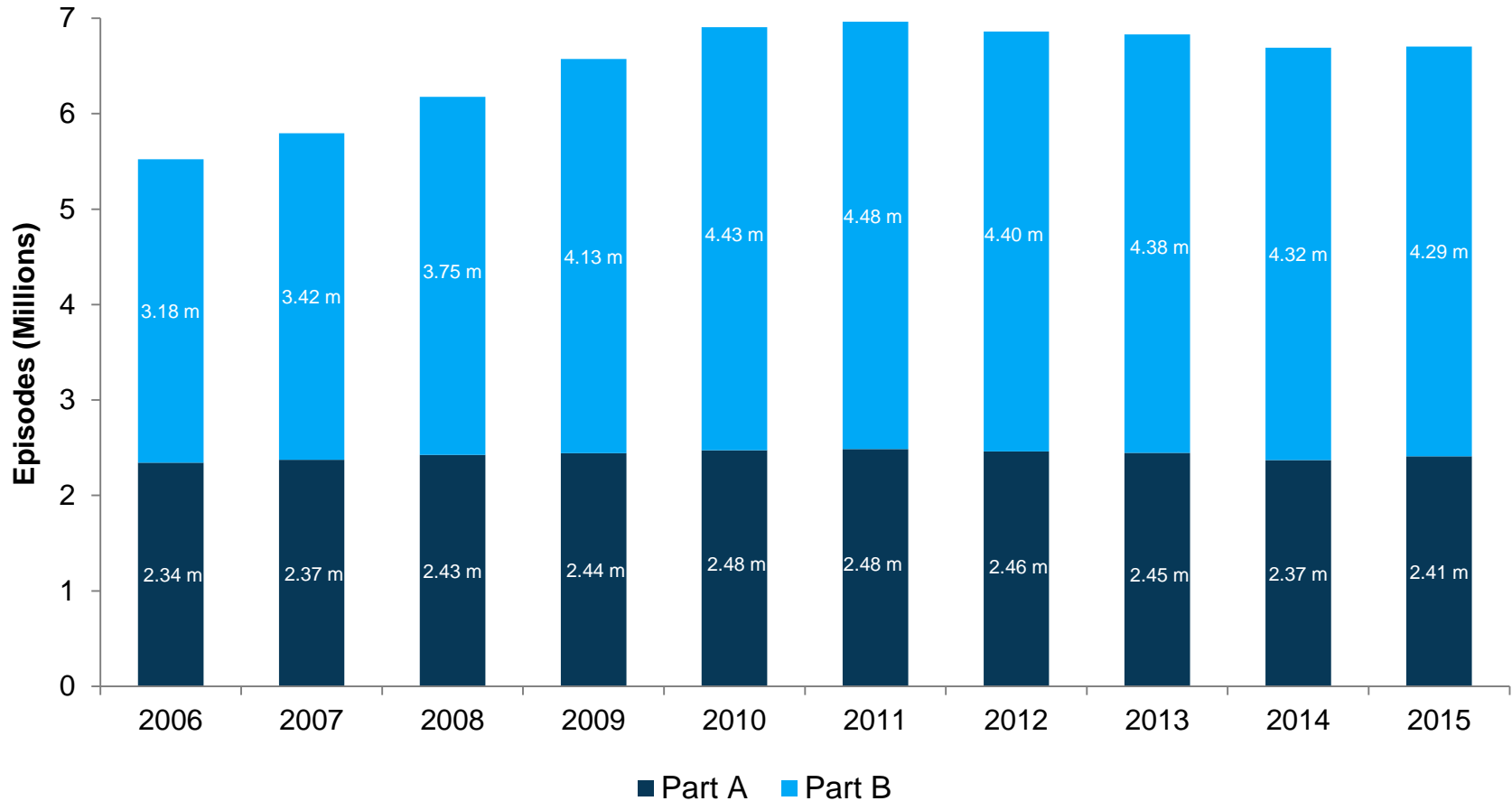
Chart 4.1: Number of Medicare-Certified Free-Standing Home Health Agencies (HHAs), 1994-2014



Source: Avalere analysis of Medicare Cost Reports from the Centers for Medicare and Medicaid Services.

Organizational Trends in Home Health

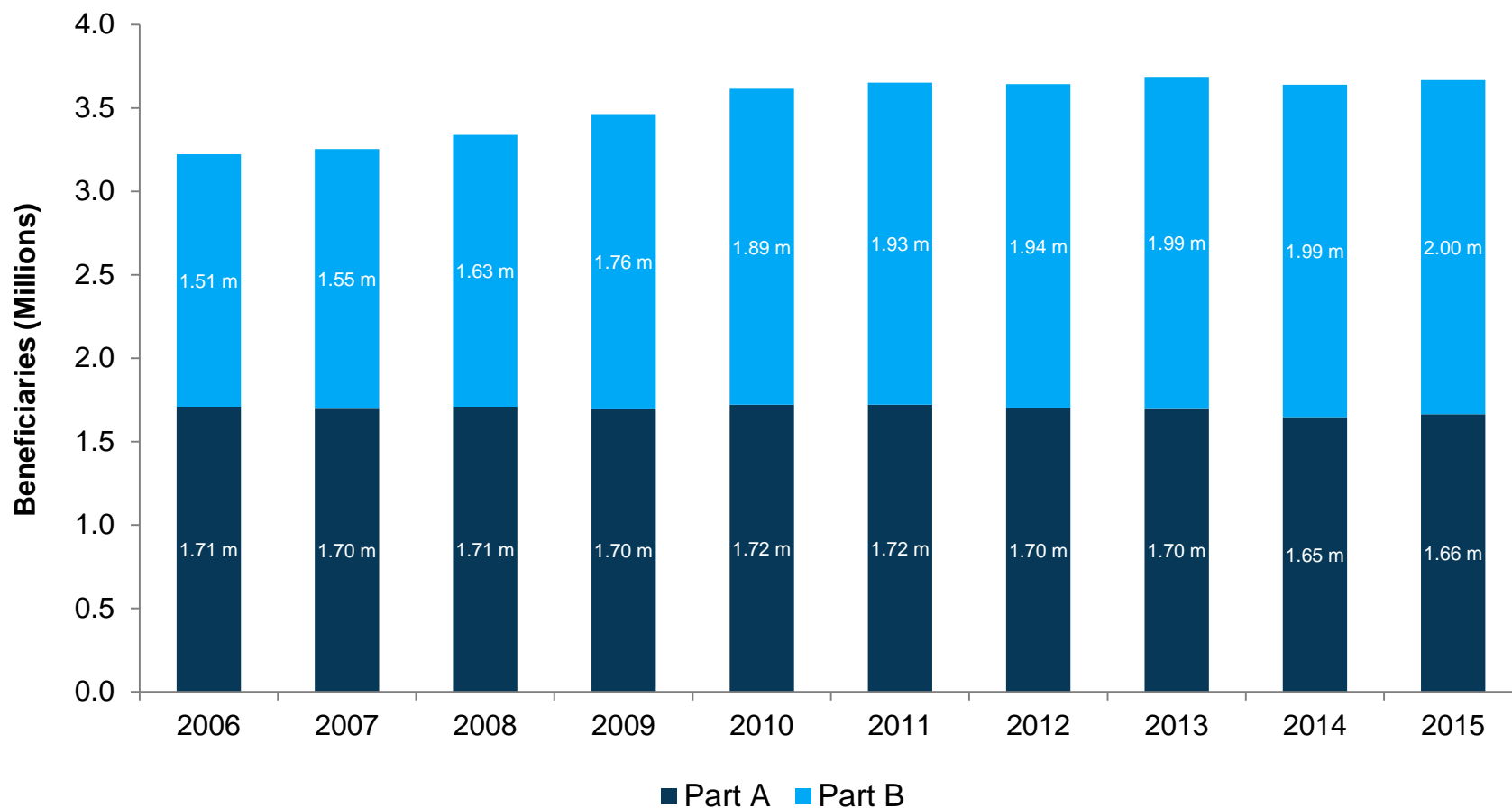
Chart 4.2: Number of Medicare Part A and Part B Home Health Episodes, in Millions, 2006-2015



Source: Avalere analysis of Medicare Standard Analytic Files, 2006-2015.

Organizational Trends in Home Health

Chart 4.3: Number of Medicare Part A and Part B Beneficiaries with a Home Health Episode, in Millions, 2006-2015*



Source: Avalere analysis of Medicare Standard Analytic Files, 2006-2015.

*Beneficiaries are double-counted if they had both a Part A and a Part B home health episode during the year.

Organizational Trends in Home Health

Table 4.4: Number of Medicare Beneficiaries with a Home Health Episode, by State, 2015

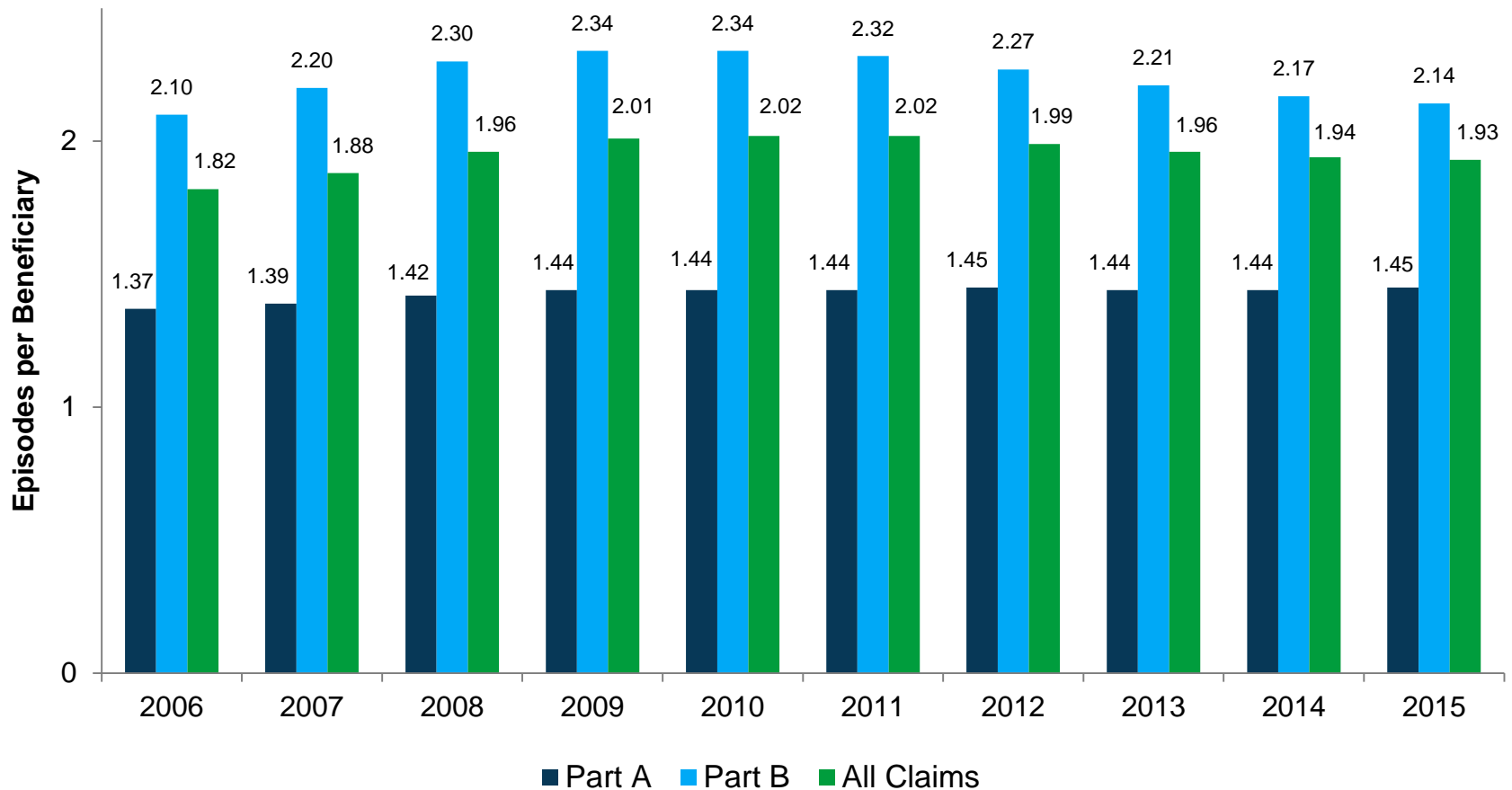
State	Number of Beneficiaries	State	Number of Beneficiaries	State	Number of Beneficiaries
Alabama	72,801	Kentucky	58,201	North Dakota	4,070
Alaska	2,522	Louisiana	68,764	Ohio	115,923
Arizona	43,284	Maine	19,880	Oklahoma	66,795
Arkansas	36,784	Maryland	69,241	Oregon	23,711
California	313,398	Massachusetts	113,041	Pennsylvania	147,756
Colorado	36,725	Michigan	145,547	Rhode Island	13,866
Connecticut	52,753	Minnesota	40,295	South Carolina	57,782
Delaware	14,897	Mississippi	57,431	South Dakota	5,110
District of Columbia	5,933	Missouri	64,525	Tennessee	74,701
Florida	329,065	Montana	6,364	Texas	319,321
Georgia	86,194	Nebraska	15,989	Utah	21,617
Hawaii	3,219	Nevada	28,884	Vermont	10,736
Idaho	13,885	New Hampshire	22,475	Virginia	97,987
Illinois	176,154	New Jersey	102,333	Washington	44,714
Indiana	62,916	New Mexico	17,013	West Virginia	23,809
Iowa	26,367	New York	178,757	Wisconsin	37,077
Kansas	28,155	North Carolina	106,154	Wyoming	3,865
				Total U.S.*	3,504,150

Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

*Total includes 15,364 other or unknown beneficiaries (i.e. beneficiaries from U.S. territories or beneficiaries not attributed to a specific state).

Organizational Trends in Home Health

Chart 4.5: Number of Home Health Episodes per Medicare Home Health User by Part A, Part B, and All Claims, 2006-2015*

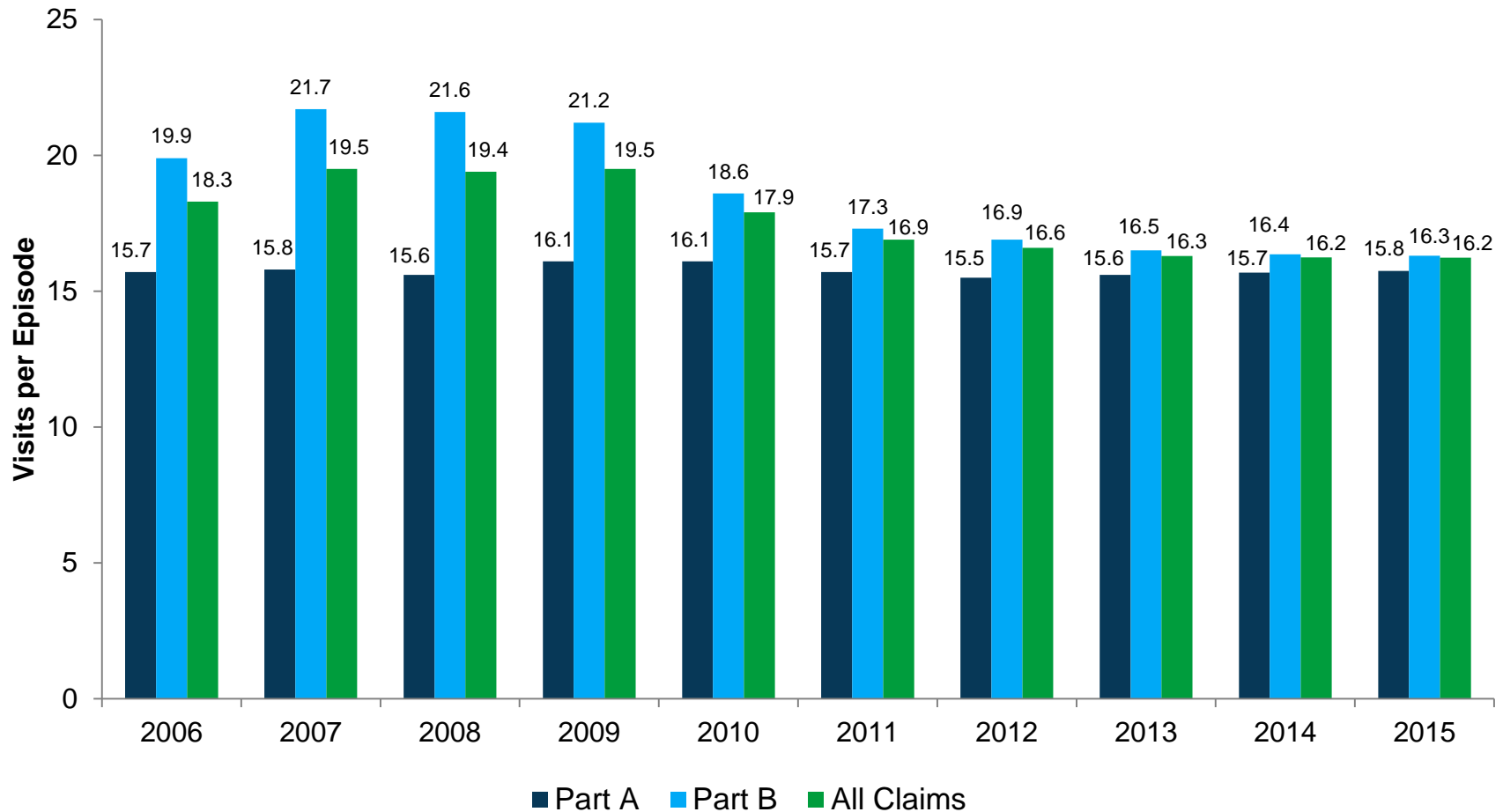


Source: Avalere analysis of Medicare Standard Analytic Files, 2006-2015.

*These data reflect the number of home health episodes per Medicare beneficiaries with at least one Part A or Part B home health episode.

Organizational Trends in Home Health

Chart 4.6: Number of Home Health Visits per Episode by Part A, Part B, and All Claims, 2006-2015*



Source: Avalere analysis of Medicare Standard Analytic Files, 2006 – 2015.

*These data reflect the number of home health visits per episode for Medicare beneficiaries with at least one Part A or Part B home health episode.

Note: Avalere uses its own methodology to calculate visits per episode, so results may vary from other sources.



Section 5: Economic Contribution of Home Health Agencies

Economic Contribution of Home Health Agencies

Table 5.1: Impact of Home Health on Employment, by State, 2014

State	Estimated Number of HH Employees ¹	Multiplier for Employment ²	Estimated Jobs Created by HH Industry ³	State	Estimated Number of HH Employees ¹	Multiplier for Employment ²	Estimated Jobs Created by HH Industry ³
Alabama	12,064	1.6006	19,310	Montana	2,829	1.379	3,901
Alaska	1,909	1.2947	2,472	Nebraska	3,051	1.4917	4,551
Arizona	20,151	1.5316	30,863	Nevada	4,943	1.5602	7,712
Arkansas	6,611	1.3838	9,148	New Hampshire	4,240	1.4928	6,329
California	77,001	1.5363	118,297	New Jersey	40,050	1.4739	59,030
Colorado	15,982	1.6203	25,896	New Mexico	12,784	1.3888	17,754
Connecticut	14,671	1.4454	21,205	New York	153,985	1.3517	208,142
Delaware	3,129	1.4446	4,520	North Carolina	39,648	1.5106	59,892
D.C.	5,977	1.1458	6,848	North Dakota	576	1.3735	791
Florida	68,588	1.6707	114,590	Ohio	61,569	1.5112	93,043
Georgia	22,360	1.689	37,766	Oklahoma	15,531	1.4614	22,697
Hawaii	3,717	1.4108	5,244	Oregon	5,092	1.5271	7,776
Idaho	7,647	1.4015	10,717	Pennsylvania	46,423	1.5858	73,618
Illinois	42,589	1.4971	63,760	Rhode Island	5,322	1.4328	7,625
Indiana	19,098	1.5233	29,092	South Carolina	12,258	1.5163	18,587
Iowa	7,859	1.4982	11,774	South Dakota	1,277	1.337	1,707
Kansas	7,311	1.5421	11,274	Tennessee	18,081	1.6497	29,828
Kentucky	8,671	1.5654	13,574	Texas	247,578	1.5194	376,170
Louisiana	22,710	1.5021	34,113	Utah	7,485	1.6379	12,260
Maine	4,105	1.4854	6,098	Vermont	2,249	1.429	3,214
Maryland	16,837	1.4766	24,862	Virginia	25,477	1.4231	36,256
Massachusetts	39,576	1.521	60,195	Washington	9,952	1.5318	15,244
Michigan	38,418	1.5025	57,723	West Virginia	7,623	1.3727	10,464
Minnesota	23,295	1.468	34,197	Wisconsin	14,358	1.4373	20,636.75
Mississippi	7,316	1.5337	11,221	Wyoming	562	1.336	751
Missouri	20,473	1.5046	30,804	Total U.S.	1,261,008	N/A	1,893,542

1. Quarterly Census of Employment and Wages (QCEW) collected by the U.S. Bureau of Labor Statistics, which includes annual averages for all private, home health care services (NAICS 6216) for all establishment sizes in 2014.

2. U.S. Bureau of Economic Analysis multipliers.

3. Avalere calculation.

Note: The QCEW collects employment data monthly. All states report employment figures on privately owned home health agencies, including for-profit and non-profit organizations. Alabama, Arkansas, Illinois, Iowa, Minnesota, Missouri, North Carolina, Ohio and Virginia submit employment figures for their government-owned facilities, which are included in this analysis. The QWEC does not include jobs for HHA contractors, but the multiplier is intended to account for such jobs.

Economic Contribution of Home Health Agencies

Table 5.2: Impact of Home Health on Labor Income, by State, 2014

State	Estimated Home Health Total Wages ¹	Multiplier for Earnings ²	Estimated Impact of HH Payroll on Labor Income ³	State	Estimated Home Health Total Wages ¹	Multiplier for Earnings ²	Estimated Impact of HH Payroll on Labor Income ³
Alabama	\$455,228,607	1.5246	\$694,041,534	Montana	\$64,748,938	1.4242	\$92,215,437
Alaska	\$42,835,773	1.3979	\$59,880,127	Nebraska	\$100,148,475	1.4951	\$149,731,985
Arizona	\$584,275,496	1.6400	\$958,211,813	Nevada	\$213,829,031	1.5085	\$322,561,093
Arkansas	\$174,513,762	1.4625	\$255,226,377	New Hampshire	\$149,745,504	1.5267	\$228,616,461
California	\$2,607,700,376	1.6657	\$4,343,646,516	New Jersey	\$1,064,169,916	1.6538	\$1,759,924,207
Colorado	\$506,615,424	1.6902	\$856,281,390	New Mexico	\$243,981,589	1.4363	\$350,430,756
Connecticut	\$590,444,878	1.5332	\$905,270,087	New York	\$4,227,207,788	1.5161	\$6,408,869,727
Delaware	\$121,034,803	1.4227	\$172,196,214	North Carolina	\$978,211,822	1.6483	\$1,612,386,546
D.C.	\$160,894,554	1.2038	\$193,684,864	North Dakota	\$19,524,590	1.3869	\$27,078,654
Florida	\$2,514,971,755	1.6490	\$4,147,188,424	Ohio	\$1,544,269,464	1.6528	\$2,552,368,570
Georgia	\$721,436,078	1.7189	\$1,240,076,474	Oklahoma	\$421,684,738	1.5568	\$656,478,800
Hawaii	\$102,952,867	1.5252	\$157,023,713	Oregon	\$163,718,022	1.5397	\$252,076,638
Idaho	\$139,891,166	1.4459	\$202,268,637	Pennsylvania	\$1,712,242,650	1.6368	\$2,802,598,770
Illinois	\$1,217,171,317	1.7308	\$2,106,680,115	Rhode Island	\$156,600,511	1.4863	\$232,755,339
Indiana	\$542,820,892	1.5826	\$859,068,344	South Carolina	\$343,668,202	1.5901	\$546,466,808
Iowa	\$264,583,957	1.4555	\$385,101,949	South Dakota	\$36,765,600	1.4195	\$52,188,769
Kansas	\$224,467,765	1.5074	\$338,362,709	Tennessee	\$658,622,832	1.6703	\$1,100,097,716
Kentucky	\$356,569,095	1.5244	\$543,553,928	Texas	\$4,823,781,453	1.7496	\$8,439,688,030
Louisiana	\$679,238,785	1.5224	\$1,034,073,126	Utah	\$235,447,221	1.6596	\$390,748,208
Maine	\$127,681,161	1.5129	\$193,168,828	Vermont	\$74,541,458	1.4289	\$106,512,289
Maryland	\$596,990,884	1.5547	\$928,141,727	Virginia	\$684,195,554	1.5616	\$1,068,439,777
Massachusetts	\$1,494,933,347	1.5785	\$2,359,752,288	Washington	\$353,616,851	1.5699	\$555,143,094
Michigan	\$1,214,248,313	1.5999	\$1,942,675,876	West Virginia	\$202,463,764	1.4010	\$283,651,733
Minnesota	\$616,593,108	1.6555	\$1,020,769,890	Wisconsin	\$385,693,433	1.5482	\$597,130,573
Mississippi	\$290,757,352	1.4563	\$423,429,932	Wyoming	\$17,163,385	1.3190	\$22,638,505
Missouri	\$586,487,161	1.6014	\$939,200,540	Total U.S.	\$35,811,381,467	N/A	\$57,869,773,914

1. Quarterly Census of Employment and Wages (QCEW) collected by the U.S. Bureau of Labor Statistics, which includes annual averages for all private, home health care services (NAICS 6216) for all establishment sizes in 2014.

2. U.S. Bureau of Economic Analysis multipliers.

3. Avalere calculation.

Note: The QCEW collects wage data quarterly. All states report employment figures on privately owned home health agencies, including for-profit and non-profit organizations. Alabama, Arkansas, Illinois, Iowa, Minnesota, Missouri, North Carolina, Ohio and Virginia submit wage data for their government-owned facilities, which are included in this analysis. The QWEC does not include wage data for HHA contractors, but the multiplier is intended to account for such wages.

Economic Contribution of Home Health Agencies

Table 5.3: Impact of Home Health on Output, by State, 2014

State	Estimated Home Health Expenditures ¹	Multiplier for Output ²	Estimated Impact of HH Spending on Output ³	State	Estimated Home Health Expenditures ¹	Multiplier for Output ²	Estimated Impact of HH Spending on Output ³
Alabama	\$595,491,441	1.9672	\$1,171,450,763	Montana	\$42,896,584	1.7575	\$75,390,746
Alaska	\$1,654,006,056	1.7335	\$2,867,219,498	Nebraska	\$104,144,336	1.8828	\$196,082,956
Arizona	\$341,399,067	2.1713	\$41,279,794	Nevada	\$208,277,594	1.9428	\$404,641,710
Arkansas	\$300,534,652	1.8476	\$555,267,823	New Hampshire	\$177,523,001	1.9134	\$339,672,510
California	\$2,235,145,399	2.2407	\$5,008,290,296	New Jersey	\$465,900,423	2.2376	\$1,042,498,787
Colorado	\$365,334,890	2.2823	\$833,803,819	New Mexico	\$142,601,805	1.7787	\$253,645,831
Connecticut	\$662,894,995	2.0039	\$1,328,375,280	New York	\$2,405,433,335	2.0199	\$4,858,734,793
Delaware	\$119,444,045	1.7912	\$213,948,173	North Carolina	\$611,396,448	2.1993	\$1,344,644,208
D.C.	\$175,154,128	1.2990	\$227,525,212	North Dakota	\$5,659,855	1.7105	\$9,681,182
Florida	\$2,882,238,013	2.1815	\$6,287,602,225	Ohio	\$3,874,764,084	2.2042	\$8,540,754,994
Georgia	\$369,003,117	2.3300	\$859,777,263	Oklahoma	\$513,614,883	1.9962	\$1,025,278,029
Hawaii	\$29,626,922	1.9799	\$58,658,343	Oregon	\$176,278,578	1.9864	\$350,159,767
Idaho	\$75,275,156	1.7864	\$134,471,539	Pennsylvania	\$1,351,214,338	2.1885	\$2,957,132,579
Illinois	\$1,543,734,406	2.3836	\$3,679,645,330	Rhode Island	\$152,950,861	1.8877	\$288,725,340
Indiana	\$472,236,160	2.0849	\$984,565,170	South Carolina	\$160,854,945	2.1060	\$338,760,514
Iowa	\$610,396,051	1.8328	\$1,118,733,882	South Dakota	\$34,616,621	1.7554	\$60,766,017
Kansas	\$173,334,950	1.9563	\$339,095,163	Tennessee	\$548,057,729	2.2412	\$1,228,306,982
Kentucky	\$223,992,351	1.9697	\$441,197,734	Texas	\$3,971,762,847	2.4149	\$9,591,410,099
Louisiana	\$2,049,813,201	1.9275	\$3,951,014,945	Utah	\$255,995,663	2.2251	\$569,615,950
Maine	\$194,635,462	1.9117	\$372,084,613	Vermont	\$140,469,632	1.7553	\$246,566,345
Maryland	\$582,606,879	2.0334	\$1,184,672,828	Virginia	\$580,315,674	2.059	\$1,194,869,973
Massachusetts	\$1,307,396,358	2.0768	\$2,715,200,756	Washington	\$249,626,167	2.0603	\$514,304,792
Michigan	\$1,344,634,245	2.0901	\$2,810,420,035	West Virginia	\$66,872,495	1.7035	\$113,917,295
Minnesota	\$497,175,062	2.2379	\$1,112,628,071	Wisconsin	\$356,058,155	1.9794	\$704,781,512
Mississippi	\$220,978,334	1.8386	\$406,290,765	Wyoming	\$25,287,179	1.5832	\$40,034,662
Missouri	\$446,243,205	2.1070	\$940,234,433	Total U.S.	\$ 36,095,297,777	N/A	\$76,633,831,327

1. Avalere analysis of Medicare 2014 Cost Reports for Home Health Agencies from CMS.

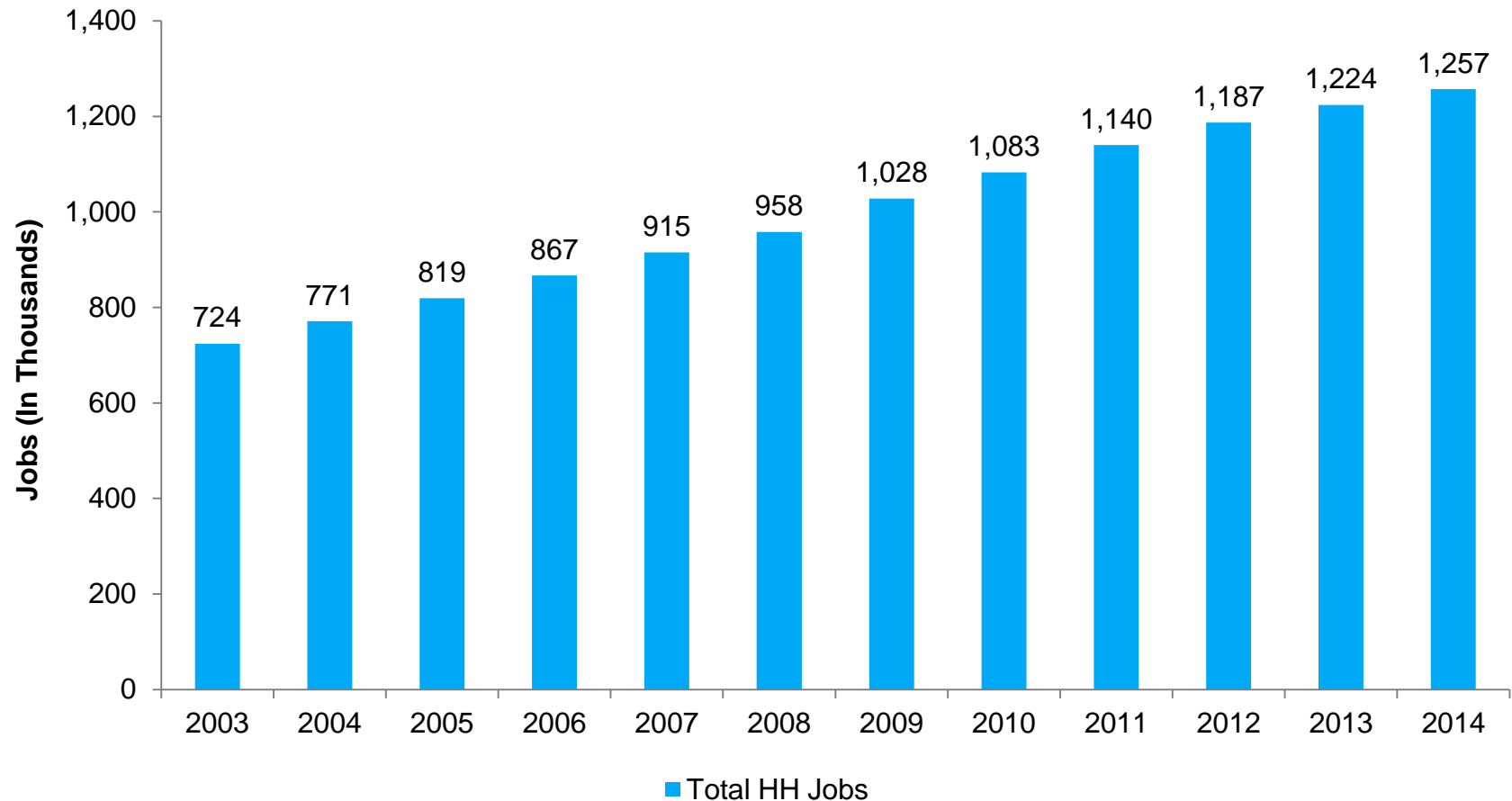
2. U.S. Bureau of Economic Analysis multipliers.

3. Avalere calculation.

Note: All Medicare-certified home health agencies are required to submit an annual cost report, which includes cost and charges by cost center in total and for Medicare. Cost report data do not include expenditures from HHA contractors, but the multiplier is intended to account for such figures.

Economic Contribution of Home Health Agencies

Chart 5.4: Impact of Home Health on Jobs, Nationally, 2003-2014



Source: Quarterly Census of Employment and Wages (QCEW) collected by the U.S. Bureau of Labor Statistics, which includes annual averages for all private, home health care services (NAICS 6216) for all establishment sizes.

Note: This chart reports employment data for privately-owned facilities only, including for-profit and non-profit organizations, and it does not include employment from government-owned facilities. Output is not adjusted by U.S. Bureau of Economic Analysis multipliers. 2014 employment data in Chart 5.4 differs from data in Table 5.1 because Chart 5.4 does not include employment from government-owned facilities, which are included in Table 5.1.



Section 6: Outcomes

Outcomes: Readmissions Among Post-Acute Care Users

Table 6.1: 30-day Readmission Rates for Top 20 Most Common MS-DRGs Discharged from Hospital to Selected Post-Acute Care (PAC) Settings, by Setting, 2015

MS-DRG	% of Home Health Users Readmitted Within 30 Days	% of SNF Users Readmitted Within 30 Days
Major joint replacement or reattachment of lower extremity w/o mcc	3.64%	6.86%
Septicemia or severe sepsis w/o mv 96+ hours w mcc	20.66%	21.89%
Heart failure & shock w mcc	25.04%	25.70%
Heart failure & shock w cc	23.29%	22.57%
Hip & femur procedures except major joint w cc	8.63%	10.81%
Kidney & urinary tract infections w/o mcc	17.53%	13.51%
Intracranial hemorrhage or cerebral infarction w cc or tpa in 24 hours	12.36%	14.26%
Simple pneumonia & pleurisy w mcc	19.71%	20.44%
Renal failure w cc	22.76%	18.90%
Septicemia or severe sepsis w/o mv 96+ hours w/o mcc	16.65%	16.82%
Simple pneumonia & pleurisy w cc	16.62%	15.99%
Renal failure w mcc	26.24%	22.97%
Pulmonary edema & respiratory failure	23.19%	24.14%
Chronic obstructive pulmonary disease w mcc	22.63%	22.87%
Kidney & urinary tract infections w mcc	21.21%	16.19%
Cellulitis w/o mcc	13.77%	13.60%
Infectious & parasitic diseases w o.r. Procedure w mcc	21.91%	26.40%
Intracranial hemorrhage or cerebral infarction w mcc	18.49%	21.09%
Misc disorders of nutrition, metabolism, fluids/electrolytes w/o mcc	21.21%	14.77%
Esophagitis, gastroent & misc digest disorders w/o mcc	20.15%	16.34%

Source: Avalere analysis of Medicare Standard Analytic Files, 2015.

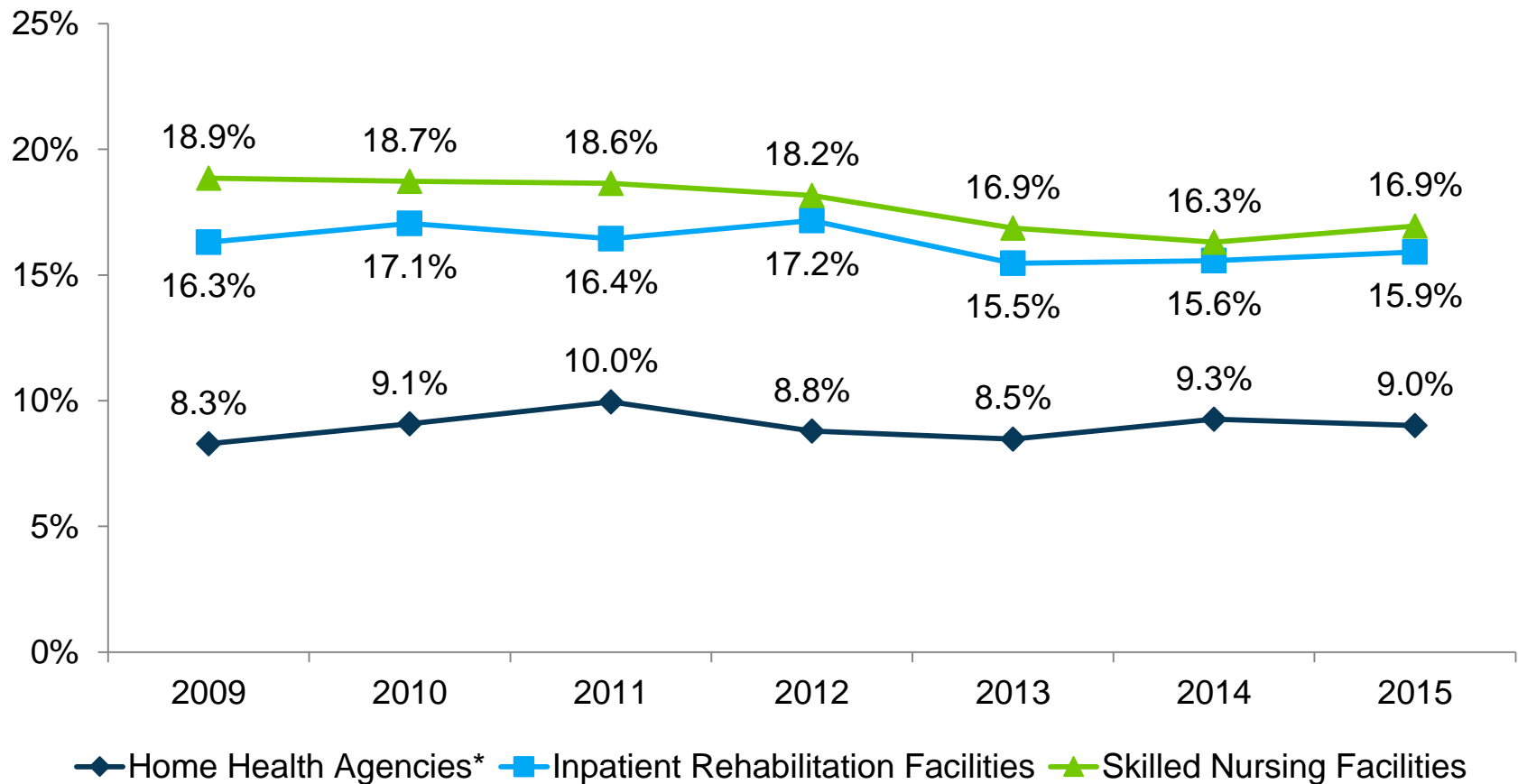
*Analysis includes Medicare Part A claims only.

Note: CC is complication or comorbidity. MCC is major complication or comorbidity.

SNF: Skilled nursing facilities

Outcomes: Major Joint Readmissions Among Post-Acute Care Users

Chart 6.2: 30-day Readmission Rates for MS-DRG 469 Discharged from Hospital to Selected PAC Settings, by Care Setting, 2009-2015



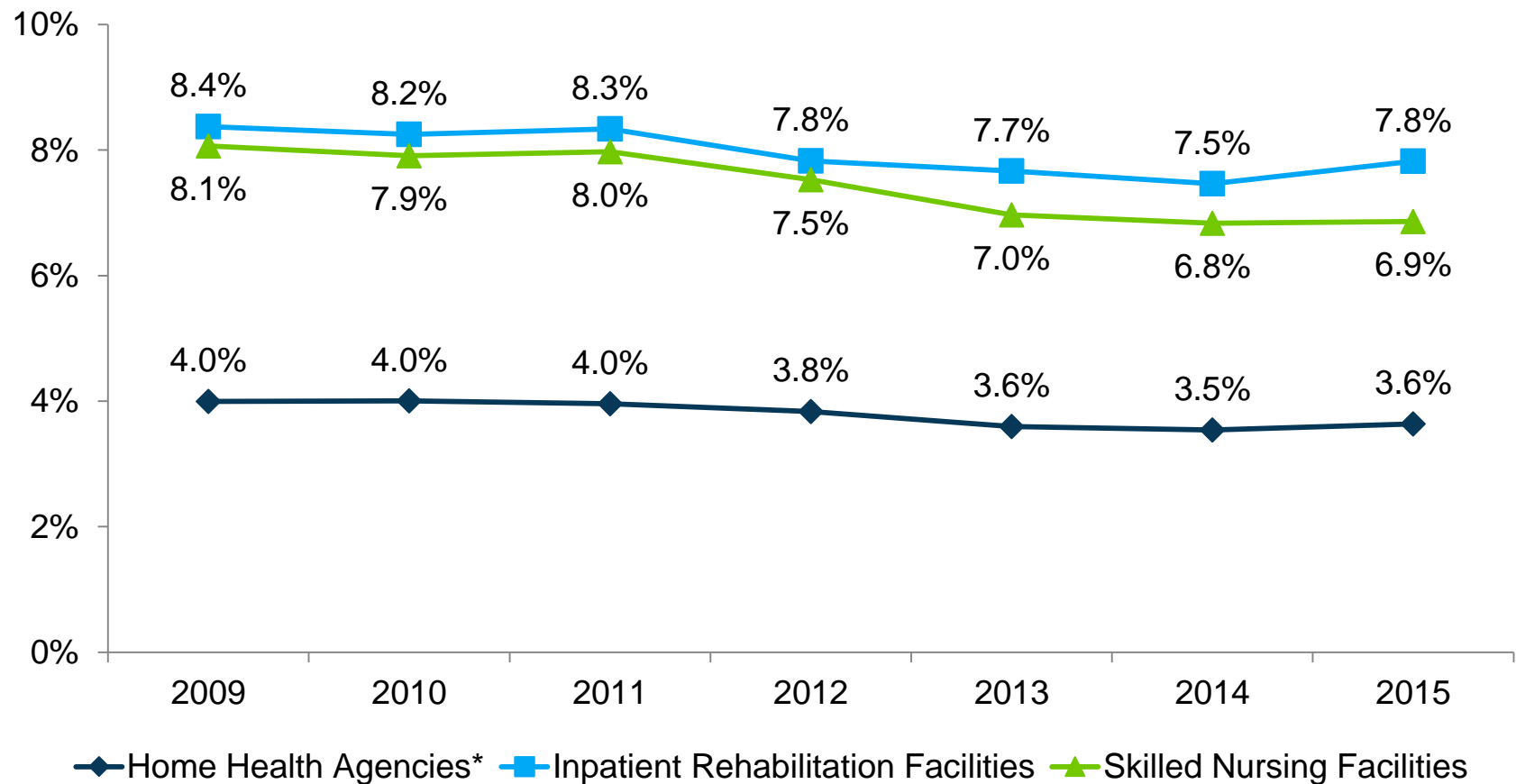
Source: Avalere analysis of Medicare Standard Analytic Files, 2009-2015.

*Analysis includes Medicare Part A claims only.

MS-DRG 469: Major joint replacement or reattachment of lower extremity with major complication or comorbidity.

Outcomes: Major Joint Readmissions Among Post-Acute Care Users

Chart 6.3: 30-day Readmission Rates for MS-DRG 470 Discharged from Hospital to Selected PAC Settings, by Care Setting, 2009-2015



Source: Avalere analysis of Medicare Standard Analytic Files, 2009-2015.

*Analysis includes Medicare Part A claims only.

MS-DRG 470: Major joint replacement or reattachment of lower extremity without major complication or comorbidity.

Outcomes: Quality of Home Health Care

Table 6.4: National Averages for How Often Home Health Team Met Quality Measures Related to Patient Care, 2011-2016

Measure	2011	2012	2013	2014	2015	2016
Checked patients for pain	98%	99%	99%	99%	99%	99%
Checked patients for the risk of developing pressure sores	98%	98%	99%	99%	99%	99%
Treated heart failure symptoms	98%	98%	98%	98%	98%	98%
Treated patients' pain	97%	98%	98%	98%	99%	99%
Checked patients for depression	97%	97%	98%	98%	98%	98%
Checked patients' risk of falling	95%	94%	98%	98%	98%	99%
Included treatments to prevent pressure sores in the plan of care	95%	96%	97%	98%	98%	98%
Took doctor-ordered action to prevent pressure sores	94%	95%	96%	97%	97%	98%
For diabetic patients, got doctor's orders, gave and educated about foot care	91%	93%	94%	95%	95%	96%
Taught patients (or their family caregivers) about their drugs	89%	92%	93%	93%	94%	96%
Began care in timely manner	90%	92%	92%	92%	92%	92%
Determined whether patients received a flu shot for the current flu season	67%	69%	72%	73%	71%	69%
Determined whether patients received a pneumococcal vaccine (pneumonia shot)	65%	68%	71%	73%	72%	73%

Outcomes: Quality of Home Health Care

Table 6.5: National Averages for Patient Outcomes while in Home Health Care, 2011-2016

Measure	2011	2012	2013	2014	2015	2016
Wounds improved or healed after operation	88%	89%	89%	89%	89%	90%
Got better at bathing	65%	66%	67%	68%	69%	71%
Had less pain when moving around	66%	67%	68%	68%	68%	70%
Breathing improved	63%	64%	65%	65%	66%	69%
Got better at walking or moving around	56%	59%	61%	63%	64%	66%
Got better at getting in and out of bed	54%	55%	57%	59%	59%	62%
Got better at taking drugs correctly by mouth	47%	49%	51%	53%	53%	56%
Had to be admitted to hospital	27%*	17%	16%	16%	16%	16%
Needed any urgent, unplanned care in the hospital emergency room – without being admitted to the hospital	N/A	12%	12%	12%	12%	12%

Source: Centers for Medicare and Medicaid Services, Medicare Home Health Compare.

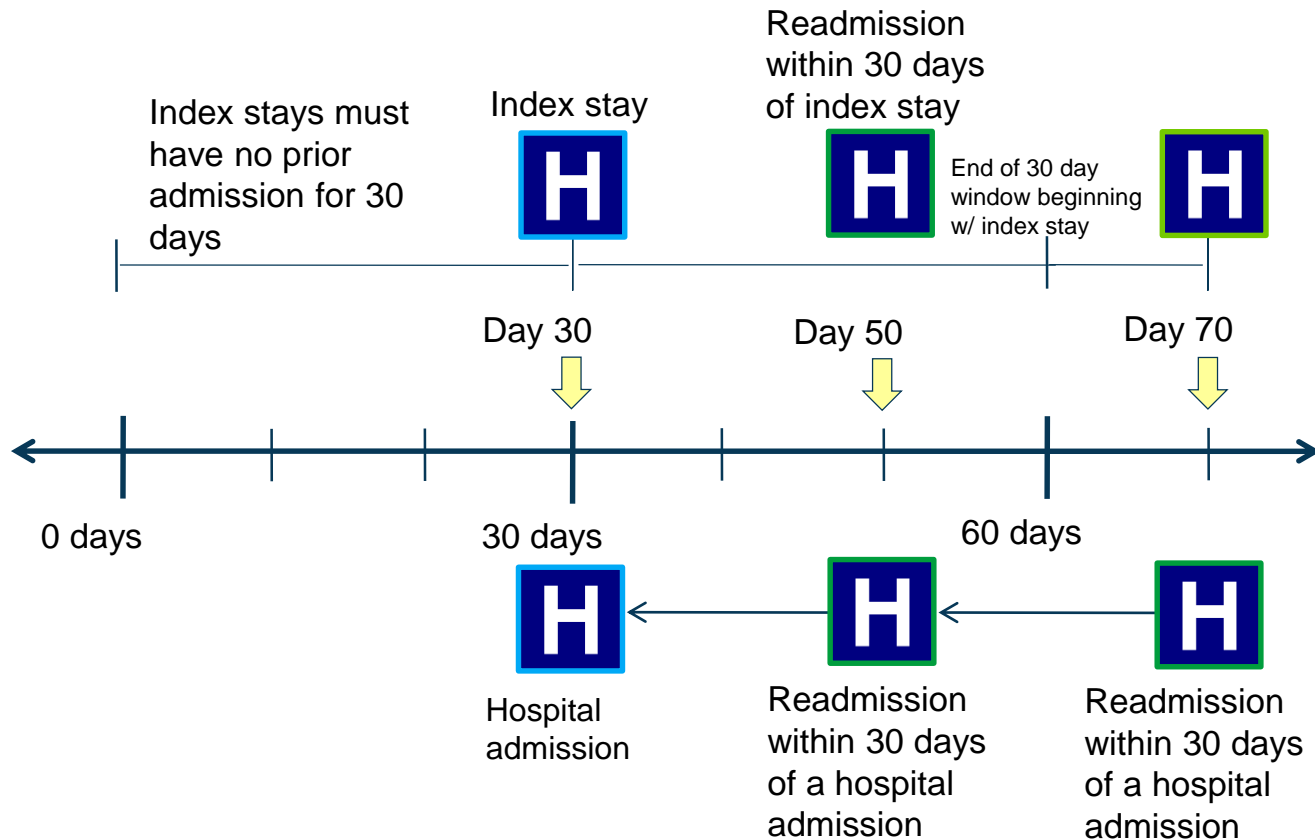
*In 2011, CMS calculated hospital admissions using OASIS data that captured every time a home health patient went to the hospital, regardless of length of stay in home health, and that accounted for all payer sources. Beginning in 2012, CMS calculated hospital admissions based on claims that only included Medicare fee-for-service beneficiaries and that adjusted for repeat hospital admissions by the same beneficiary during an episode.



Appendix: Readmission Rate Methodology

Methodology: Calculating Readmission Rates

The ACA methodology defines a readmission as an admission to a short-term acute care hospital (STACH) within 30 days of an initial, or 'index', admission to a STACH. To be considered an index admission, there must be no other STACH admission in the prior 30 days. These data are based on raw Medicare claims and no risk-based or geographic adjustments have been applied.



Using the Affordable Care Act (ACA) methodology, this episode of care results in **one** 30-day readmission

Without defining index stays as above, this episode of care results in **two** 30-day readmissions