

Prevalence of Sickle Cell Disease among Medicare Fee-for-Service Beneficiaries, Age 18-75 Years, in 2016

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Introduction

Medicare is a federal health insurance program administered by the Centers for Medicare & Medicaid Services (CMS) for people age 65 years or older, as well as those with disabilities or End-Stage Renal Disease (ESRD). Studies suggest that an increasing number of people with sickle cell disease (SCD) are living to be age-eligible for Medicare than previously reported [1]. Additionally, per the [Disability Evaluation Under Social Security](#), SCD is listed as an impairment that may qualify for the disability coverage through Medicare. Furthermore, nearly 12% of patients with SCD have renal failure, and their median age of ESRD onset is 37 years [2].

Sickle cell disease, the most prevalent lifelong genetic blood disorder in the United States, causes the body to produce abnormal red blood cells shaped like sickles or crescents, which fail to properly deliver oxygen to body tissues. This shape change disrupts the normal flow of red blood cells through the blood vessels of the body, ultimately causing excruciating acute and chronic pain episodes (called pain crises). Sickle cell disease affects all racial and ethnic groups; however, in the United States, Black and Hispanic populations are disproportionately impacted. Multiple medical advancements and [health care interventions](#) [3] have transformed SCD, a once fatal childhood disease, into a chronic condition. Previous studies have estimated that approximately [100,000 people](#) are living with SCD in the United States [4].

Key Findings:

- Among the 11,790 Medicare FFS beneficiaries identified in 2016, the national SCD prevalence rate, rate per 1,000 beneficiaries, was 0.20, and the District of Columbia (0.99) had the highest SCD prevalence rate.
- Among Medicare FFS beneficiaries with SCD, 98.3% had an outpatient visit, 75.5% utilized the emergency department, and 59.3% had an inpatient stay and those aged 18-45 years, on average, had greater hospital utilization.
- Among Medicare FFS beneficiaries with SCD, the most common chronic conditions included hypertension (65.8%), fibromyalgia (64.9%), depression (51.3%), and chronic kidney disease (47.0%).
- Overall, more than 70% of Medicare FFS beneficiaries with SCD were dual-eligible, qualified for Medicare and Medicaid.
- More than four out of five Medicare FFS beneficiaries with SCD were non-elderly (less than 65 years old) and obtained Medicare coverage through disability insurance benefits.

Data Source: Estimates produced using 100% Medicare FFS claims data from 2016 for beneficiaries aged 18-75 years living in the contiguous United States.

Despite a growing number of patients with SCD being eligible for Medicare under one of the aforementioned categories, few studies have examined demographic characteristics and health utilization patterns among Medicare Fee-for-Service (FFS) beneficiaries with SCD. CMS has released a new **SCD indicator** in the CMS Chronic Conditions Warehouse (CCW)¹ with the hope that it will facilitate analysis by internal and external CCW users of the Medicare and Medicaid SCD population.

This information will be useful for health plans and care providers who aim to improve the quality of care delivered to patients with SCD. Understanding the unique health needs of this vulnerable federally insured population will inform the development of interventions to increase awareness and understanding of people living with SCD.

Methods

The CMS SCD indicator is available for internal and external researchers who use data stored in the CMS CCW [5]. The CCW creates a unique beneficiary identifier that can be used to link individual level beneficiary information with multiple files across multiple years of data. Within the CCW environment, SAS Enterprise Guide (V.9.4; SAS, Cary, NC) was used to produce state-level estimates and the ‘maptile’ function in STATA 13 (College Station, TX) was used to create the maps. The details of the algorithm and the codes used to assign the indicator have been documented in the CCW (www.ccwdata.org) [5].

The CCW uses diagnosis codes to identify SCD. The algorithm requires three or more of any claim type (not including pharmacy claims) during a five calendar year “look-back” period (e.g., 2016 data would glean from claims data 2012 through 2016). Given that SCD is a chronic life-long health condition, a five-year look-back period was appropriate to best identify beneficiaries with SCD. Because individuals with SCD tend to have many encounters with the healthcare system, the algorithm required for claims to be separated by one day to account for multiple claims that may be associated with a single healthcare visit. There is evidence that claims-based algorithms are highly sensitive for SCD if three claims are required [6]. The diagnosis codes employed by this algorithm are consistent with the specifications employed by the **CMS OMH** [7] as well as other notable studies [6].

¹ More information on the SCD CCW Indicator can be found at: <https://www.ccwdata.org/web/guest/condition-categories>

What is Medicare Original ‘Fee-for-Service’ Medicare?

Medicare is the federal health insurance program for:

- People who are 65 or older
- Certain younger people with disabilities
- People with End-Stage Renal Disease (permanent kidney failure requiring dialysis or a transplant, sometimes called ESRD)

There are two main ways to get Medicare coverage—Original ‘Fee-for-Service’ Medicare (Part A and Part B) or a Medicare Advantage Plan (Part C).

In general, Part A covers

- Inpatient care in a hospital
- Skilled nursing facility care
- Inpatient care in a skilled nursing facility (not custodial or long-term care)
- Hospice care
- Home health care

Medicare Part B covers

- Medically necessary services: Services or supplies that are needed to diagnose or treat a medical condition and that meet accepted standards of medical practice.
- Preventive services: Health care to prevent illness (like the flu) or detect it at an early stage, when treatment is most likely to work best.

For more information, visit <https://www.medicare.gov/what-medicare-covers/your-medicare-coverage-choices>

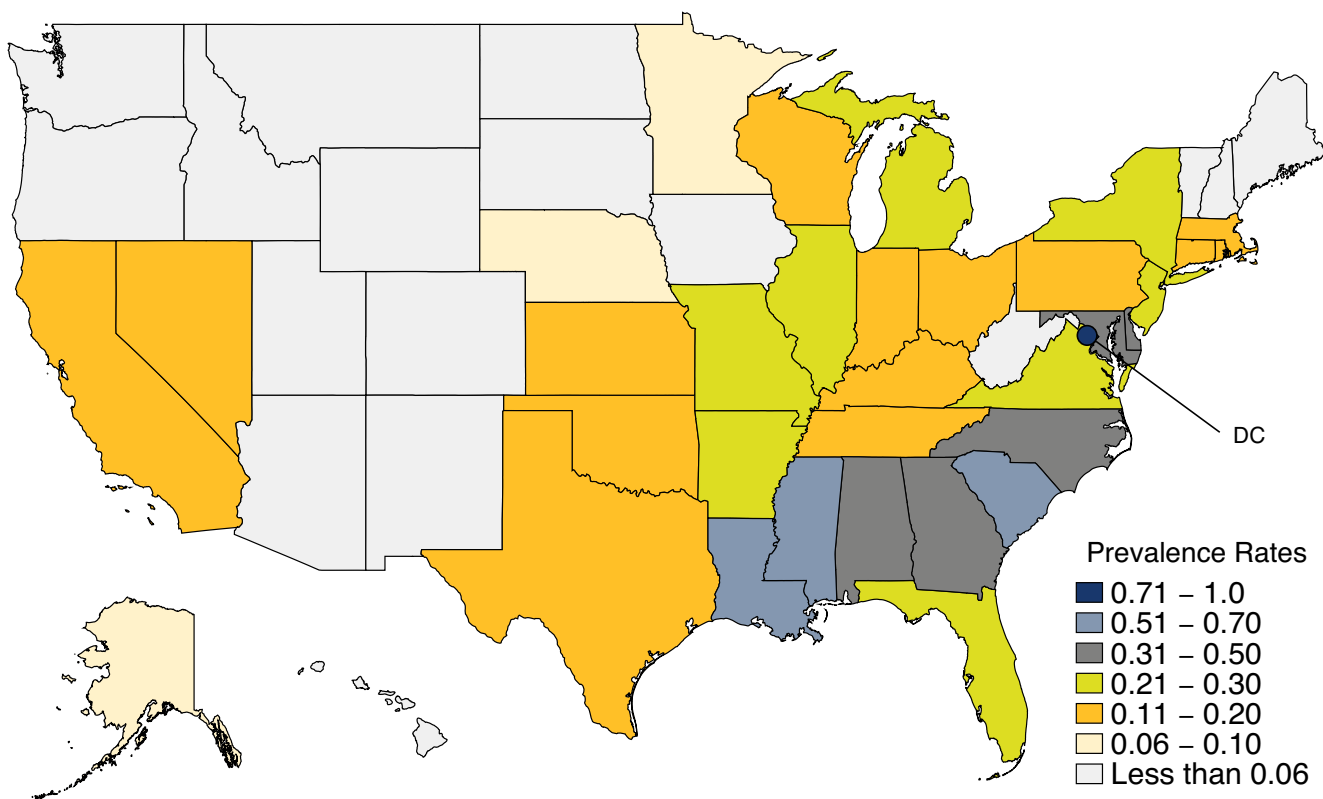
Using the SCD indicator in the CMS CCW, 100% Medicare FFS claims data were pooled from 2012-2016 to identify beneficiaries with ICD-9 and/or ICD-10 diagnosis codes for SCD [5]. Individuals with sickle cell trait were excluded from the SCD indicator. Demographic and healthcare measures were examined for beneficiaries with SCD, between the ages of 18-75 years with three or more inpatient and/or outpatient claims with an SCD diagnosis code and any length of Medicare coverage between January 1, 2016 and December 31, 2016. These analyses included beneficiaries residing in the contiguous United States, including the District of Columbia.

Like all indicators in the CCW, the SCD indicator provides a standardized way to assess person-level research files indicating whether or not the given condition is present in our claims-based administrative database [5]. This indicator, along with its algorithm, is designed to be flexible enough to facilitate a broad range of research studies, as well as to facilitate sickle-cell based exclusion criteria on studies of opioid use disorder. There are no restrictions or exclusions on these data for beneficiaries in hospice, residents of long-term care facilities, or beneficiaries receiving palliative care.

Results

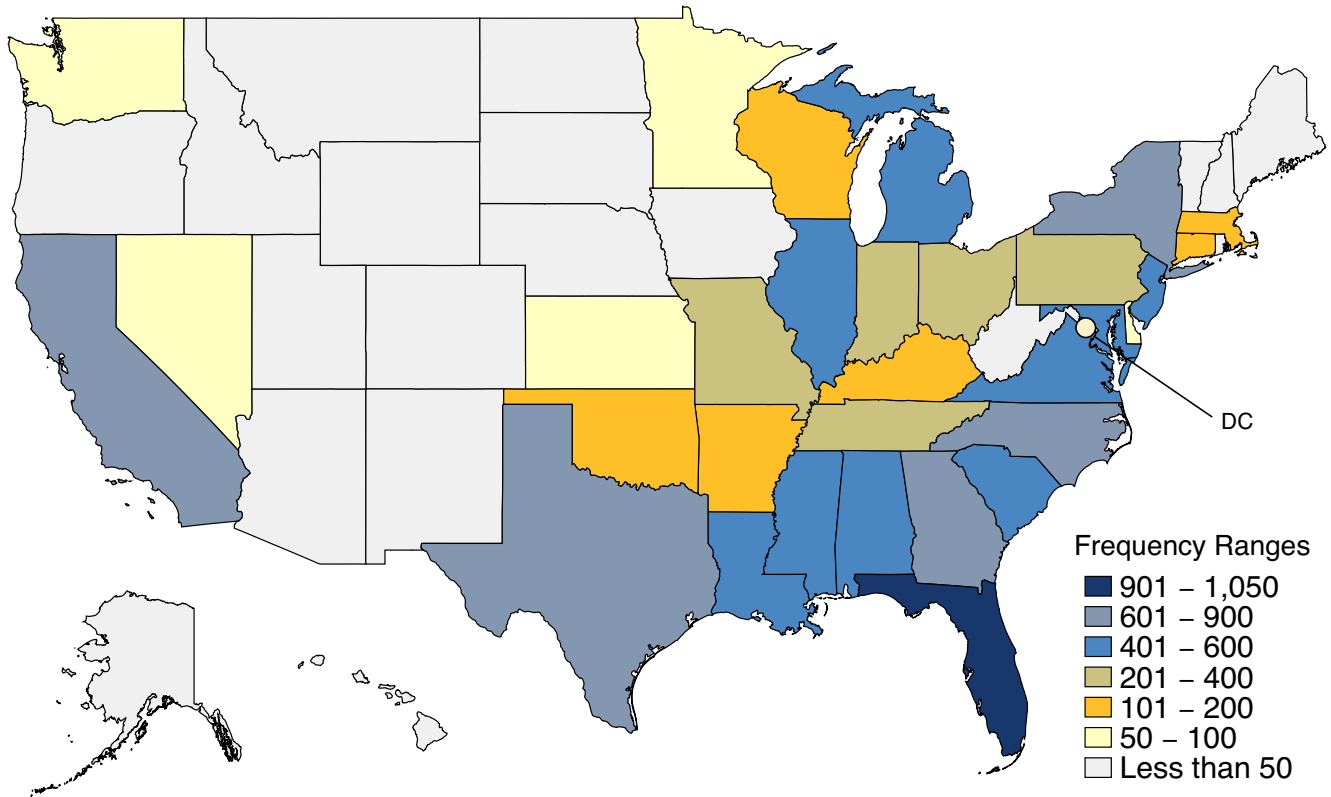
Using the CCW SCD indicator, this data highlight provides the first national prevalence estimates and health utilization information for a federally insured population of 11,790 Medicare FFS beneficiaries, aged 18-75 years, with SCD in 2016. The estimates described herein were produced using the 100% Medicare FFS claims data from 2016. These beneficiaries represented a diverse population who were largely Black (89.9%) as well as White (4.3%), Hispanic (2.6%), and majority female (58.6%). Additionally, among Medicare FFS beneficiaries with SCD in 2016, nearly nine out of ten (88.9%) resided in a metropolitan areas located in the South Atlantic (36.0%), East North Central (13.9%), West South Central (13.0%), or Middle Atlantic (12.6%) census divisions.

Figure 1. Prevalence Rates of Sickle Cell Disease, per 1,000 Medicare FFS Beneficiaries, Ages 18-75 Years, in the United States in 2016



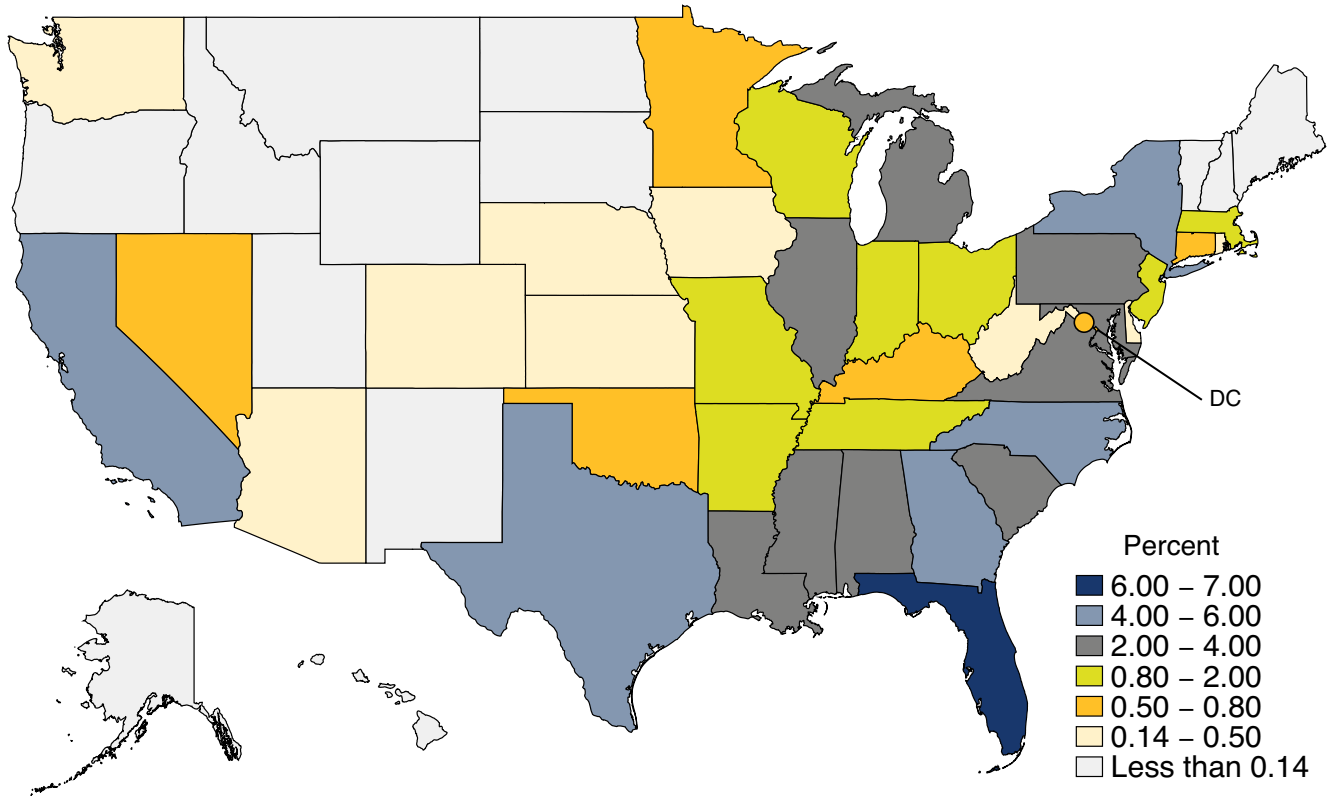
Among Medicare FFS beneficiaries in 2016, the national SCD prevalence rate was 0.20, per 1,000 beneficiaries. Among all states, the District of Columbia (0.99) had the highest SCD prevalence rate, greater than four times the national rate. States with prevalence rates greater than twice the national SCD prevalence rate included Mississippi (0.68), Louisiana (0.56), South Carolina (0.53), Maryland (0.50), Georgia (0.46), and North Carolina (0.42).

Figure 2. Geographic Distribution of Medicare FFS Beneficiaries with Sickle Cell Disease, Ages 18-75 Years, in the United States in 2016



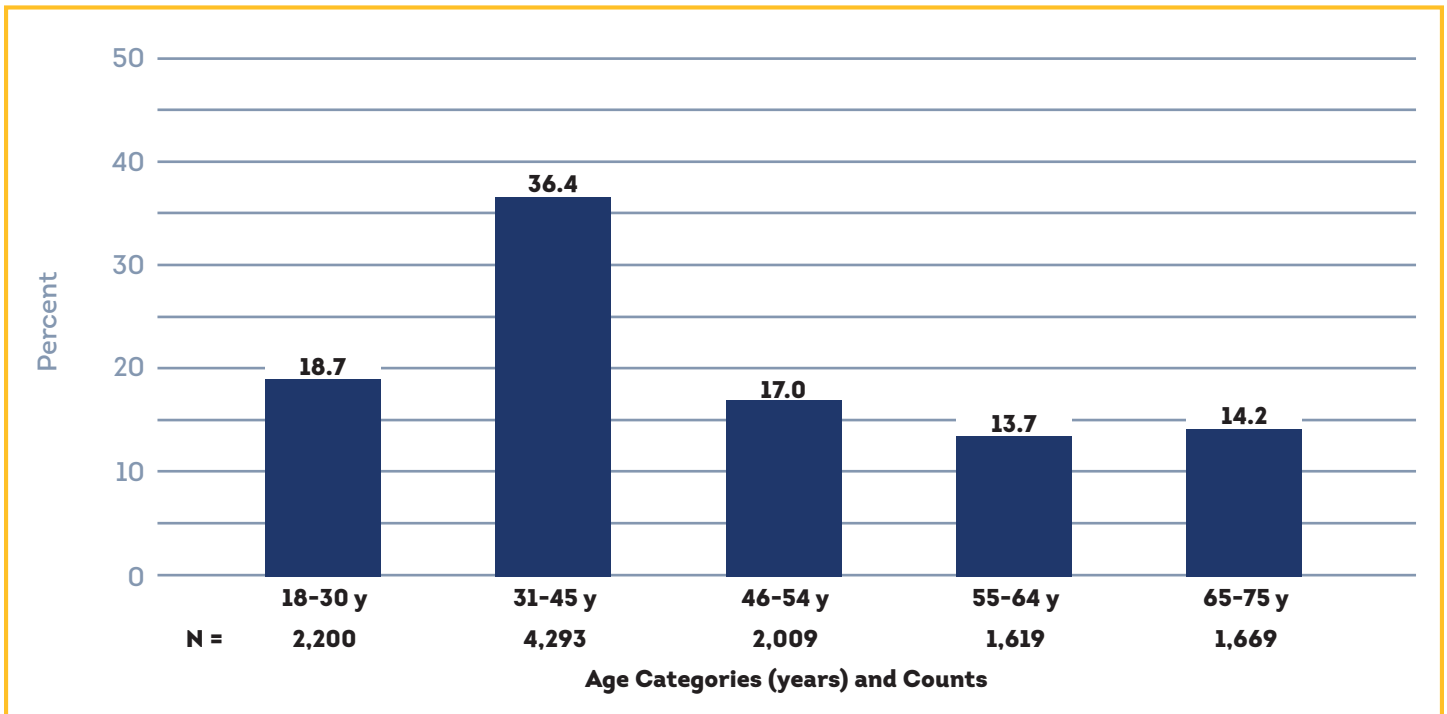
Of the 11,790 Medicare beneficiaries with SCD, nearly half of them resided in the following eight states: **Florida** (n=1,041; 8.8% of Medicare FFS population with SCD), **North Carolina** (n=802; 6.8% of Medicare FFS population with SCD), **Georgia** (n=761, 6.5% of Medicare FFS population with SCD), **Texas** (n=748, 6.3% of Medicare FFS population with SCD), **New York** (n=724, 6.1% of Medicare FFS population with SCD), **California** (n=648, 5.5% of Medicare FFS population with SCD), **Illinois** (n=554, 4.7% of Medicare FFS population with SCD), and **South Carolina** (n=537, 4.6% of Medicare FFS population with SCD).

Figure 3. Geographic Distribution of the Percentage of Duals who were Medicare FFS Beneficiaries with Sickle Cell Disease, Ages 18-75 Years, in the United States in 2016



Of the 11,790 Medicare FFS beneficiaries living in the United States with SCD, 8,554 (72.6%) were duals (eligible for both Medicare and Medicaid) and more than two out of five resided in the following states: Florida (6.6%), North Carolina (5.0%), New York (4.8%), Georgia (4.6%), California (4.5%), Texas (4.2%), Illinois (3.5%), Louisiana (3.5%), South Carolina (3.2%), and Mississippi (2.8%).

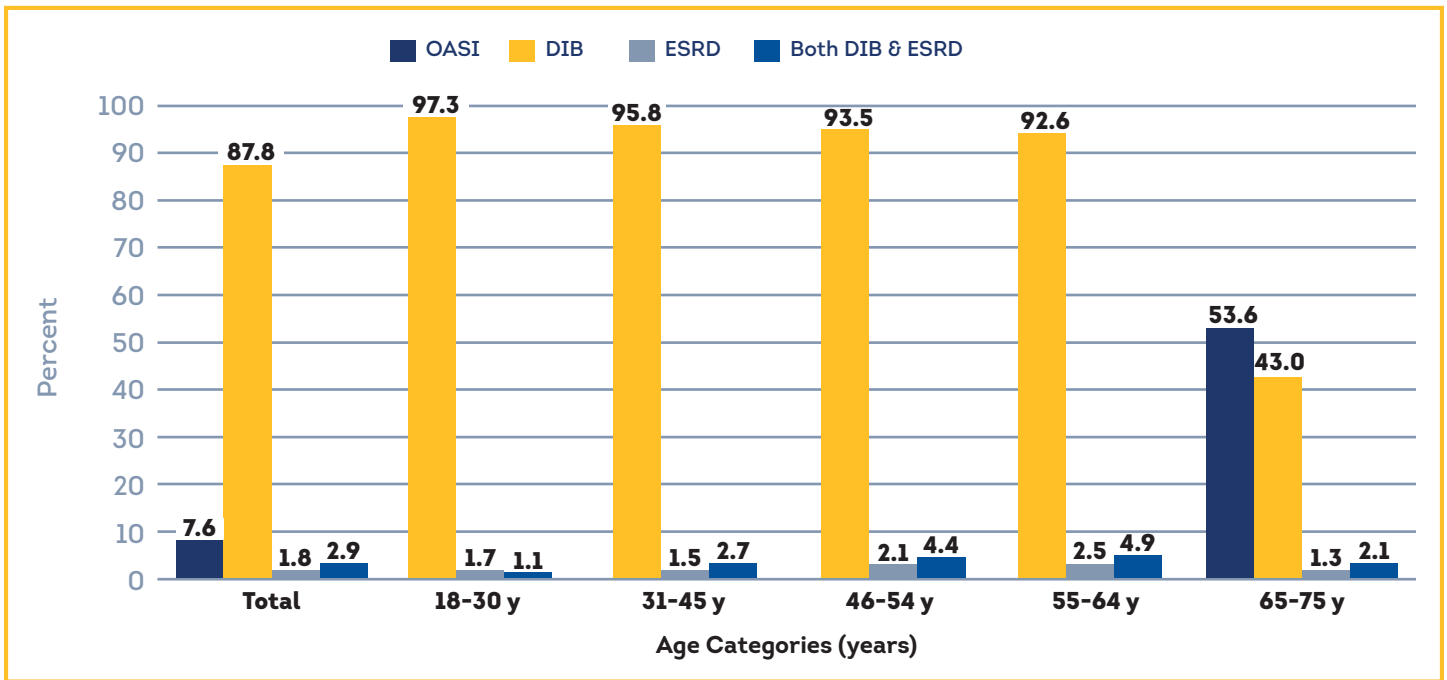
Figure 4. Age Distribution of Medicare FFS Beneficiaries with Sickle Cell Disease in 2016



Note: Sum of values may not equal 100% due to rounding

Among Medicare FFS beneficiaries with SCD, those between the ages of 31-45 years (36.4%) represented the largest age category of beneficiaries. Most beneficiaries with SCD were non-elderly (ages 18-64 years; 85.8%) and those between the ages of 65-75 years represented 14.2% of the Medicare FFS population with SCD.

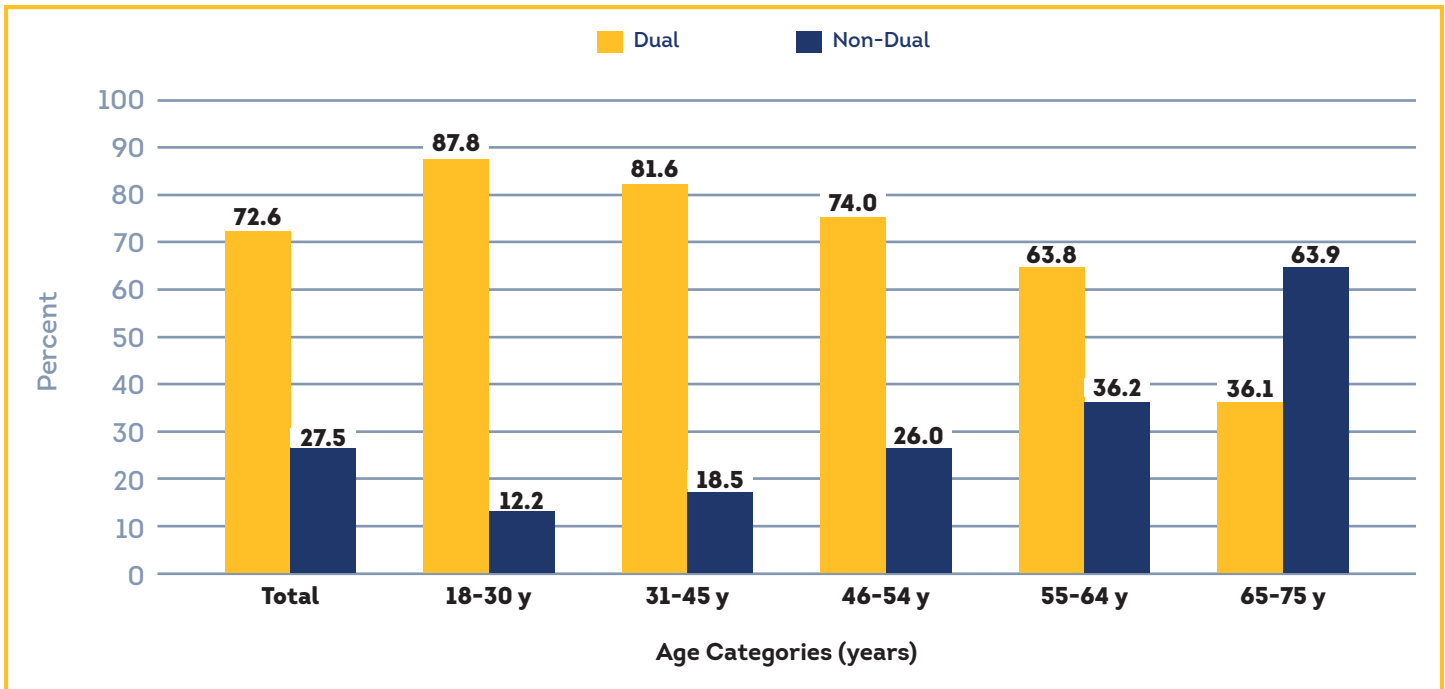
Figure 5. Original Reason for Medicare Entitlement among Medicare FFS Beneficiaries with Sickle Cell Disease by Age in 2016



NOTE: OASI=Old Age & Survivor's Insurance; DIB=Disability Insurance Benefits; ESRD= End Stage Renal Disease. Total represents all 11,790 Medicare beneficiaries with SCD between the ages of 18-75 years. Sum of values may not equal 100% due to rounding.

Among Medicare FFS beneficiaries with SCD, the most common original reason for Medicare entitlement was disability (87.8%) followed by OASI (7.6%), a combination of ESRD and OASI (2.9%), and ESRD only (1.8%). Even among beneficiaries between the ages of 65-75 years, 53.6% had OASI as the original reason for their Medicare entitlement.

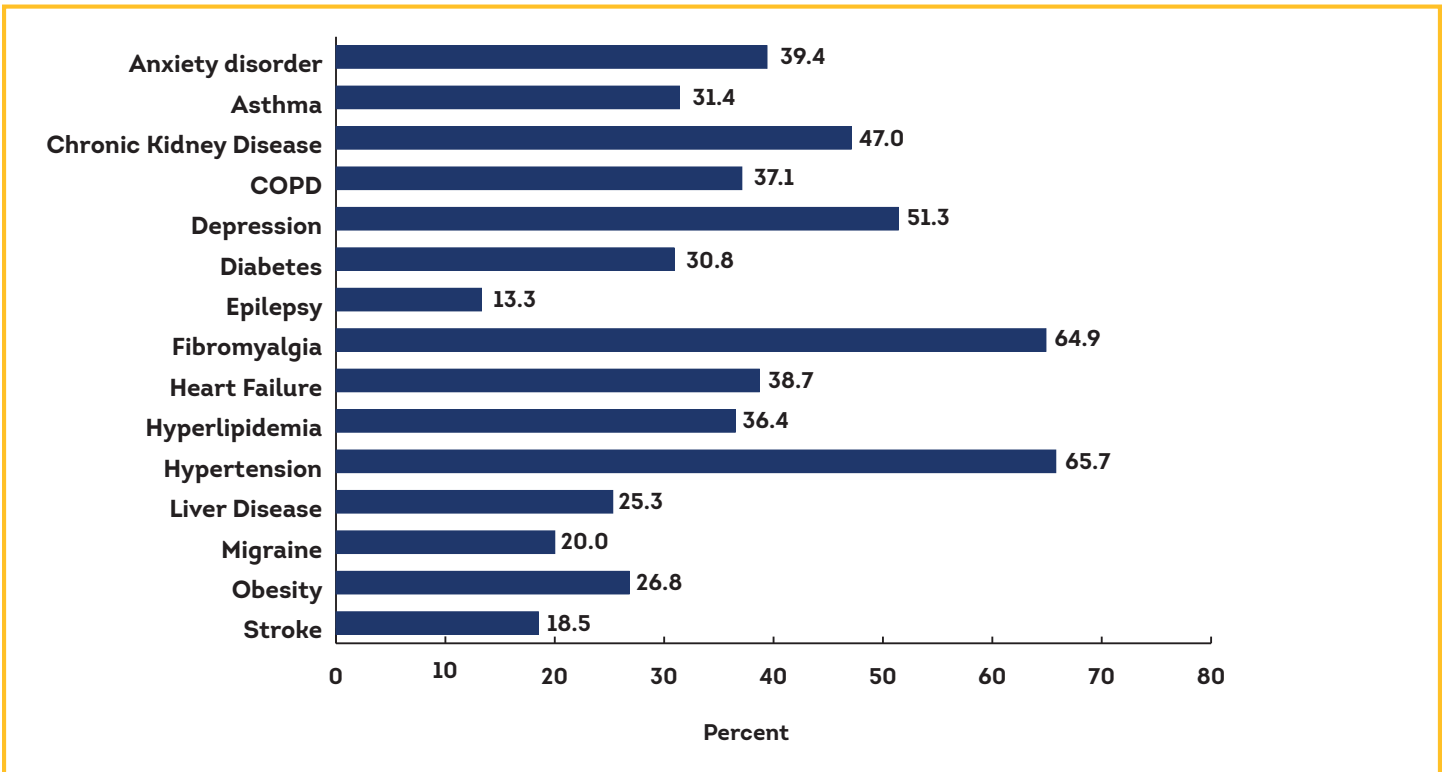
Figure 6. Dual Status among Medicare FFS Beneficiaries with Sickle Cell Disease by Age in 2016



NOTE: Total represents all 11,790 Medicare beneficiaries with SCD between the ages of 18-75 years. Sum of values may not equal 100% due to rounding.

Dual eligibility status for both Medicare and Medicaid varied by age among Medicare FFS beneficiaries with SCD. Among all Medicare FFS beneficiaries with SCD, more than seven out of ten were duals (72.6%). As the age of Medicare FFS beneficiaries with SCD increased, the proportion with dual status decreased. Medicare FFS beneficiaries with SCD between the ages of 18-30 years represented the highest percentage of duals and those between the ages of 65-75 years represented the lowest percentage of duals.

Figure 7. Prevalence of Selected Chronic Conditions* among the Overall Medicare FFS Beneficiaries with Sickle Cell Disease in 2016



Notes: COPD, chronic obstructive pulmonary disease and bronchiectasis; Fibromyalgia includes chronic pain fatigue; Migraine includes other chronic headache conditions; Liver Disease includes cirrhosis & other liver conditions; Stroke includes transient ischemic attack

*Used 2016 diagnosis codes for ever having an occurrence of the selected chronic conditions. The determination of whether a beneficiary met criteria for a specific chronic condition flag is described in the CCW [5].

Sickle cell disease is a chronic health condition that impacts all body systems and contributes to additional health challenges. Among Medicare beneficiaries with SCD, more than three out of five had hypertension (65.7%) and/or fibromyalgia (64.9%) and more than half had depression (51.3%). Additional details on how these chronic conditions vary by age categories are included in the Appendix B.

Tables 1-3. Healthcare Utilization among Medicare FFS Beneficiaries with Sickle Cell Disease by Age in 2016 (N=11,790)

Tables 1-3 show healthcare utilization estimates for the 11,790 Medicare FFS beneficiaries with SCD for measures that assess emergency department use (Table 1), inpatient hospitalizations (Table 2) and outpatient utilizations (Table 3).

Age Categories	N	Percent of Total	Mean	Standard Deviation	Minimum	Max
18-30 y	1,909	86.8	10.4	16.1	1	232
31-45 y	3,450	80.4	8.7	16.6	1	321
46-54 y	1,479	73.6	6.1	11.6	1	169
55-65 y	1,110	68.6	4.1	6.5	1	92
65-75 y	959	57.5	3.0	3.1	1	31
TOTAL	8,907	75.5	7.4	14.0	1	321

Of the 11,790 Medicare FFS beneficiaries with SCD, 8,907 (75.5%) had an emergency department visit in 2016 (Table 1). On average, beneficiaries between the ages of 18-30 years had higher emergency department utilization (mean \pm SD, 10.4 \pm 16.1) than the total Medicare FFS beneficiary population with SCD.

Age Categories	N	Percent of Total	Mean	Standard Deviation	Minimum	Max
18-30 y	1,579	71.8	4.9	5.1	1	46
31-45 y	2,712	63.2	4.2	4.4	1	70
46-54 y	1,159	57.7	3.4	3.5	1	27
55-65 y	821	50.7	2.9	2.7	1	25
65-75 y	724	43.4	2.4	2.0	1	16
TOTAL	6,665	59.3	3.9	4.1	1	70

Of the 11,790 Medicare FFS beneficiaries with SCD, 6,995 (59.3%) had an inpatient hospitalization in 2016 (Table 2). Medicare FFS beneficiaries with SCD between the ages of 18-30 years, on average, had the highest inpatient hospitalizations (mean \pm SD, 4.9 \pm 5.1) compared to other age categories.

Table 3. Outpatient Utilization Among Medicare FFS Beneficiaries

Age Categories	N	Percent of Total	Mean	Standard Deviation	Minimum	Max
18-30 y	2,161	98.2	20.5	21.0	1	237
31-45 y	4,209	98.0	20.8	21.5	1	324
46-54 y	1,979	98.5	21.4	17.9	1	211
55-65 y	1,594	98.5	21.2	15.3	1	113
65-75 y	1,643	98.4	22.0	16.3	1	136
TOTAL	11,586	98.3	21.1	19.3	1	324

Nearly all of the 11,790 Medicare FFS beneficiaries with SCD (11,586, representing 98.3%) had an outpatient visit in 2016 (Table 3). Comparable patterns of outpatient visits were observed among Medicare FFS beneficiaries with SCD between the ages of 18-30 and 31-45 years. Medicare FFS beneficiaries with SCD between the ages of 18-30 years, on average, had the least outpatient visits (mean \pm SD, 20.5 \pm 21.0) compared to other age categories.

Conclusion

This study identified 11,790 Medicare FFS beneficiaries with SCD, a majority of whom were non-elderly (less than 65 years of age). In 2016, the national prevalence of SCD in the Medicare FFS population, expressed as a rate per 1,000 beneficiaries, was 0.20, with the following state/districts having the highest prevalence: District of Columbia (0.99), Mississippi (0.68), Louisiana (0.56), South Carolina (0.53), and Maryland (0.50). Based on the size of the Medicare FFS population with SCD in 2016, Florida had the largest percent of total FFS beneficiaries (8.8%) and duals (9.1%) with SCD.

This study highlights that younger Medicare FFS beneficiaries with SCD experience greater health challenges. On average, younger Medicare FFS beneficiaries with SCD had greater utilization of the emergency department and inpatient hospitalizations than beneficiaries between the ages of 65-75 years. As the Medicare FFS SCD population continues to age, it will be necessary to identify health delivery solutions to increase quality of life and life expectancy among beneficiaries living with SCD.

The data analyzed in this study are commonly referred to as healthcare services utilization data or claims data [8]. Derived from reimbursement information or the payment of bills, these data are clinically valid and include beneficiary level information for admission and discharge dates, diagnosis and procedure codes, source of care, and various demographic characteristics (race and ethnicity, age and place of residence) [8]. While claims data provide a rich source of information on the prevalence of various chronic conditions, these data do not reveal the duration of or the severity of a condition. Also, undiagnosed conditions do not appear in utilization files, and claims do not provide information on the care needed. Covered services for which claims are not submitted (such as immunizations provided through a free clinic) are not included in these data. Despite these limitations, claims data provide a reliable source of information to study chronic conditions, such as SCD, and allowed for reporting the prevalence rate for SCD among the 100% Medicare FFS population.

CMS is committed to [advancing equity for all beneficiaries](#), including those living with SCD. In 2016, the CMS [Quality Improvement Organization Program](#) created [Special Innovation Project to Quality Improvement Organizations \(QIOs\)](#)² focused on improving care received in the emergency department and addressing acute pain management in patients with SCD. Also in 2016, CMS expanded coverage for [Hematopoietic Stem Cell Transplantation \(HSCT\)](#) for Medicare beneficiaries with severe, symptomatic SCD who participate in an approved prospective clinical study. In April 2019, CMS released the final Medicare Part D call letter that recommended exempting beneficiaries with SCD from safety edits when filling opioid prescriptions. With the release of the CCW SCD indicator, we hope that others will join us on the path to equity by improving care for all Medicare and Medicaid beneficiaries, including those with SCD.

² In April 2019, atom, Alliance, a CMS QIO, released the [Sickle Cell Disease Resources for Providers and Patients](#) and an [overview](#) highlighting the importance of the NHLBI Evidenced-Based Evidence-based Guidelines for Improving the Management of Sickle Cell Disease³. Recently, CMS funded the [national expansion](#) of an intervention developed by Qsource and atom Alliance that has improved acute pain management through patient education for 3,000 patients with SCD in Memphis, TN, and reduced hospital utilization resulting in an estimated savings of nearly \$1.7M.

Keywords

Chronic Conditions Warehouse (CCW), Medicare Fee-for-Service (FFS), sickle cell disease (SCD)

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APPENDIX

Appendix A. Demographic Characteristics of Medicare Beneficiaries with Sickle Cell Disease by Age Categories: Medicare FFS Claims, 2016

	Total	18-30 y	31-45 y	46-54 y	55-64 y	65-75 y
N (%)	11,790 (100)	2,200 (18.7)	4,293 (36.4)	2,009 (17.0)	1,619 (13.7)	1,669 (14.2)
Sex, n (%)						
Male	4,882 (41.4)	1,055 (48.0)	1,809 (42.1)	813 (40.5)	595 (36.5)	610 (36.6)
Female	6,908 (58.6)	1,145 (52.1)	2,484 (57.9)	1,196 (59.5)	1,025 (63.5)	1,059 (63.5)
Race/Ethnicity, n (%)						
White	507 (4.3)	74 (3.4)	68 (1.6)	59 (2.9)	67 (4.1)	239 (14.3)
Black	10,593 (89.8)	1,897 (86.2)	4,013 (93.5)	1,873 (93.2)	1,489 (92.0)	1,321 (79.2)
Hispanic	309 (2.6)	64 (2.9)	113 (2.6)	45 (2.2)	37 (2.3)	50 (3.0)
Other*	381 (3.2)	165 (7.5)	98 (2.3)	32 (1.6)	26 (1.6)	59 (3.5)
Original Reason for Medicare Entitlement, n (%)						
Old Age & Survivor Insurance	895 (7.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	895 (53.6)
Disability Insurance Benefit	10,347 (87.8)	2,140 (97.3)	4,113 (95.8)	1,873 (93.5)	1,499 (92.6)	714 (43.0)
ESRD	208 (1.8)	37 (1.7)	65 (1.5)	43 (2.1)	41 (2.5)	22 (1.3)
Disabled with ESRD	340 (2.9)	23 (1.1)	115 (2.7)	88 (4.4)	79 (4.9)	35 (2.1)
Dual Eligibility, n (%)*						
Dual	8,554 (72.6)	1,931 (87.8)	3,501 (81.6)	1,486 (74.0)	1,033 (63.8)	603 (36.1)
Non-dual	3,236 (27.5)	269 (12.2)	792 (18.5)	523 (26.0)	586 (36.2)	1,066 (63.9)
Census Divisions, n (%)						
New England	335 (2.8)	62 (2.8)	125 (2.9)	58 (2.9)	44 (2.7)	46 (2.8)
Middle Atlantic	1,482 (12.6)	291(13.2)	514 (12.0)	248 (12.3)	205 (12.7)	224 (13.4)
East North Central	1,644 (13.9)	276 (12.6)	558 (13.0)	316 (15.7)	222 (13.7)	272 (16.3)
West North Central	467 (4.0)	81 (3.7)	173 (4.0)	96 (4.8)	78 (4.8)	39 (2.3)
South Atlantic	4,241 (36.0)	791 (35.9)	1,614 (37.6)	706 (35.1)	558 (34.2)	577 (34.6)
East South Central	1,130 (9.6)	229 (10.4)	430 (10.0)	176 (8.8)	170 (10.5)	125 (7.5)
West South Central	1,537 (13.0)	311 (14.1)	568 (13.2)	245 (12.2)	215 (13.3)	198 (11.9)
Mountain	214 (1.8)	44 (2.0)	64 (1.5)	37 (1.8)	21 (1.3)	48 (2.9)
Pacific	740 (6.3)	115 (5.2)	247 (5.8)	127 (6.3)	111 (6.9)	140 (8.4)
Geographic Area**						
Metropolitan	10,481 (88.9)	1,992 (90.6)	3,814 (88.8)	1,791 (89.2)	1,405 (86.8)	1,479 (88.6)
Rural	1,309 (11.1)	208 (9.5)	479 (11.2)	218 (10.9)	214 (13.2)	190 (11.4)

NOTE: Due to rounding columns may not total 100%. ESRD, End-Stage Renal Disease

*Other includes the following racial categories: Other/Unknown, American Indian/Alaska Natives, and Asian/Pacific Islander

**Geographic area based on Core Based Statistical Area (CBSA); Rural classification combines micropolitan and non-CBSA categories

Appendix B. Health conditions³ for claims submitted in 2016 for Medicare Beneficiaries with Sickle Cell Disease by Age Categories, 2016

	Total	18-30 y	31-45 y	46-54 y	55-64 y	65-75 y
N (%)	11,790 (100)	2,200 (18.7)	4,293 (36.4)	2,009 (17.0)	1,619 (13.7)	1,669 (14.2)
Anxiety Disorder, n (%)	4,633 (39.4)	708 (32.3)	1,843 (43.0)	885 (44.2)	661 (41.0)	536 (32.2)
Asthma, n (%)	3,708 (31.4)	742 (33.7)	1,400 (32.6)	640 (31.7)	519 (32.0)	407 (24.23)
Chronic Kidney Disease, n (%)	5,544 (47.0)	570 (26.0)	1,802 (42.0)	1,101 (54.8)	1,001 (61.8)	1,070 (64.1)
Chronic Obstructive Pulmonary Disease and Bronchiectasis, n (%)	4,372 (37.1)	453 (20.6)	1,628 (38.0)	863 (43.0)	768 (47.4)	660 (39.5)
Depression, n (%)	6,053 (51.3)	884 (40.2)	2,380 (55.4)	1,133 (56.4)	921 (56.9)	735 (44.0)
Diabetes, n (%)	3,633 (30.8)	231 (10.5)	973 (22.7)	736 (36.6)	781 (48.2)	912 (54.6)
Epilepsy, n (%)	1,562 (13.3)	232 (10.6)	612 (14.3)	307 (15.3)	249 (15.4)	162 (9.7)
Fibromyalgia & Chronic Pain Fatigue, n (%)	7,651 (64.9)	1,333 (60.6)	3,086 (71.9)	1,422 (70.8)	1,015 (64.9)	759 (45.5)
Heart Failure, n (%)	4,560 (38.7)	392 (17.8)	1,572 (36.6)	953 (47.4)	843 (52.1)	800 (47.9)
Hyperlipidemia, n (%)	4,296 (36.4)	190 (8.6)	1,026 (23.9)	889 (44.3)	959 (59.2)	1,232 (73.8)
Hypertension, n (%)	7,735 (65.7)	763 (34.8)	2,511 (58.6)	1,510 (75.4)	1,406 (87.1)	1,545 (92.9)
Liver Disease, Cirrhosis & Other Liver Conditions, n (%)	2,977 (25.3)	414 (18.8)	1,167 (27.2)	560 (27.9)	478 (29.5)	358 (21.5)
Migraine & Other Chronic Headache Conditions, n (%)	2,362 (20.0)	437 (19.9)	1,112 (25.9)	434 (21.6)	251 (15.5)	128 (7.7)
Obesity, n (%)	3,156 (26.8)	333 (15.1)	1,099 (25.6)	642 (32.0)	558 (34.5)	524 (31.4)
Stroke or Transient Ischemic Attack, n (%)*	2,180 (18.5)	254 (11.6)	652 (15.2)	403 (20.1)	433 (26.7)	438 (26.2)

NOTE: Used 2016 diagnosis codes for ever having an occurrence of the selected chronic conditions. The determination of whether a beneficiary met criteria for a specific chronic condition flag is described in the CCW [5].

³ More information on the CCW health conditions can be found at: <https://www.ccwdata.org/web/guest/condition-categories>