Hospital Visits by Individuals with Sickle Cell Disease in Texas, 2023

TEXAS Health and Human Services
Texas Department of State Health Services

TEXAS SCDC
Sickle Cell Data Collection

Table of Contents

Acknowledgments

The Texas Sickle Cell Data Collection Program (Texas SCDC) thanks all national, state, and community partners for their dedication, hard work, and collaboration. Their efforts support implementation of a state sickle cell data collection system and play a significant role in supporting the sickle cell disease community in Texas.

About the Texas Sickle Cell Data Collection Program

In 2023, the Texas Department of State Health Services (DSHS) received funding from the Centers for Disease Control and Prevention (CDC) to establish Texas SCDC, a state sickle cell data collection system that informs sickle cell disease practices and policies in Texas. Texas SCDC is one of 16 states funded by the CDC. The goal of Texas SCDC is to collect, maintain, and disseminate high quality sickle cell data that will contribute to improving diagnoses, treatments, survival, and quality of life for all individuals with sickle cell disease in Texas. Texas SCDC provides information on all individuals with sickle cell disease in Texas, regardless of age, insurance status, or geography.

Texas SCDC Funding

This work was supported by a cooperative agreement from the CDC Sickle Cell Data Collection Program (CDC-RFA-DD23-0002). The contents of this report are solely the responsibility of the authors and do not necessarily represent the official views of the CDC or the U.S. Department of Health and Human Services.

Suggested Citation

Texas Sickle Cell Data Collection Program, Environmental Epidemiology and Disease Registries Section. Hospital Visits by Individuals with Sickle Cell Disease in Texas, 2023. Austin, TX. Texas Department of State Health Services, 2026.

Report Overview

Background

Sickle cell disease (SCD) is one of the most prevalent and clinically significant blood disorders in the United States. It is estimated that by 2050, the number of people living with sickle cell disease will grow by 30 percent.[1]

SCD is characterized by an abnormal hemoglobin protein, causing misshapen red blood cells that appear crescent- or sickle-shaped. Non-sickle hemoglobin carries oxygen to organs, muscles, and the brain to support normal body processes. Sickle hemoglobin breaks down rapidly and is unable to flow normally through the blood vessels, causing a range of serious health concerns that include chronic pain, acute pain crises, acute chest syndrome, stroke, organ damage, increased risk of severe infections, and reduced longevity. The unpredictable nature and range of severity that individuals with sickle cell disease can experience may result in frequent utilization of all types of hospital care.

Purpose

The purpose of this report is to examine hospital visits by individuals with sickle cell disease in 2023 that occur outside the emergency department. Using deidentified data from the DSHS Texas Health Care Information Collection (THCIC), the aim is to better understand health care seeking patterns and outcomes related to sickle cell disease. This report is a complement to the *Emergency Department Visits by Individuals with Sickle Cell Disease in Texas, 2023* report.

About the Data

This report utilizes data from THCIC Outpatient Public Use Data Files (THCIC Outpatient PUDFs) and from THCIC Inpatient Public Use Data Files (THCIC Inpatient PUDFs). THCIC's charge is to collect and report data on health care activity in hospitals and health maintenance organizations operating in Texas. All hospitals and ambulatory surgery centers in operation in Texas are required to report outpatient and inpatient medical care visits and related claims.

In this report, Texas SCDC examined all data from THCIC Inpatient PUDFs (i.e., inpatient admissions sourced from the emergency department and inpatient admissions not related to the emergency department) and only non-emergency data from THCIC Outpatient PUDFs (i.e., outpatient surgeries and radiological procedures that occurred outside the emergency department). Within this report, inpatient records will be referred to as "inpatient admissions" and non-emergency outpatient records will be referred to as "outpatient procedures".

Texas SCDC analyzed a subset of THCIC Outpatient PUDFs and THCIC Inpatient PUDFs based on SCDC International Classification of Diseases, Tenth Revision, Clinical Modification Codes (ICD-10-CM codes) (Appendix A, Table 10). As THCIC Outpatient PUDFs and THCIC Inpatient PUDFs are aggregate in nature, results of this analysis should be interpreted as individual encounters and not as individual patient data (i.e., the same individual may appear multiple times throughout the data set if they were treated or hospitalized more than once in Texas in 2023).

Report Summary

Sickle Cell Disease Outpatient Care

- In 2023, a total of 4,373 outpatient procedures by individuals with SCD were reported to the THCIC system.
- The highest rates of outpatient procedures by individuals with SCD in 2023 resided in Health Service Region (HSR) 3 (22 visits per 100,000 individuals) and HSR 5 (20 visits per 100,000 individuals).
- Of the examined age groups, the highest number of outpatient procedures by individuals with SCD in 2023 were among 10- to 19-year-olds (23.2 percent), followed by 30- to 39-year-olds (19.1 percent).
- Children and youth (birth to 24 years old) accounted for 2,064 (47.2 percent) of the 4,373 total outpatient procedures by individuals with SCD in 2023.
- *Red blood cells, leukocytes reduced, each unit* (18.1 percent) was the most common procedure related code among outpatient procedures by individuals with SCD in 2023.
- In 2023, the total cost of outpatient procedures by individuals with SCD in Texas was $62,930,666 and the average cost per outpatient procedure was $14,391.

Sickle Cell Disease Inpatient Care

- In 2023, a total of 10,618 inpatient admissions by individuals with SCD were reported to the THCIC system.
- The highest rates of inpatient admissions by individuals with SCD in 2023 resided in HSR 5 (57 visits per 100,000 individuals) and HSR 6 (50 visits per 100,000 individuals).
- Of the examined age groups, the highest number of inpatient admissions by individuals with SCD in 2023 was by 20- to 29-year-olds (24.5 percent) followed by 30- to 39-year-olds (23.9 percent).
- Children and youth (birth to 24 years old) accounted for 3,335 (31.4 percent) of inpatient admissions by individuals with SCD in 2023.
- *Hemoglobin SS disease with crisis unspecified* (54.3 percent) was the most common principal diagnosis code among inpatient admissions by individuals with SCD in 2023.
- Most individuals with SCD with an inpatient admission in 2023 were discharged to home or self-care (86.6 percent), whereas others left against medical advice (5.1 percent).
- In 2023, the total cost of inpatient admissions by individuals with SCD in Texas was $676,660,686 and the average cost per inpatient admission was $63,728.

Sickle Cell Disease Outpatient Care

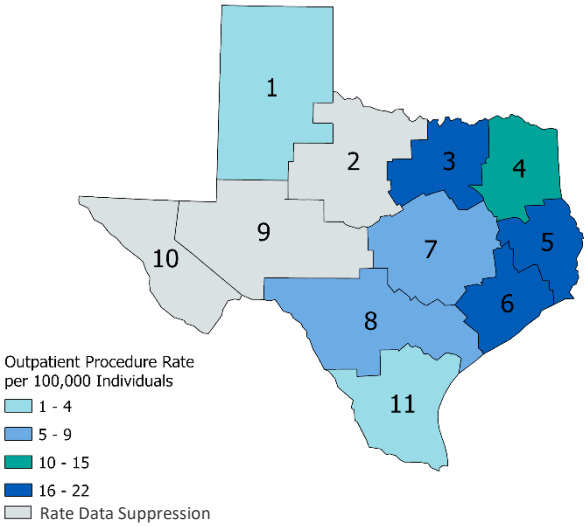
In 2023, a total of 4,373 outpatient procedures by individuals with SCD were reported to the THCIC system (Appendix B, Table 13).

The highest rates of outpatient procedures by individuals with SCD in 2023 resided in HSR 3 (22 visits per 100,000 individuals), HSR 5 (20 visits per 100,000 individuals), and HSR 6 (19 visits per 100,000 individuals) (Figure 1). Additional county-level data is available in Appendix C, Figure 11.

Sickle cell disease without crisis (48.0 percent) was the most common principal diagnosis among outpatient procedures by individuals with SCD in 2023, followed by *HB-SS disease with crisis unspecified* (7.2 percent) and *HB-SS disease with cerebral vascular involvement* (3.1 percent) (Table 1).

Other sickle cell disease (including unspecified sickle cell disease, sickle cell thalassemia, other sickle cell disorders) was the most common type of SCD recorded across all diagnosis code fields of outpatient procedures by individuals with SCD in 2023 (Appendix B, Table 13 and Appendix D, Table 14).

Figure 1: Outpatient Procedure Rates of Individuals with Sickle Cell Disease by Patient Residence Health Service Region, Texas, 2023 [1]



1. Rates for counties with 1 to 15 emergency department visits were suppressed due to reliability issues. Suppression of Rates and Counts | U.S. Cancer Statistics | CDC

Table 1: Principal Diagnoses of Outpatient Procedures by Individuals with Sickle Cell Disease, Texas, 2023

ICD-10-CM Codes and Definition		Outpatient Procedures	
		Number	Percent
D57.1	*Sickle-cell disease without crisis*	2,101	48.0%
D57.00	*Hb-SS disease with crisis unspecified*	316	7.2%
D57.03	*Hb-SS disease with cerebral vascular involvement*	135	3.1%
D57.20	*Sickle-cell/Hb-C disease without crisis*	119	2.7%
I87.31	*Chronic venous hypertension (idiopathic) with ulcer*	61	1.4%
D57.40	*Sickle-cell thalassemia without crisis*	44	1.0%
Z45.2	*Encounter for adjustment and management of vascular access device*	44	1.0%
D57.21	*Sickle-cell/Hb-C disease with crisis*	43	1.0%
E11.62	*Type 2 diabetes mellitus with skin complications*	36	0.8%
Z12.11	*Encounter for screening for malignant neoplasm of colon*	30	0.7%

Demographics of SCD Outpatient Care

It is estimated that 7,000 Texans are living with SCD; however, other state SCDC systems have determined the prevalence of SCD within their state to be higher than previously estimated.[2,3]

In Texas, outpatient procedures by individuals with SCD in 2023 were more common among female patients (54.6 percent) than male patients (44.2 percent) (Appendix B, Table 13).

Black, Non-Hispanic (88.1 percent) was the most common race/ethnicity among outpatient procedures by individuals with SCD, followed by Hispanic (6.4 percent) and Other, Non-Hispanic (2.8 percent) (Table 2; Appendix B, Table 13).

Of the examined age groups, most outpatient procedures by individuals with SCD were among 10- to 19-year-olds (23.2 percent), followed by 30- to 39-year-olds (19.1 percent) and 20- to 29-year-olds (18.3 percent) (Figure 2).

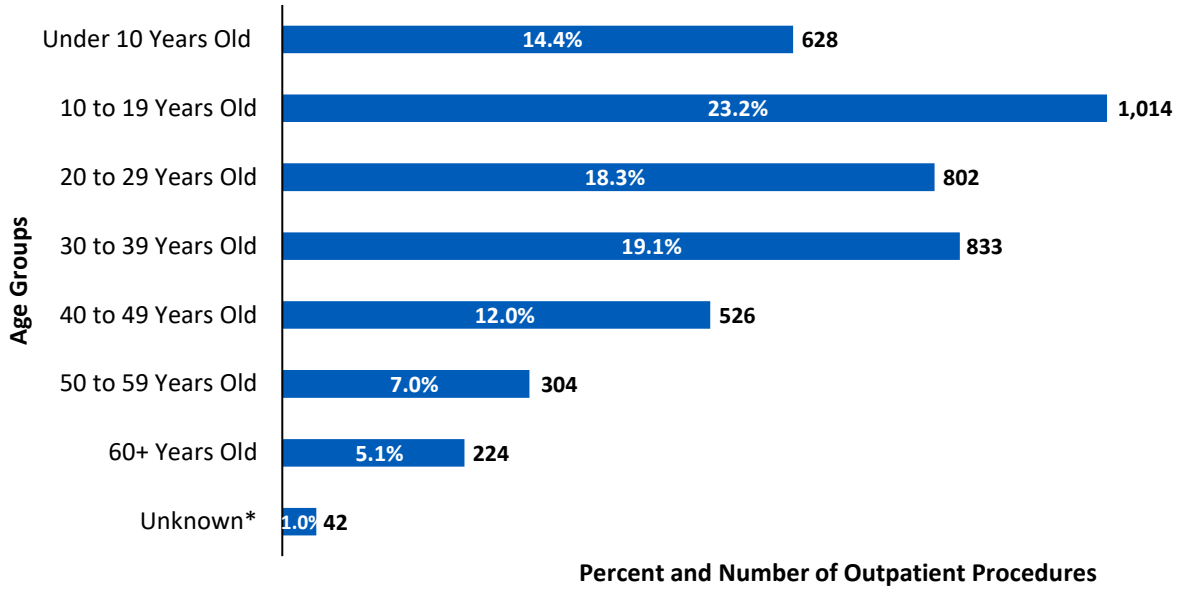
Additional demographic information is available in Appendix B, Table 13 of this report.

Table 2: Outpatient Procedures of Individuals with Sickle Cell Disease by Race/Ethnicity, Texas, 2023

Race/Ethnicity	Outpatient Procedures	
	Number	Percent[1]
Hispanic	279	6.4%
Black, Non-Hispanic	3,853	88.1%
White, Non-Hispanic	93	2.1%
Asian or Pacific Islander, Non-Hispanic	18	0.4%
American Native, Non-Hispanic	6	0.1%
Other, Non-Hispanic	121	2.8%
Unknown[2]	3	0.1%
Total	4,373	100%

1. Proportions may not be equal to 100 due to rounding.
2. Missing ethnicity/race information for sickle cell disease encounters.

Figure 2: Outpatient Procedures by Individuals with Sickle Cell Disease by Age Group, Texas, 2023



*Include patient visits with missing information or containing ICD-10-CM codes indicating drug or alcohol use and/or HIV/STD Diagnosis.

Children and Youth SCD Outpatient Care

The transition from pediatric to adult healthcare typically occurs between the ages of 18 and 22 years; however, each case is unique with some transitions to adult healthcare occurring earlier or later.[4] This age group often coincides with major life changes that may lead to difficulty managing health and well-being, especially for youth living with SCD.

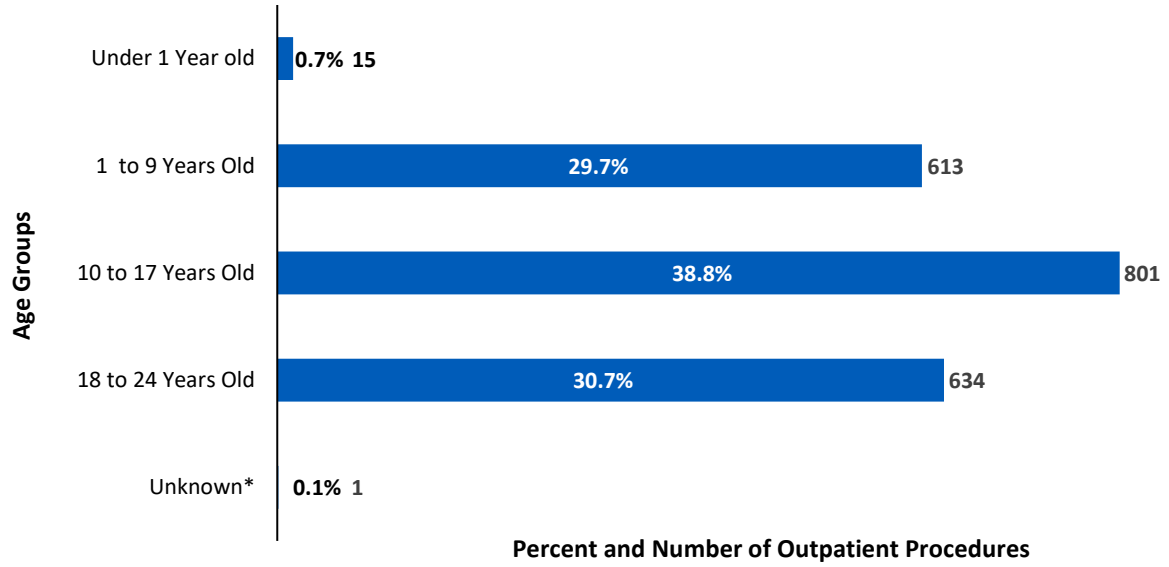
In 2023, children and youth accounted for 2,064 (47.2 percent) of the 4,373 total outpatient procedures by individuals with SCD (Appendix E, Table 15). Those 10 to 17 years old accounted for 38.8 percent (801) of outpatient procedures by children and youth with SCD (Figure 3; Appendix E, Table 15).

Outpatient procedures of children and youth with SCD were more common among males (51.9 percent) than females (47.9 percent) (Appendix E, Table 13). Black, Non-Hispanic (87.6 percent) was the most common race/ethnicity among outpatient procedures by children and youth with SCD, followed by Hispanic (7.7 percent) (Appendix E, Table 15).

Among all outpatient procedures of children and youth with SCD, the most common principal diagnosis was *Sickle-cell disease without crisis* (61.4 percent), followed by *HB-SS disease with crisis unspecified* (5.8 percent) and *HB-SS disease with cerebral vascular involvement* (3.5 percent) (Appendix E, Table 15).

The most common outpatient procedure related code among all children and youth with SCD was *Red blood cells, leukocytes reduced, each unit* (17.3 percent), followed by *Transcranial Doppler study of the intracranial arteries; complete study* (10.9 percent) and *Bloodtyping, serologic; antigen testing of donor blood using reagent serum* (6.7 percent*)* (Appendix E, Table 15; Appendix F, Table 16).

Figure 3: Outpatient Procedures by Children and Youth with Sickle Cell Disease by Age Group, Texas, 2023



* Includes patient visits with missing information or containing ICD-10-CM codes indicating drug or alcohol use and/or HIV/STD Diagnosis.

Reason for SCD Outpatient Care

SCD is a chronic condition associated with complications and comorbidities, including acute pain crises.[5,6] Individuals with SCD face unique challenges accessing healthcare, including the unavailability of SCD-informed healthcare providers, skepticism when reporting levels of pain, and stigmatization as drug seekers.[5,6,7] Helping reduce non-routine and extended hospital visits by individuals with SCD involves proactive care and management as informed by healthcare providers who specialize in SCD.

In 2023, the most common reason individuals with SCD in Texas sought outpatient procedures, otherwise known as a chief complaint, was *Sickle cell disease without crisis* (47.8 percent), followed by *HB-SS disease with crisis unspecified* (7.1 percent) and *HB-SS disease with cerebral vascular involvement* (3.1 percent) (Table 3).

A 2019 survey identified challenges among healthcare providers in understanding the needs of patients with SCD, highlighting a demand for additional support for healthcare providers serving patients with SCD.[8]

*Table 3: Top 10 Reasons for Outpatient Procedures by Individuals with Sickle Cell Disease, Texas, 2023**

ICD-10-CM Code and Definition		Outpatient Procedures	
		Number	Percent
D57.1	*Sickle-cell disease without crisis*	2,090	47.8%
D57.00	*Hb-SS disease with crisis unspecified*	312	7.1%
D57.03	*Hb-SS disease with cerebral vascular involvement*	136	3.1%
D57.20	*Sickle-cell/Hb-C disease without crisis*	115	2.6%
D57.40	*Sickle-cell thalassemia without crisis*	44	1.0%
Z45.2	*Encounter for adjustment and management of vascular access device*	39	0.9%
D57.21	*Sickle-cell/Hb-C disease with crisis*	35	0.8%
E11.62	*Type 2 diabetes mellitus with skin complications*	32	0.7%
I87.31	*Chronic venous hypertension (idiopathic) with ulcer*	29	0.7%
K02.9	*Dental caries, unspecified*	29	0.7%

*Only the top 10 of over 600 patient reasons for outpatient procedures are provided in this table. The provided counts in this table will not add up to the total 4,373 outpatient procedures referenced throughout this section of the report.

SCD Outpatient Procedure Related Care

Individuals living with SCD encounter a range of possible complications and comorbidities that may require outpatient procedures such as imaging and blood transfusions.[5,6,9] Even with proactive care and informed healthcare management, individuals living with SCD face a higher risk of requiring outpatient procedures and experiencing complications than individuals without SCD due to the chronic nature of the disease.[7,9]

In 2023, the most common procedure related codes among individuals with SCD in Texas was *Red blood cells, leukocytes reduced, each unit* (18.1 percent), followed by *Therapeutic apheresis; for red blood cells* (6.2 percent) and *Transcranial Doppler study of the intracranial arteries; complete study* (5.1 percent) (Table 4; Appendix F, Table 16).

Table 4: Top 10 Outpatient Procedure Related Codes by Individuals with Sickle Cell Disease, Texas, 2023[1]

CPT[2], HCPCS[3], ICD-10-PCS[4] Code and Definition		Outpatient Procedures	
		Number	Percent
P9016	*Red blood cells, leukocytes reduced, each unit*	791	18.1%
36512	*Therapeutic apheresis; for red blood cells*	271	6.2%
93886	*Transcranial Doppler study of the intracranial arteries; complete study*	224	5.1%
86902	*Blood typing; serologic; antigen testing of donor blood using reagent serum, each antigen test*	194	4.4%
11042	*Debridement, subcutaneous tissue (includes epidermis and dermis, if performed); first 20 sq cm or less*	126	2.9%
36430	*Transfusion, blood or blood components*	124	2.8%
99212	*Established patient office or other outpatient visit, 10-19 minutes*	116	2.7%
93306	*Echocardiography, Transthoracic, Real-Time with Image Documentation (2D), includes M-Mode Recording, when performed, complete, with spectral Doppler echocardiography, and with color flow Doppler echocardiography*	109	2.5%
86905	*Blood typing, serologic; RBC antigens, other than ABO or Rh (D), each*	107	2.5%
G0378	*Hospital observation service, per hour*	78	1.8%

1. Only the top 10 of over 500 outpatient procedures are provided in this table. The counts provided in this table will not add up to the total 4,373 outpatient procedures referenced throughout this section of the report.
2. Current Procedural Terminology (CPT) code set is a descriptive term and five-digit codes for classifying and reporting medical services, procedures, and tests performed by physicians and other qualified health care professionals. They are developed and maintained by the American Medical Association and used by medical providers to submit healthcare claims to Medicare and other health insurance plans.
3. Healthcare Common Procedure Coding System is a standardized alphanumeric coding system used by medical providers to classify medical supply items, devices, and services that fall outside of the scope of traditional CPT coding to allow them to submit healthcare claims to Medicare and other health insurances.
4. International Classification of Diseases, 10th Revision, Procedure Coding System. It is a list of codes specially designed for procedure coding of medical procedures performed in hospital inpatient settings.

SCD Outpatient Care Insurance and Costs

Individuals with SCD often have considerable unmet healthcare needs and face substantial financial healthcare costs. It has been estimated that lifetime healthcare costs for an individual with SCD could be as high as $8,747,908, assuming a 50-year life expectancy and not accounting for inflation.[10]

In 2023, the total cost of outpatient procedures by individuals with SCD in Texas was $62,930,666 (Appendix G, Table 17).

Most (44.1 percent) outpatient procedures by individuals with SCD in 2023 cost between $10,000 to $49,999 per visit (Figure 4), with the average cost being $14,391 (Appendix G, Table 17).

The highest cost for an outpatient procedure by an individual with SCD in Texas in 2023 was $681,774 (Appendix G, Table 17).

Most outpatient procedures by individuals with SCD in Texas in 2023 were covered by Medicaid (45.2 percent) (Figure 5).

Figure 4: Range of Costs for Outpatient Procedures by Individuals with Sickle Cell Disease, Texas, 2023[1]

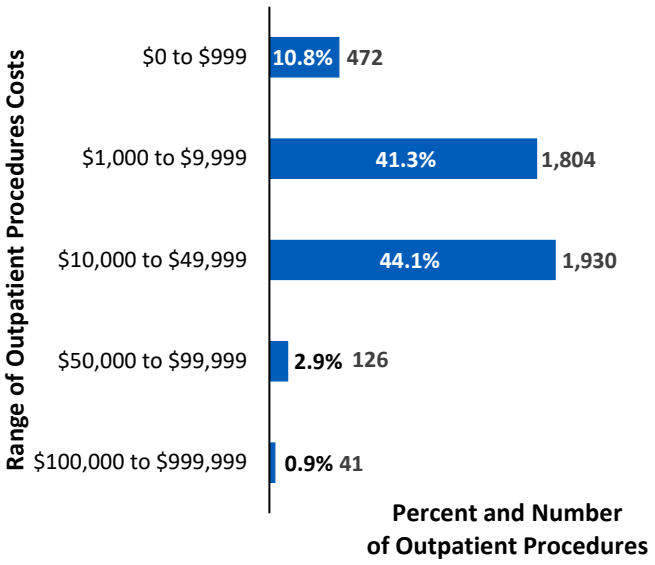
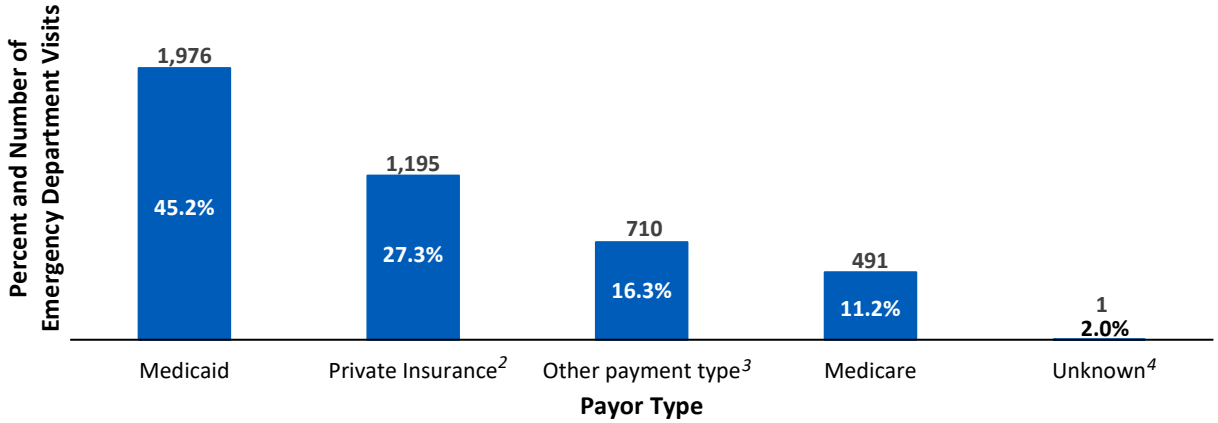


Figure 5: Payer Type Among Outpatient Procedures by Individuals with Sickle Cell Disease, Texas, 2023[1]



1. Payor and patient responsibility are not specified in this data set.
2. Private Insurance includes Preferred Provider Organization, Exclusive Provider Organization, Blue Cross/Blue Shield, and Health Maintenance Organization.
3. Other payment types include Self-Pay, Central Certification, Other Non-Federal Programs, Point of Service, Indemnity Insurance, Automobile Medical, Commercial Insurance, Disability Insurance, Liability Medical, Workers Compensation Claim, Other Federal Program, Veteran Administration Plan, Civil Health and Medical Program of the Uniformed Services, Title V, Charity, and Indigent.
4. Missing payer type information for sickle cell disease visits.

Sickle Cell Disease Inpatient Care

In 2023, a total of 10,618 inpatient admissions by individuals with SCD were reported to the THCIC system (Appendix H, Table 18).

The highest rates of inpatient admissions by individuals with SCD in 2023 resided in HSR 5 (57 visits per 100,000 individuals), HSR 6 (50 visits per 100,000 individuals),and HSR 3 (45 visits per 100,000 individuals) (Figure 6). Additional county-level data is available in Appendix I, Figure 12.

Hb-SS disease with crisis unspecified (54.3 percent) was the most common principal diagnosis among inpatient admissions by individuals with SCD in 2023, followed by *Hb-SS disease with acute chest syndrome* (6.1 percent) and *Sepsis, unspecified organism* (3.7 percent) (Table 5).

Sickle cell anemia (HbSS) was the most common type of SCD recorded across all diagnosis code fields of inpatient admissions by individuals with SCD in 2023 (Appendix H, Table 18 and Appendix D, Table 14).

Figure 6: Inpatient Admissions Rates of Individuals with Sickle Cell Disease by Patient Residence Health Service Region, Texas, 2023

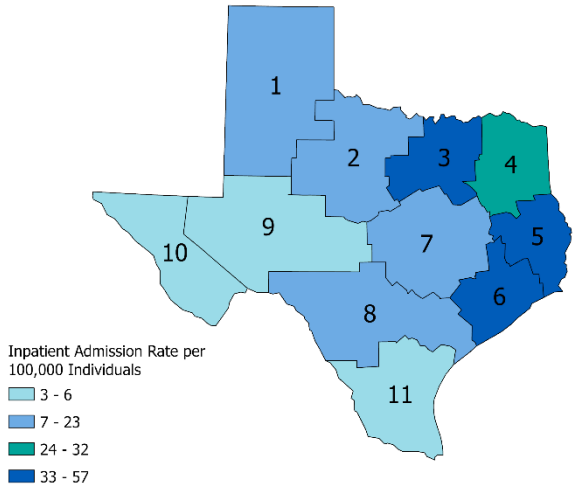


Table 5: Principal Diagnoses of Inpatient Admissions by Individuals with Sickle Cell Disease, Texas, 2023

ICD-10-CM Codes and Definition		Inpatient Admissions	
		Number	Percent
D57.00	*Hb-SS disease with crisis unspecified*	5,760	54.3%
D57.01	*Hb-SS disease with acute chest syndrome*	641	6.1%
A41.9	*Sepsis, unspecified organism*	389	3.7%
D57.20	*Sickle-cell/Hb-C disease without crisis*	333	3.1%
D57.1	*Sickle-cell disease without crisis*	144	1.4%
D57.419	*Sickle-cell thalassemia, unspecified, with crisis*	126	1.2%
D57.218	*Hb-SS disease with crisis with other specified complication*	104	1.0%
U07.1	*COVID-19*	97	0.9%
D57.02	*Hb-SS disease with splenic sequestration*	92	0.9%
J18.9	*Pneumonia, unspecified organism*	62	0.6%

Demographics of SCD Inpatient Care

In Texas, inpatient admissions by individuals with SCD in 2023 were more common among female patients (50.9 percent) than male patients (37.9 percent) (Appendix H, Table 18).

Black, Non-Hispanic (89.9 percent) was the most common race/ethnicity among inpatient admissions by individuals with SCD, followed by Hispanic (4.9 percent) and Other, Non-Hispanic (2.3 percent) (Table 6).

Of the examined age groups, most inpatient admissions by individuals with SCD were among 20- to 29-year-olds (24.5 percent), followed by 30- to 39-year-olds (23.9 percent) and 10- to 19-year-olds (12.4 percent) (Figure 7).

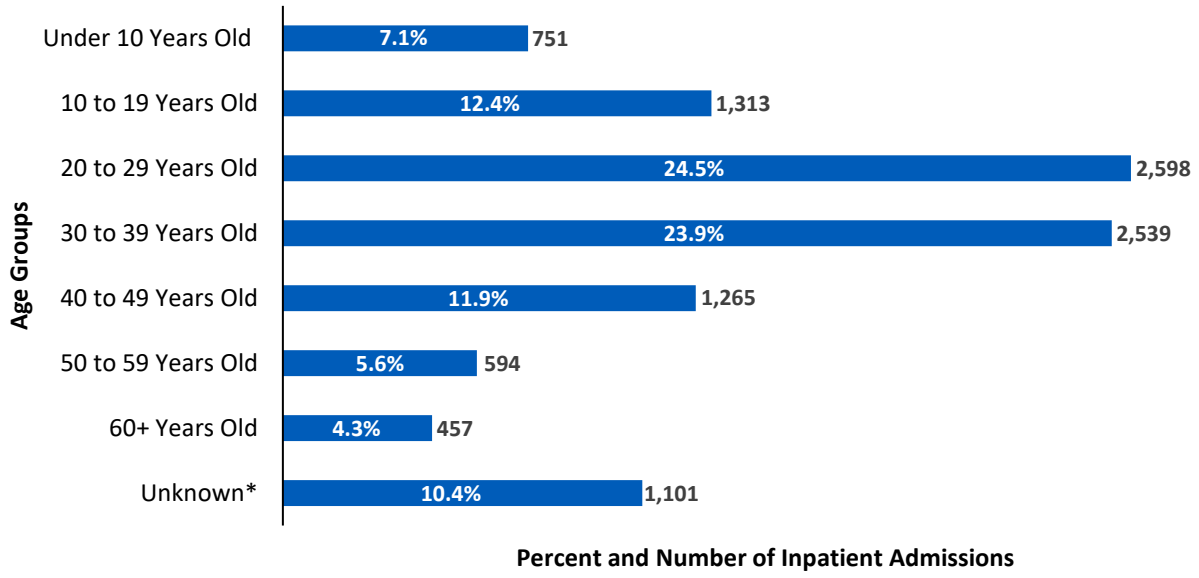
Additional demographic information is available in Appendix H, Table 18 of this report.

Table 6: Inpatient Admissions of Individuals with Sickle Cell Disease by Race/Ethnicity, Texas, 2023

Race/Ethnicity	Inpatient Admissions	
	Number	Percent[1]
Hispanic	519	4.9%
Black, Non-Hispanic	9,549	89.9%
White, Non-Hispanic	210	2.0%
Asian or Pacific Islander, Non-Hispanic	22	0.2%
American Native, Non-Hispanic	15	0.1%
Other, Non-Hispanic	247	2.3%
Unknown[2]	56	0.5%
Total	10,618	100%

1. Proportions may not equal to 100 due to rounding.
2. Missing ethnicity/race information for sickle cell disease encounters.

Figure 7: Inpatient Admissions by Individuals with Sickle Cell Disease by Age Group, Texas, 2023



*Includes patient visits with missing information or containing ICD-10-CM codes indicating drug or alcohol use and/or HIV/STD Diagnosis.

Children and Youth SCD Inpatient Care

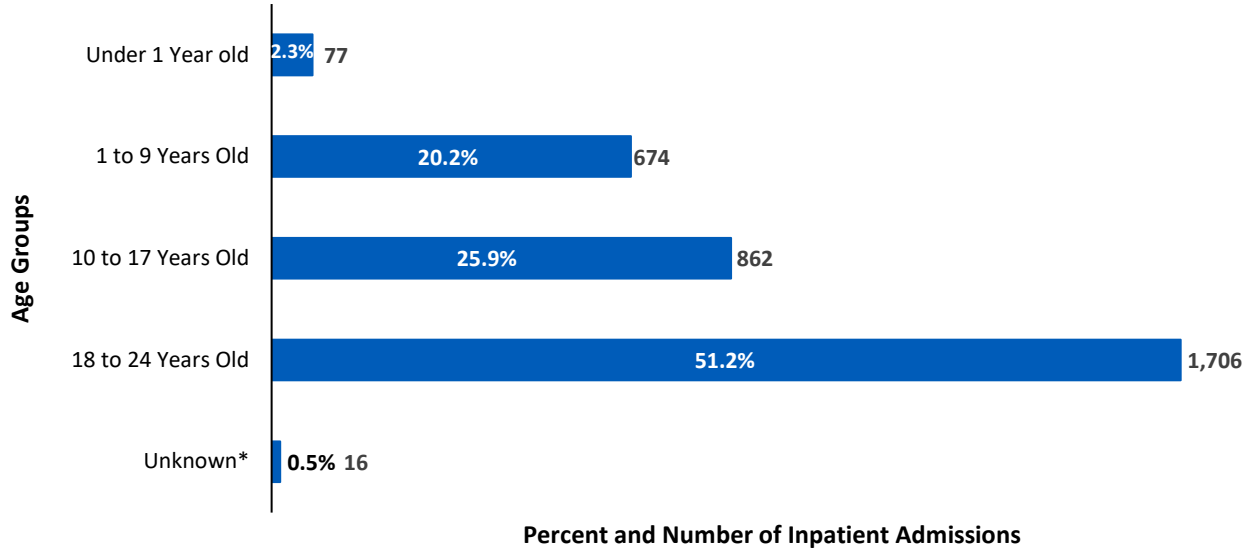
Any period of hospitalization may adversely impact pediatric physical and psychosocial development.[12,13] Children with SCD face a heightened risk of long-term anemia, major pain crisis, splenic sequestration, stroke, and other serious health concerns that may impact their school attendance and performance, socialization, and achievement of key childhood milestones.[13,14]

In 2023, children and youth accounted for 3,335 (31.4 percent) of the 10,618 total inpatient admissions by individuals with SCD (Appendix J, Table 19). Those 18 to 24 years old accounted for 51.2 percent of inpatient admissions by children and youth with SCD (Figure 8; Appendix J, Table 19). There were similar trends of patient sex among inpatient admissions of children and youth with SCD (51.8 percent female and 46.8 percent male) compared to inpatient admissions by individuals with SCD across all ages (Appendix J, Table 19). Black, Non-Hispanic (88.8 percent) was the most common race/ethnicity among inpatient admissions by children and youth with SCD, followed by Hispanic (7.1 percent) (Appendix J, Table 19).

Among all inpatient admissions of children and youth with SCD, the most common principal diagnosis was *Hb-SS disease with crisis unspecified* (49.3 percent), followed by *Hb-SS disease with acute chest unspecified* (12.6 percent) and *Sickle-cell/Hb-C disease unspecified* (3.8 percent) (Appendix J, Table 19).

In 2023, most procedure related codes among inpatient admissions by children and youth with SCD in Texas were not known (61.6%). Of the reported procedure related codes, the most common included *Transfusion of Nonautologous Red Blood Cells into Peripheral Vein, Percutaneous Approach* (19.4 percent) and *Isolation* (1.1 percent) (Appendix J, Table 19; Appendix F, Table 16).

Figure 8: Inpatient Admissions of Children and Youth with Sickle Cell Disease by Age Group, Texas, 2023



* Includes patient visits with missing information or containing ICD-10-CM codes indicating drug or alcohol use and/or HIV/STD Diagnosis.

Reason for SCD Inpatient Care

SCD is a chronic condition associated with complications and comorbidities.[5,6] The unique challenges that individuals with SCD face when accessing healthcare (e.g., unavailability of SCD-informed healthcare providers, skepticism when reporting levels of pain, and stigmatization as drug seekers) may increase the likelihood of inpatient hospitalization due to delayed or uninformed care.[5,6,7] Helping reduce hospitalizations of individuals with SCD involves not only proactive care and management across the lifespan, but also a better understanding of SCD by all healthcare providers.[8]

In 2023, the most common reason for inpatient admission of individuals with SCD in Texas was *Hb-SS disease with crisis unspecified* (54.3 percent), followed by *Hb-SS disease with acute chest syndrome* (6.0 percent) and *Sepsis, unspecified organism* (3.7 percent) (Table 7).

*Table 7: Top 10 Reasons for Inpatient Admissions by Individuals with Sickle Cell Disease, Texas, 2023**

ICD-10-CM Code and Definition		Inpatient Admissions	
		Number	Percent
D57.00	*Hb-SS disease with crisis unspecified*	5,760	54.3%
D57.01	*Hb-SS disease with acute chest syndrome*	641	6.0%
A41.9	*Sepsis, unspecified organism*	389	3.7%
D57.20	*Sickle-cell/Hb-C disease unspecified*	333	3.1%
D57.1	*Sickle-cell disease without crisis*	144	1.4%
D57.419	*Sickle-cell thalassemia, unspecified, with crisis*	126	1.2%
D57.09	*Hb-SS disease with crisis with other specified complication*	104	1.0%
U07.1	*COVID-19*	97	0.9%
D57.02	*Hb-SS disease with splenic sequestration*	92	0.9%
J18.9	*Pneumonia, unspecified organism*	62	0.6%

*Only the top 10 of over 600 patient reasons for inpatient admissions are provided in this table. The counts provided in this table will not add up to the total 10,618 inpatient admissions referenced throughout this section of the report.

SCD Inpatient Procedure Related Care

Individuals with SCD are at increased risk of developing comorbidities and complications, increasing their risk of inpatient hospitalization.[5,6] Some of the more severe comorbidities that may require hospitalization include non-specific infections, cardiovascular complications, stroke, renal disease, and pulmonary hypertension.[4,9] These conditions often lead to healthcare interventions, including transfusions, imaging, major surgeries, and hospital observation.[4,9]

In 2023, most procedure related codes among inpatient admissions by individuals with SCD in Texas were not known (59.0 percent). Of the reported procedure related codes, the most common include *Transfusion of Nonautologous Red Blood Cells into Peripheral Vein, Percutaneous Approach* (16.0 percent), and *Isolation* (1.6 percent) (Table 8; Appendix F, Table 16).

Table 8: Top 10 Procedure Related Codes of Inpatient Admissions by Individuals with Sickle Cell Disease, Texas, 2023[1]

CPT[2], HCPCS[3], ICD-10-PCS[4] Code and Definition		Inpatient Admissions	
		Number	Percent
--------	*Unknown (Missing)*	6,261	59.0%
30233N1	*Transfusion of Nonautologous Red Blood Cells into Peripheral Vein, Percutaneous Approach*	1,703	16.0%
8E0ZXY6	*Isolation*	169	1.6%
02HV33Z	*Insertion of Infusion Device into Superior Vena Cava, Percutaneous Approach*	137	1.3%
5A1D70Z	*Performance of Urinary Filtration, Intermittent, Less than 6 Hours Per Day*	133	1.3%
10E0XZZ	*Delivery of Products of Conception, External Approach*	111	1.1%
30243N1	*Transfusion of Nonautologous Red Blood Cells into Central Vein, Percutaneous Approach*	106	1.0%
10D00Z1	*Extraction of Products of Conception, Low, Open Approach*	97	0.9%
05HY33Z	*Insertion of Infusion Device into Upper Vein, Percutaneous Approach*	93	0.9%
XW033E5	*Introduction of Remdesivir Anti-infective into Peripheral Vein, Percutaneous Approach, New Technology Group 5*	59	0.6%

1. Only the top 10 of over 600 procedures of inpatient admissions are provided in this table. The counts provided in this table will not add up to the total 10,618 inpatient admissions referenced throughout this section of the report.
2. Current Procedural Terminology (CPT) code set is a descriptive term and five-digit codes for classifying and reporting medical services, procedures, and tests performed by physicians and other qualified health care professionals. They are developed and maintained by the American Medical Association and used by medical providers to submit healthcare claims to Medicare and other health insurance plans
3. Healthcare Common Procedure Coding System is a standardized alphanumeric coding system used by medical providers to classify medical supply items, devices, and services that fall outside of the scope of traditional CPT coding to allow them to submit healthcare claims to Medicare and other health insurances.
4. International Classification of Diseases, 10th Revision, Procedure Coding System. It is a list of codes specially designed for procedure coding of medical procedures performed in hospital inpatient settings.

SCD Inpatient Admissions Outcomes

For individuals with SCD, hospitalization may be the only option when SCD related complications progress to the point of being unmanageable at home or with an outpatient visit. [10]

In Texas, most inpatient admissions of individuals with SCD lasted between 1 to 7 days (79.1 percent) (Table 9). The average length of stay was 6 days and the longest inpatient admission stay of an individual with SCD was 225 days in 2023 (Table 10).

Most individuals with SCD in Texas who had an inpatient admission in 2023 were discharged to home or self-care (86.6 percent), whereas others left against medical advice (5.1 percent) or were discharged to care of home health service (3.8 percent) (Table 11).

In 2023, 70 inpatient admissions by individuals with SCD in Texas resulted in death (Table 11).

Table 9: Inpatient Admissions Length of Stay by Range of Individuals with Sickle Cell Disease, Texas, 2023

Length of Stay	Inpatient Admissions	
	Number	Percent[1]
1 to 7 days	8,396	79.1%
8 to 14 days	1,639	15.4%
15 to 21 days	345	3.3%
22 to 28 days	116	1.1%
29 days or more	122	1.2%
Total	10,618	100%

Table 10: Inpatient Admissions Length of Stay of Individuals with Sickle Cell Disease, Texas, 2023

	Inpatient Admissions Length of Stay
Minimum	1 day
Maximum	225 days
Mean	6 days
Median	4 days

*Table 11: Top 10 Discharges of Inpatient Admissions by Individuals with Sickle Cell Disease, Texas, 2023**

Discharge Outcome	Inpatient Admissions	
	Number	Percent
Discharged to home or self-care (routine discharge)	9,198	86.6%
Left against medical advice	542	5.1%
Discharged to care of home health service	398	3.8%
Discharged to skilled nursing facility	114	1.1%
Discharged to other short term general hospital	97	0.9%
Deceased	70	0.7%
Discharged/transferred to inpatient rehabilitation facility	55	0.5%
Discharged/transferred to Court/Law Enforcement	49	0.5%
Discharged/transferred to Medicare-certified long term care hospital	19	0.2%
Discharged to intermediate care facility	17	0.2%

*Only the top 10 of 42 discharge outcomes are provided in this table. The counts provided in this table will not add up to a total of 10 emergency department visits referenced throughout this report.

SCD Inpatient Care Insurance and Costs

In 2023, the total cost of inpatient admissions by individuals with SCD in Texas was $676,660,686 (Appendix K, Table 20).

Most (60.3 percent) inpatient admissions by individuals with SCD in 2023 cost between $10,000 to $49,999 per visit (Figure 9), with the average cost being $63,728 (Appendix K, Table 20).

The highest cost for an inpatient admission by an individual with SCD in Texas in 2023 was $5,063,292 (Appendix K, Table 20).

Most inpatient admissions by individuals with SCD in Texas in 2023 were covered by Medicaid (50.6 percent) (Figure 10).

Figure 9: Range of Costs for Inpatient Admissions by Individuals with Sickle Cell Disease, Texas, 2023

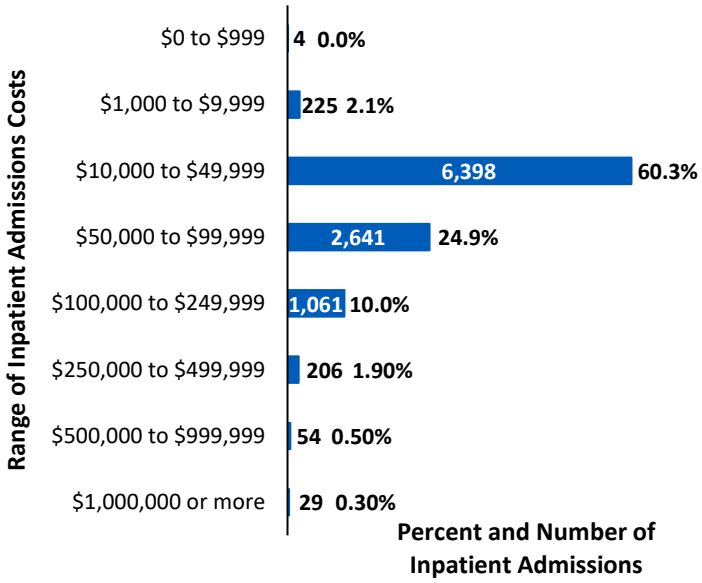
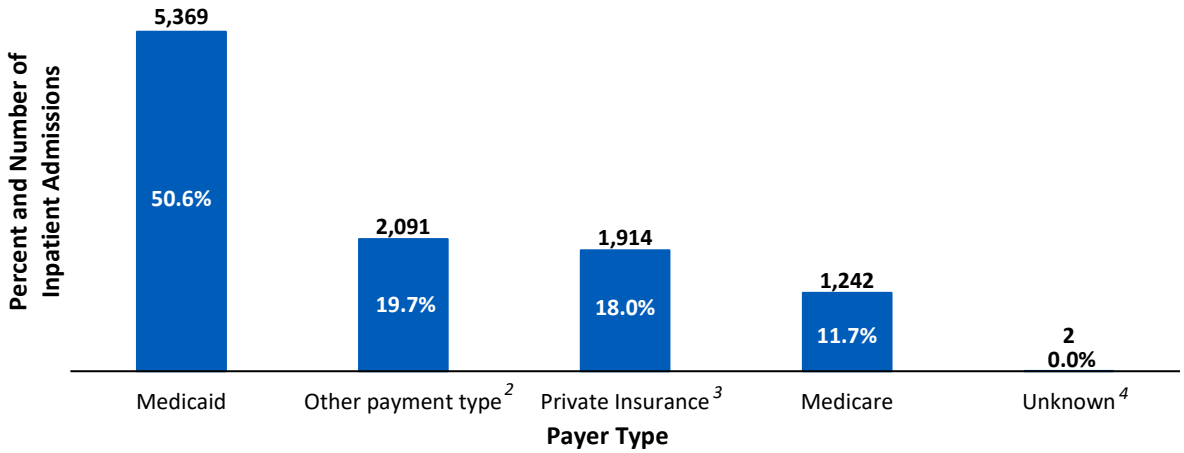


Figure 10: Payer Type Among Inpatient Admissions by Individuals with Sickle Cell Disease, Texas, 2023[1]



1. Payor and patient responsibility are not specified in this data set.
2. Other payment types include: Self-Pay, Central Certification, Other Non-Federal Programs, Point of Service, Indemnity Insurance, Automobile Medical, Commercial Insurance, Disability Insurance, Liability Medical, Workers Compensation Claim, Other Federal Program, Veteran Administration Plan, Civil Health and Medical Program of the Uniformed Services, Title V, Charity, Indigent.
3. Private Insurance includes Preferred Provider Organization, Exclusive Provider Organization, Blue Cross/Blue Shield, and Health Maintenance Organization.
4. Missing payer type information for sickle cell disease visits.

Data Sources and References

Data Sources

a. Texas Hospital Inpatient Discharge Data Set, 2023. Texas Department of State Health Services, Center for Health Statistics, Austin, Texas. December 2024.

b. Texas Outpatient Data Set, 2023. Texas Department of State Health Services, Center for Health Statistics, Austin, Texas. December 2024.

References

1. Piel, F. B., Hay, S. I., Gupta, S., Weatherall, D. J., & Williams, T. N. (2013). Global burden of sickle cell anaemia in children under five, 2010-2050: modelling based on demographics, excess mortality, and interventions. *PLoS medicine*, *10*(7), e1001484. https://doi.org/10.1371/journal.pmed.1001484
2. Hassell, K. L. (2010). Population estimates of sickle cell disease in the U.S. *American Journal of Preventive Medicine*, *38*(4). https://doi.org/10.1016/j.amepre.2009.12.022
3. Snyder, A. B., Lakshmanan, S., Hulihan, M. M., Paulukonis, S. T., Zhou, M., Horiuchi, S. S., Abe, K., Pope, S. N., & Schieve, L. A. (2022). Surveillance for Sickle Cell Disease - Sickle Cell Data Collection Program, Two States, 2004-2018. *Morbidity and mortality weekly report. Surveillance summaries (Washington, D.C.:2002)*, *71*(9), 1–18. https://doi.org/10.15585/mmwr.ss7109a1
4. "Transition to Adult Care." Johns Hopkins Medicine. Accessed July 22, 2025. https://www.hopkinsmedicine.org/all-childrens-hospital/services/pediatric-and-adolescent-medicine/adolescent-and-young-adult-specialty-clinic/transition-to-adult-care
5. Centers for Disease Control and Prevention. (2023, July 6). *Breaking down barriers to ed care for people with SCD*. Centers for Disease Control and Prevention. https://archive.cdc.gov/www_cdc_gov/ncbddd/sicklecell/care-in-the-ed/index.html
6. Brennan-Cook, J., Bonnabeau, E., Aponte, R., Augustin, C., & Tanabe, P. (2018). Barriers to Care for Persons With Sickle Cell Disease: The Case Manager's Opportunity to Improve Patient Outcomes. *Professional case management*, *23*(4), 213–219. https://doi.org/10.1097/NCM.0000000000000260
7. Phillips, S., Chen, Y., Masese, R., Noisette, L., Jordan, K., Jacobs, S., Hsu, L. L., Melvin, C. L., Treadwell, M., Shah, N., Tanabe, P., & Kanter, J. (2022). Perspectives of individuals with sickle cell disease on barriers to care. *PloS one*, *17*(3), e0265342. https://doi.org/10.1371/journal.pone.0265342
8. Mayo-Gamble, T. L., Schlundt, D., Cunningham-Erves, J., Murry, V. M., Bonnet, K., Quasie-Woode, D., & Mouton, C. P. (2019). Sickle cell carriers' unmet information needs: Beyond knowing trait status. *Journal of Genetic Counseling*, *28*(4), 812–821. https://doi.org/10.1002/jgc4.1124
9. Ramsey, S. D., Bender, M. A., Li, L., Johnson, K. M., Jiao, B., Devine, B., & Basu, A. (2025). Correction: Prevalence of comorbidities associated with sickle cell disease among non-elderly individuals with commercial insurance–A retrospective cohort study. *PLOS One*, *20*(7). https://doi.org/10.1371/journal.pone.0328920
10. Ballas S. K. (2009). The cost of health care for patients with sickle cell disease. *American journal of hematology*, *84*(6), 320–322. https://doi.org/10.1002/ajh.21443
11. Breuner, C. C., Alderman, E. M., Jewell, J. A., COMMITTEE ON ADOLESCENCE, & COMMITTEE ON HOSPITAL CARE (2023). The Hospitalized Adolescent. *Pediatrics*, *151*(2), e2022060647. https://doi.org/10.1542/peds.2022-060647
12. *Sickle Cell Disease in Children*. Stanford Medicine Children's Health. (2019) https://www.stanfordchildrens.org/en/topic/default?id=sickle-cell-disease-in-children-90-P02327.
13. Centers for Disease Control and Prevention. (2023b, July 7). *Sickle cell & transition*. Centers for Disease Control and Prevention. https://archive.cdc.gov/www_cdc_gov/ncbddd/sicklecell/features/sickle-cell-transition.html

Appendix A: SCD ICD-10-CM Codes

Table 12. Sickle Cell Disease ICD-10-Clinical Modification Codes by SCD Genotype and Billing Status, 2023

ICD-10-CM Code		SCD Genotype	Billable/Unbillable*
D57.0	HB-SS disease with crisis	Hemoglobin SS disease	Unbillable
D57.00	Hb-SS disease with crisis unspecified	Hemoglobin SS disease	Billable
D57.01	Hb-SS disease with acute chest syndrome	Hemoglobin SS disease	Billable
D57.02	Hb-SS disease with splenic sequestration	Hemoglobin SS disease	Billable
D57.03	Hb-SS disease with cerebral vascular involvement	Hemoglobin SS disease	Billable
D57.04	Hb-SS disease with dactylitis	Hemoglobin SS disease	Billable
D57.09	Hb-SS disease with crisis with other specified complication	Hemoglobin SS disease	Billable
D57.2	Sickle-cell/Hb-C disease	Hemoglobin SC disease	Unbillable
D57.20	Sickle-cell/Hb-C disease without crisis	Hemoglobin SC disease	Billable
D57.21	Sickle-cell/Hb-C disease with crisis	Hemoglobin SC disease	Unbillable
D57.211	Sickle-cell/Hb-C disease with acute chest syndrome	Hemoglobin SC disease	Billable
D57.212	Sickle-cell/Hb-C disease with splenic sequestration	Hemoglobin SC disease	Billable
D57.213	Sickle-cell/Hb-C disease with cerebral vascular involvement	Hemoglobin SC disease	Billable
D57.214	Sickle-cell/Hb-C disease with dactylitis	Hemoglobin SC disease	Billable
D57.218	Sickle-cell/Hb-C disease with other specified complication	Hemoglobin SC disease	Billable
D57.219	Sickle-cell/Hb-C disease unspecified	Hemoglobin SC disease	Billable
D57.413	Sickle-cell/Hb-C disease with cerebral vascular involvement	Hemoglobin SC disease	Billable
D57.42	Sickle-cell thalassemia beta zero without crisis	Hemoglobin S/Beta 0 thalassemia	Billable
D57.43	Sickle-cell thalassemia beta zero with crisis	Hemoglobin S/Beta 0 thalassemia	Unbillable
D57.431	Sickle-cell thalassemia beta zero with acute chest syndrome	Hemoglobin S/Beta 0 thalassemia	Billable
D57.432	Sickle-cell thalassemia beta zero with splenic sequestration	Hemoglobin S/Beta 0 thalassemia	Billable
D57.433	Sickle-cell thalassemia beta zero with cerebral vascular involvement	Hemoglobin S/Beta 0 thalassemia	Billable
D57.434	Sickle-cell thalassemia beta zero with dactylitis	Hemoglobin S/Beta 0 thalassemia	Billable
D57.44	Sickle-cell thalassemia beta plus without crisis	Hemoglobin S/Beta + thalassemia	Billable
D57.45	Sickle-cell thalassemia beta plus with crisis	Hemoglobin S/Beta + thalassemia	Unbillable
D57.451	Sickle-cell thalassemia beta plus with acute chest syndrome	Hemoglobin S/Beta + thalassemia	Billable
D57.452	Sickle-cell thalassemia beta plus with splenic sequestration	Hemoglobin S/Beta + thalassemia	Billable
D57.453	Sickle-cell thalassemia beta plus with cerebral vascular involvement	Hemoglobin S/Beta + thalassemia	Billable
D57.454	Sickle-cell thalassemia beta plus with cerebral vascular involvement	Hemoglobin S/Beta + thalassemia	Billable
D57	Sickle-cell disorders	Other Sickle Cell Disease	Billable
D57.1	Sickle-cell disease without crisis	Other Sickle Cell Disease	Billable
D57.4	Sickle-cell thalassemia	Other Sickle Cell Disease	Unbillable
D57.40	Sickle-cell thalassemia without crisis	Other Sickle Cell Disease	Billable
D57.41	Sickle-cell thalassemia, unspecified, with crisis	Other Sickle Cell Disease	Unbillable
D57.411	Sickle-cell thalassemia, unspecified, with acute chest syndrome	Other Sickle Cell Disease	Billable
D57.412	Sickle-cell thalassemia, unspecified, with splenic sequestration	Other Sickle Cell Disease	Billable
D57.414	Sickle-cell thalassemia, unspecified, with dactylitis	Other Sickle Cell Disease	Billable
D57.418	Sickle-cell thalassemia, unspecified, with other specified complication	Other Sickle Cell Disease	Billable
D57.419	Sickle-cell thalassemia, unspecified, with crisis	Other Sickle Cell Disease	Billable
D57.438	Sickle-cell thalassemia with other specified complication	Other Sickle Cell Disease	Billable
D57.439	Sickle-cell thalassemia unspecified	Other Sickle Cell Disease	Billable
D57.458	Sickle-cell thalassemia with other specified complication	Other Sickle Cell Disease	Billable
D57.459	Sickle-cell thalassemia unspecified	Other Sickle Cell Disease	Billable
D57.8	Other sickle-cell disorders	Other Sickle Cell Disease	Unbillable
D57.80	Other sickle-cell disorders without crisis	Other Sickle Cell Disease	Billable
D57.81	Other sickle-cell disorders with crisis	Other Sickle Cell Disease	Unbillable
D57.811	Other sickle-cell disorders with acute chest syndrome	Other Sickle Cell Disease	Billable
D57.812	Other sickle-cell disorders with splenic sequestration	Other Sickle Cell Disease	Billable
D57.813	Other sickle-cell disorders with cerebral vascular involvement	Other Sickle Cell Disease	Billable
D57.814	Other sickle-cell disorders with dactylitis	Other Sickle Cell Disease	Billable
D57.818	Other sickle-cell disorders with crisis with other specified complication	Other Sickle Cell Disease	Billable
D57.819	Other sickle-cell disorders unspecified	Other Sickle Cell Disease	Billable

*Billable/Unbillable references which ICD-10-CM codes are covered by insurance. Both sets of codes may be used by a physician, and each type of codes were included to capture every encounter involving an individual with sickle cell disease.

Appendix B: SCD Outpatient Demographic Data

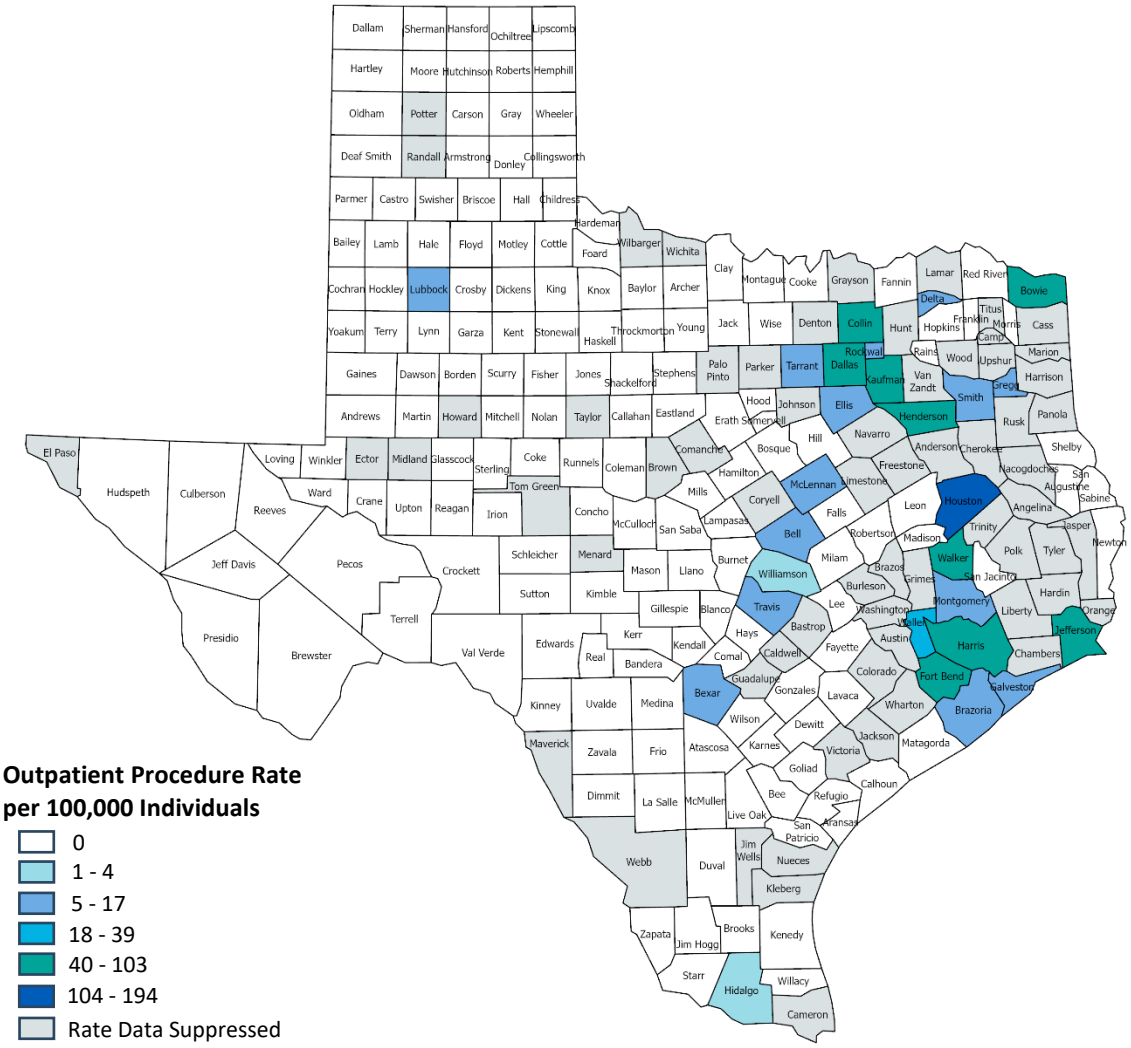
Table 13. Characteristics of Outpatient Procedures by Individuals with Sickle Cell Disease, Texas, 2023

	Outpatient Procedure	
	Number	Percent[1]
Total	4,373	100%
Sex		
Female	2,386	54.6%
Male	1,933	44.2%
Unknown	54	1.2%
Age group		
Under 10 Years Old	628	14.4%
10 to 19 Years Old	1,014	23.2%
20 to 29 Years Old	802	18.3%
30 to 39 Years Old	833	19.1%
40 to 49 Years Old	526	12.0%
50 to 59 Years Old	304	7.0%
60+ Years Old	224	5.1%
Unknown[2]	42	1.0%
Race/Ethnicity		
Hispanic	279	6.4%
Black, Non-Hispanic	3,853	88.1%
White, Non-Hispanic	93	2.1%
Asian or Pacific Islander, Non-Hispanic	18	0.4%
American Native, Non-Hispanic	6	0.1%
Other, Non-Hispanic	121	2.8%
Unknown[3]	3	0.1%
Sickle Cell Disease Genotype		
HbSS (Sickle Cell Anemia)	686	15.7%
HbSC (SC Disease)	250	5.7%
HbS beta^{+} Thalassemia	24	0.6%
HbS beta^{0} Thalassemia	34	0.8%
Other SCD Disorders	3,379	77.3%
Patient State[4]		
Texas	4,355	99.6%
Bordering State (AR, LA, NM, OK)	7	0.2%
All Other U.S States	11	0.3%
Foreign Country	0	0.0%

1. Proportions may not equal to 100 due to rounding.
2. Includes patient visits with missing information or containing ICD-10-CM codes indicating drug or alcohol use and/or HIV/STD Diagnosis.
3. Missing ethnicity/race information for sickle cell disease encounters.
4. Patient state derived from patient's mailing address listed on health claim (complete mailing address is unavailable in the public use data files).

Appendix C: SCD Outpatient County Map

Figure 11. Map of Outpatient Procedure Rates per 100,000 Individuals by County of Residence, Texas, 2023[1,2]



1. The results of this analysis were calculated from aggregate data and should be interpreted as individual encounters and not as individual patient data (i.e., the same individual may appear multiple times throughout the data set if they were treated or hospitalized more than once in Texas in 2023).
2. Rates for counties with 1 to 15 outpatient procedure were suppressed due to reliability issues. Suppression of Rates and Counts | U.S. Cancer Statistics | CDC

Appendix D: Sickle Cell Disease Genotypes

Table 14. Sickle Cell Disease Genotype Information

Sickle Cell Disease Genotype	Information
Hemoglobin SS or HbSS	HbSS is the most common type of sickle cell disease (SCD). A person with HbSS inherits two genes, one from each parent, that code for hemoglobin "S". Hemoglobin S is an abnormal form of hemoglobin that causes the red blood cells to become rigid and sickle shaped. This is commonly called sickle cell anemia and is usually the most severe form of the disease.
Hemoglobin SC or HbSC	A person with HbSC inherits a hemoglobin S gene from one parent and a gene for a different type of abnormal hemoglobin called "C" from the other parent. This is usually a milder form of SCD. It is commonly referred to as “SC Disease”.
HbS beta^{+} thalassemia	A person with HbS beta^{+} thalassemia inherits a hemoglobin S gene from one parent and a gene for beta thalassemia, another type of hemoglobin abnormality, from the other parent. A person with HbS beta^{+} thalassemia produces varying amounts of hemoglobin A. HbS beta^{+} thalassemia is a milder form of SCD.
HbS beta^{0} thalassemia	A person with HbS beta^{0} thalassemia inherits a hemoglobin S gene from one parent and a gene for beta thalassemia, another type of hemoglobin abnormality, from the other parent. A person with HbS beta^{0} thalassemia does not produce hemoglobin A. HbS beta^{0} thalassemia is a more severe form of SCD.
Other SCD Disorders	Hemoglobin SD (HbSD), hemoglobin SE (HbSE), and hemoglobin SO (HbSO) are other types of sickle cell disease. A person with one of these forms of SCD inherits one hemoglobin S gene and one gene that codes for another abnormal type of hemoglobin ("D," "E," or "O"). These are very rare forms of SCD with varying severity.

Appendix E: Children and Youth SCD Outpatient Care Demographics

Table 15. Characteristics of Outpatient Procedures by Children and Youth with Sickle Cell Disease, Texas, 2023

	Outpatient Procedures	
	Number	Percent[1]
Total	2,064	100%
Sex		
Female	988	47.9%
Male	1,071	51.9%
Unknown	5	0.2%
Age group		
Under 1 Year old	15	0.7%
1 to 9 Years Old	613	29.7%
10 to 17 Years Old	801	38.8%
18 to 24 Years Old	634	30.7%
Unknown[2]	1	0.1%
Race/Ethnicity		
Hispanic	158	7.7%
Black, Non-Hispanic	1,807	87.6%
White, Non-Hispanic	43	2.1%
Asian or Pacific Islander, Non-Hispanic	9	0.4%
American Native, Non-Hispanic	4	0.2%
Other, Non-Hispanic	43	2.1%
Top Five Principal Diagnosis		
D57.1-*Sickle-Cell Disease without Crisis*	1,267	61.4%
D57.00-*HB-SS Disease with Crisis Unspecified*	119	5.8%
D57.03-HB-SS Disease with Cerebral Vascular Involvement	73	3.5%
D57.219-*Sickle-Cell/HB-C Disease Unspecified*	54	2.6%
D57.40-Sickle-cell thalassemia without crisis	31	1.5%
Top Five Procedures		
P9016-*Red blood cells, leukocytes reduced, each unit*	358	17.3%
93886-*Transcranial Doppler study of the intracranial arteries; complete study*	224	10.9%
86902- *Bloodtyping, serologic; antigen testing of donor blood using reagent serum*	138	6.7%
36430-*Transfusion, blood or blood components*	113	5.5%
36512-*Therapeutic apheresis for red blood cells*	84	4.1%

1. Proportions may not equal to 100 due to rounding.
2. Includes patient visits with missing information or containing ICD-10-CM codes indicating drug or alcohol use and/or HIV/STD Diagnosis.

Appendix F: CPT, HCPCS, and ICD-10-PCS Procedure Related Codes Explanations

Table 16. CPT[1], HCPCS[2], and ICD-10-PCS[3] Procedure Related Codes Explanations[4,5,6]

Code	Definitions	Code Type	Explanations
11042	*Debridement, subcutaneous tissue (includes epidermis and dermis, if performed); first 20 sq cm or less*	CPT	The process of a physician surgically removing dead, damaged or infected tissue from a wound, specifically within the subcutaneous tissue.
36430	*Transfusion, blood or blood components*	CPT	The exchange of blood components, such as red blood cells, platelets, or plasma, from a donor to a recipient, typically to replace lost components due to surgery, injury, or illness.
36512	*Therapeutic apheresis; for red blood cells*	CPT	The process of separating blood components, specifically red blood cells, for therapeutic purposes.
86902	*Blood typing; serologic; antigen testing of donor blood using reagent serum, each antigen test*	CPT	A laboratory test that identifies the presence of specific antigens, like ABO or Rh(D), on the surface of red blood cells in donor blood to test for compatibility.
86905	*Blood typing, serologic; RBC antigens, other than ABO or Rh (D), each antigen*	CPT	A laboratory test that looks for specific red blood cell antigens in patient or donor blood, excluding the common red blood cell antigens ABO and Rh(D).
93306	*Echocardiography, Transthoracic, Real-Time with Image Documentation (2D), includes M-Mode Recording, when Performed, complete, with spectral Doppler echocardiography, and with color flow Doppler echocardiography*	CPT	A non-invasive imaging technique that allows physicians to visualize the heart's structure and function.
93886	*Transcranial Doppler study of the intracranial arteries; complete study*	CPT	A type of ultrasound that measures blood flow in the brain's major arteries.
99212	*Established patient office or other outpatient visit, 10-19 minutes*	CPT	A 10–19-minute appointment with an existing patient that met the billing criteria through the length of time the encounter took or by the diagnoses being discussed.
G0378	*Hospital observation service, per hour*	HCPCS	A service where a patient is under observation for a specific period. In this case, by hours.
P9016	*Red blood cells, leukocytes reduced, each unit*	HCPCS	Red blood cells (RBCs) are separated from a blood donation to reduce the number of white blood cells(leukocytes) and reduce the risk of certain side effects of a blood transfusion.
02HV33Z	*Insertion of Infusion Device into Superior Vena Cava, Percutaneous Approach*	ICD-10-PCS	A procedure where a physician inserts a catheter into the superior vena cava to allow for long-term intravenous access of medication, fluids or nutrition.
05HY33Z	*Insertion of Infusion Device into Upper Vein, Percutaneous Approach*	ICD-10-PCS	A procedure where a physician inserts a catheter into the upper vein to allow for long-term intravenous access of medication, fluids or nutrition.
10D00Z1	*Extraction of Products of Conception, Low, Open Approach*	ICD-10-PCS	Removing a baby and/or fetal tissue from a uterus via a C-Section.
10E0XZZ	*Delivery of Products of Conception, External Approach*	ICD-10-PCS	Delivering a baby and/or fetal tissue vaginally
30233N1	*Transfusion of Nonautologous Red Blood Cells into Peripheral Vein, Percutaneous Approach*	ICD-10-PCS	A procedure where donor red blood cells are inserted via a needle to a peripheral vein.
30243N1	*Transfusion of Nonautologous Red Blood Cells into Central Vein, Percutaneous Approach*	ICD-10-PCS	A procedure where donor red blood cells are inserted via a needle to a central vein.
5A1D70Z	*Performance of Urinary Filtration, Intermittent, Less than 6 Hours Per Day*	ICD-10-PCS	A procedure where a machine takes over the job of the kidney to filter waste from the blood for less than 6 hours. Also known as dialysis.
8E0ZXY6	*Isolation*	ICD-10-PCS	When a patient is separated from other patients to stop the spread of germs to or from them.
XW033E5	*Introduction of Remdesivir Anti-infective into Peripheral Vein, Percutaneous Approach, New Technology Group 5*	ICD-10-PCS	A procedure where a patient is given Remdesivir, an anti-viral used to treat COVID, into a peripheral vein via an IV.

1. Current Procedural Terminology (CPT) code set is a descriptive term and five-digit codes for classifying and reporting medical services, procedures, and tests performed by physicians and other qualified health care professionals. They are developed and maintained by the American Medical Association and used by medical providers to submit healthcare claims to Medicare and other health insurances.
2. Healthcare Common Procedure Coding System is a standardized alphanumeric coding system used by medical providers to classify medical supply items, devices, and services that fall outside of the scope of traditional CPT coding to allow them to submit healthcare claims to Medicare and other health insurance plans.
3. International Classification of Diseases, 10th Revision, Procedure Coding System. It is a list of codes specially designed for procedure coding of medical procedures performed in hospital inpatient settings.
4. American Medical Association. (2024). CPT Professional 2025. American Medical Association.
5. AAPC. (2024). HCPCS Level II Expert 2025. AAPC.
6. AAPC. (2024). ICD-10-PCS Complete Code Set 2025. AAPC.

Appendix G: SCD Outpatient Care Costs

Table 17. Cost of Outpatient Procedures by Individuals with Sickle Cell Disease (n=4,373), Texas, 2023

	Cost of Outpatient Procedures Dollar Amount
Minimum	$103
Maximum	$681,774
Mean	$14,391
Median	$9,425
Total Sum	**$62,930,666**

Appendix H: SCD Inpatient Admissions Demographic Data

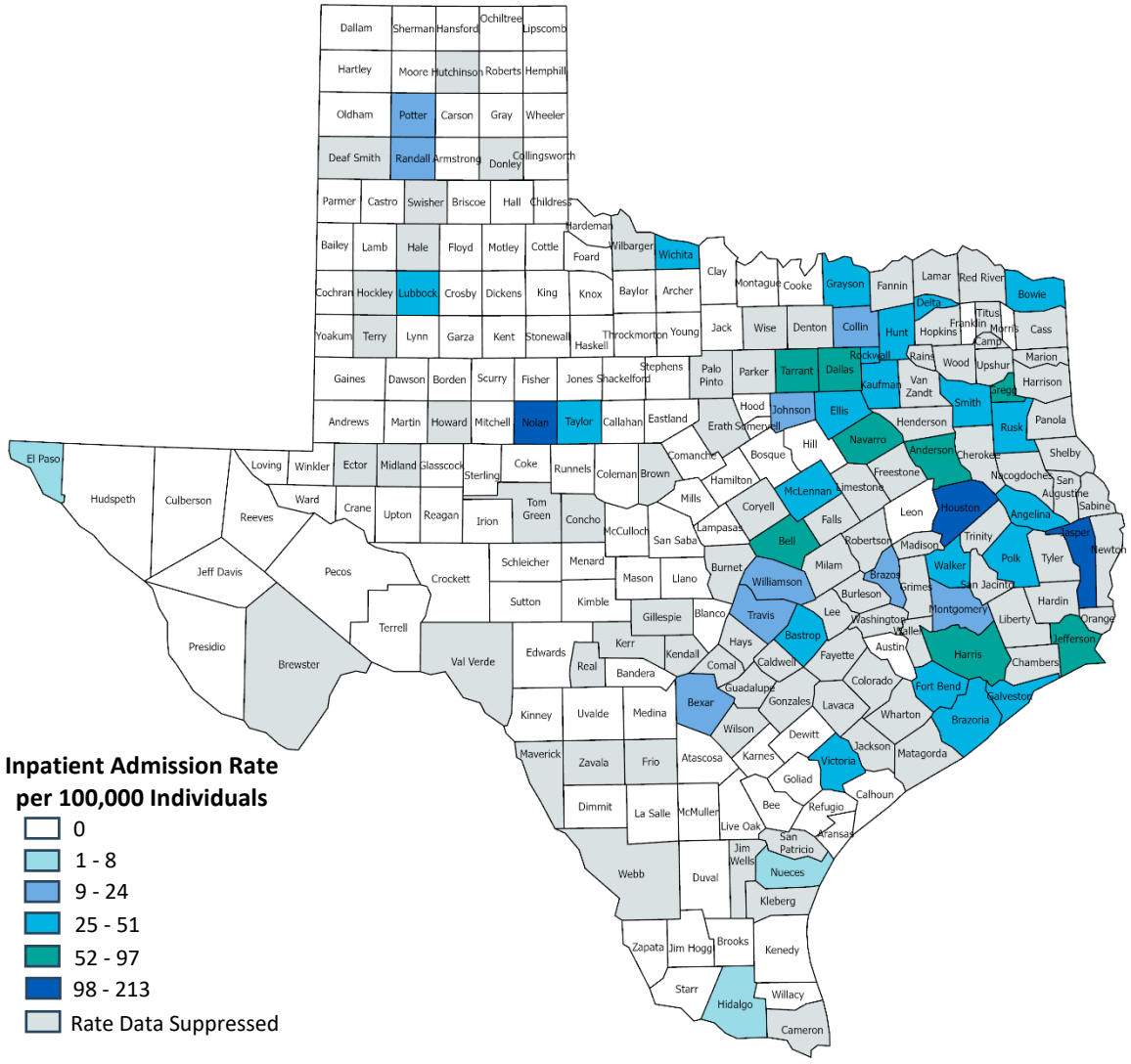
Table 18. Characteristics of Inpatient Admissions by Individuals with Sickle Cell Disease, Texas, 2023

	Inpatient Admissions	
	Number	Percent[1]
Total	10,618	100%
Sex		
Female	5,401	50.9%
Male	4,026	37.9%
Unknown	1,191	11.2%
Age group		
Under 10 Years Old	751	7.1%
10 to 19 Years Old	1,313	12.4%
20 to 29 Years Old	2,598	24.5%
30 to 39 Years Old	2,539	23.9%
40 to 49 Years Old	1,265	11.9%
50 to 59 Years Old	594	5.6%
60+ Years Old	457	4.3%
Unknown[2]	1,101	10.4%
Race/Ethnicity		
Hispanic	519	4.9%
Black, Non-Hispanic	9,549	89.9%
White, Non-Hispanic	210	2.0%
Asian or Pacific Islander, Non-Hispanic	22	0.2%
American Native, Non-Hispanic	15	0.1%
Other, Non-Hispanic	247	2.3%
Unknown[3]	56	0.5%
Sickle Cell Disease Genotype		
HbSS (Sickle Cell Anemia)	7,684	72.4%
HbSC (SC Disease)	572	5.4%
HbS beta^{+} Thalassemia	34	0.3%
HbS beta^{0} Thalassemia	30	0.3%
Other SCD Disorders	2,298	21.6%
Patient State[4]		
Texas	10,414	98.1%
Bordering State (AR, LA, NM, OK)	67	0.6%
All Other U.S States	131	1.2%
Foreign Country	6	0.1%

1. Proportions may not equal to 100 due to rounding.
2. Includes patient visits with missing information or containing ICD-10-CM codes indicating drug or alcohol use and/or HIV/STD Diagnosis.
3. Missing ethnicity/race information for sickle cell disease encounters.

Appendix I: SCD Inpatient Admission County Map

Figure 12: Map of Inpatient Procedure Rates per 100,000 Individuals by County of Residence, Texas, 2023[1,2]



1. The results of this analysis were calculated from aggregate data and should be interpreted as individual encounters and not as individual patient data (i.e., the same individual may appear multiple times throughout the data set if they were treated or hospitalized more than once in Texas in 2023).
2. Rates for counties with 1 to 15 inpatient admissions were suppressed due to reliability issues. Suppression of Rates and Counts | U.S. Cancer Statistics | CDC

Appendix J: Children and Youth SCD Patient Care Demographics

Table 19. Characteristics of Inpatient Procedures by Children and Youth with Sickle Cell Disease, Texas, 2023

	Inpatient Admissions	
	Number	Percent[1]
Total	3,335	100%
Sex		
Female	1,729	51.8%
Male	1,559	46.8%
Unknown	47	1.4%
Age group		
Under 1 Year old	77	2.3%
1 to 9 Years Old	674	20.2%
10 to 17 Years Old	862	25.9%
18 to 24 Years Old	1,706	51.2%
Unknown[2]	16	0.5%
Race/Ethnicity		
Hispanic	237	7.1%
Black, Non-Hispanic	2,960	88.8%
White, Non-Hispanic	55	1.8%
Asian or Pacific Islander, Non-Hispanic	7	0.2%
American Native, Non-Hispanic	5	0.2%
Other, Non-Hispanic	59	1.8%
Unknown[3]	12	0.4%
Top Five Principal Diagnosis		
D57.00-*Hb-SS disease with crisis unspecified*	1,644	49.3%
D57.01-*Hb-SS disease with acute chest syndrome*	419	12.6%
D57.219-*Sickle-cell/Hb-C disease unspecified*	125	3.8%
A41.9-*Sepsis, unspecified organism*	100	3.0%
D57.02-*Hb-SS disease with Splenic Sequestration*	84	2.5%
Top Five Procedures		
Unknown (Missing)	2,055	61.6%
30233N1-*Transfusion of Nonautologous Red Blood Cells into Peripheral Vein, Percutaneous Approach*	648	19.4%
8E0ZXY6-*Isolation*	36	1.1%
0FT44ZZ-*Resection of Gallbladder, Percutaneous Endoscopic Approach*	35	1.1%
10E0XZZ-*Delivery of Products of Conception, External Approach*	33	1.0%

1. Proportions may not equal to 100 due to rounding.
2. Includes patient visits with missing information or containing ICD-10-CM codes indicating drug or alcohol use and/or HIV/STD Diagnosis.
3. Missing ethnicity/race information for sickle cell disease encounters.

Appendix K: SCD Inpatient Care Costs

Table 20. Cost of Inpatient Admissions by Individuals with Sickle Cell Disease (n=10,618), Texas, 2023

	Cost of Inpatient Admissions Dollar Amount
Minimum	$0
Maximum	$5,063,282
Mean	$63,728
Median	$39,859
Total Sum	**$676,660,686**

Appendix L: Data Limitations

The following limitations are associated with the THCIC Hospital Inpatient Discharge PUDFs[a] and Outpatient PUDFs[b].

- Up to 25 diagnosis codes, up to 25 procedure codes, and up to 10 external cause of injury codes can be submitted. Sicker patients may not be accurately represented in the data. This may also result in total volume and percentage calculations for diagnoses and procedures not being complete.
- Sex is suppressed for patients with an ICD-10 code that indicates drug use, alcohol use, or an HIV-STD diagnosis. Suppression of this data element is applied separately within inpatient and outpatient data sets [Title 42, United States Code, section 290dd-2(g) and Title 42 of the Code of Federal Regulations Part 2: Confidentiality of Substance Use Disorder Patient Records (Part 2)].
- The last two digits of the ZIP code are suppressed if there are fewer than thirty patients included in the ZIP code. The entire ZIP code is suppressed for patients with an ICD-10 code that indicates drug use, alcohol use, an HIV-STD diagnosis, or if a hospital, or a Freestanding Emergency Medical Care Facility (FEMCF) has fewer than five discharges of a particular gender, including 'unknown' [Title 42, United States Code, section 290dd-2(g) and Title 42 of the Code of Federal Regulations Part 2: Confidentiality of Substance Use Disorder Patient Records (Part 2)].
- Patient race and ethnicity data are required by law and rule to be submitted for each patient. Generally, these data are not collected by facilities directly from the patient and may be subjectively captured and reported by the facilities [Texas Health and Safety Code, Section 108.009(k)].
- Race is changed to 'Other' and ethnicity is suppressed if a hospital, an ambulatory surgical center (ASC), or an FEMCF has fewer than ten discharges of a particular race [Texas Health and Safety Code, Sections 108.013(c)(1) 108.013 (g)].
- The data are a snapshot in time. Hospitals and FEMCFs must submit data no later than 60 days after the close of a calendar quarter. Depending on the hospital and FEMCFs' collection and billing cycles, not all inpatient discharge encounters from ED visits or outpatient ED visits may have been billed or reported during the particular quarter the patient received the services. Those services may appear in the following quarter's data. This can affect the accuracy of source of payment data, particularly self-pay and charity that may later qualify for Medicaid, Medicare, or other payment sources.
- DSHS collects data from all hospitals and FEMCFs in the state not specifically exempted (and not owned by the United States of America). Some hospitals may be exempted from reporting for certain situations (for example, natural or other disasters, or other unusual conditions) for limited time periods.
- The healthcare facility patient mix (the types of patients treated at healthcare facilities vary, due to the healthcare facility's interest and specialty services availability) should be considered when drawing conclusions about the data or making comparisons with other data.
- Any conclusions drawn from the data are subject to errors caused by the inability of the facility to communicate complete data due to form constraints, subjectivity in the assignment of codes, system mapping, and clerical error. The data are submitted to DSHS providers as their best effort to meet statutory requirements.

For more information regarding THCIC and their data limitation, visit Texas Inpatient Public Use Data File | Texas DSHS and Texas Outpatient Public Use Data File | Texas DSHS or refer to their data dictionaries at IPPUDFDataDictionary4Q2023.pdf and OPPUDFDataDictionary4Q2023.pdf.

a. Texas Hospital Inpatient Discharge Data Set, 2023. Texas Department of State Health Services, Center for Health Statistics, Austin, Texas. December 2024.
b. Texas Outpatient Data Set, 2023. Texas Department of State Health Services, Center for Health Statistics, Austin, Texas. December 2024.

TEXAS
Health and Human Services

Texas Department of State Health Services

TEXAS
SCDC
Sickle Cell Data Collection

https://www.dshs.texas.gov/environmental-epidemiology-disease-registries-section-eedrs/Sickle-Cell-Data-Collection