

Sickle Cell Disease in Texas Syndromic Surveillance Systems in 2022

Background

Three syndromic surveillance systems operate in Texas:

- The North Texas Syndromic Surveillance System (NTXSS) run by Tarrant County Public Health,
- the Syndromic Surveillance Consortium of Southeast Texas (SSCSeT) run by City of Houston Health Department,
- and the Texas Syndromic Surveillance System (TxS2) run by the Texas Department of State Health Services (DSHS).

Both NTXSS and SSCSeT report data to TxS2. Between these three systems over 80% of hospital Emergency Departments (EDs) are connected to a syndromic system. Free-standing Emergency Rooms and Urgent Care Clinics can also connect, and between the three types of facilities, over 50% in Texas are connected to a syndromic surveillance system.

Sickle Cell Disease (SCD) in Texas Syndromic Surveillance Systems Overview

In 2022 there were a total of 39,644 visits to Texas facilities that were connected to syndromic surveillance systems for sickle cell disease (SCD) related issues. In 2022 about 0.3 percent of all visits in syndromic surveillance in Texas were related to SCD.

In 2022 there were 23,219 individual patients with SCD related visits. 83.4 percent of ED visits were by an individual who only visited a hospital once, as shown in Figure 1. Individuals visiting a hospital more than once, 16.6 percent of total patients, Figure 2, made up a nearly half of all the visits (20,275/39,644), as displayed in the sum of patients with 2-10 visits and individuals with 11+ visits in Figure 1. More than half, 59.08 percent, of SCD ED visits were discharged to home.

Figure 1. Number of Total Visits by Single or Repeat Visits per Sickle Cell Patient, 2022

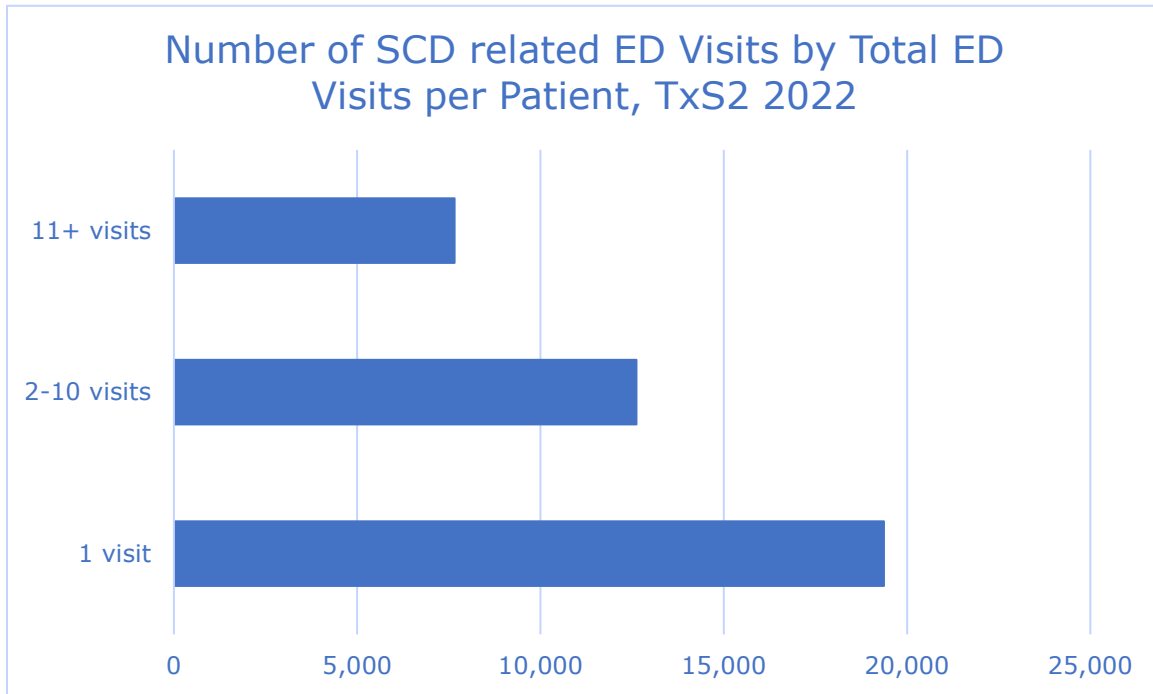
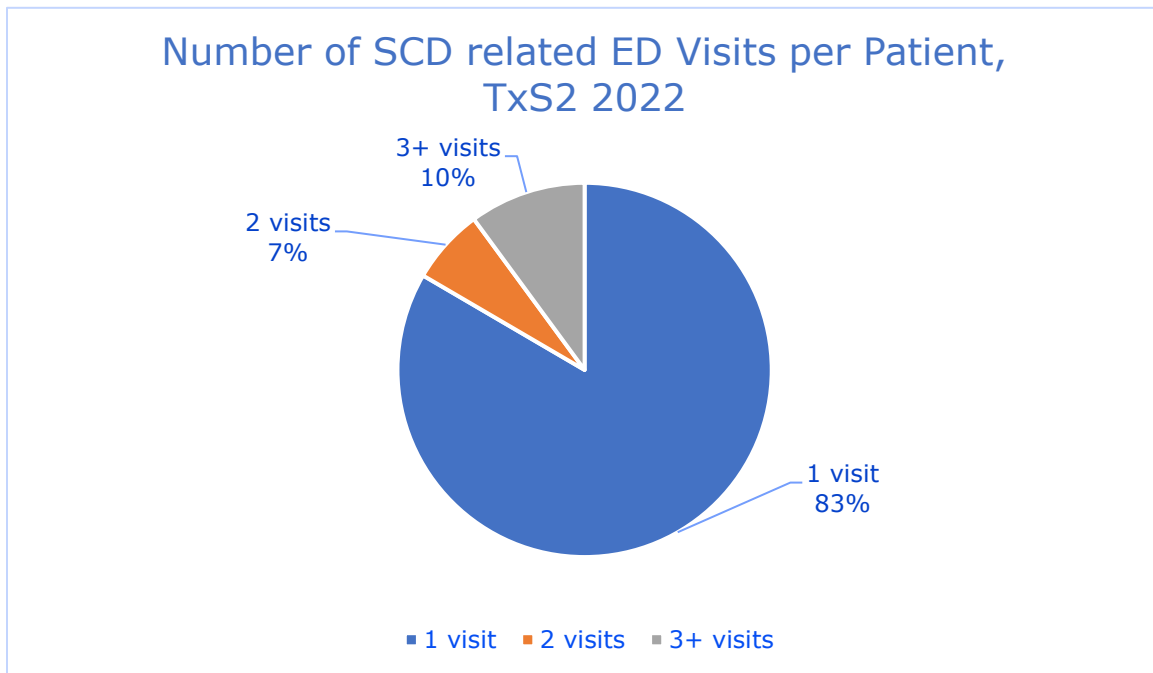


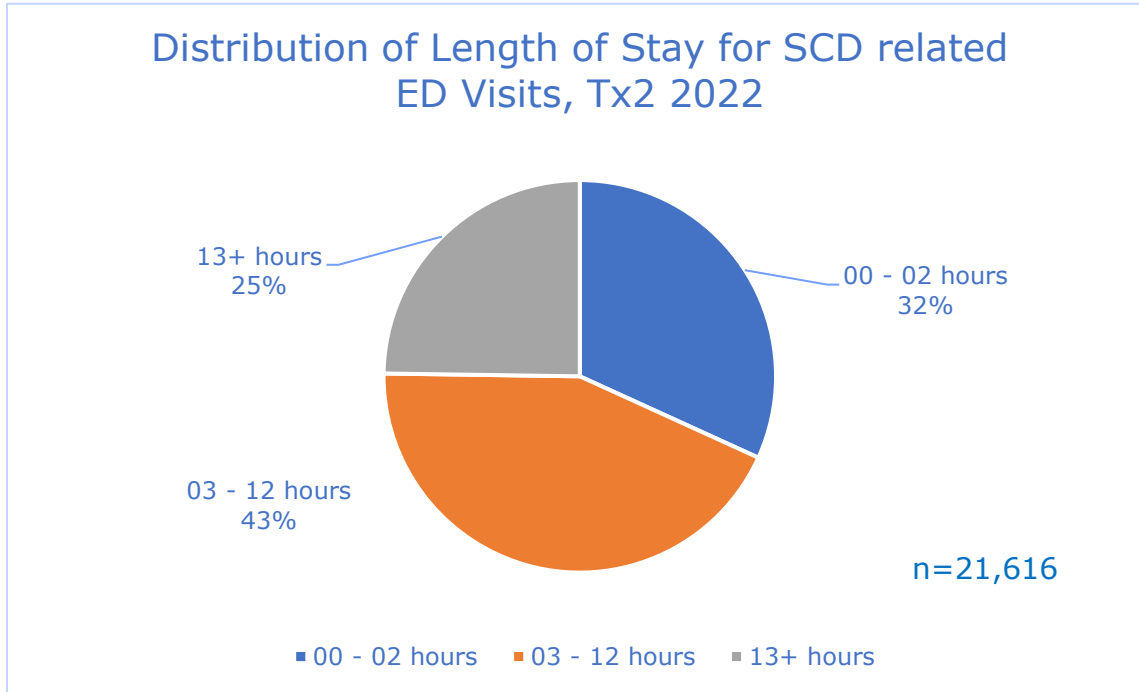
Figure 2. Number of Total Visits per Sickle Cell Patient, 2022



Length of stay for Sickle Cell Related Visits

For records that had a calculated length of stay (n=21,616) the median length of stay for a sickle cell related ED visit was 4 hours. Among these visits 21.5% lasted 24 hours or longer.

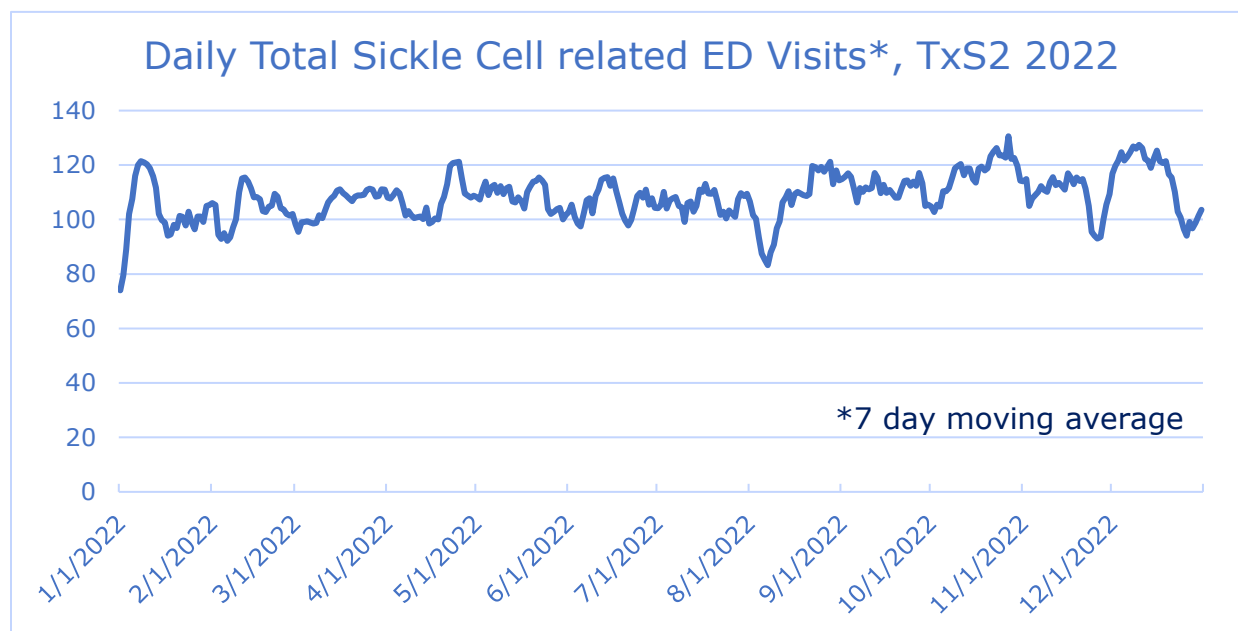
Figure 3. Distribution of Length of Stay for Sickle Cell Related Visits



Daily Distribution for Sickle Cell Related Visits in 2022

Daily Total of sickle cell related ED Visits does not show any specific trends related to time of year and sickle cell related visits.

Figure 4. Daily Total Sickle Cell Related ED Visits in 2022



Demographic Breakdown for Sickle Cell Disease (SCD) Related ED Visits

Table 1. Demographic Breakdown by Age for Sickle Cell Related Visits in 2022

Age Group	Ages 00-04	Ages 05-17	Ages 18-44	Ages 45-64	Ages 65-120	Ages Unknown
Total Number of Visits	3,856	8,958	21,153	2,834	180	2,526

Table 2. Demographic Breakdown by Race for Sickle Cell Related Visits in 2022

Race	Ages 00-04	Ages 05-17	Ages 18-44	Ages 45-64	Ages 65-120	Ages Unknown	% of Total ED Visits
American Indian or Alaska Native	4	17	18	2	0	0	0.1%
Asian	18	67	78	1	2	6	0.4%
Black or African American	3,081	7,519	16,445	2,221	226	1,022	77.0%

Race	Ages 00-04	Ages 05-17	Ages 18-44	Ages 45-64	Ages 65-120	Ages Unknown	% of Total ED Visits
Native Hawaiian or Other Pacific Islander	1	2	7	0	0	0	0.0%
Other Race	298	241	2,080	156	22	7	7.1%
Unknown	55	83	1,844	395	48	1,459	9.8%
White	399	1,029	681	59	19	32	5.6%

Table 3. Demographic Breakdown by Ethnicity for Sickle Cell Related Visits in 2022

Ethnicity	Ages 00-04	Ages 05-17	Ages 18-44	Ages 45-64	Ages 65-120	Ages Unknown	% of Total ED Visits
Hispanic	731	1,205	972	73	11	80	7.8%
Not Hispanic	3,072	7,682	18,302	2,370	261	2079	85.2%
Unknown	53	71	1,879	391	45	367	7.1%

Table 4. Demographic Breakdown by Sex for Sickle Cell Related Visits in 2022

Sex	Ages 00-04	Ages 05-17	Ages 18-44	Ages 45-64	Ages 65-120	Ages Unknown	% of Total ED Visits
Male	2,088	5,116	9,785	1,412	103	1,379	50.2%
Female	1,768	3,842	11,368	1,420	213	1,146	49.8%
Unknown	0	0	0	1	1	0	0.0%

International Classification of Diseases, Tenth Revision (ICD-10) Codes Used in Discharge of SCD Related ED Visits

Many of these discharge codes can be present in one visit, so these numbers do not add up to the total number of visits.

Table 5. ICD-10 Codes Used in Discharge of SCD Related ED Visits, 2022

ICD-10 Codes Present in Discharge	Number of Visits in 2022
D57.00 Hb-SS disease with crisis unspecified	15,877
D57.01 Hb-SS disease with acute chest syndrome	940

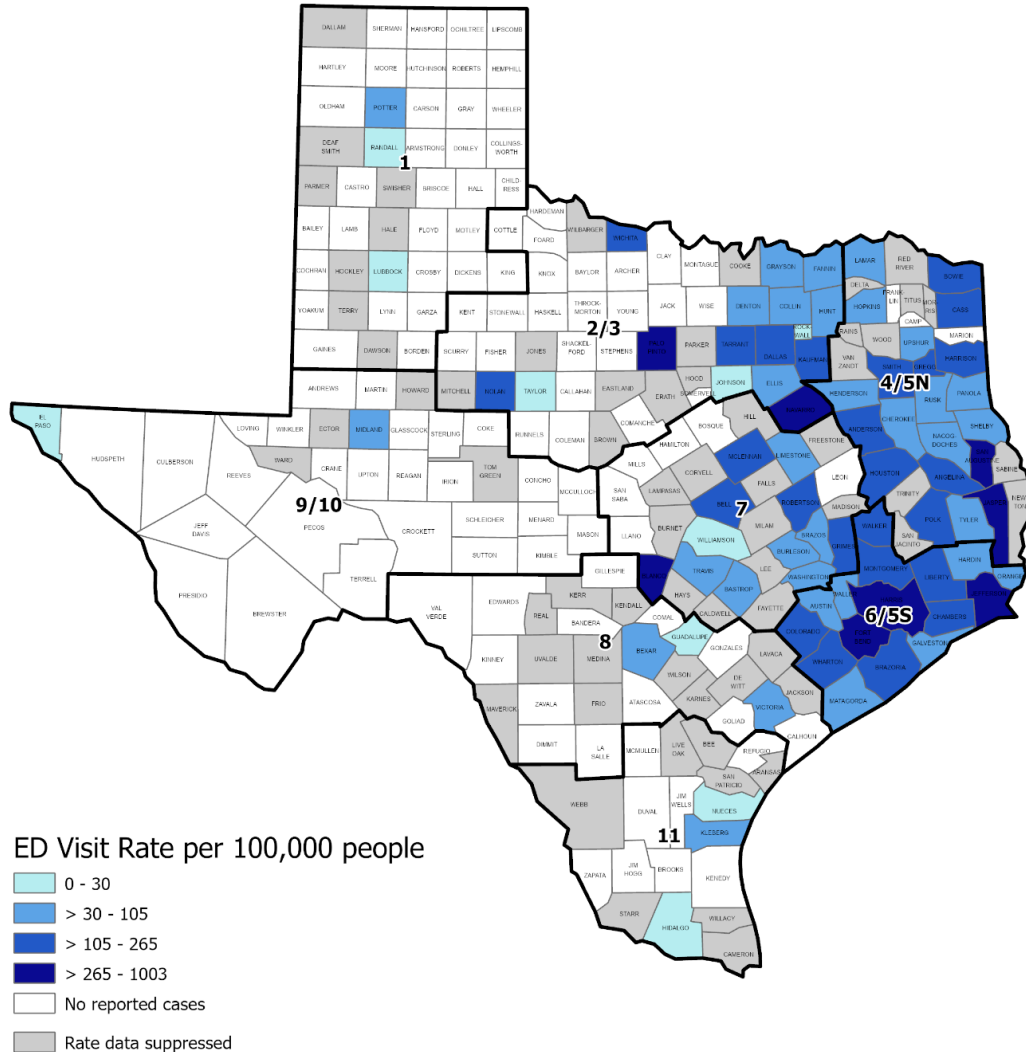
ICD-10 Codes Present in Discharge	Number of Visits in 2022
D57.02 Hb-SS disease with splenic sequestration	81
D57.03 Hb-SS disease with cerebral vascular involvement	154
D57.09 Hb-SS disease with crisis with other specified complication	262
D57.1 Sickle cell disease without crisis	12,326
D57.20 Sickle cell/Hb-C disease without crisis	1,241
D57.21 Sickle cell/Hb-C disease with crisis	1,200
D57.211 Sickle cell/Hb-C disease with acute chest syndrome	50
D57.212 Sickle cell/Hb-C disease with splenic sequestration	5
D57.213 Sickle cell/Hb-C disease with cerebral vascular involvement	1
D57.218 Sickle cell/Hb-C disease with other specified complication	22
D57.219 Sickle cell/Hb-C disease unspecified	1,132
D57.3 Sickle cell trait	3,596
D57.40 Sickle cell thalassemia without crisis	200
D57.411 Sickle cell thalassemia, unspecified, with acute chest syndrome	6
D57.412 Sickle cell thalassemia, unspecified, with splenic sequestration	3
D57.418 Sickle cell thalassemia, unspecified, with other specified complication	1
D57.419 Sickle cell thalassemia, unspecified, with crisis	135
D57.42 Sickle cell thalassemia beta zero without crisis	220
D57.431 Sickle cell thalassemia beta zero with acute chest syndrome	8
D57.432 Sickle cell thalassemia beta zero with splenic sequestration	2
D57.438 Sickle cell thalassemia beta zero with other specified complication	5
D57.439 Sickle cell thalassemia beta zero unspecified	31
D57.44 Sickle cell thalassemia beta plus without crisis	270
D57.451 Sickle cell thalassemia beta plus with acute chest syndrome	1

ICD-10 Codes Present in Discharge	Number of Visits in 2022
D57.458 Sickle cell thalassemia beta plus with other specified complication	0
D57.459 Sickle cell thalassemia beta plus unspecified	10
D57.80 Other sickle cell disorders without crisis	94
D57.811 Other sickle cell disorders with acute chest syndrome	8
D57.812 Other sickle cell disorders with splenic sequestration	4
D57.818 Other sickle cell disorders with crisis with other specified complication	36
D57.819 Other sickle cell disorders unspecified	205

Counties with Highest Per Capita Sickle Cell Related Visits to Facilities

Figure 5. Texas Map of SCD Related ED Visits in TxS2 in 2022

Sickle Cell Disease (SCD) related Emergency Department (ED) Visits in Texas Syndromic Surveillance Systems in 2022



Data was extracted on 07/26/2023. Records were identified using ICD-10CM codes for Sickle Cell Disease. Population numbers were calculated from National Center for Health Statistics (NCHS) Bridged Race Vintage 2020 estimates for 2020. Rates for counties with less than 16 cases were suppressed due to reliability issues.

Source: Texas Department of State Health Services, Texas Syndromic Surveillance System (TxS2) (2023)

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Analysis Notes

- ED visits were selected using a query using all D57 codes and the words “sickle” and “acute chest syndrome:
- Data covers the time from January 1, 2022 – December 31, 2022
- Data was extracted on July 26, 2023
 - Data was combined from both TxS2 and Houston Syndromic Data
 - Future analysis should work to determine any possible data quality issues among patients with a high number of visits

TxS2 Disclaimer

TxS2 contains ongoing surveillance data submitted by EDs to assess emerging public health conditions/threats. This includes data from 80% of hospitals in the state, as well as some stand-alone ERs and urgent care clinics. With these other facility types added in, this includes data from 50% of all possible eligible facilities. Trend analysis can be used to establish base metrics and identify anomalies or changes. In the data provided, there are several data limitations.

- Only registered facilities (not all facilities in Texas) send data to this system so there can be multiple unrecorded cases.
- The facilities do not send their data at the same time interval so a data export at a given time may not capture all visits that have occurred.
- The query used to extract syndromic surveillance data lacks enough specificity to use the exact counts provided. The query extracted was based on the Chief Complaint and Discharge Diagnosis fields. Other fields were not filtered due to the assigned date range requested.
- Reporting percentages only apply to current hospitals and facilities. Previous years may have had fewer hospitals and facilities reporting.
- Patient totals are calculated using patient identification number, which is specific to hospitals, so if the same patient goes to a different hospital, they will be included in the patient count more than once.

The syndromic data provided can be used as insight for prevention and developing further predictions but not as an official count.