

Sickle Cell Disease in Texas Syndromic Surveillance Systems in 2020

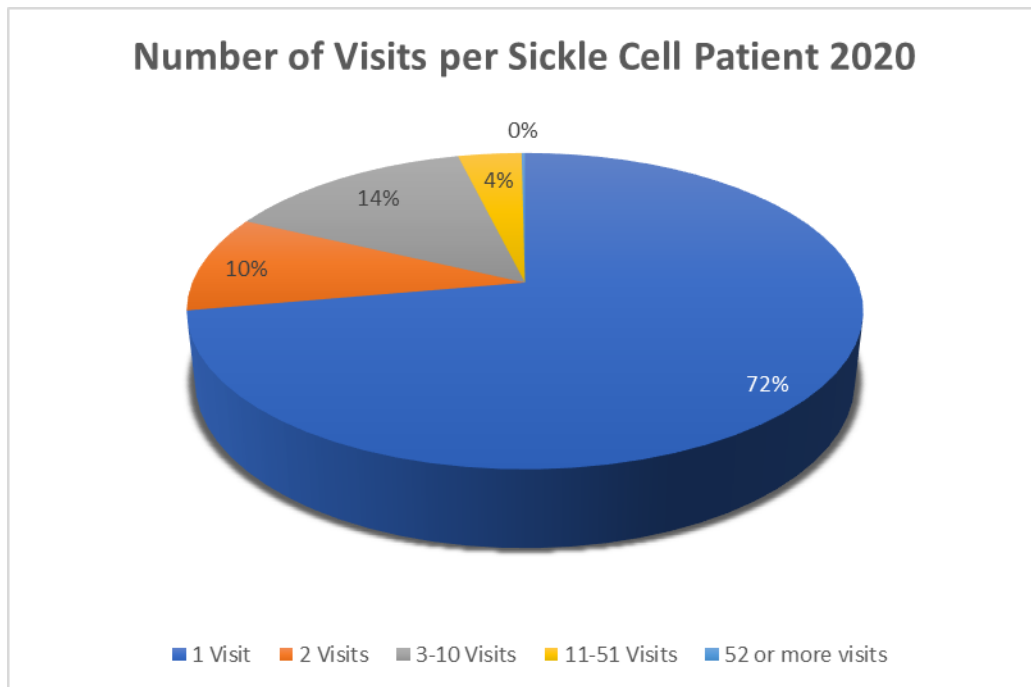
Background

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 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.

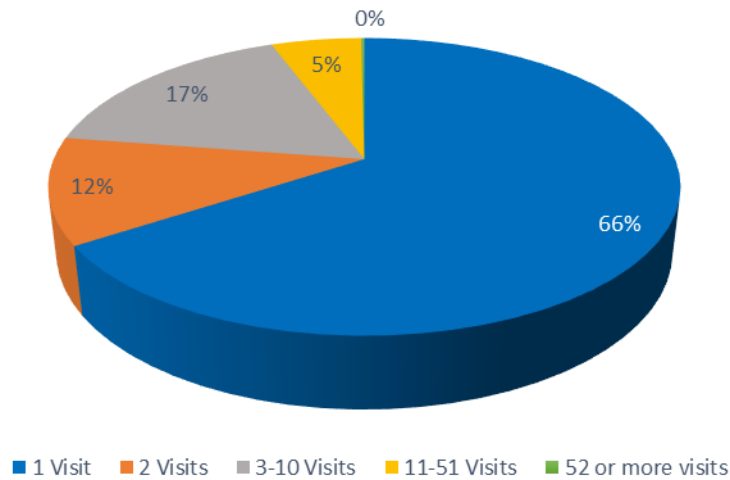
Sickle Cell Disease in Texas Syndromic Surveillance Systems Overview

In 2020 there were a total of 33,914 visits to Texas facilities that were connected to syndromic surveillance systems for sickle cell disease related issues. In both 2020 and 2019 about 0.2% of all visits in syndromic surveillance in Texas were related to sickle cell disease.

In 2020 there were 13,520 individual patients, including 27.8% who visited facilities multiple times. Patients who visited multiple times accounted for the majority of visits, even though a majority of patients only visited once. This includes 26 individuals who visited an ER or urgent care more than once a week on average, and 489 individuals who visited more than 10 times but less than 52, as shown in the graph below. These are similar numbers to 2019.



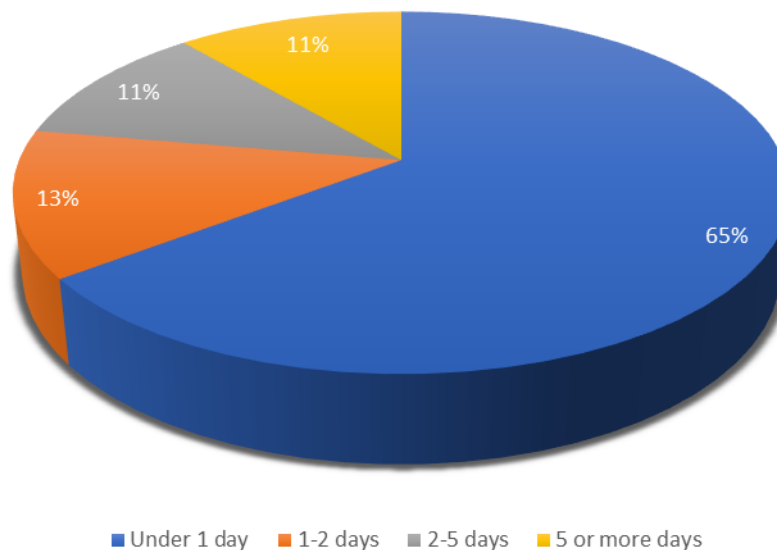
Number of Visits per Sickle Cell Patient 2019



Only 65% of records included transfer information, but of these 23.3% of visits ended in the patient becoming an inpatient at a hospital after their initial observation in the emergency department.

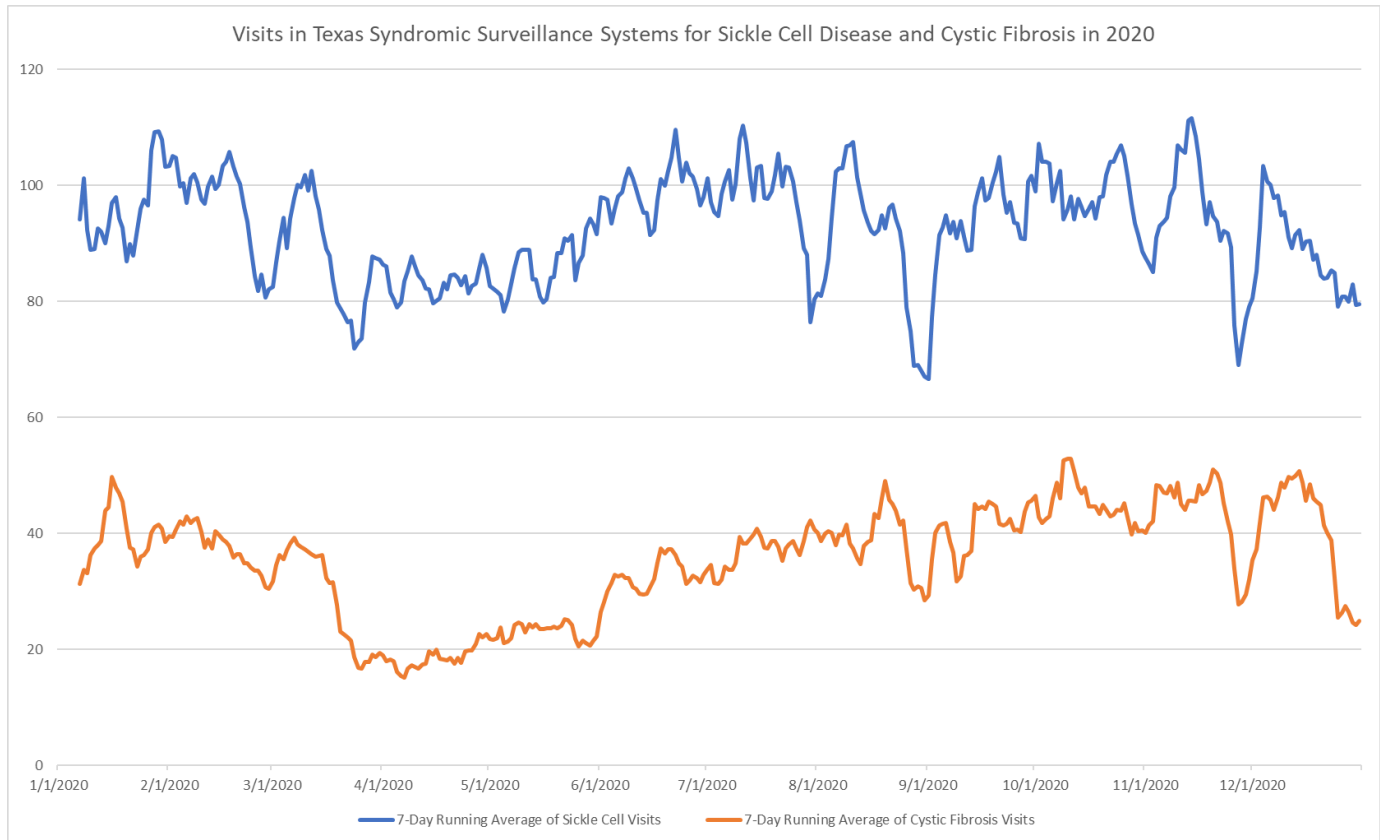
Most visits lasted one day or less, but 35% of visits lasted multiple days, as shown in the graph below. The data quality from 2019 was not enough to confidently create the below data for that year, or to analyze whether it was similar to 2020.

Length of Stay For Sickle Cell Related Visits 2020



Sickle Cell Disease Compared to Similar Conditions

Sickle cell disease regularly results in more visits to Texas emergency rooms and urgent care clinics than cystic fibrosis a disease that similarly is genetic in origin and is regularly diagnosed in childhood.



Demographic Breakdown for Sickle-Cell-Related Visits

2020						
Ages	00-04	05-17	18-44	45-64	65-1000	Unknown
Race						
American Indian or Alaska Native	7	34	7	6	2	0
Asian	101	110	70	22	15	6
Black or African American	2793	6901	12811	2010	324	615
Native Hawaiian or Other Pacific Islander	0	2	1	6	1	0
Other Race	108	73	1899	184	60	1
Unknown	50	73	1042	248	36	1006
White	538	770	1079	456	428	19
Ethnicity						
Hispanic	628	863	1006	200	111	27
Not Hispanic	2906	6990	12258	2210	700	614
Unknown	63	110	3645	522	55	1006
Sex						
Male	1970	4231	7683	1508	345	858
Female	1627	3732	9223	1424	521	789
Unknown	0	0	3	0	0	0

2019						
	00-04	05-17	18-44	45-64	65-1000	Unknown
Race						
American Indian or Alaska Native	15	34	25	1	0	0
Asian	46	92	40	1	1	0
Black	0	1	153	26	2	0
Black or African American	3579	8475	11227	1474	128	817
Native Hawaiian or Other Pacific Islander	1	6	5	1	0	0
Other	159	135	2058	191	19	4
Unknown	110	161	1686	270	29	1192
White	520	747	422	32	16	26
Ethnicity						
Hispanic	675	907	449	18	5	31
Not Hispanic	3546	8470	9929	1357	136	816
Unknown	209	274	5238	621	54	1192
Sex						
Male	2394	5227	7175	983	56	1008
Female	2036	4423	8441	1013	139	1031
Unknown	0	1	0	0	0	0

ICD-10 Codes Used in Discharge of Sickle-Cell-Related Visits

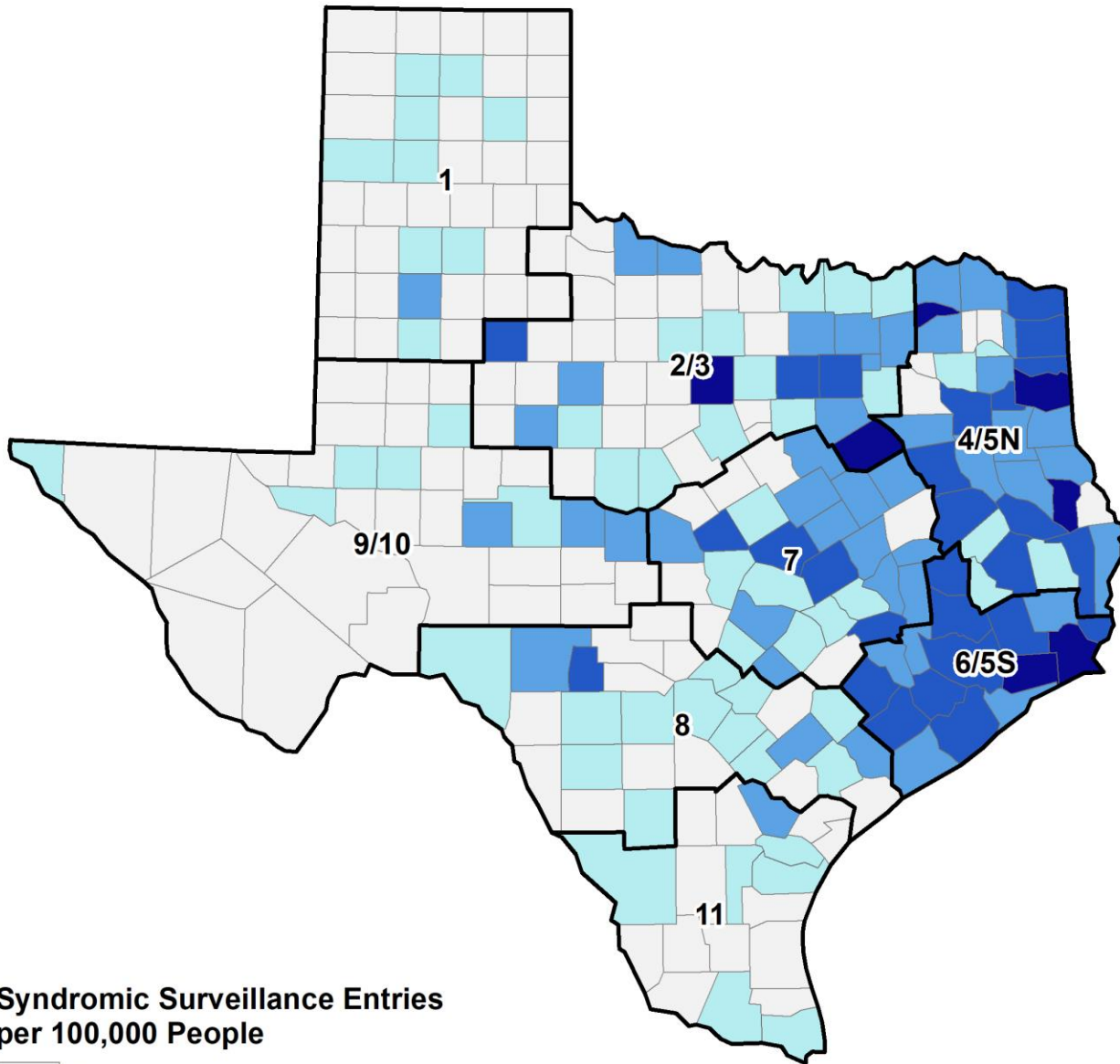
Syndromic surveillance in Texas regularly receives discharge diagnosis codes for 60% of patients. Some patients are never given a discharge diagnosis, but we continue to work to improve our data quality. Below is a summary of what syndromic surveillance did receive, with any ICD-10 codes with zero counts in both years cut out.

ICD-10 Codes Present in Discharge	# of Visits 2020	# of Visits 2019
D57.0 Hb-SS disease with crisis	89	151
D57.00 Hb-SS disease with crisis unspecified	397	402
D57.01 Hb-SS disease with acute chest syndrome	1521	1470
D57.02 Hb-SS disease with splenic sequestration	0	4
D57.03 Hb-SS disease with cerebral vascular involvement	15	0
D57.09 Hb-SS disease with crisis with other specified complication	2	6
D57.1 Sickle-cell disease without crisis	93	1
D57.2 Sickle-cell/Hb-C disease	479	49
D57.20 Sickle-cell/Hb-C disease without crisis	128	243
D57.21 Sickle-cell/Hb-C disease with crisis	41	235
D57.211 Sickle-cell/Hb-C disease with acute chest syndrome	55	86
D57.212 Sickle-cell/Hb-C disease with splenic sequestration	0	5
D57.213 Sickle-cell/Hb-C disease with cerebral vascular involvement	3	6
D57.218 Sickle-cell/Hb-C disease with other specified complication	26	2
D57.219 Sickle-cell/Hb-C disease unspecified	1	1
D57.3 Sickle-cell trait	1	36
D57.4 Sickle-cell thalassemia	401	2

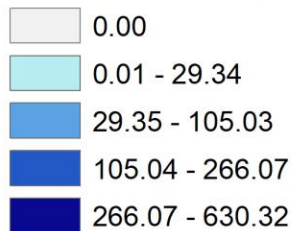
ICD-10 Codes Present in Discharge	# of Visits 2020	# of Visits 2019
D57.40 Sickle-cell thalassemia without crisis	0	6
D57.41 Sickle-cell thalassemia, unspecified, with crisis	54	0
D57.411 Sickle-cell thalassemia, unspecified, with acute chest syndrome	34	380
D57.412 Sickle-cell thalassemia, unspecified, with splenic sequestration	1	0
D57.413 Sickle-cell thalassemia, unspecified, with cerebral vascular involvement	0	7
D57.418 Sickle-cell thalassemia with other specified complication	0	7
D57.419 Sickle-cell thalassemia, unspecified, with crisis	0	178
D57.433 Sickle-cell thalassemia beta zero with cerebral vascular involvement	248	66
D57.438 Sickle-cell thalassemia with other specified complication	27	81
D57.439 Sickle-cell thalassemia unspecified	16	5
D57.44 Sickle-cell thalassemia beta plus without crisis	1	0
D57.45 Sickle-cell thalassemia beta plus with crisis	26	0
D57.451 Sickle-cell thalassemia beta plus with acute chest syndrome	63	0
D57.452 Sickle-cell thalassemia beta plus with splenic sequestration	10	0
D57.458 Sickle-cell thalassemia with other specified complication	11	0
D57.459 Sickle-cell thalassemia unspecified	16	0
D57.8 Other sickle-cell disorders	21	0
D57.80 Other sickle-cell disorders without crisis	2	274

ICD-10 Codes Present in Discharge	# of Visits 2020	# of Visits 2019
D57.81 Other sickle-cell disorders with crisis	8	29
D57.811 Other sickle-cell disorders with acute chest syndrome	11	20
D57.812 Other sickle-cell disorders with splenic sequestration	107	0
D57.813 Other sickle-cell disorders with cerebral vascular involvement	1375	21
D57.819 Other sickle-cell disorders unspecified	7	65

Visits Related to Sickle Cell Disease in Syndromic Surveillance Systems in 2020 per 100,000 People



Syndromic Surveillance Entries per 100,000 People



Source: Texas Department of State Health Services, June 2021, AKleinert, VTewell