



# Sickle Cell Disease in Texas Syndromic Surveillance Systems in 2021

## 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 DSHS' TxS2. Between these three systems, over 80 percent of hospital emergency departments (EDs) are connected to a syndromic system. Free-standing emergency rooms (ERs) and urgent care clinics can also connect, and between the three types of facilities, over 50 percent in Texas are connected to a syndromic surveillance system.

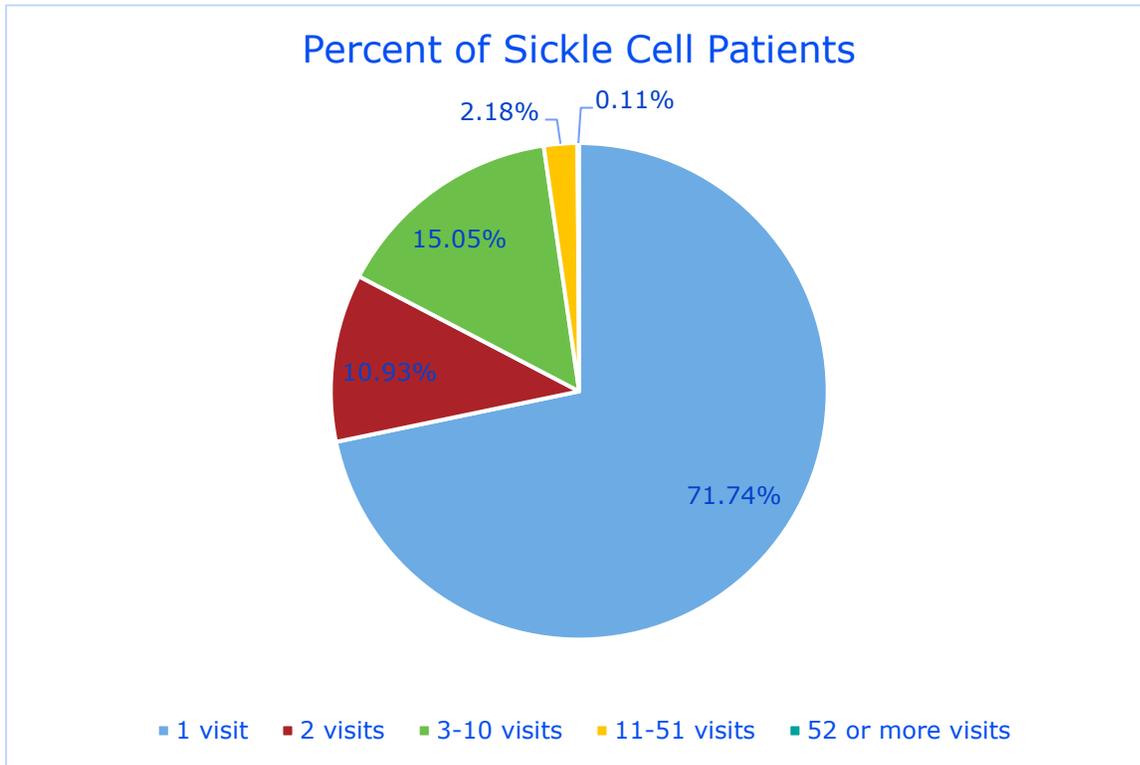
## Sickle Cell Disease in Texas Syndromic Surveillance Systems Overview

In 2021, there were a total of 32,180 visits to Texas facilities that were connected to syndromic surveillance systems for sickle cell disease-related issues. In 2021, about 0.2 percent of all visits in syndromic surveillance in Texas were related to sickle cell disease.

In 2021, there were 15,173 individual patients, including 28.3 percent who visited facilities multiple times. The patients who visited facilities multiple times accounted for the majority of visits. However, a majority of the individual patients only visited once. The number of patients who visited facilities multiple times includes 16 individuals who visited an ER or urgent care clinic more than once a week on

average, and 331 individuals who visited more than 10 times but less than 52, as shown in Figure 1 below.

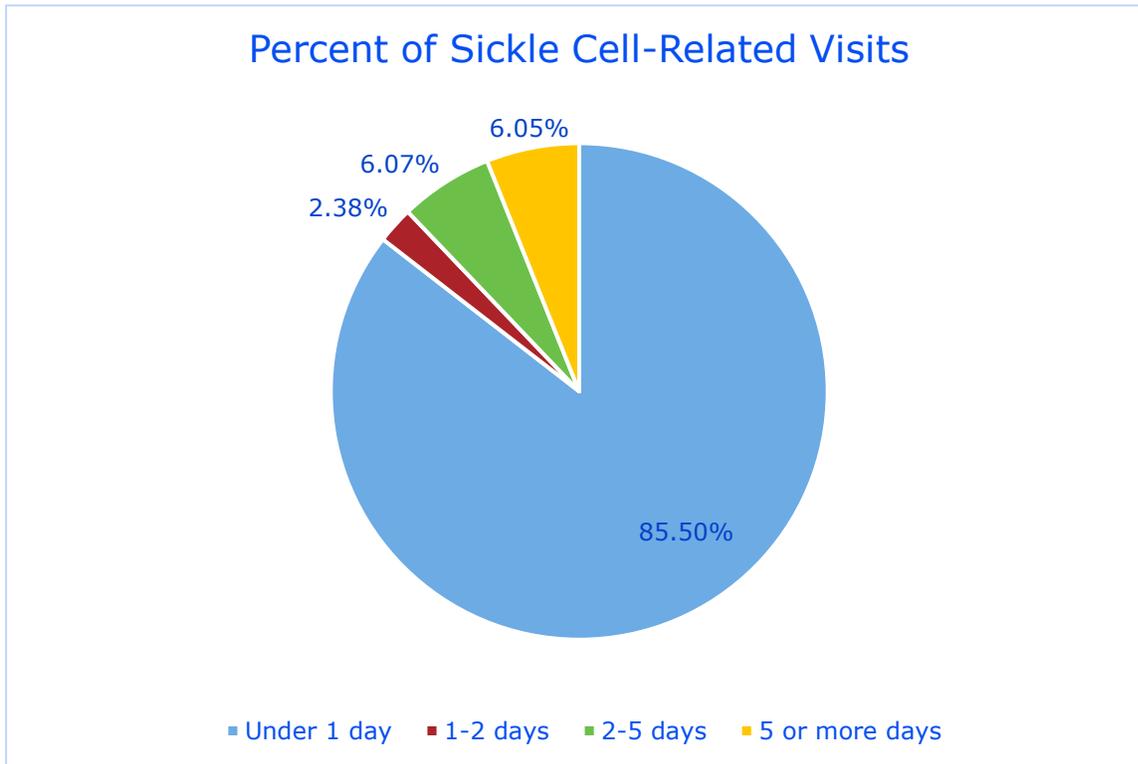
**Figure 1. Number of Visits per Sickle Cell Patient, 2021**



Of records that included transfer information 16.4 percent 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 14.5 percent of visits lasted multiple days, as shown in Figure 2 on the next page.

**Figure 2. Length of Stay for Sickle Cell-Related Visits, 2021**



## Patients Presenting to the ED Within 72 Hours of a Previous Visit

A total of 2,884 visits in 2021 were patients coming back to the same ED within 72 hours of a previous visit. We can only tell if a patient is going to the same facility again because data is de-identified. Information on the frequency that individual patients are experiencing is shown in Table 3 below.

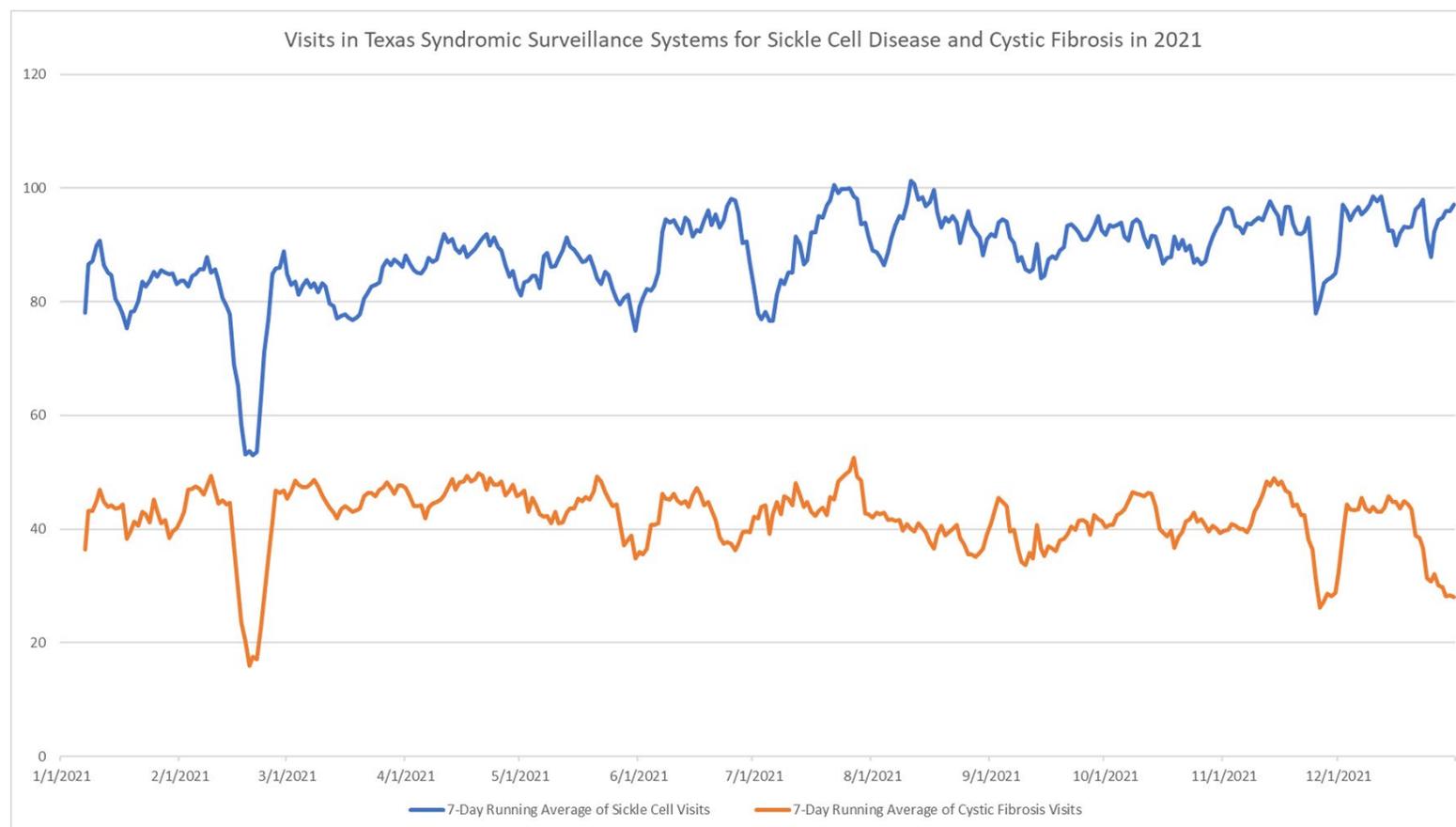
**Table 1. Number of Patients Presenting to the ED within 72 hours of a Previous Visit**

Number of visits within 72 hours of each other	Number of patients
50 or more	4
10 to 49	38
Less than 10	1222
None	13909

## 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.

**Figure 3. Visits in Texas Syndromic Surveillance Systems for Sickle Cell Disease and Cystic Fibrosis in 2021**



# Demographic Breakdown for Sickle Cell-Related Visits

**Table 2. Demographic Breakdown by Race for Sickle Cell-Related Visits in 2021**

Race	Ages 00-04	Ages 05-17	Ages 18-44	Ages 45-64	Ages 65-1,000	Ages Unknown
American Indian or Alaska Native	5	17	4	3	0	2
Asian	22	27	20	0	0	37
Black or African American	2097	4378	10087	1103	67	6452
Native Hawaiian or Other Pacific Islander	0	0	1	0	0	0
Other Race	178	128	1702	150	14	278
Unknown	43	93	950	210	24	1377
White	295	548	1150	166	32	520

**Table 3. Demographic Breakdown by Ethnicity for Sickle Cell-Related Visits in 2021**

Ethnicity	Ages 00-04	Ages 05-17	Ages 18-44	Ages 45-64	Ages 65-1,000	Ages Unknown
Hispanic	482	635	450	40	10	706
Not Hispanic	2105	4447	11503	1295	89	5628
Unknown	53	109	1961	297	38	2332

**Table 4. Demographic Breakdown by Sex for Sickle Cell-Related Visits in 2021**

Sex	Ages 00-04	Ages 05-17	Ages 18-44	Ages 45-64	Ages 65-1,000	Ages Unknown
Male	1209	2331	7213	791	95	975
Female	1430	2860	6697	841	42	1084
Unknown	0	1	0	4	0	1

# International Classification of Diseases, Tenth Revision (ICD-10) Codes Used in Discharge of Sickle-Cell-Related Visits

Syndromic surveillance in Texas regularly receives discharge diagnosis codes for 90 percent of patients, much higher than in 2020, so the numbers below have jumped since last year. Many of these discharge codes can be present in one visit, so these numbers do not add up to the total number of visits.

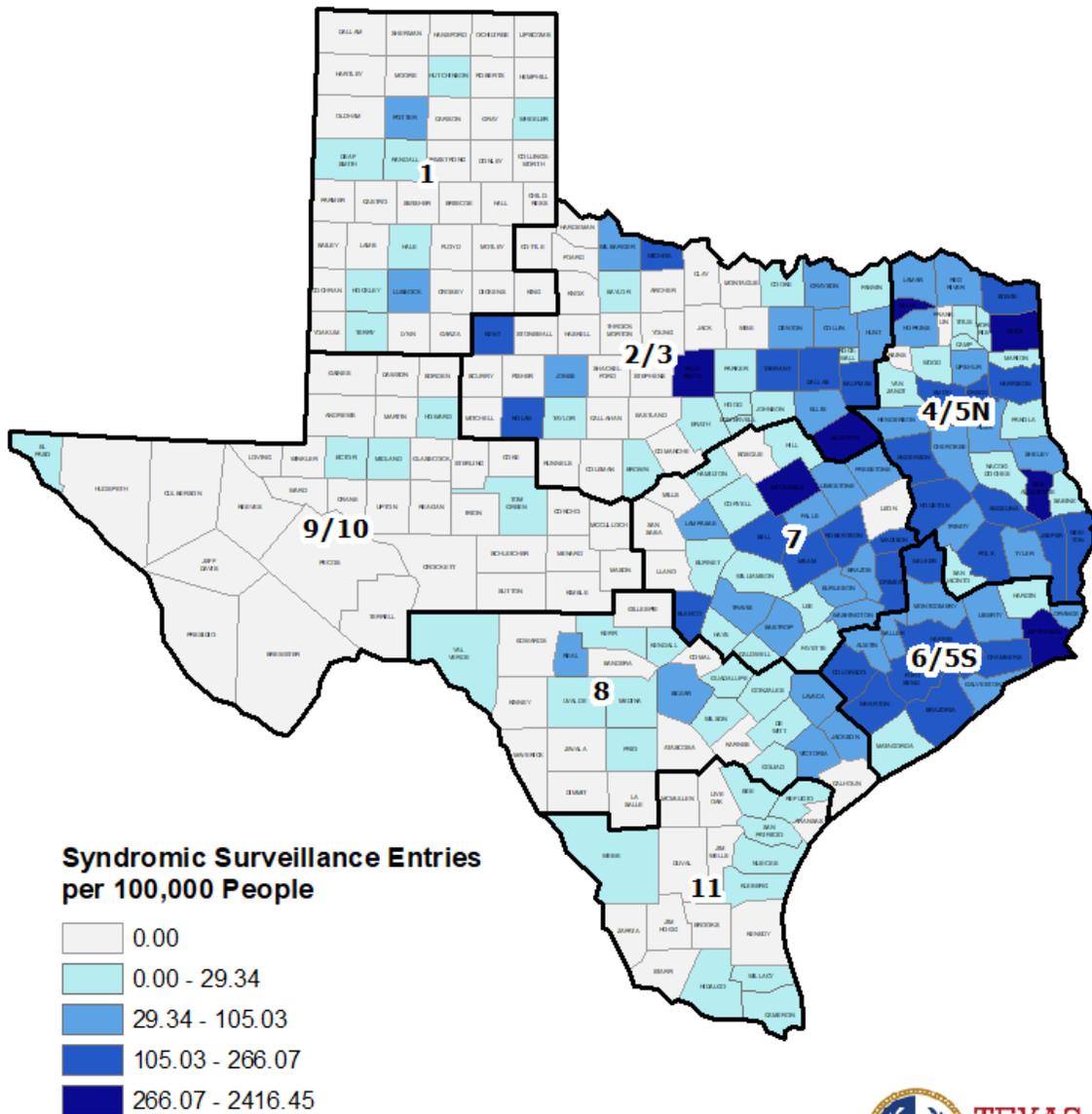
**Table 5. ICD-10 Codes Used in Discharge of Sickle Cell-Related Visits in 2021**

<b>ICD-10 Codes Present in Discharge</b>	<b>Mentioned in Number of Visits in 2021</b>
<b>D57.00 Hb-SS disease with crisis unspecified</b>	10485
<b>D57.01 Hb-SS disease with acute chest syndrome</b>	580
<b>D57.02 Hb-SS disease with splenic sequestration</b>	79
<b>D57.03 Hb-SS disease with cerebral vascular involvement</b>	25
<b>D57.09 Hb-SS disease with crisis with other specified complication</b>	155
<b>D57.1 Sickle-cell disease without crisis</b>	7361
<b>D57.20 Sickle-cell/Hb-C disease without crisis</b>	805
<b>D57.21 Sickle-cell/Hb-C disease with crisis</b>	601
<b>D57.211 Sickle-cell/Hb-C disease with acute chest syndrome</b>	32
<b>D57.212 Sickle-cell/Hb-C disease with splenic sequestration</b>	10
<b>D57.213 Sickle-cell/Hb-C disease with cerebral vascular involvement</b>	1
<b>D57.218 Sickle-cell/Hb-C disease with other specified complication</b>	14
<b>D57.219 Sickle-cell/Hb-C disease unspecified</b>	558
<b>D57.3 Sickle-cell trait</b>	1901
<b>D57.40 Sickle-cell thalassemia without crisis</b>	172
<b>D57.411 Sickle-cell thalassemia, unspecified, with acute chest syndrome</b>	1
<b>D57.412 Sickle-cell thalassemia, unspecified, with splenic sequestration</b>	1

<b>ICD-10 Codes Present in Discharge</b>	<b>Mentioned in Number of Visits in 2021</b>
<b>D57.419 Sickle-cell thalassemia, unspecified, with crisis</b>	92
<b>D57.42 Sickle-cell thalassemia beta zero without crisis</b>	102
<b>D57.431 Sickle-cell thalassemia beta zero with acute chest syndrome</b>	2
<b>D57.438 Sickle-cell thalassemia with other specified complication</b>	5
<b>D57.439 Sickle-cell thalassemia unspecified</b>	30
<b>D57.44 Sickle-cell thalassemia beta plus without crisis</b>	165
<b>D57.451 Sickle-cell thalassemia beta plus with acute chest syndrome</b>	2
<b>D57.458 Sickle-cell thalassemia with other specified complication</b>	7
<b>D57.459 Sickle-cell thalassemia unspecified</b>	10
<b>D57.80 Other sickle-cell disorders without crisis</b>	105
<b>D57.81 Other sickle-cell disorders with crisis</b>	131
<b>D57.811 Other sickle-cell disorders with acute chest syndrome</b>	5
<b>D57.818 Other sickle-cell disorders with crisis with other specified complication</b>	32
<b>D57.819 Other sickle-cell disorders unspecified</b>	101

# Counties with Highest Per Capita Sickle Cell-Related Visits to Facilities

Figure 4. Visits Related to Sickle Cell Disease in Syndromic Surveillance Systems in 2021 per 100,000 People



Texas Department of State Health Services

Source: Texas Department of State Health Services, May 2022, MLivey, VDesrosier

**Table 6. Number of Visits Related to Sickle Cell Disease in Syndromic Surveillance Systems in 2021 per 100,000 People <sup>a</sup>**

<b>Public Health Service Region</b>	<b>Syndromic Surveillance Entries per 100,000 People</b>	<b>Counties</b>
<b>2/3</b>	266.07-2416.45	Navarro, Palo Pinto
<b>4/5N</b>	266.07-2416.45	Cass, Delta, San Augustine
<b>6/5S</b>	266.07-2416.45	Jefferson
<b>7</b>	266.07-2416.45	McLennan
<b>2/3</b>	105.03-266.07	Dallas, Kaufman, Kent, Nolan, Tarrant, Wichita
<b>4/5N</b>	105.03-266.07	Anderson, Angelina, Bowie, Gregg, Harrison, Houston, Jasper, Newton, Polk, Smith
<b>6/5S</b>	105.03-266.07	Brazoria, Chambers, Colorado, Fort Bend, Harris, Walker, Wharton
<b>7</b>	105.03-266.07	Bell, Blanco, Grimes, Madison, Milam, Robertson
<b>1</b>	29.34-105.03	Lubbock, Potter
<b>2/3</b>	29.34-105.03	Collin, Denton, Ellis, Grayson, Hunt, Jones, Wilbarger
<b>4/5N</b>	29.34-105.03	Cherokee, Henderson, Hopkins, Lamar, Red River, Rusk, Shelby, Trinity, Tyler, Upshur
<b>6/5S</b>	29.34-105.03	Austin, Galveston, Liberty, Montgomery, Orange, Waller
<b>7</b>	29.34-105.03	Bastrop, Brazos, Burleson, Falls, Freestone, Lampasas, Limestone, Travis, Washington
<b>8</b>	29.34-105.03	Bexar, Jackson, Lavaca, Real, Victoria
<b>2/3</b>	0.00-29.34	Baylor, Brown, Cooke, Erath, Fannin, Hood, Johnson, Parker, Rockwall, Somervell, Taylor
<b>4/5N</b>	0.00-29.34	Camp, Marion, Morris, Nacogdoches, Panola, Sabine, San Jacinto, Titus, Van Zandt, Wood

<sup>a</sup> Source: Texas Department of State Health Services, May 2022, MLively, VDesrosier

<b>Public Health Service Region</b>	<b>Syndromic Surveillance Entries per 100,000 People</b>	<b>Counties</b>
<b>6/5S</b>	0.00-29.34	Hardin, Matagorda
<b>7</b>	0.00-29.34	Burnet, Caldwell, Coryell, Fayette, Hamilton, Hays, Hill, Lee, Williamson
<b>8</b>	0.00-29.34	DeWitt, Frio, Goliad, Gonzales, Guadalupe, Kendall, Kerr, Medina, Uvalde, Val Verde, Wilson
<b>9/10</b>	0.00-29.34	Ector, El Paso, Howard, Midland, Tom Green
<b>11</b>	0.00-29.34	Bee, Cameron, Hidalgo, Kleberg, Nueces, Refugio, San Patricio, Webb, Willacy
<b>1</b>	0.00	Austin, Bailey, Briscoe, Carson, Castro, Childress, Cochran, Collingsworth, Crosby, Dallam, Donley, Floyd, Garza, Gray, Hall, Hansford, Hartley, Hemphill, King, Lamb, Lipscomb, Lynn, Moore, Motley, Ochiltree, Oldham, Parmer, Roberts, Sherman, Swisher, Yoakum
<b>2/3</b>	0.00	Archer, Callahan, Clay, Coleman, Comanche, Cottle, Eastland, Fisher, Foard, Hardeman, Haskell, Jack, Knox, Mitchell, Montague, Runnels, Scurry, Shackelford, Stephens, Stonewall, Throckmorton, Wise, Young
<b>4/5N</b>	0.00	Franklin, Rains
<b>7</b>	0.00	Bosque, Leon, Llano, Mills, San Saba
<b>8</b>	0.00	Atascosa, Bandera, Calhoun, Comal, Dimmit, Edwards, Gillespie, Karnes, Kinney, La Salle, Maverick, Zavala
<b>9/10</b>	0.00	Andrews, Borden, Brewster, Coke, Concho, Crane, Crockett, Culberson, Dawson, Gaines, Glasscock, Hudspeth, Irion, Jeff Davis, Kimble, Loving, Martin, Mason, McCulloch, Menard, Pecos,

<b>Public Health Service Region</b>	<b>Syndromic Surveillance Entries per 100,000 People</b>	<b>Counties</b>
		Presidio, Reagan, Reeves, Schleicher, Sterling, Sutton, Terrell, Upton, Ward, Winkler
<b>11</b>	0.00	Aransas, Brooks, Duval, Jim Hogg, Jim Wells, Kenedy, Live Oak, McMullen, Starr, Zapata