



CONGENITAL SYPHILIS IN TEXAS IN 2021



Department of State Health Services

Contents

- Executive Summary2
- About This Report.....3
 - Public Health Follow-Up and Sexually Transmitted Disease Surveillance and Data Sources3
- Understanding Syphilis4
 - A Note on Maternal Syphilis Treatment5
 - A Note on Case Rates for CS and Syphilis Among Women of Childbearing Capacity.....6
- An Overview of CS and Syphilis in Women of Childbearing Age in Texas6
 - CS and Syphilis in Women of Childbearing Age by Geographic Area.....8
- Maternal Demographics for Women Delivering Infants with CS 14
 - Race/Ethnicity 14
 - Maternal Age at Delivery of an Infant with CS 16
 - Facility of Maternal Syphilis Diagnosis 17
 - Maternal Syphilis Stage at Diagnosis 18
 - Barriers to Care 19
 - Maternal Risk History 20
 - Prenatal Care 21
 - Timing of Maternal Syphilis Diagnosis in Relation to Delivery 22
 - Maternal Treatment for Syphilis 22
- Birth Outcomes Associated with CS..... 24
 - Testing and Treatment for Infants with CS 26
- CS Cascade 29
 - Efforts to Decrease CS..... 30

Executive Summary

The bacterium *Treponema pallidum* causes syphilis. Congenital syphilis (CS) occurs when a pregnant woman passes syphilis to her baby during pregnancy.¹ CS may lead to miscarriage, stillbirth, premature birth, and death immediately after birth. Death occurs in up to 40 percent of infants born to women with untreated syphilis because of the infection.¹ While CS can occur without symptoms, it can also present with a spectrum of serious manifestations, including but not limited to, vision or hearing loss and improper bone or tooth development. Patients can avoid these outcomes with early detection and proper treatment during pregnancy. Benzathine penicillin G is the only treatment for syphilis during pregnancy. Adequate treatment can prevent CS with a success rate of 98 percent.²

In the U.S., the number of CS cases has increased each year since 2012.^{2,3} Preliminary national data for 2021 reports 2,677 CS cases at a rate of 74.1 cases per 100,000 births.³ Of these nationally reported cases, Texas accounted for approximately one-quarter (685 cases), ranking Texas fifth in CS case rate in the nation in 2021. Over 61 percent of CS cases in Texas were in the four most populous metropolitan areas: Harris County (22 percent), Dallas County (16 percent), Bexar County (14 percent), and the Rio Grande Valley (9 percent).

CS cases rise when syphilis cases in women of childbearing age (aged 15–44 years) rise. Texas CS cases have increased by over 300 percent since 2017, when there was a total of 166 reported cases. Approximately seven out of ten infants reported with CS were from Hispanic (37 percent) and Black (32 percent) women. In 2021, the Texas rate for primary and secondary syphilis among women of childbearing age more than doubled from the 2020 rate of 7.5 cases per 100,000 to 15.4 cases per 100,000. Early syphilis cases (which include primary, secondary, and early non-primary non-secondary cases) in Texas increased 343 percent from 2012 to 2021 (638 cases in 2012 to 2,829 cases in 2021). In 2021, nearly half (49 percent) of the women who delivered an infant with CS received their diagnoses late during pregnancy, at delivery, or postpartum. Additionally, among women delivering an infant with CS, 71 percent had inadequate treatment, and 16 percent had no treatment. Barriers to care, such as transportation, finding a provider, or access to

¹ Centers for Disease Control and Prevention (31 January 2017). Congenital Syphilis-Fact Sheet retrieved from [cdc.gov/std/syphilis/stdfact-congenital-syphilis.htm](https://www.cdc.gov/std/syphilis/stdfact-congenital-syphilis.htm).

² Bowen, V., Su, J., Torrone, E., Kidd, S., & Weinstock, H. (13 November 2015). Increase in Incidence of Congenital Syphilis – United States, 2012–2014. Retrieved from [cdc.gov/mmwr/preview/mmwrhtml/mm6444a3.htm](https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6444a3.htm).

³ Centers for Disease Control and Prevention (1 September 2022). Preliminary 2021 STD Surveillance Data. Retrieved from [cdc.gov/std/statistics/2021/default.htm](https://www.cdc.gov/std/statistics/2021/default.htm).

Medicaid, may contribute to the rise in CS cases among women of childbearing age.

The Texas Department of State Health Services (DSHS) is updating the CS workplan to develop a strategy to address the increases in syphilis among women of childbearing age and CS. The work plan consists of three goals with specific activities and outcomes and target start and end dates to meet a final completion date of December 31, 2025. The DSHS will further efforts to reduce CS by enhancing sexually transmitted disease (STD) surveillance, increasing documented pregnancy status among women with or exposed to syphilis, and providing supplementary resources to communities with the highest rates of CS.

About This Report

DSHS created this epidemiologic profile for CS to inform planners, public health professionals, policymakers, and other stakeholders at the local and state levels about the epidemiology of CS, syphilis in women of childbearing age, and the underlying factors which may contribute to CS.

This profile only includes CS and syphilis cases among women of childbearing age who were Texas residents at the time of diagnosis. The cases analyzed met the Centers for Disease Control and Prevention (CDC) and Council of State and Territorial Epidemiologists (CSTE) surveillance case definitions, which may differ from clinical diagnoses.

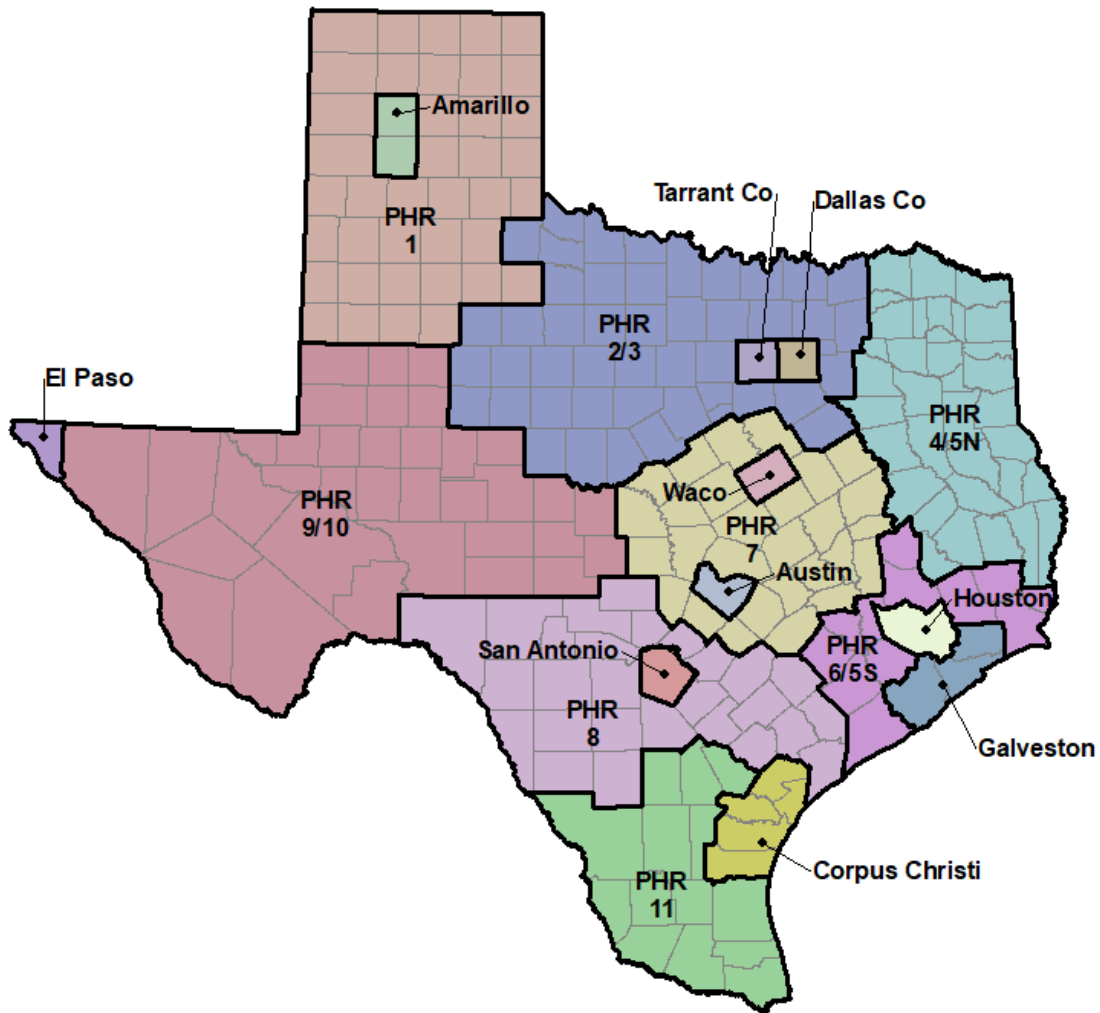
Public Health Follow-Up and Sexually Transmitted Disease Surveillance and Data Sources

The data for this profile came from public health follow-up (PHFU) and routine STD surveillance activities. PHFU supports disease intervention specialists (DIS) who act to interrupt STD transmission by notifying people of possible STD exposure, providing STD results and testing, and referring them for treatment. Surveillance and PHFU staff perform case and data management for STD investigations. Methods of case identification include partner service interviews, provider reporting, lab reporting, and matching with vital statistics.

Texas STD surveillance is decentralized and includes 18 STD local and regional reporting jurisdictions (Figure 1). Some local reporting sites are city health departments, which cover their surrounding counties and vice versa. There are also two health districts, Corpus Christi/Nueces County Health District and Galveston County Health District, which report on multiple surrounding counties. Public Health Regions (PHR) are DSHS regional offices

which report on all counties in their area not reported by a local health authority.

Figure 1. PHFU and STD Surveillance Sites, Texas



Understanding Syphilis

Syphilis is an STD caused by *Treponema pallidum* which can cause serious health problems when not treated. People can transmit syphilis both sexually and from a pregnant woman to her unborn baby.⁴ Syphilis infections progress through stages which have different signs and symptoms. Although there are common signs and symptoms of syphilis, many people do not have them or

⁴ Centers for Disease Control and Prevention (1 November 2017). Syphilis Pocket Guide for Providers. Retrieved from [cdc.gov/std/syphilis/Syphilis-Pocket-Guide-FINAL-508.pdf](https://www.cdc.gov/std/syphilis/Syphilis-Pocket-Guide-FINAL-508.pdf).

may not recognize them as syphilis. The signs and symptoms of syphilis can go away without treatment, but the disease will continue to progress.⁵

A medical provider performs a blood test to determine if a person has syphilis. The provider can do additional testing during the primary stage of syphilis when a sore is present.

Early syphilis (primary, secondary, and early latent) in a pregnant woman requires a single dose of long-acting antibiotics for treatment. Late or unknown duration syphilis stage requires three doses of long-acting antibiotics, one week apart. Pregnant women diagnosed with syphilis should receive treatment as early as possible to prevent transmission to the baby, complications during their pregnancy, and serious health problems once they deliver their infant. Treatment, which is ideally initiated at least 30 days prior to delivery, effectively prevents the transmission of syphilis from a pregnant woman to the baby, with a success rate of up to 98 percent.⁶ Women diagnosed with and treated for syphilis before they become pregnant are unlikely to transmit syphilis to the infant during pregnancy. However, when a woman contracts syphilis during pregnancy, the infection can cross the placenta and infect the developing baby. Women with symptomatic syphilis (primary or secondary syphilis) during their pregnancy have an 80 percent chance of a negative pregnancy outcome (e.g., stillbirth, neonatal death, or signs and symptoms at birth).

Women with untreated or inadequately treated non-symptomatic syphilis (early latent, late latent, or latent syphilis of unknown duration) have a 23 percent chance of the same outcomes.⁷ Therefore, the DSHS focuses program efforts on women of childbearing age (women 15–44 years old), pregnant women diagnosed with syphilis, and women who have delivered an infant exposed to syphilis.

A Note on Maternal Syphilis Treatment

Assessment of adequate maternal syphilis treatment relies on documentation of diagnosis, treatment date(s), and dosage. The DSHS uses treatment information documented on the CS investigation form and in treatment tables in databases for complete ascertainment to analyze maternal treatment.

⁵ Centers for Disease Control and Prevention (12 April 2022). Syphilis-CDC Detailed Fact Sheet. Retrieved from [cdc.gov/std/syphilis/stdfact-syphilis-detailed.htm](https://www.cdc.gov/std/syphilis/stdfact-syphilis-detailed.htm).

⁶ Centers for Disease Control and Prevention (30 March 2022). Sexually Transmitted Infections Treatment Guidelines-2021. Retrieved from [cdc.gov/std/treatment-guidelines/syphilis.htm](https://www.cdc.gov/std/treatment-guidelines/syphilis.htm).

⁷ Arnold, S., Ford-Jones, E. (5 November 2000). Congenital Syphilis: A guide to diagnosis and management. Pediatrics & Child Health. Retrieved from [ncbi.nlm.nih.gov/pmc/articles/PMC2819963/](https://pubmed.ncbi.nlm.nih.gov/pmc/articles/PMC2819963/).

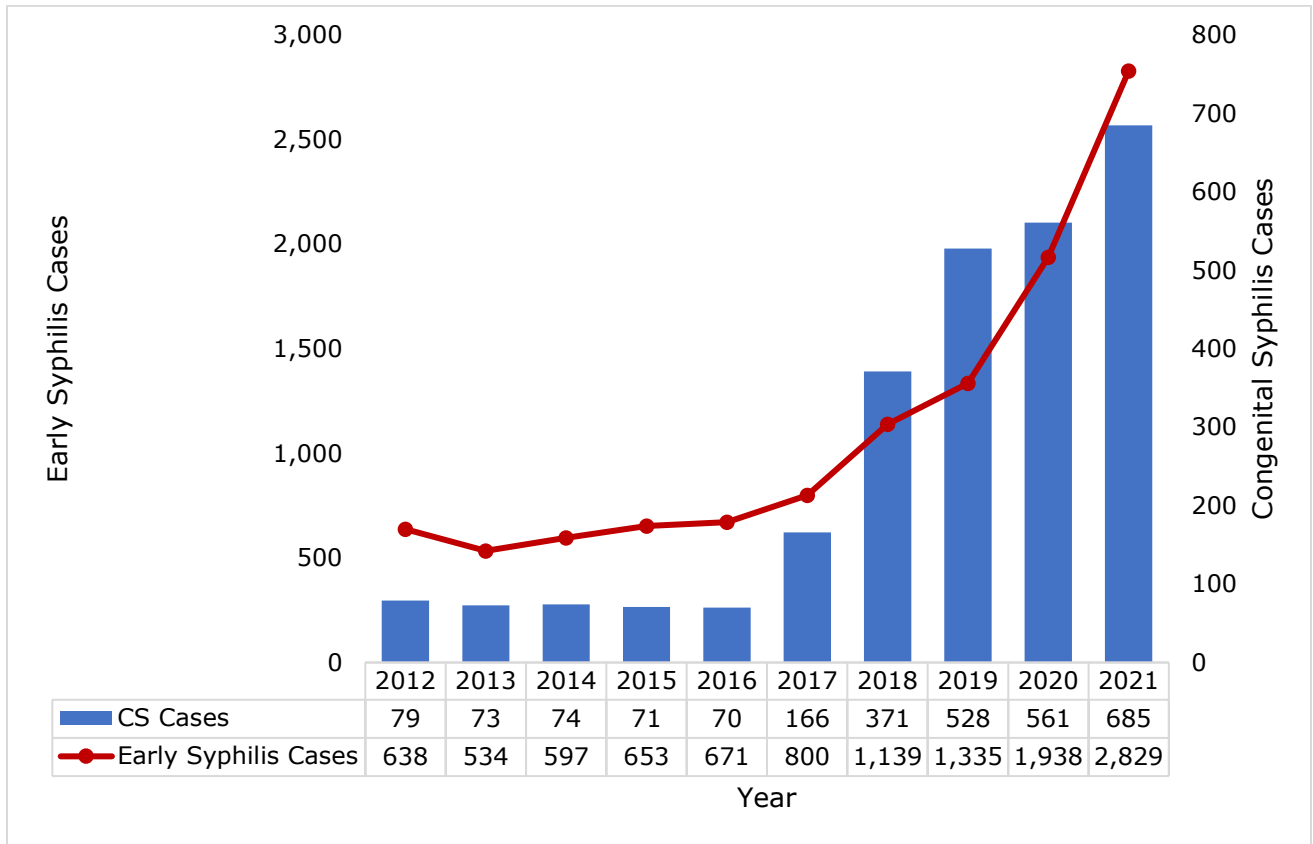
A Note on Case Rates for CS and Syphilis Among Women of Childbearing Capacity

Population numbers used to calculate 2012–2021 CS rates are from the vital event-birth data disseminated by the Center for Health Statistics at the DSHS. CS rates are per 100,000 live births. Population numbers used to calculate rates for syphilis among women of childbearing age are from the U.S. Census Bureau and include estimates of the resident population of the United States from January 1, 2012, to December 31, 2021, by year, county, single year of age (0, 1, 2, ..., 85 years and over), bridged race, Hispanic origin, and sex.

An Overview of CS and Syphilis in Women of Childbearing Age in Texas

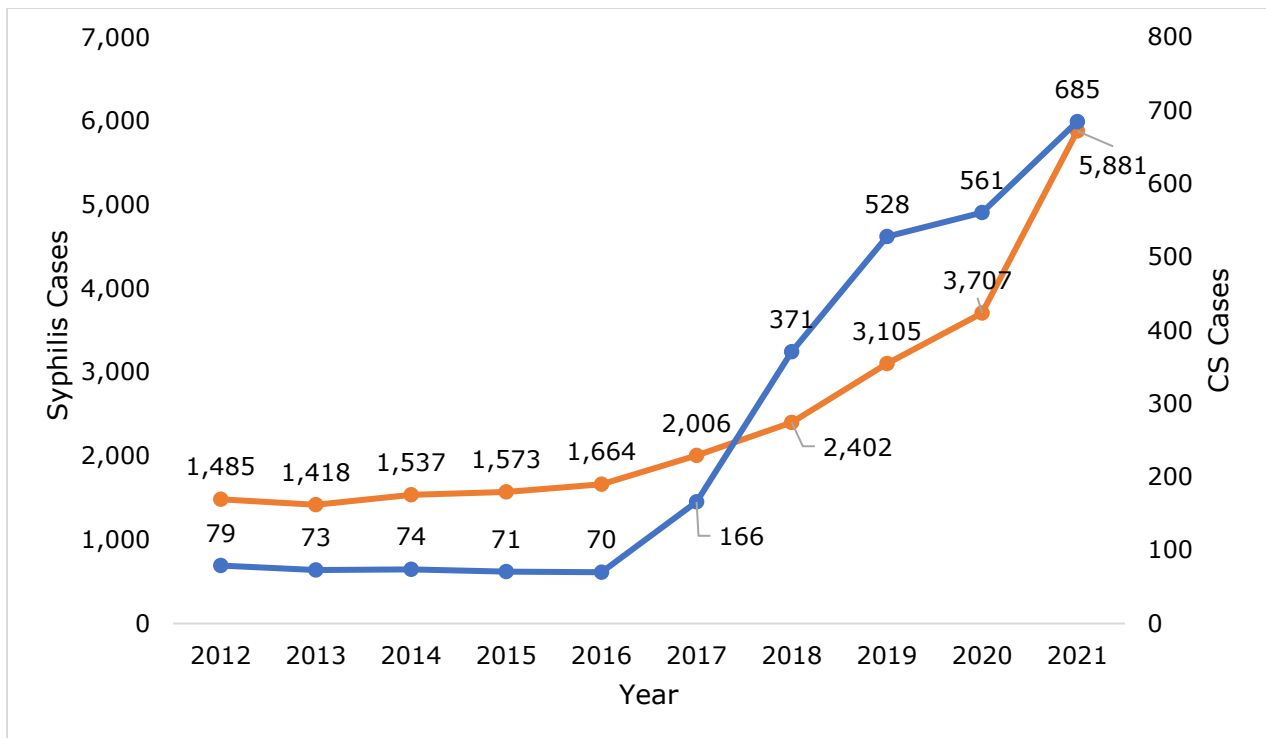
In 2021, there were 685 CS cases reported in Texas, approximately a 22 percent increase from 2020 (Figure 2). This is a rate of 180.2 CS cases per 100,000 live births. Concurrently, there was an increase in the reporting of all stages of syphilis in women of childbearing age. In 2021, there were 2,289 cases of early syphilis (primary, secondary, and early non-primary non-secondary) reported among women of childbearing age in Texas, representing a nearly 46 percent increase from 2020 (Figure 2). There were 5,881 total syphilis cases (primary, secondary, early non-primary non-secondary, and unknown or late duration) among women of childbearing age, which is a 59 percent increase from 2020 (Figure 3).

Figure 2: CS and Early Syphilis Cases* in Women of Childbearing Age in Texas, 2012-2021



*Includes primary, secondary, and early non-primary non-secondary

Figure 3: CS Cases by Year of Birth and Total Syphilis Cases in Women of Childbearing Age in Texas, 2012-2021



*Includes primary, secondary, early non-primary non-secondary, and unknown or late duration

CS and Syphilis in Women of Childbearing Age by Geographic Area

The majority of CS and syphilis cases in women of childbearing age occurred around Texas’ metropolitan areas. In 2021, the top three Texas jurisdictions reporting the highest number of CS cases accounted for 52 percent of all CS cases (Figure 4). Four jurisdictions accounted for half the cases of women of childbearing age diagnosed with syphilis (Figure 5). More than half of Texas’ 254 counties reported cases of syphilis among women of childbearing age (177 counties) (Figure 6), and 78 counties reported at least one case of CS (Figure 7).

STD surveillance sites with higher proportions of women of childbearing age diagnosed with syphilis also had a higher proportion of CS cases (Figure 8).

Figure 4: CS Cases by STD Surveillance Site in Texas, 2021

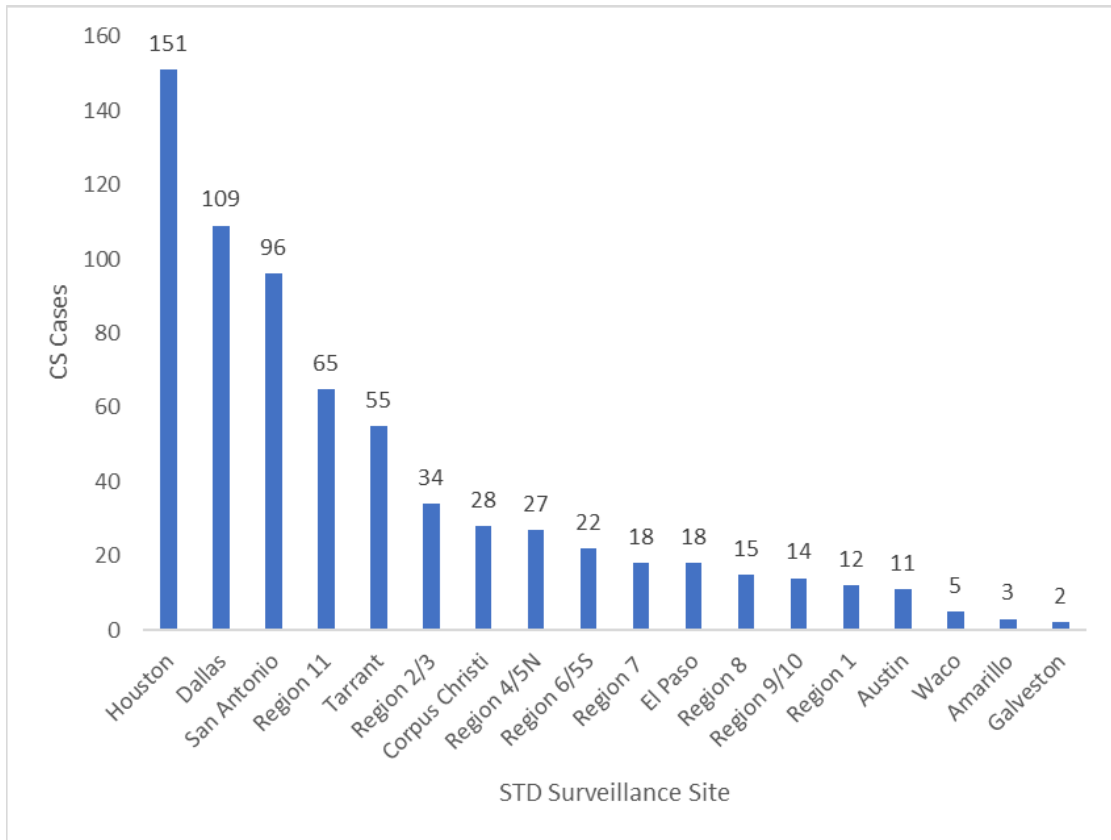


Figure 5: Syphilis Cases in Women of Childbearing Age by STD Surveillance Site in Texas, 2021

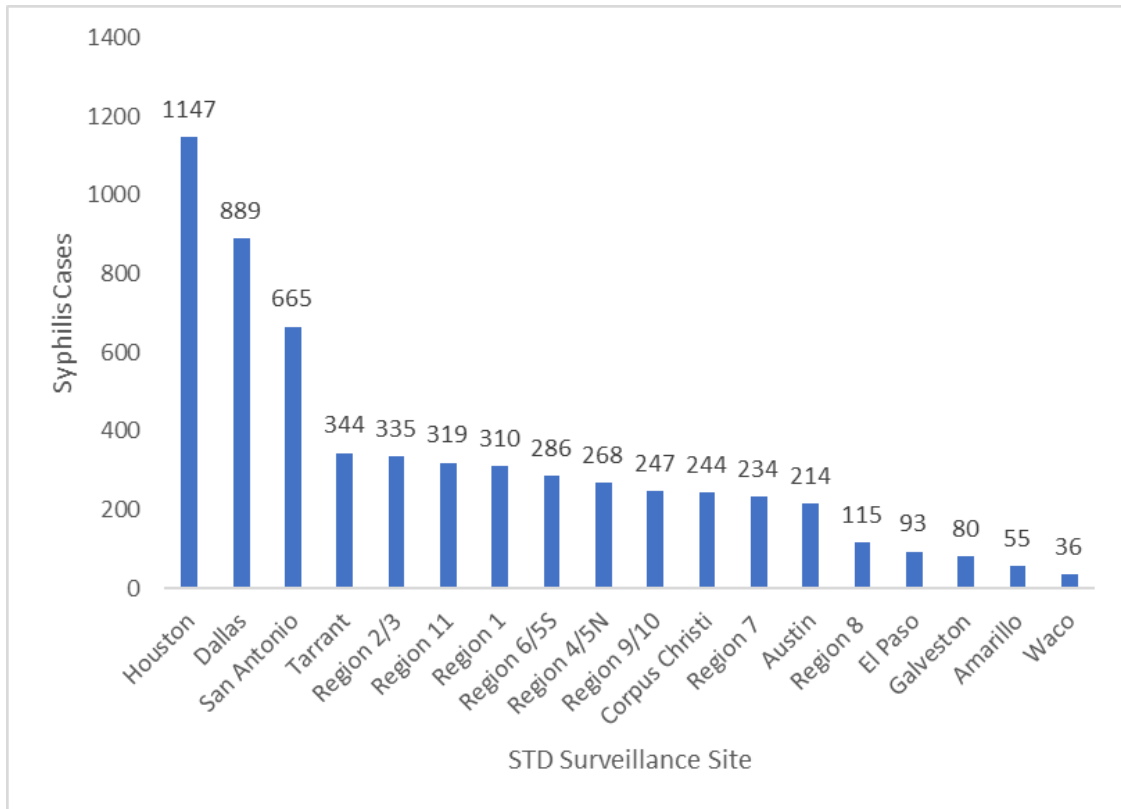
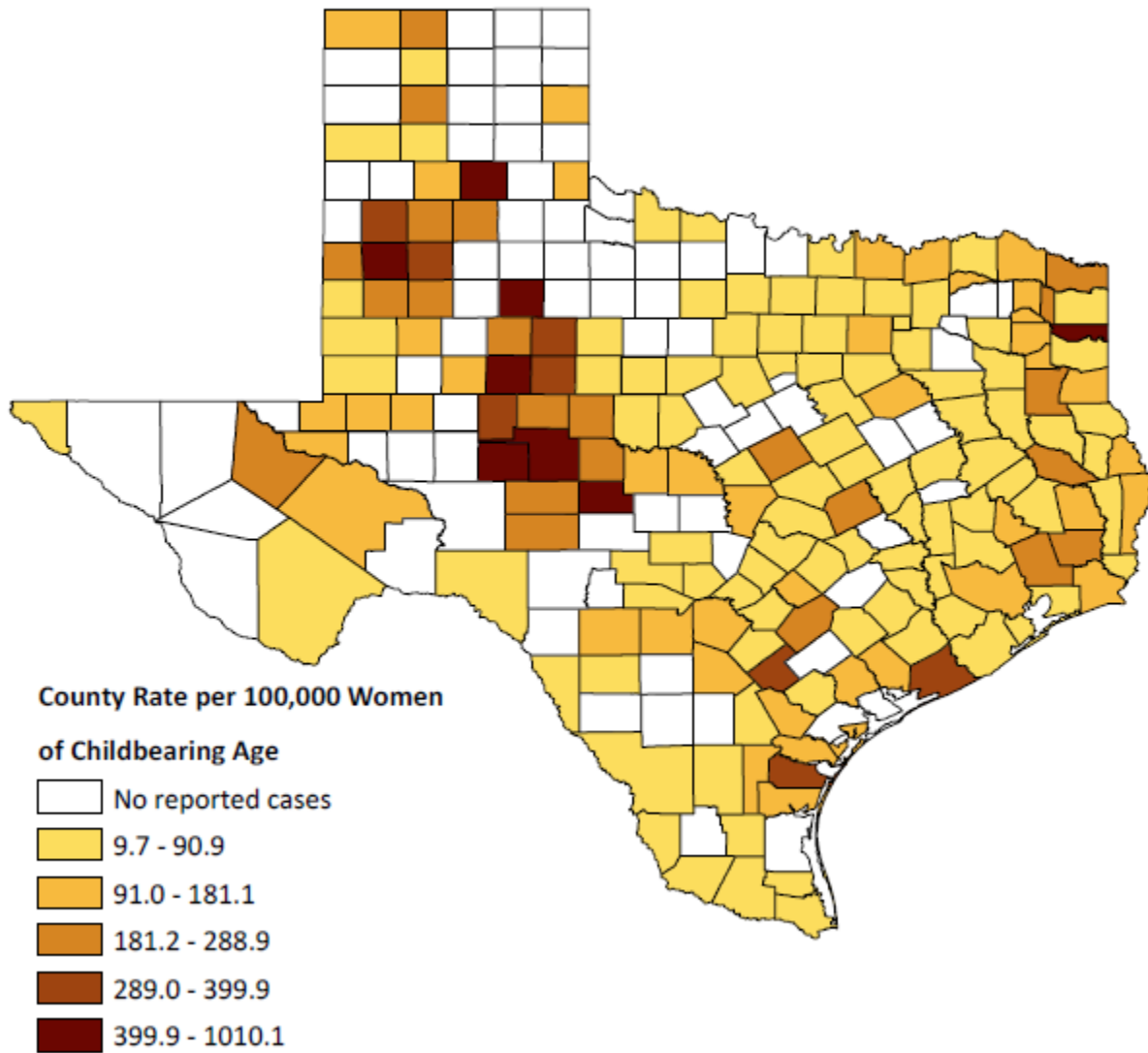
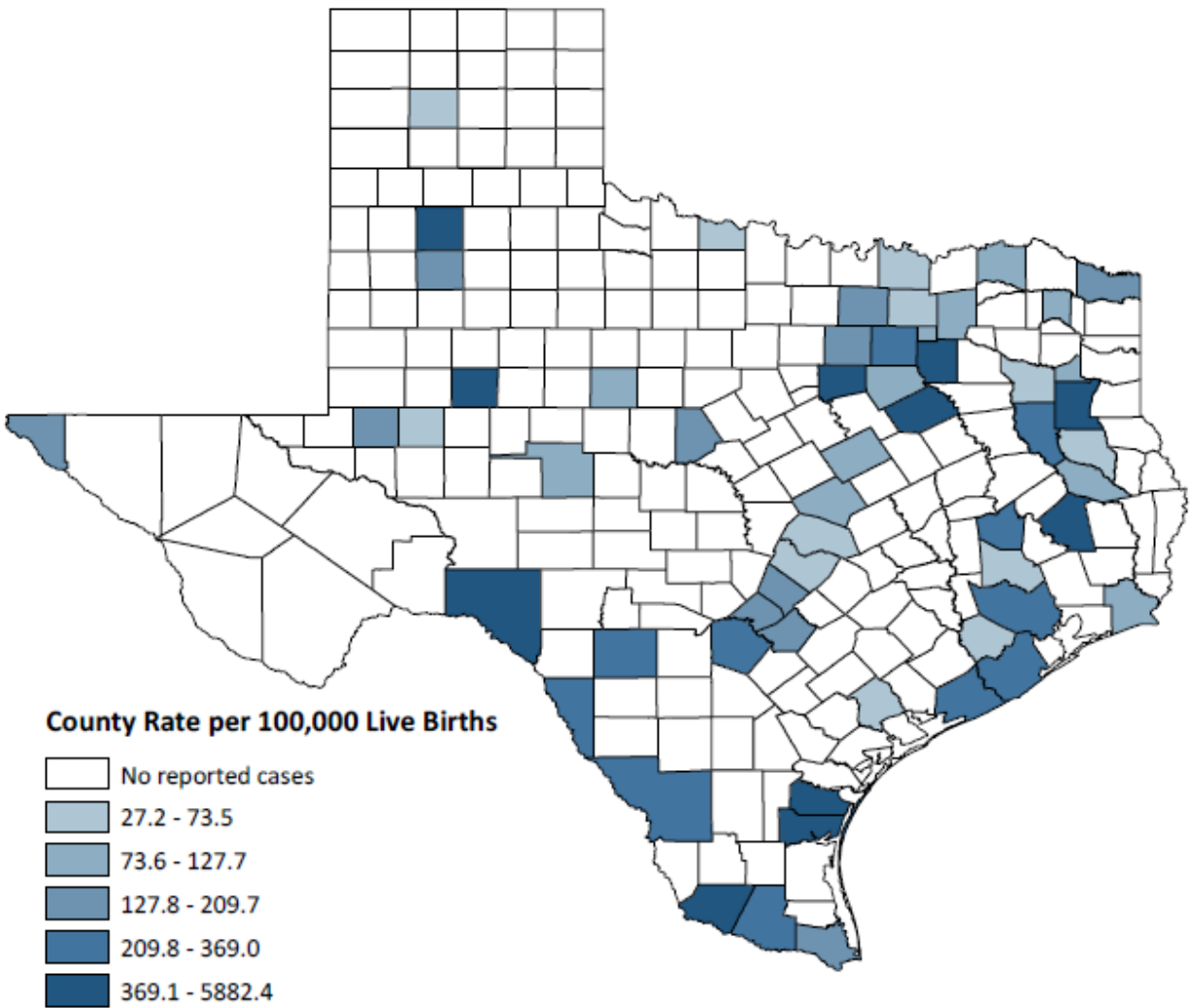


Figure 6: Syphilis Rates in Women of Childbearing Age by County in Texas, 2021*



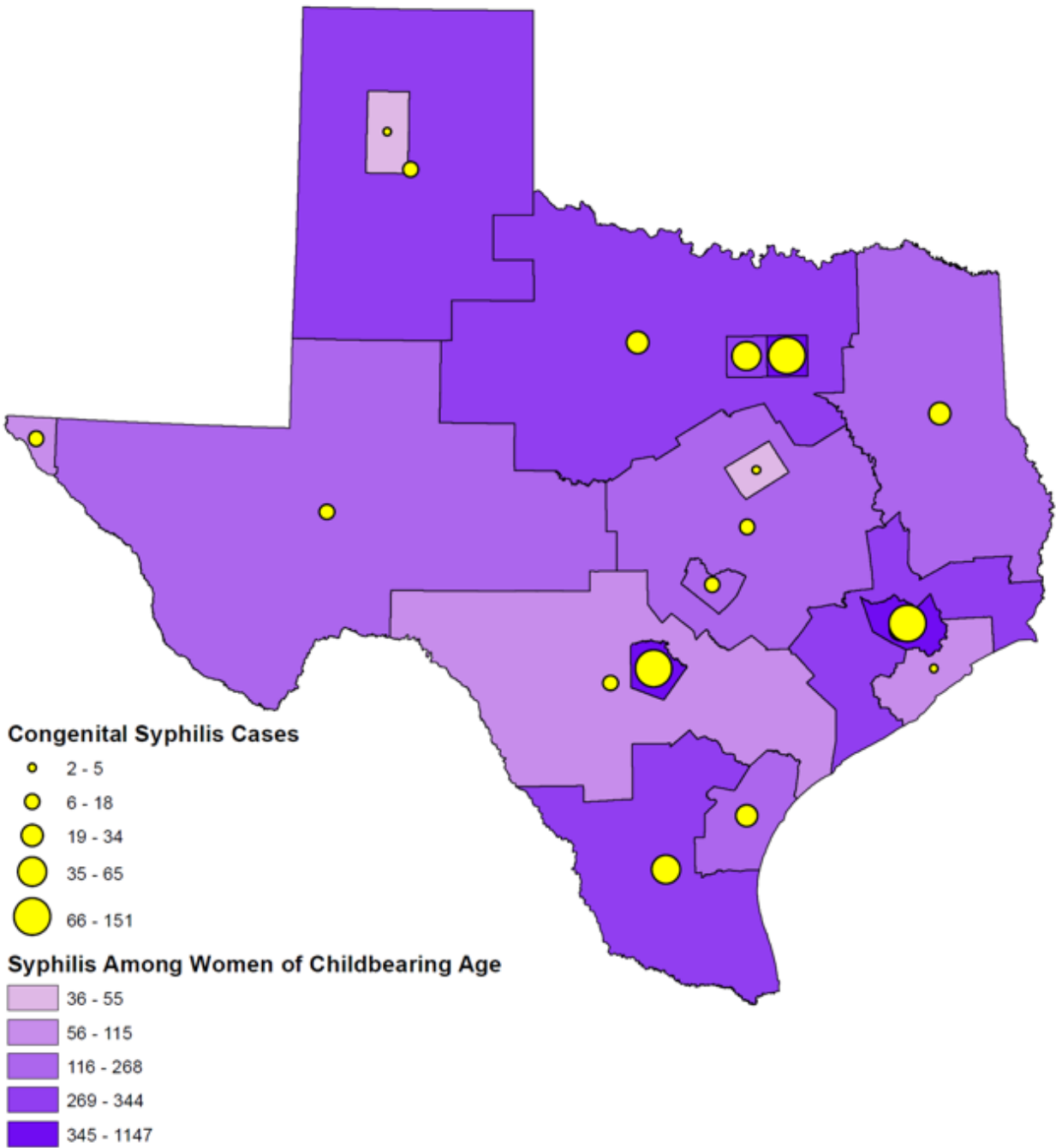
*Denominator used to calculate rate is women of childbearing age by county.

Figure 7: Rates of CS by County in Texas, 2021*



*Denominator used to calculate rate is the 2021 CHS birth data by county.

Figure 8: Proportion of Women of Childbearing Age with Syphilis and Proportion of CS Cases by STD Surveillance Site in Texas, 2021

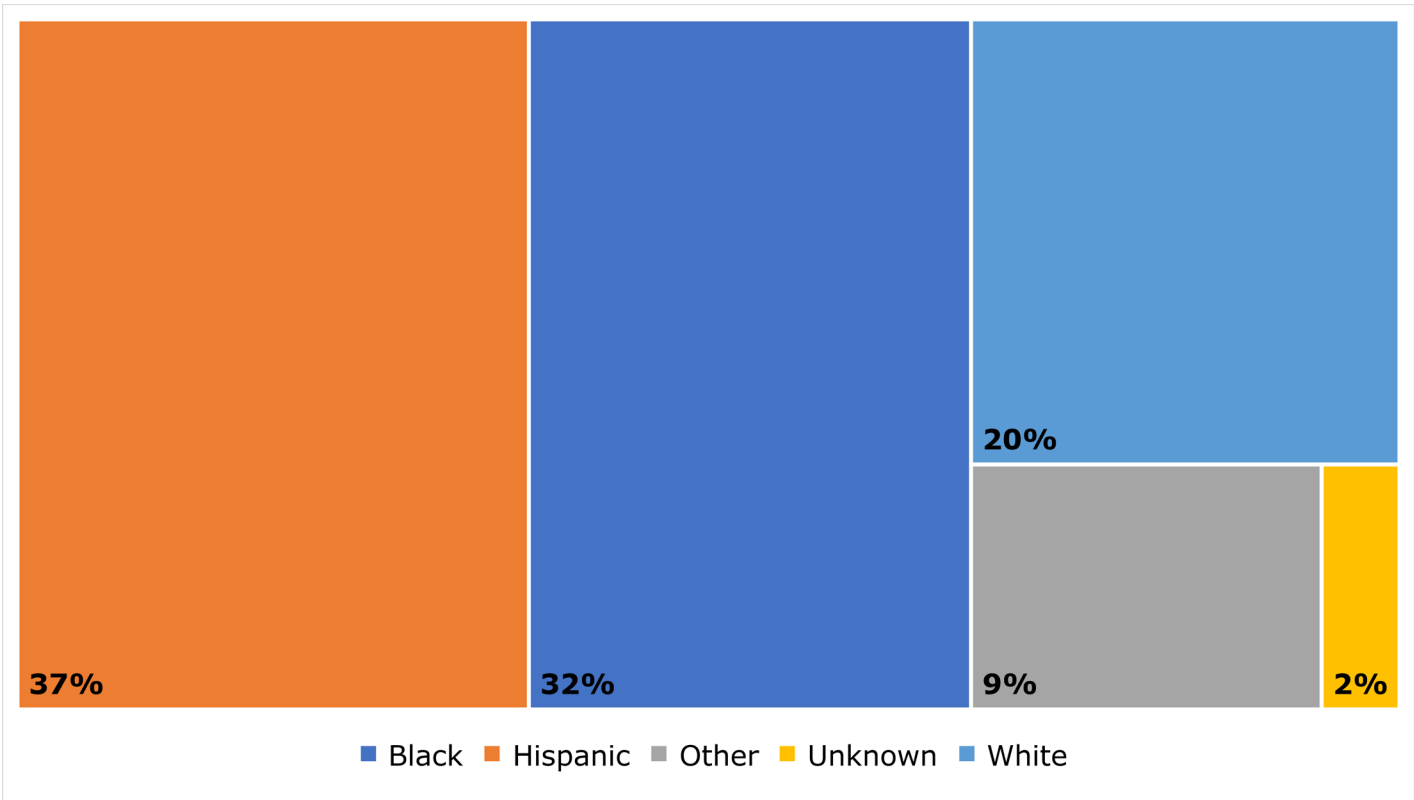


Maternal Demographics for Women Delivering Infants with CS

Race/Ethnicity

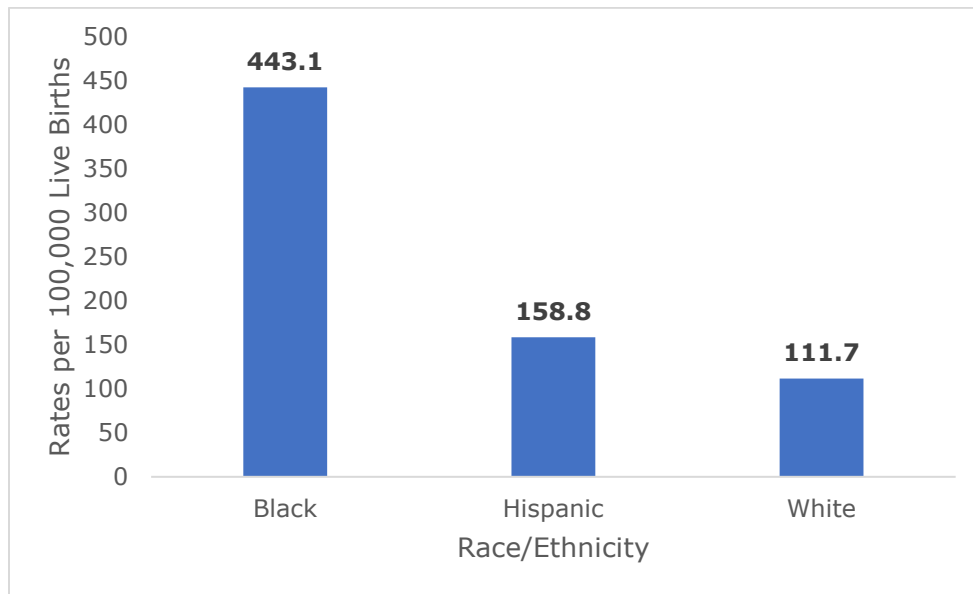
Among the 685 infants reported with CS in 2021, almost seven out of ten were born to Hispanic (37 percent) and Black (32 percent) Texas women (Figure 9). For rates of deliveries by mother’s race and ethnicity, Black women had the highest rate at 443.1 cases per 100,000 live births, followed by Hispanic women with a rate of 158.8 cases per 100,000 live births (Figure 10).

Figure 9: Percentage of CS Cases by Mother’s Race/Ethnicity in Texas, 2021



Race/Ethnicity

Figure 10: CS Rates in Infants by Mother's Race/Ethnicity in Texas, 2021*

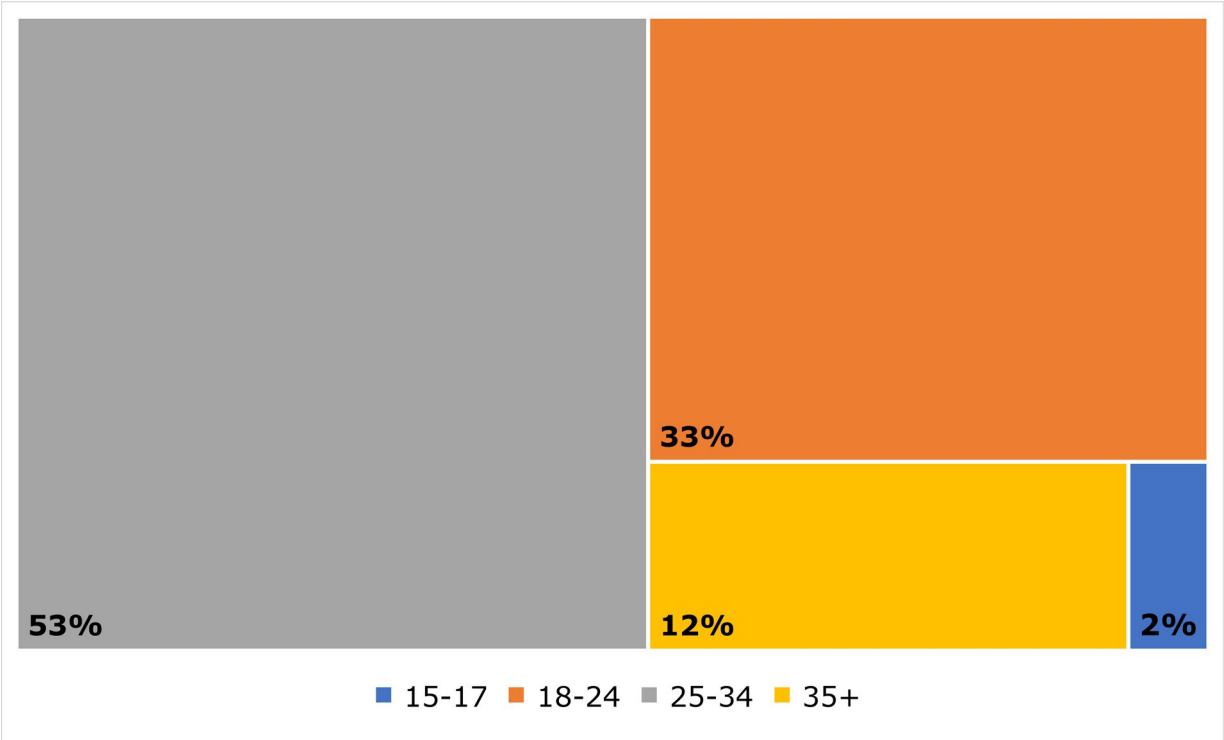


*Denominator used to calculate rate is the 2021 CHS birth data by county. Excludes Other/Unknown race.

Maternal Age at Delivery of an Infant with CS

At the time of delivery, more than half of the mothers were 25–34 years old. Almost all the mothers were 18 years old or older (Figure 11).

Figure 11: Age of Mothers Delivering Infants Diagnosed with CS at the Time of Delivery in Texas, 2021



Age Group

Facility of Maternal Syphilis Diagnosis

Approximately seven out of ten women delivering an infant with CS received their syphilis diagnoses at an inpatient hospital, private physician's office, or obstetrics and gynecology/prenatal clinic.

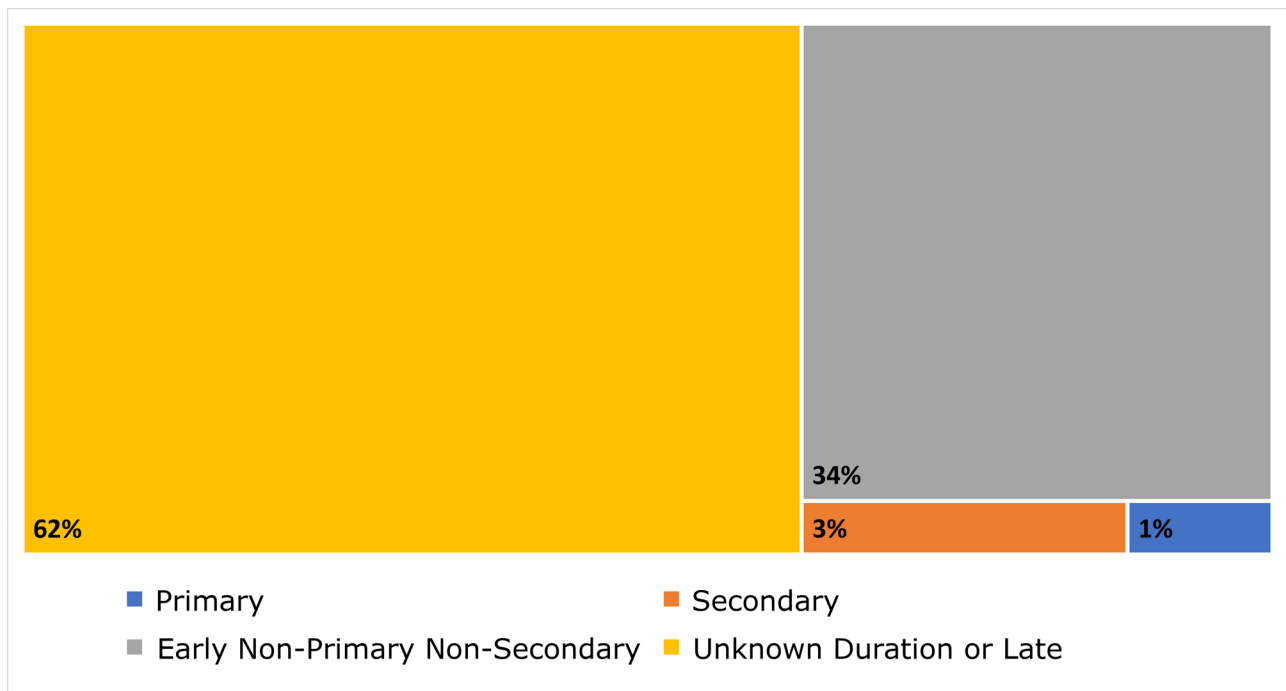
Table 1: Facility of Maternal Syphilis Diagnosis in Women Delivering an Infant Diagnosed with CS in Texas, 2021

Facility Type	Percent
Hospital Inpatient	40%
Private Physician Office/Primary Care Clinic	20%
Obstetrics and Gynecology/Prenatal Clinic	15%
STD Clinic	4%
Emergency Room\Urgent Care	3%
Specialty Clinic/Hospital Clinic	3%
Correctional Facility	2%
Family Planning Clinic	2%
Laboratory	2%
Inpatient/Labor and Delivery	1%
Blood Bank, Plasma Center	1%
Community Health Center	1%
Other	1%
Prenatal	1%
Adult HIV Clinic	1%
Unknown	1%
Health Department	1%
Long Term Care	<1%
Mental Health Provider	<1%
Coroner/Medical Examiner	<1%
Drug Treatment Facility	<1%
HIV Counseling and Testing Site	<1%
Infectious Disease Clinic	<1%
Military	<1%

Maternal Syphilis Stage at Diagnosis

Correct identification of the maternal syphilis stage is important in determining the appropriate treatment regimen for syphilis. In 2021, three out of five mothers received a syphilis diagnosis of unknown or late duration (Figure 12). Pregnant women diagnosed with syphilis of late or unknown duration require three treatments of benzathine penicillin G given one week apart. If a person misses a dose or takes it more than nine days apart, they must restart the treatment. Failure to complete this therapy appropriately will result in a report of a probable CS case.

Figure 12: Percentage of CS Cases by Maternal Syphilis Stage at Diagnosis in Texas, 2021

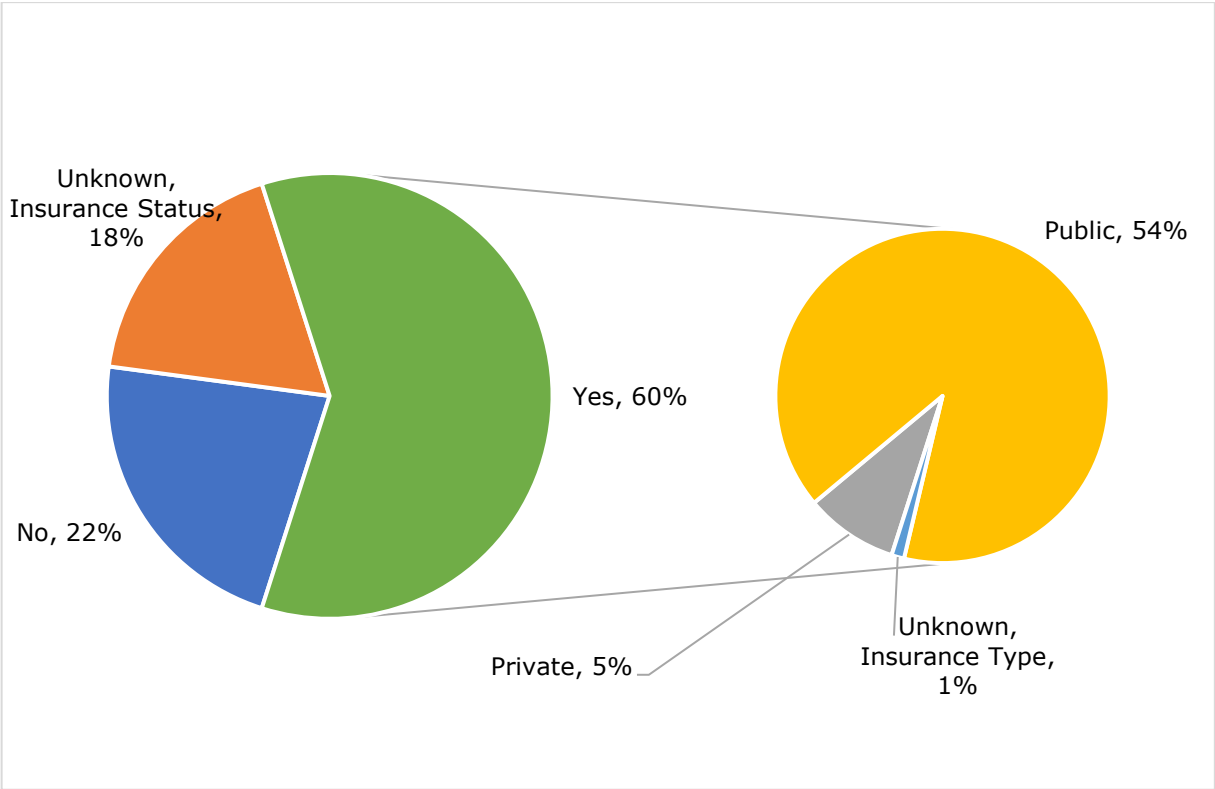


Maternal Syphilis Stage

Barriers to Care

Texas utilizes internal and external case review boards to thoroughly examine probable and confirmed CS cases and syphilitic stillbirths and to review missed opportunities for CS prevention. DIS face challenges as they work to prevent maternal syphilis, such as delays in receiving a positive lab result or initiating partner services; there may be difficulty locating the client or their partner, leading to untreated syphilis cases or potential re-infection. Clients may experience housing instability, domestic or intimate partner violence, mental health issues, and substance use disorders, which create competing priorities for seeking healthcare. Review boards have also found that women who deliver infants diagnosed with CS often have prior involvement with corrections (local, state, and federal jails or prisons) or child protective services. Clients often cite transportation issues as a reason why they cannot make medical appointments. Clients report that late prenatal care is due to Medicaid enrollment delays and difficulty finding a provider in their area. In 2021, among the 60 percent of mothers who reported having insurance during their pregnancy, over half had public insurance (Figure 13).

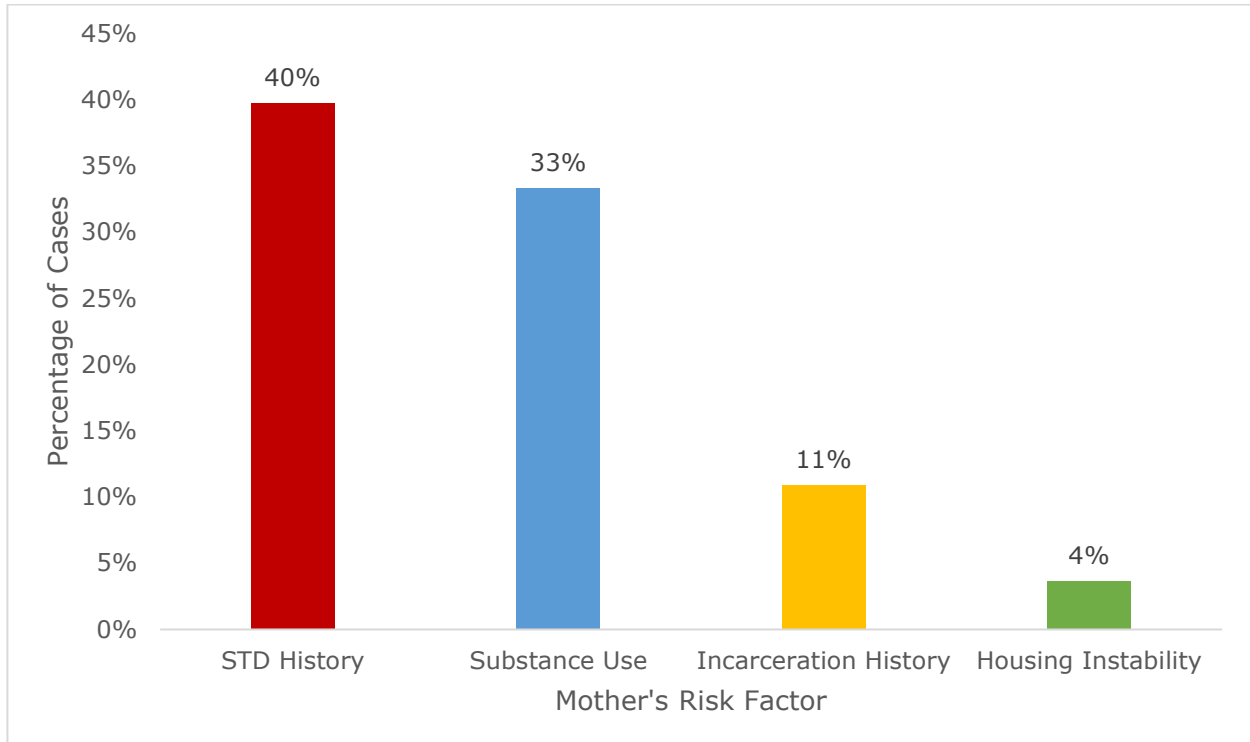
Figure 13: Percentage of CS Cases by Maternal Insurance Status in Texas, 2021*



Maternal Risk History

The maternal risk history provides insight into challenges faced by women who deliver infants with CS. Not all women who delivered an infant with CS have risk information available. Of the 357 women for whom this information was available, 40 percent had a previous STD, and nearly half had been incarcerated or had a history of substance use (Figure 14).

Figure 14: Risk History of Women Delivering an Infant with CS in Texas, 2021*

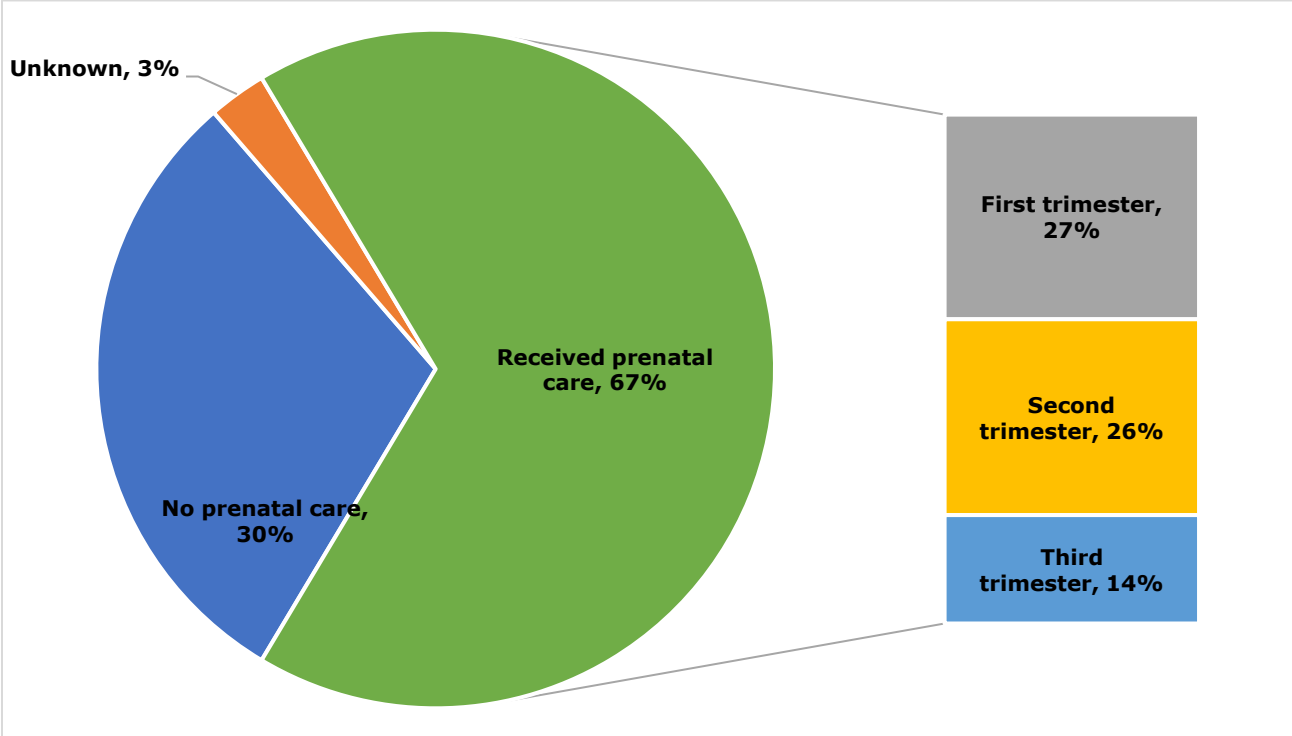


* Women delivering an infant with CS who received a partner services interview at the time of diagnosis.

Prenatal Care

Among all women giving birth in Texas, five percent did not receive prenatal care.⁸ For women who gave birth to an infant diagnosed with CS in 2021, the picture is very different. While 67 percent had some prenatal care, about one-third of women delivering an infant diagnosed with CS had no or unknown prenatal care. Among women with prenatal care, 40 percent entered prenatal care after the first trimester (Figure 15).

Figure 15: Prenatal Care in Mothers who Delivered an Infant with CS in Texas, 2021



⁸ Texas Department of State Health Services. Centers for Health Statistics. 2021 Provisional Texas Birth Certificate Data.

Timing of Maternal Syphilis Diagnosis in Relation to Delivery

The timing of a maternal syphilis diagnosis is critical for the initiation of timely treatment. A syphilis diagnosis at least 45 days prior to delivery allows enough time for providers and health departments to receive positive lab results and initiate adequate maternal treatment at least 30 days prior to delivery. In 2021, nearly half of mothers received their syphilis diagnosis fewer than 45 days prior to delivery, at the time of delivery, or postpartum (Table 2).

Table 2: Timing of Maternal Syphilis Diagnosis Among Mothers Delivering an Infant with CS in Texas, 2021

Maternal Timing of Diagnosis	Percent
45 days or more before delivery	51%
Fewer than 45 days before delivery	26%
At delivery	21%
Postpartum	2%

Maternal Treatment for Syphilis

For treatment among women delivering an infant diagnosed with CS, 87 percent had inadequate or no syphilis treatment, and 12 percent had adequate syphilis treatment (Figure 16). Adequate syphilis treatment is dependent on the syphilis stage at the time of diagnosis. For a pregnant woman, adequate treatment must begin at least 30 days prior to delivery. For mothers diagnosed at least 45 days prior to delivery, approximately 70 percent had inadequate treatment or no treatment (Figure 17).

Figure 16: Maternal Syphilis Treatment for Women Delivering an Infant with CS in Texas, 2021

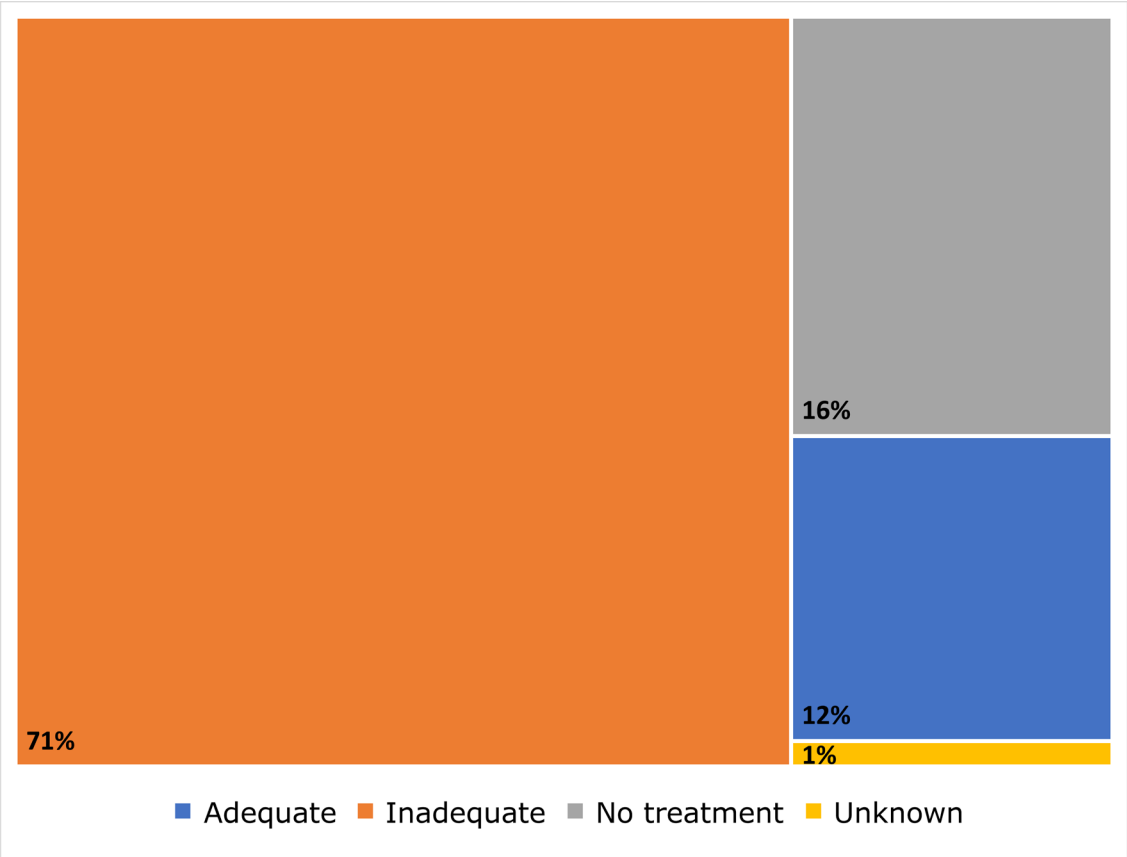
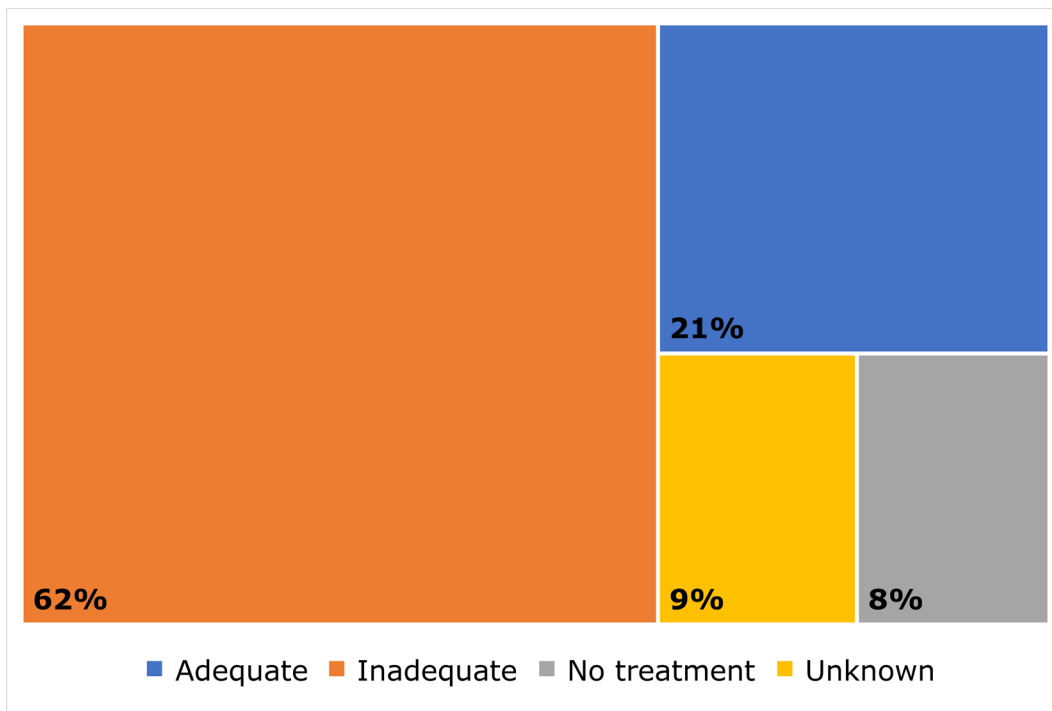


Figure 17: Maternal Syphilis Treatment for Women Delivering an Infant with CS who were Diagnosed at Least 45 Days before Delivery in Texas, 2021



Birth Outcomes Associated with CS

CS is syphilis in babies transmitted during pregnancy or at delivery by an untreated or inadequately treated woman with syphilis. CS can lead to miscarriage, stillbirth, preterm delivery, birth defects, and even perinatal death. Some infants with CS can be asymptomatic and healthy at birth but may develop life-altering complications later in life.⁹ According to the CDC, up to 40 percent of babies born to women with untreated syphilis may be stillborn or die as newborns.

A probable CS case most often includes an infant whose mother had untreated or inadequately treated syphilis at the time of delivery. Testing for CS is different and requires more steps than testing for sexually acquired syphilis. Reactive non-treponemal blood tests and one of the following: evidence of CS on physical exam, long-bone x-ray, reactive cerebrospinal fluid (CSF) venereal disease research laboratory (VDRL) test, or elevated CSF white blood cell or protein count without other cause identify CS cases in

⁹ Centers for Disease Control and Prevention (12 April 2022). CS – CDC Fact Sheet. Retrieved from cdc.gov/std/syphilis/stdfact-congenital-syphilis.htm.

infants. A CSF analysis from a lumbar puncture can evaluate possible neurological involvement.¹⁰

A syphilitic stillbirth is the birth of a fetus to a woman with untreated or inadequately treated syphilis who delivered at least 20 weeks' gestation, or the fetus weighs at least 500 grams. Specialized laboratory testing for the presence of *Treponema pallidum* confirms a CS case. Early CS is when the infant exhibits symptoms from birth up to their second birthday, and late CS is when symptoms start after age two. Early CS may cause vision or hearing loss, non-viral hepatitis causing jaundice of the skin and eyes, long-bone abnormalities, developmental delays, inflammation of the liver and/or spleen, snuffles (a physical symptom of CS consisting of large amounts of mucous around the eyes, nose, and mouth), rash, wart-like lesions on the genitals, and additional symptoms. Snuffles are highly contagious to those caring for the infant. Clinical manifestations of late CS include problems with bone and tooth development, hearing, and vision, as well as the central nervous and cardiovascular systems. Timely prenatal care, testing, and treatment can avert potentially devastating health outcomes for infants.¹¹

Among the 685 CS cases in 2021, approximately one-quarter had a low birth weight (<2500g), and more than one-quarter were preterm (<37 weeks' gestation). Of the reported CS cases, 35 (5 percent) resulted in stillbirth or neonatal death. Of the 685 infants reported with CS, there were 31 syphilitic stillbirths, three confirmed cases, and 651 probable cases (Table 3).

¹⁰ Centers for Disease Control and Prevention (30 March 2022). Sexually Transmitted Infections Treatment Guidelines-2021. Retrieved from [cdc.gov/std/treatment-guidelines/syphilis.htm](https://www.cdc.gov/std/treatment-guidelines/syphilis.htm).

¹¹ Centers for Disease Control and Prevention (16 April 2021). CS (*Treponema pallidum*) 2018 Case Definition. Retrieved from [ndc.services.cdc.gov/case-definitions/syphilis-2018/](https://www.ndc.services.cdc.gov/case-definitions/syphilis-2018/).

Table 3: Birth Outcomes of CS Cases, Texas 2021

Birth Outcomes	No. of Cases	Percent
Total Cases	685	100%
Birth Weight		
Low Birth Weight (<2500g)	166	24%
Normal Birth Weight (≥2500g)	514	75%
Unknown Birth Weight	5	1%
Gestational Age		
Preterm (<37 weeks)	191	28%
Full-term (≥37 weeks)	494	72%
Vital Status		
Alive	650	95%
Stillbirth or Neonatal Death	35	5%
Classification		
Probable Case	651	95%
Syphilitic Stillbirth	31	5%
Confirmed Case	3	<1%

Testing and Treatment for Infants with CS

Maternal treatment adequacy and clinical and laboratory evaluations of the infant determine treatment and evaluation decisions for infants born to mothers diagnosed with syphilis. Testing for CS is different and requires more steps than testing for sexually acquired syphilis. Antibiotics are the only approved treatment for infants exposed to syphilis.

Per CDC treatment guidelines, all infants born to women with positive syphilis serology should have a non-treponemal serology test (rapid plasma reagin (RPR) or venereal disease research laboratory (VDRL)) drawn at delivery.¹² Although 95 percent of CS cases were probable or confirmed and should have had a non-treponemal test, 53 percent of CS cases had an RPR or VDRL test performed (Figure 18). Of the 53 percent of CS cases that had a non-treponemal test performed, 66 percent were reactive. Treponemal tests (i.e., FTA, TPPA, and CIA) generally test for *Treponema pallidum* antibodies and

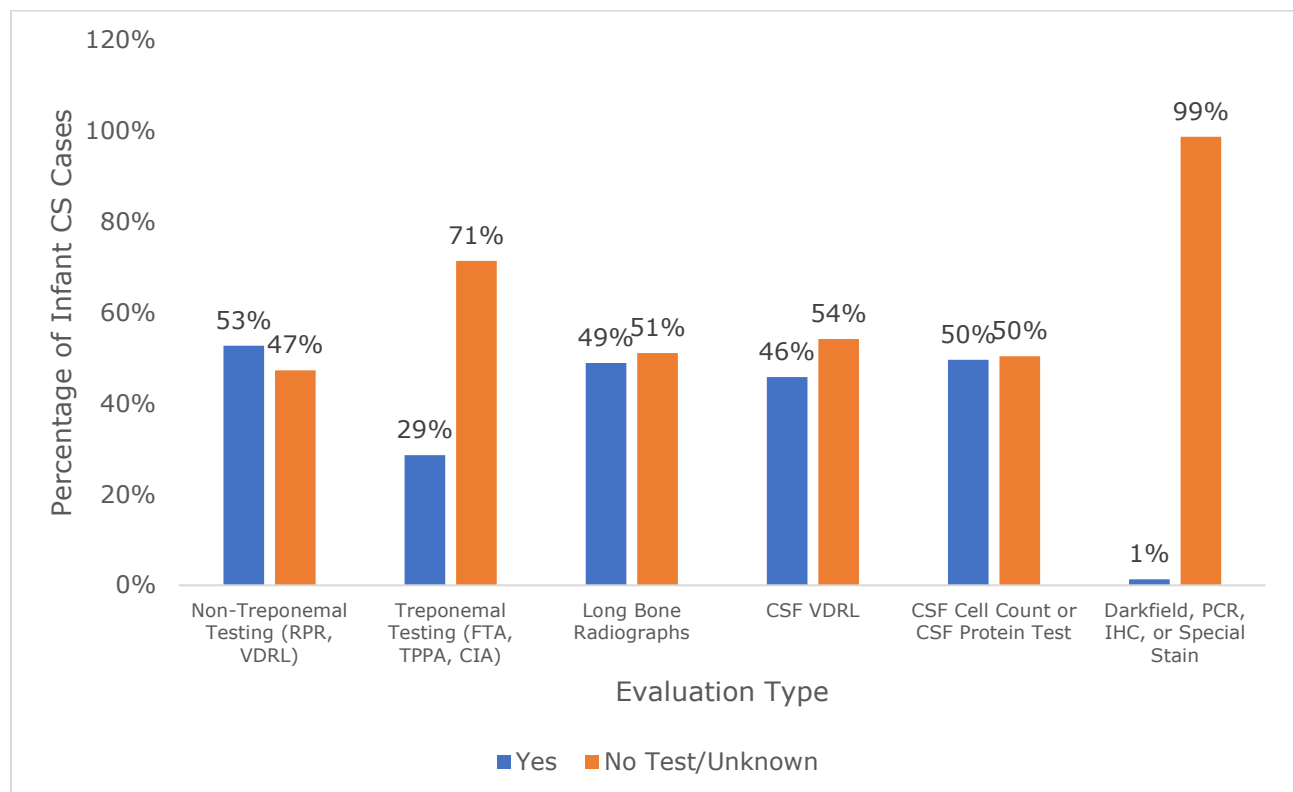
¹² Centers for Disease Control and Prevention (30 March 2022). Sexually Transmitted Infections Treatment Guidelines-2021. Retrieved from [cdc.gov/std/treatment-guidelines/syphilis.htm](https://www.cdc.gov/std/treatment-guidelines/syphilis.htm).

confirm a syphilis diagnosis. However, for infants, it is not recommended to perform treponemal tests due to the likelihood of passively transferred maternal antibodies, which can persist for more than 15 months after delivery.¹³ Further clinical evaluations may not be necessary for all reported CS cases, depending on the provider’s assessment of the infant’s CS clinical scenario (Figure 19).

Confirmatory tests (darkfield, immunohistochemistry (IHC), polymerase chain reaction (PCR), or special stains) can definitively demonstrate the presence of *Treponema pallidum* in body fluids or tissue and can be performed on placentas, umbilical cords, or autopsy material.¹⁵ One percent of infants reported with CS had an evaluation using the confirmatory testing methodology; 48 percent of those tested had reactive results on darkfield, IHC, PCR, or special stains (Figure 19).

Among infants reported with CS, over two-thirds (about 70 percent) received treatment (Table 4).

Figure 18. Testing and Evaluation for Infants Reported with CS in Texas, 2021



¹³ Center for Disease Control and Prevention (30 March 2022). Sexually Transmitted Infections Treatment Guidelines-2021-Congenital Syphilis. Retrieved from [cdc.gov/std/treatment-guidelines/congenital-syphilis.htm](https://www.cdc.gov/std/treatment-guidelines/congenital-syphilis.htm).

Figure 19. Reactive Testing and Evaluation Outcomes for Infants Reported with CS in Texas, 2021

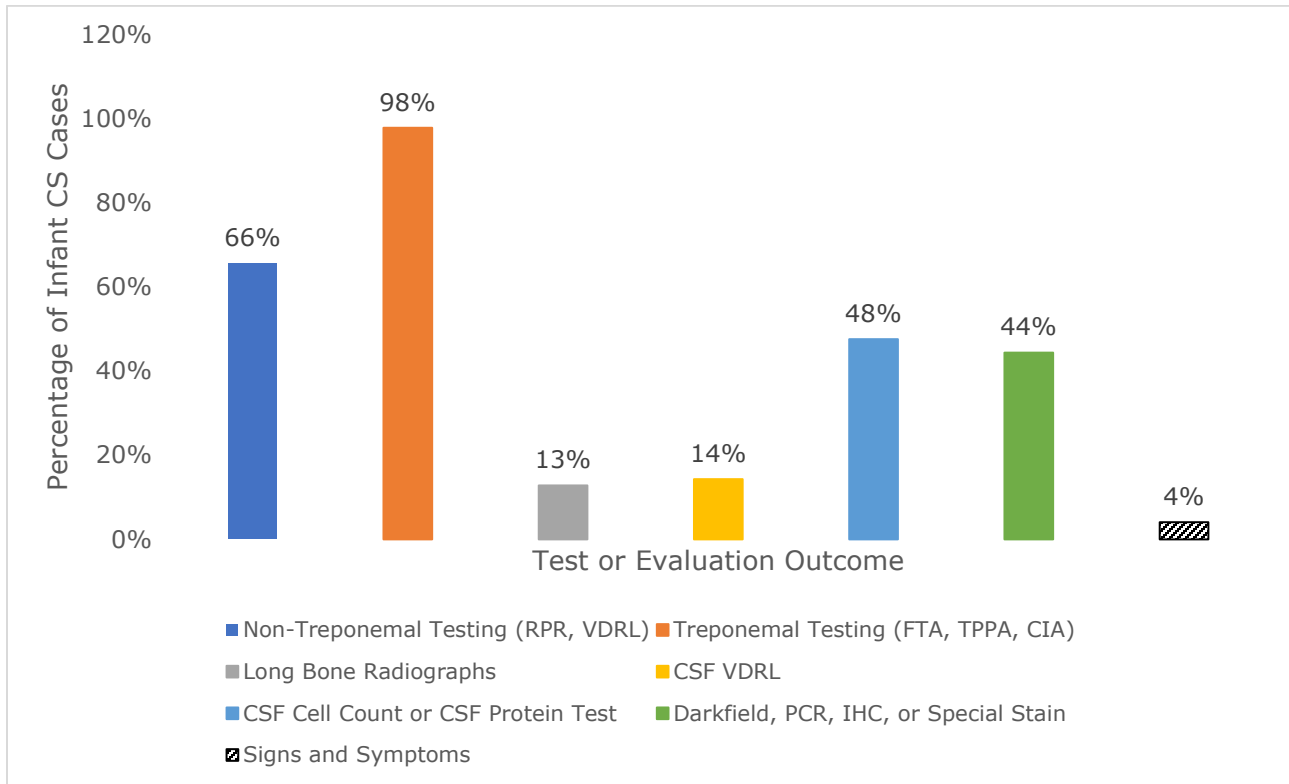


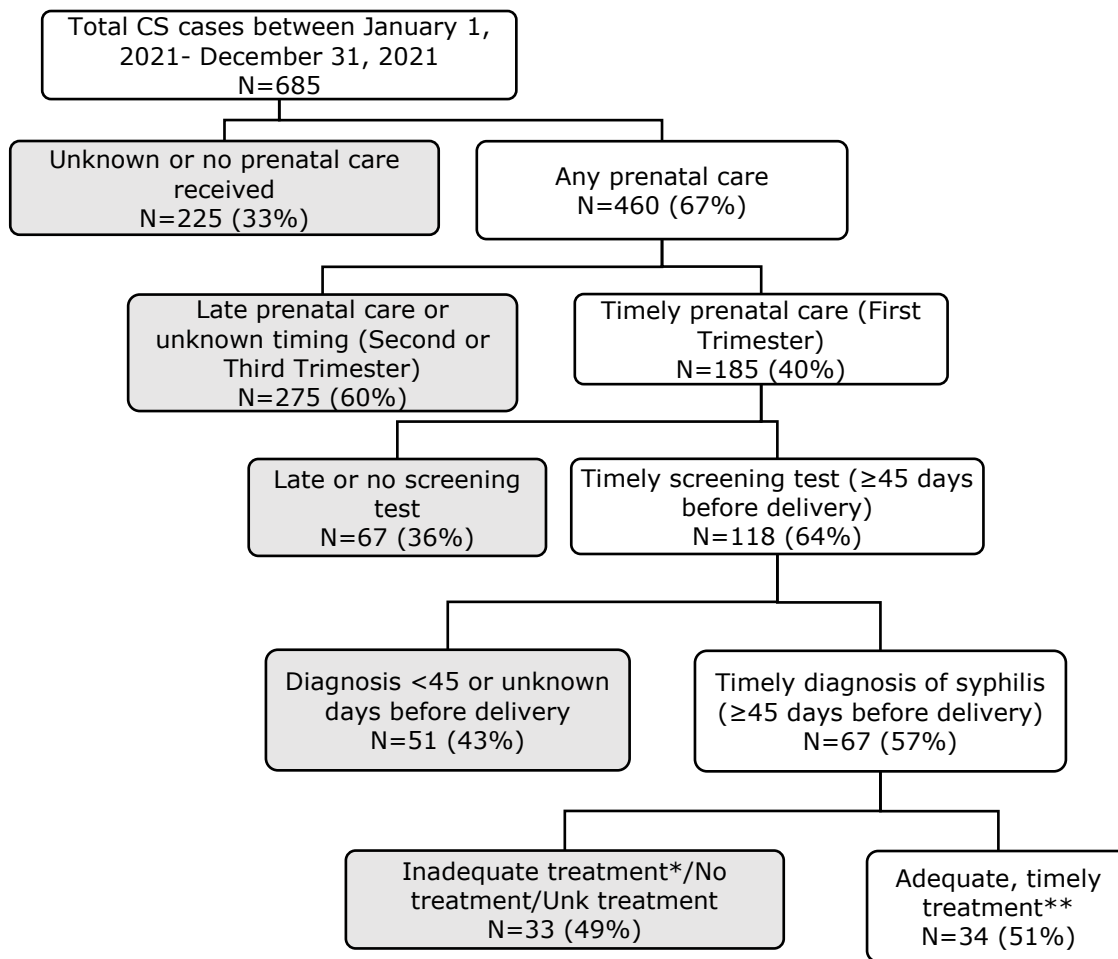
Table 4: Treatment for Infants with CS in Texas, 2021

Treatment for Infants Reported with CS	No. of Infants	Percent
Yes, Aqueous or Procaine penicillin for ≥ 10 days	343	50%
Yes, Benzathine penicillin X 1	103	15%
Yes, Ampicillin	3	<1%
Yes, other treatment	26	4%
No treatment	200	29%
Unknown	10	1%
Total	685	100%

CS Cascade

This cascade is a tool used to help identify missed opportunities for prevention, which may contribute to CS, and areas for improvement. Based on information from the CS cascade, 185 (40 percent) mothers received timely prenatal care, testing, and diagnosis. However, despite receiving timely services, nearly 50 percent had either inadequate treatment, received no treatment, or had unknown treatment (Figure 20).

Figure 20: CS Cascade in Texas, 2021



*Treatment initiated <30 days prior to delivery or was incorrect dosage based on the CDC STD Treatment Guidelines, 2020 is inadequate.

**Persons in this group may have delivered infants who meet the CS case definition based on infant criteria.

Efforts to Decrease CS

While Texas is in line with the rise in CS and national trends for opportunities for prevention (e.g., maternal treatment adequacy, late identification of maternal syphilis diagnosis, and timely prenatal care).¹⁴ The DSHS began enhanced surveillance in 2017 with vital statistics matching (the matching of laboratory reports with birth records). The enhanced surveillance activity contributed to the initial increase in CS cases. Texas continues to experience increases in both syphilis and CS cases. Texas uses CDC funding to support supplemental efforts in targeted areas to improve disease identification and reporting, increase referrals for women who have a syphilis diagnosis, and identify possible barriers to care and missed opportunities for disease intervention. These efforts have offered an opportunity for improved identification of CS cases in recent years.

Though it may be too early to see the impact of the DSHS's increased efforts, the DSHS deployed multiple strategies to help decrease the number of cases. These include:

- Increasing trainings for local and regional field staff to provide the necessary tools and information to obtain pregnancy status and verify adequate and timely treatment, including hosting a CS symposium.
- Providing education for medical providers to increase early diagnosis of syphilis and efforts to raise awareness of the need for testing pregnant women.
- Matching vital statistics data for regional and local health departments. The DSHS identifies and investigates possible unreported CS.
- Contracting with the University of Texas Rio Grande Valley School of Medicine to conduct provider education, improve syphilis testing of pregnant women, and enhance referrals for pregnant women, women of childbearing age, and their partners in the DSHS Public Health Region 11.
- Hosting a virtual CS provider symposium for physicians, advanced practice nurses, and physician assistants. Sessions and presentations provided content to improve CS awareness among Texas providers and increase the knowledge base regarding the treatment of women and infants affected by syphilis.
- Producing a podcast titled "Exploring an Epidemic: CS in Texas" as an innovative way to reach wider audiences, including medical providers and the community, to increase awareness of CS. The DSHS has released six episodes, with an additional six in development.

¹⁴ Kimball A, Torrone E, Miele K, et al. (5 June 2020). Missed Opportunities for Prevention of Congenital Syphilis — United States. *Morbidity and Mortality Weekly Report* 2020. Retrieved from [cdc.gov/mmwr/volumes/69/wr/mm6922a1.htm?s_cid=mm6922a1_w](https://www.cdc.gov/mmwr/volumes/69/wr/mm6922a1.htm?s_cid=mm6922a1_w).

Since 2015, the DSHS has supported Fetal Infant Morbidity Review (FIMR) activities in the highest morbidity areas of the state. FIMR case boards currently exist in the Houston, San Antonio, and Dallas-Fort Worth areas. These three areas account for most of the CS cases reported in Texas. FIMR boards in San Antonio and Dallas review CS cases which result in stillbirth, perinatal death, infants with physical signs and symptoms, or which meet the criteria to be reported as a probable case. These review boards work to identify and address barriers to medical care which contribute to CS cases by conducting maternal interviews and enhancing medical chart abstractions. Medical providers, clinicians, and community members use information from both sources to develop appropriate interventions and action items for implementation at the local level.