

Birth Defects

Birth defects are structural abnormalities present at birth that can affect how the body looks, works, or both. These conditions may impact a child’s health, development, or physical functioning. Some defects can be life-threatening. In Louisiana, birth defects—along with prematurity—are among the leading causes of infant mortality. According to the Centers for Disease Control and Prevention (CDC), about 3% of babies in the U.S., or 1 in every 33, are born with a birth defect. This equates to approximately 1,500 babies each year in Louisiana.

Data Sources

- Data are provided in partnership with the Office of Public Health, [Louisiana Birth Defects Monitoring Network](#).

Data Measure(s)

The LDH Health Data Explorer contains data on the prevalence of the above-listed birth defects, displayed per 10,000 live births, for 5-year reporting periods, for children up to the age of three years.

Vintage: The latest dataset available from LDH Tracking as of July 2025:

- Birth defects prevalence and count: data years spanning **2005-2009 through 2016-2020**

Definition

Prevalence. Prevalence can be understood as a ‘snapshot’ of how many people have a disease at any given time, reported as a percentage or as the number of cases per 1,000, 10,000, or 100,000 people. Explained another way, prevalence is the proportion of individuals in a population who have a particular disease or condition over a specified period of time. Prevalence differs from incidence rate by including a **total of both new and preexisting cases** in the population for the specified time period, whereas incidence rate is limited to new cases only that develop over that specified time period.

Tracking Birth Defects by Type

The following birth defects are included in environmental public health tracking to study their possible connections to the environment.

- **Anencephaly**
 - o Anencephaly is a rare but fatal type of neural tube defect in which a baby is born without parts of the brain and skull. Anencephaly occurs when the upper part of the neural tube does not close all the way. The neural tube is a narrow channel that folds and closes early during the first trimester, specifically around the third and fourth weeks of pregnancy, to form brain and skull, spinal cord, and back bones. With anencephaly, the baby’s brain is not fully formed or often not covered by bone or skin when the baby is born. Sadly, babies born with this condition die within a few hours or

days of birth. Many of such pregnancies end in miscarriage. Folic Acid is prescribed to expectant mothers as one preventative measure against neural tube defects.

- **Cleft Lip with and without Cleft Palate**

- o Cleft lip is an opening in the upper lip that occurs when a baby's lip does not form properly during pregnancy. The opening can be a small slit in the lip or it can be a large opening that goes through the lip into the nose. A cleft lip can be on one or both sides of the lip or in the middle of the lip. Children with cleft lip can also have cleft palate. This happens when the roof of the mouth, or palate, does not join together completely during pregnancy (see also, Cleft Palate, below).

- **Cleft Palate without Cleft Lip**

- o A cleft palate is an opening in the roof of the mouth, called the palate. A cleft palate does not join together completely during pregnancy. For some babies, both the front and back parts of the palate are open. For other babies, only part of the palate is open.

- **Down Syndrome (Trisomy 21)**

- o Down syndrome, also known medically as Trisomy 21, is a condition in which a baby is born with an extra chromosome. Chromosomes are small, threadlike structures found in the nucleus of cells that carry genetic information in the form of genes. Normally, a baby is born with 23 pairs (46 total) chromosomes. Babies born with Down syndrome have an extra copy of chromosome 21. This extra copy or piece changes how the baby's body and brain develop, which results in both developmental and physical differences. No one knows for sure why Down syndrome occurs, but one factor that increases the risk for having a baby with Down syndrome is the mother's age. Women who are 35 years or older when they become pregnant are more likely to have a pregnancy affected by Down syndrome.

- **Gastroschisis**

- o Gastroschisis is a birth defect of the baby's abdominal wall that causes a portion of the intestine to protrude outside of the baby's body through an opening beside the belly button. The opening can be small or large. Sometimes other organs, such as the stomach and liver, also protrude outside of the baby's body. Gastroschisis occurs early during pregnancy (first trimester) when the muscles that make up the baby's abdominal wall do not form correctly. Surgery (primary and staged repair) is necessary to replace the baby's internal organs following birth. Intravenous (IV) care or tube feeding may be necessary until the baby can eat on its own. Developmental problems in the baby's intestine may also occur.

- **Hypoplastic Left Heart Syndrome**

- o Hypoplastic left heart syndrome is a type of congenital heart defect that affects normal blood flow through the heart. It occurs when the left side of the baby's heart does not form correctly. This condition is survivable. Treatment includes rapid stabilization of the baby's heart once born, diagnostics and surgery. The availability of modern surgeries to repair the heart have increased survival rates to 75-90 percent.

- **Hypospadias**

- o Hypospadias is a birth defect in boys where the opening of the urethra is not located at the tip of the penis. In boys with hypospadias, the urethra forms abnormally during weeks 8-14 of pregnancy. The abnormal opening can form anywhere from just below the end of the penis to the scrotum. Surgical repair is possible beginning around 6-24 months.

- **Upper and Lower Limb Deficiencies**
 - o Upper limb deficiencies occur when a part of, or the entire, arm of a fetus fails to form completely during pregnancy. Lower limb deficiencies occur when a part of, or the entire leg, of a fetus fails to form completely during pregnancy. These defects are also referred to as “limb reduction” because a limb is reduced from its normal size or is missing. Causes of limb deficiency have included medications such as thalidomide and warfarin. Thalidomide was once prescribed as an over-the-counter medication to expectant mothers for morning sickness. Warfarin is a blood thinner. These and additional types of medicines pose extreme risks for expectant mothers.

- **Spina Bifida (without Anencephaly)**
 - o Spina bifida is a neural tube defect that can happen anywhere along the spine when the neural tube does not close all the way. It usually is, but is not always apparent at birth. In Spina Bifida without Anencephaly, the backbone that protects the spinal cord does not form and close as it should, which results in damage to the spinal cord and nerves. Spina bifida can cause a range of defects, from mild to causing serious disabilities. Folic Acid is prescribed to expectant mothers as one preventative measure against Spina Bifida and other neural tube defects.

- **Tetralogy of Fallot**
 - o Tetralogy of Fallot is a type of congenital heart defect affecting normal blood flow through the heart that occurs when a baby’s heart does not form correctly. Tetralogy of Fallot is a combination of as many as four defects: a hole in the wall between the two lower chambers of the heart; a narrowing of the pulmonary valve and main pulmonary artery; an enlarged aorta valve that opens from both ventricles; or the muscular wall of the lower right chamber of the heart is thicker than normal. However modern heart repair surgery can usually be undertaken for Tetralogy of Fallot beginning at 3 to 6 months, depending on the diagnosis, with high survivability.

- **Transposition of the Great Arteries (vessels)**
 - o Transposition of the Great Arteries is a congenital heart defect that occurs when the two main arteries that carry blood out of the heart - the aorta and the pulmonary artery - are switched in position. Surgery for this condition occurs as soon as possible after birth to correct the position of the arteries. An infectious disease caused Rubella (German Measles) in expectant mothers is considered a risk factor for this heart defect.

Explore Data

The LDH Health Data Explorer (<http://ldh.la.gov/tracking>) is an online query tool which allows users to explore health outcomes, exposures, and environmental data in one place. Birth defects data can be viewed alongside other public health indicators in maps, tables, and charts. Data can be exported for further analysis.

To *Explore Data* on the query tool:

Select Criteria

Category: **Health Outcomes**

Topic: **Birth Defects**

Focus: Choose specific defect as listed above

Birth Defects and Health

Scientists and medical professionals continue to reinforce the major role that prenatal care, and specifically nutrition, play in preventing birth defects. In one recent study, the significant association was again shown between maternal folic acid intake and the risk of congenital anomalies. Specifically, “children whose mothers received periconceptual folic acid supplementation had a **77% reduced risk of congenital anomalies.**”¹ As shown under some definitions in the above section “Tracking Birth Defects by Type,” certain medications and infectious diseases can also lead to birth defects. Yet, the cause(s) of most birth defects remain unknown. While some, such as fetal alcohol syndrome, do have identifiable causes, the connection between environmental exposures—such as chemicals, air pollution, and radiation—and birth defects is not yet well understood but remains an area of ongoing research.

Birth Defects and the Environment

Birth defects are complex conditions that often arise from a combination of genetic, behavioral, and environmental factors. Increasingly, scientists and public health professionals are exploring how environmental exposures may influence the risk of certain birth defects. Environmental exposures refer to contact with potentially harmful agents found in the air, water, soil, food, or consumer products. During pregnancy, a developing fetus is especially vulnerable to environmental influences because organ systems are forming and rapidly changing. Substances such as heavy metals (e.g., lead or mercury), pesticides, industrial chemicals, air pollutants, and radiation are among those being studied for their potential roles in birth defect development.

While research on the connections between environmental exposures and birth defects is still evolving, several studies suggest that high levels of certain contaminants may increase the risk of neural tube defects, heart defects, or other structural abnormalities. For example, exposure to air pollution or contaminated drinking water has been linked in some studies to an elevated risk of specific congenital conditions. More evidence is needed to confirm these associations and understand how they may differ by region or population.

Data Methods

Data Privacy and Suppression. For these data, parishes with non-zero counts less than 5 are flagged as suppressed. Suppressed values are not displayed. Suppression is a method of protecting health data confidentiality when small numbers are reported. Suppression rules, which vary by data source, generally restrict the extent to which health data can be shared publicly.

Primary and secondary suppression techniques are used to prevent someone's personal health information from being discoverable by the general public. On the LDH Health Data Explorer, numbers and prevalence that are suppressed are displayed as asterisks (*) and are cross-hatched in grey on graphs and maps. * indicates a suppressed value or a non-existent prevalence where the count = 0.

¹ Moges et al. Jul 2024. “The effect of folic acid intake on congenital anomalies. A systematic review and meta-analysis” *Frontiers in Pediatrics*. Vol 12. <https://doi.org/10.3389/fped.2024.1386846> [Link to article](#)

Data Limitations and Important Considerations

The following data limitations may exist for this dataset:

- a. Data are generally updated as available. There may be a one to two-year lag period before data are available from the data owner.
- b. Fluctuations in prevalence may occur from year to year between parishes that do not reflect a true change in health outcomes over time or geography. These can complicate trend analysis. Distortion may occur from several identified quality controls related to data entry, transfer, or extraction; and several other factors.
- c. Measures were reported for parishes when there was data available for the 5 year time periods (2005-2009, 2006-2010, and 2007-2011). "No data" was reported when data was not available for the 5 year time periods.
- d. Live births in the participating hospitals were used to estimate the prevalence of birth defects, which were expressed as cases of defects per 10,000 live births. The prevalence of birth defects is calculated using the following formula: [the number of cases from the same area and time period / the number of live births from the same area and time period] X 10,000.
- e. The prevalence of birth defects with a relative standard error greater than 30% indicates that data do not meet standards of reliability or precision. Generally, the prevalence of birth defects based on fewer than approximately <20 cases have a relative standard error (RSE) over 30%. Not all data years provide a measure of data reliability. The reliability calculation (LCL, UCL and/or RSE flag) is not calculated/included for all values. Interpret all rates with caution.
- f. The birth defect data on the Louisiana Department of Health (LDH) Health Data Explorer comes from the LDH Louisiana Birth Defects Monitoring Network (LBDMN). LBDMN conducts active surveillance of live births and fetal deaths from approximately all birthing hospitals in Louisiana of children born with congenital birth defects, from birth up to three years of age.
- g. Hospital discharge records including selected birth defects are sent to LBDMN staff. All records are reviewed confidentially and sent to the Data Collection Specialist to determine if the patient met the birth defects' case definition developed by the LBDMN. Some cases of birth defects are not collected, if not diagnosed prior to the third birthday, cases of elective terminations due to birth defects, or those born less than 20 weeks gestational age or less than 350 grams in the absences of a known gestational age.
- h. One child may have multiple birth defects, and therefore more than one diagnosis of different of birth defects. These data do not represent the total number of children with birth defects in Louisiana.
- i. Locations are based on the mother's residence at the time of child's birth.
- j. Out of state births were not included in these data. Mothers who delivered at a Louisiana facility but had out of state residence; or children who sought treatment and were diagnosed in a Louisiana facility but were out of state residents were not included. So those without a LA birth certificate were not included.
- k. Measures were not reported for Louisiana administrative regions or parishes (counties) where several parishes within a region did not report incidents of birth defects, or where parishes had either no surveillance or less than an 80% reporting rate.
- l. For 2005 and 2006, data was included for 26 parishes. For 2007, data was included for 36 parishes. Since some parish data were not available during the 5 year intervals for which birth

defects prevalence measures were calculated, these annual measures cannot be used to estimate the number of children with birth defects for the entire state.

- m. Statewide birth defects data became available for the state beginning in 2008. For 2008, data was included for 64 parishes. However, data collection was not consistent; for example in LDH Administration Health Regions 4 & 5 for several years. Therefore, the loss of data will be reflected over time and should not be interpreted as a reduction in birth defects. For 2009 data was included for 55 parishes. For 2010, data was included for 39 parishes. For 2011, data was included for 33 parishes.
- n. Data limitations may prevent some comparisons of these data to those from other states. Not all states in the United States have a birth defects surveillance program. Among those that do, there is significant variability between surveillance systems. States that have programs may have different methods for collecting and coding data, identifying and verifying cases.

Data Re-release

This is a public dataset which can be freely shared. Personally identifiable health information has been removed. Please refer to the Data Methods section of these metadata from more information.

Data Citations

Please cite the US CDC, LDH Environmental Public Health Tracking Program Cooperative Agreement NUE1EH001490, and any **data source(s)** listed on Page 1 when re-sharing or applying these data in analyses or publications.

Disclaimer

Data are intended to spur further research and should be used only as a starting point to understanding how the environment and other contributing factors may be connected to disease. Datasets presented on this site are intended to answer some basic questions, but should ultimately lead to further inquiry and more detailed study.

Data limitations should be noted if conducting exploratory ecological studies with these data. Limitations may include data gaps, reporting discrepancies (for example, a disruption of reporting or instrument recording following hurricanes) and insufficient data on all potentially confounding factors. There are numerous additional factors which may contribute to disease onset. These include genetics, access to health care, existing health conditions, medicines, other chemical substances we come into contact with or ingest, nutrition, route and duration of exposure, level of activity, level of stress, and many others.

Responsible use of this data therefore requires exercising caution when drawing conclusions based solely on views of the limited available data. Any perceived relationship, trend, or pattern apparent in the data should not be interpreted to imply causation; may in fact be unrelated; and should be regarded as preliminary, and potentially erroneous, until more in-depth study and if applicable, statistical evaluation, can be applied. The LDH Bureau of Health Informatics and Environmental Public Health Tracking Program cannot guarantee the completeness of the information contained in these datasets and expressly disclaim liability for errors and omissions in their content.

Additional Information

Please visit the following links for more information:

- [LDH Louisiana Birth Defects Monitoring Network](#)
- [CDC Birth Defects Info](#)
- [Data and Statistics on Birth Defects](#)

Questions?

- Email: healthdata@la.gov
- Website: <http://ldh.la.gov/tracking>
- Toll free Phone: 1-888-293-7020

Metadata