











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 publically. Primary and secondary suppression techniques are used to prevent someone's personal health information from being discoverable by the general public.

Only 'non-smoothed' data values are included in the parish datasets. A separate methodology is used for displaying sub-county exposure data.

## Data Limitations and Important Considerations

The following data limitations may exist for this dataset:

- a. The preliminary data is from 2002 to 2017.
- b. For the blood lead levels by birth cohort measures: the denominator for the percent of children tested is the total number of live births by parish and state. The number of children born in a given year has not been adjusted for those who have moved in or out of the area since birth. Therefore, it may under or overestimate the number of children in the area in any given year.
- c. For the percent of children tested by age groups by parish and state in the annual blood lead levels measures: The 2002-2009 denominator is the bridged-race intercensal population estimates for those years. The 2010-2017 denominator is the postcensal population estimates for those years.
- d. For both blood lead levels by birth cohort and annual blood lead levels measures, the denominator for the percentage of tests with a particular level of lead in the blood is the total number of children tested.
- e. For both measures, the records with non-Louisiana resident or no geocode result were not included in the measures. Some of the records were lacking age in months of child at time of test; these records will be recorded as "unknown age".
- f. Suppression Rules for the parish-level data: Non-zero counts less than five are suppressed (excluding number of children tested, which is not suppressed). Suppressed values are not shown in tables; they are indicated with an asterisk (\*). The number of children tested is not suppressed.
- g. The LHHCLPPP has operated the Childhood Blood Lead Surveillance System (CBLSS) since July 2003. The number of records in 2002 were less than in other years and records were not presented for all of the 64 parishes in Louisiana.
- h. In Louisiana, targeted blood lead screening occurred before year 2009 and screening tests were conducted at 1 year of age and again at 2 years of age, regardless of initial blood lead levels. Currently, children under 3 are recognized to be most at risk. Age of screening can range from 6 months to 6 years.
- i. The universal screening rule was passed in December 2008 to mandate blood lead testing in children 6 years of age in all parishes (64 parishes).
- j. Before year 2012 all health providers were required to report blood lead levels that were 10 µg/dL within 24 business hours (instead of 48 hours).
- k. Children with blood lead levels  $\geq 5$  µg/dL are selected based on confirmatory results. Beginning in 2012, Louisiana began requiring reporting of elevated blood lead levels of at least 5 µg/dL but less than 10 µg/dL to be classified as confirmed or unconfirmed; therefore, data before 2012 may have a larger number of counts in the unconfirmed status than in the confirmed status. Blood lead tests are confirmed by either one

venous test, two capillary tests and/ or two tests of unknown type collected at least 1 day but less than 12 weeks apart.

- l. Issues may be caused by the quality of the data collection process at the individual level, including records with missing or invalid test results recorded as  $<3.3 \mu\text{g}/\text{dL}$ ; lack of information when the quantity of blood drawn was insufficient for analysis or the sample clotted; lack of provider information in the HHL PSS data; or any information entered incorrectly or codes incorrectly assigned in the data.
- m. Unique ID numbers were not available in the childhood lead data, which contained five datasets. Each tested child was assigned a unique ID number based on child's first name, last name, date of birth in the HHL PSS, Tamarac, Excel and Hold patient data, then using the state ID and child's date of birth to match the same child in the previous, HHL PSS, Tamarac, Excel and Hold patient data. Complete information is not available for all children tested; child's name, date of birth, addresses, gender, race, and so on may not be listed in the data, or information or codes may be entered incorrectly. Any incorrect or missing information could result in over- or underestimates in assigning the unique ID numbers for each child.
- n. Complete residential addresses are not available for all children tested. Some of the addresses of the providers or another address from a different source may be listed as the child's address. As a result, the number of children in the area in any given year may be under- or overestimated. Also, if the algorithms identify empty fields in the parish field, then the aforementioned fields are populated with the appropriate parish level data only if the records include municipal level data such as city/ town or contain zip code data. If the records lack municipal level data or zip code data that can be cross referenced to assign the appropriate parish then these records are recorded as "no geocode".
- o. Residential addresses are not available for all children tested. Therefore, the records may be assigned to inappropriate parish, including those lacking address information such as a missing street address, only a post office (PO) Box address, or the address from the provider. The records assigned to a parish based only by zip code may be inaccurate because some zip codes cross parish boundaries. Any misclassification could result in over or underestimation of number and percent of children tested in the parishes.
- p. Because assessment and testing practices vary widely across the state and over time, these measures cannot be interpreted as being representative of the general population in a county or the state. Even when parish of residence at the time of testing is known, it may not correspond to where the exposure occurred. Comparisons with other states must be made with extreme caution because, in addition to these limitations, some states require all children to be tested while others only require "at-risk" children to be targeted for testing.
- q. The analysis uses the child's parish of residence at the time of the test, which may be different from the parish where the child was exposed to lead.
- r. Parishes are not homogenous with respect to the distribution of lead hazards or risk factors for lead exposure.
- s. Number and percent of blood lead levels cannot be interpreted as prevalence or incidence for the population.
- t. Comparisons with other states must be made with extreme caution and require additional information about the states' testing practices, confirmatory testing practices, and reporting laws.
- u. The measures of elevated blood lead levels include only confirmed tests (either one

elevated venous test, two elevated capillary tests, or two tests of unknown type less than 12 weeks apart). The capillary test is subject to contamination, which can result in a false positive, so the number and percent of elevated blood lead levels may be overestimated when non-venous test results are used.

- v. Reporting percentages at the state and/or parish level does not enable linkage of data with environmental data.
- w. Reporting percentages at the state and/or parish level will not show the true burden at a more local level (i.e., neighborhood).
- x. Records for persons in Louisiana may not be included if the testing occurred out of state.
- y. Surveillance data are not randomly sampled or representative of the population.
- z. Vital Statistics data for the number of children born does not include children who may have moved in or out of the area since birth. Therefore, as a denominator, it may under- or over-estimate the number of children in a birth cohort.
- aa. The 5,000 and 20,000-person minimum population shapefiles from the Centers for Disease Control and Prevention's (CDC) Environmental Public Health Tracking Program (Tracking Program) were used to create the childhood lead data at sub-county level (Census Tract). These shapefiles were created by Geographic Aggregation Tool (GAT) to merge census tracts derived from the 2010 Cartographic boundaries and aggregated by a population of at least 5,000 or 20,000 with the closest area to produce the nearest population-weighted centroid of 5,000 or 20,000-person minimum population shapefiles.
- bb. The records in both indicators at the 20K and 5K person minimum population do not include the records with unknown age.
- cc. For the 5,000 and 20,000-person minimum population file, the geographical area in Cameron, St. Helena, West Feliciana, Bienville, Caldwell, Catahoula, Claiborne, East Carroll, Jackson, La Salle, Madison, Red River, Tensas, West Carroll and Winn Parishes at 20,000-person minimum population used the records with "high precision", "low precision", "Low Precision: 2010 ZCTAs only" and "parish only" categories in the data. The rest geographical areas used the records with "high precision" category in the data.
- dd. The 20K person minimum population is aggregated by 3-year period, and the 5K person minimum population is aggregated by 5-year period.
- ee. Suppression Rules for the sub-county data: Please note the distinction, the cases <5 including 0 are suppressed in the data at the 20K and 5K person minimum population. Suppressed values are not shown in tables; they are indicated with an asterisk (\*). The number of children tested is not suppressed.
- ff. 264 records in the annual blood lead levels indicator and 142 records in the blood lead levels by birth cohort indicator were assigned to the zero population census tracts. These records were not included in the data at the 20K and 5K person minimum population.
- gg. There is no denominator available to create the percent of children tested in the annual blood lead levels indicator at sub-county level. For both indicators at sub-county level, data reported are 'Total number and percent of children tested at the 20K and 5K person minimum population' (the percent of children tested only in the blood lead levels by birth cohort).
- hh. Percentages calculated based on small numbers may be unstable/unreliable.



## 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. CDC Tracking downloads of associated geographic data and crosswalk are available at: <https://github.com/CDCgov/EPHTracking-Subcounty>.

## 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 the LDH Health Data Explorer site are intended to answer some basic questions, but should ultimately lead to further inquiry and more detailed study.

Data limitations should be noted when conducting exploratory ecological studies with these data. Limitations may include data gaps, reporting discrepancies (for example, a disruption of reporting or instrument recording) and insufficient data are 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 others.

Responsible use of this data 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:

- [Lead Toxicity: What is the Biological Fate of Lead in the Body?](#)  
--Agency for Toxic Substances and Disease Registry (ATDSR)
- [Bioaccumulation of lead \(Pb\) and its effects on human: A review](#)  
--JHMA, 2022
- [Childhood Lead Poisoning Prevention Program](#)  
--Centers for Disease Control and Prevention

- [Environmental Protection Agency – Lead](#)  
--US EPA
- [LA Healthy Homes and Childhood Lead Poisoning Prevention Program \(LHHCLPPP\)](#)  
--LDH

### Questions?

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Metadata