

MICHIGAN BLOOD LEAD LEVELS BY BIRTH COHORT

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Abstract

This dataset contains blood lead results for children in Michigan tested for lead before their 3rd birthday. The data are aggregated and stratified by county of residence at the time of the test, year of birth, test sample type (venous or capillary), and elevated blood lead level categories (5 to 14 micrograms per deciliter [$\mu\text{g}/\text{dL}$], 15 to 44 $\mu\text{g}/\text{dL}$, and 45 $\mu\text{g}/\text{dL}$ or higher). This dataset contains the following measures:

- Number of children born in the same year and tested for lead
- Number of children born in the same year and tested with blood lead levels $\geq 5 \mu\text{g}/\text{dL}$
- Percent of children born in the same year tested for lead
- Percent of children born in the same year with blood lead levels $\geq 5 \mu\text{g}/\text{dL}$

Surveillance data from the Michigan Department of Health and Human Services (MDHHS) Data Warehouse were used to create this dataset through a Data Use Agreement.

Purpose

The dataset is intended to provide public health professionals, researchers, policy-makers, other Tracking grantees, and the general public with summary information on childhood lead exposure in the state of Michigan.

Supplemental Information

Blood lead testing results are reported to the Michigan Department of Health and Human Services (MDHHS) Childhood Lead Poisoning Prevention Program (CLPPP) as required by the Public Health Code. Children may have more than one test in a single calendar year but only one test result will be recorded per child per year in this dataset. For children with multiple tests, MDHHS CLPPP selects the highest venous test result. If the child did not have a venous test, the highest capillary test result was selected. If the child's only test result or results had an unknown sample type, the highest test result was retained.

Data on the number of children born each year were obtained from the MDHHS Division of Vital Records.

The CDC Environmental Public Health Tracking (EPHT) Childhood Lead Poisoning Content Workgroup uses a different definition to select one test per child per calendar year than the MDHHS CLPPP's methodology described above. Thus, the data presented on the Michigan EPHT portal will differ from the data on the CDC's national portal.

Keywords¹

Exposure; Environmental exposure; Childhood lead poisoning; Blood lead levels; elevated blood lead levels; BLL; Lead; Pb; capillary and venous blood samples; blood lead screening

¹ From CDC Tracking Program Metadata Creation Tool

Bounding Coordinates²

West Bounding Coordinate: -90.41813399999995

East Bounding Coordinate: -82.418394000000006

North Bounding Coordinate: 48.189534000000002

South Bounding Coordinate: 41.696088000000003

Other Information on Data

Level of Geographic Detail: Statewide & County

Currentness Reference (when data were last updated): 10/3/2017

Frequency at which the data are updated: Annually

Data Status: Complete

Completeness Report

This dataset contains blood lead results for children in Michigan tested for lead before their 3rd birthday. The earliest birth cohort year available on the portal is 2000. To calculate the percentage of children born in the same year and tested for lead, the data on live births were obtained from the MDHHS Division for Vital Records and Health Statistics.

Data Processing Description

All cleaning and processing were completed in SAS version 9.3. Lead surveillance data was extracted from the MDHHS data warehouse. The following lead surveillance data variables were extracted from the MDHHS data warehouse: Child ID, serial number, specimen date (date blood was drawn), date of birth, lead result, sample type, house number, street name, apartment number, patient city, patient zip code, county of residence, provider ID, laboratory ID, specimen ID, date reported, first and last name, phone number, and guardian's full name.

After removing duplicate test results, age at the time of test was calculated using the specimen date and date of birth. All tests for a child 3 years of age or older were then removed from the dataset. A new field named BirthYear was created to identify the child's birth cohort. Standardized Federal Information Processing Standard (FIPS) codes were assigned for all 83 counties in Michigan (if county of residence at the time of the test was not known, county was coded as unknown). Blood lead level categories in µg/dL (5 to 14, 15 to 44, and 45 or over) were also assigned using the reported lead results.

For each cohort, one test per child was retained by selecting the highest venous test result. If the child did not have a venous, the highest capillary test result was retained. If the child's only test result or results had an unknown sample type, the highest test result was retained.

² From CDC Tracking Metadata Creation Tool

The number of children born in the same year and tested before reaching age 3 was calculated at the state level and the county level. The percent of children tested was also calculated using the number of live births for each cohort.

The number of children born in the same year and tested with an elevated blood lead level (≥ 5 $\mu\text{g/dL}$) before reaching age 3 was calculated for the state and by county. These data were stratified by sample type and blood lead levels at the state- and county-level. The percent of children born in the same year and tested with an elevated blood lead level before age 3 was calculated by dividing the number of children with an elevated level by the number of children tested.

Access Constraints

There are no access constraints for data available through the Michigan Environmental Public Health Tracking data portal.

Use Constraints

It is recommended that all users read and fully comprehend metadata prior to data use.

These data cannot be used for commercial purposes and shall not be used to engage in any method, act, or practice to conduct the solicitation or advertisement of goods, services, or real estate to Michigan consumers.

The Michigan Environmental Public Health Tracking Program and its data partners have applied appropriate cell suppression rules imposed by the data providers and/or using guidance from the CDC. Even at the county level it can be expected that the measures generated will often be based upon numbers too small to report or present without violating state and federal privacy guidelines and regulations. Staff have adhered to the cell suppression rules by suppressing all counts greater than 0 and less than 6, along with their corresponding rates. Complimentary suppression has also been completed to prevent any back calculation of suppressed cells. For some data, it was necessary to increase cell sizes by combining data across time (e.g., years) and geographic areas (statewide instead of county-level data).

Security Handling Description

If data are distributed, the use constraints specified in this metadata apply to all recipients of the data.

Confidentiality of all data is required by law and strictly maintained by the Health Department staff. Section 2631 of the Public Health Code regulates procedures protecting confidentiality and regulating disclosure of data and records.

Distribution Liability

The Michigan Public Health Tracking Network is maintained, managed, and operated by the Division of Environmental Health (DEH) within MDHHS. In preparation of these data, every effort has been made to offer the most current, correct, complete, and clearly expressed information possible. Nevertheless, some errors in the data may exist. In particular, MDHHS disclaims any responsibility for source data, compilation and typographical errors and accuracy of the information that may be contained in these data.

These data do not represent the official legal version of source documents or data used to compile these data. MDHHS further reserves the right to make changes to these data at any time without notice.

It is strongly recommended that careful attention be paid to the contents of the metadata file associated with these data to evaluate data set limitations, restrictions, or intended uses. MDHHS shall not be held liable for improper or incorrect use of the data described and/or contained herein.

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Use of the data with other data shall not terminate, void, or otherwise contradict this statement of liability.

The sale or resale of the data, or any portions thereof, is prohibited unless with the express written permission of MDHHS and Michigan Department of Environment, Great Lakes, and Energy (ELGE). These data may not be used for commercial purposes without first obtaining written permission from the ELGE.

If errors or otherwise inappropriate information is brought to our attention, a reasonable effort will be made to fix or remove it. Such concerns should be addressed to the Michigan Tracking Program via email or telephone (see *Contact Information* below).

Custom Order Process

For access to national and multi-state unrestricted or public use data, please see:

<http://ephtracking.cdc.gov>

For more information or access to unrestricted or public use Michigan-specific data, please visit the [Michigan Childhood Lead Poisoning Prevention data website](#).

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