



# U.S. Environmental Protection Agency

America's Children and the Environment (ACE)

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## Body Burdens: Data Sources and Methods

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### Concentrations of Lead in Blood (Measures [B1](#), [B2](#), and [B3](#))

[Table B1](#): Concentrations of lead in blood of children ages 5 and under

[Table B2](#): Median concentrations of lead in blood of children ages 1-5, by race/ethnicity and family income, 1999-2000

[Table B3](#): Distribution of concentrations of lead in blood of children ages 1-5, 1999-2000

### National Health and Nutrition Examination Survey

Data on children's blood lead levels were obtained from the National Health and Nutrition Examination Surveys (NHANES) II and III, and NHANES 1999-2000, conducted by the National Center for Health Statistics. The survey is designed to assess the health and nutritional status of the non-institutionalized civilian population with direct physical examinations and interviews, using a complex multi-stage, stratified, clustered sampling design. Interviewers obtain information on personal and demographic characteristics, including age, household income, and race and ethnicity by

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self-reporting or as reported by an informant. The first survey, NHANES I, was conducted during the periods 1971-1974 and 1974-1975; NHANES II covered the period 1976-1980; and NHANES III covered the period 1988-1994. Only NHANES II and III, however, contain data on blood lead levels. NHANES II provided blood lead data for children ages 6 months to 5 years; NHANES III provided data on children ages 1-5 years. Descriptions of the survey design, the methods used in estimation, and the general qualifications of the data are presented in the following:

- Plan and Operation of the Second National Health and Nutrition Examination Survey, 1976-80: Programs and Collection Procedures, Series 1, No. 15. Vital and Health Statistics, Hyattsville, MD: National Center for Health Statistics.
- Plan and Operation of the Third National Health and Nutrition Examination Survey, 1988-94: Series 1: Programs and Collection Procedures, No. 32. Vital and Health Statistics, Hyattsville, MD: National Center for Health Statistics.

Starting in 1999, NHANES changed to a continuous survey visiting 15 U.S. locations per year and surveying and reporting for approximately 5,000 people annually. Body burden data from NHANES 1999-2000 are presented in:

- Second National Report on Human Exposure to Environmental Chemicals. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Environmental Health, January 2003.

The percentage of children with blood lead levels greater than 10 µg/dL is influenced by the proportion of nonresponses within each category. Families with incomes below the poverty level had a lower response rate than families with incomes at or above the poverty level. The percentages are thus the best estimates available, but may be biased by the variation of nonresponses by family income.

NHANES Web site: [www.cdc.gov/nchs/nhanes.htm](http://www.cdc.gov/nchs/nhanes.htm)

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## Second National Report on Human Exposure to Environmental Chemicals:

[www.cdc.gov/exposurereport/](http://www.cdc.gov/exposurereport/) [EXIT disclaimer](#)

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## Concentrations of Mercury in the Blood of Women of Childbearing Age ([Measure B4](#))

[Table B4](#): Distribution of concentrations of mercury in blood of women of child-bearing age, 1999-2000

### National Health and Nutrition Examination Survey

Data on mercury levels were obtained from the National Health and Nutrition Examination Survey (NHANES) 1999-2000, conducted by the National Center for Health Statistics. See above for description of NHANES under Concentrations of Lead in Blood.

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## Concentrations of Cotinine in Blood ([Measure B5](#))

[Table B5](#): Concentrations of cotinine in blood of children

[Addendum to Table B5](#): Median concentrations of cotinine in blood of children ages 4-17, by race/ethnicity and family income, 1988-1991

### National Health and Nutrition Examination Survey

Data on children's cotinine levels were obtained from the National Health and Nutrition Examination Survey (NHANES) III and NHANES 1999-2000, conducted by the National Center for Health

Statistics. See above for description of NHANES under Concentrations of Lead in Blood.

Only cotinine levels for nonsmoking children were used. Children were classified as smokers if they had a serum cotinine level greater than 10 nanograms per milliliter (ng/mL).

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