

2016 Report on Childhood Lead Poisoning in Wisconsin



WISCONSIN DEPARTMENT
of **HEALTH SERVICES**

Acknowledgements



Division of Public Health

Bureau of Environmental and Occupational Health

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About this Report

This report was prepared by the Wisconsin Childhood Lead Poisoning Prevention Program (WCLPPP) to present summary information, based primarily on data from 2016, on the status of childhood lead poisoning in Wisconsin. This report is intended to serve as a resource for local and regional public health agencies, health care providers, parents, property owners, legislators, community leaders, citizen groups, school officials, and others concerned about lead poisoning in Wisconsin.

Introduction

Wisconsin's children continue to be affected by lead poisoning. Lead-based paint in older homes is the primary source of lead exposure in children's environments. Lead-based paint is a particular problem in Wisconsin, due to its high prevalence of older housing stock. Lead poisoning causes serious physical and financial harm to children, their families, and society. The effects of lead exposure can persist throughout a lifetime, and include negative lifelong changes in intellect, behavior, and health. The costs to society include increased medical expenses, increased private health care insurance premiums, increased government expenses for Medicaid and state and local government case management, lifelong loss of earnings, increased special education expenses, and increased use of juvenile and adult correctional programs by people poisoned by lead as children (Needleman, Schell, et al. 1990). There is no safe level of lead in the human body; even very low levels of lead exposure can cause permanent brain damage and negatively affect learning, behavior, and health throughout a child's life.

Lead poisoning is 100% preventable.



Definitions Used in This Report

Wisconsin Childhood Lead Poisoning Prevention Program (WCLPPP):

The program targets children who have or are at risk for lead poisoning and provides environmental intervention, care coordination, education, surveillance, and other services.

Blood Lead Level (BLL): The concentration of lead in blood, measured in micrograms of lead per deciliter of blood (mcg/dL).

Lead Poisoned: For surveillance purposes Wisconsin uses the CDC reference value and considers any child identified with a BLL of 5 mcg/dL or more to be lead poisoned. However, note that Wis. Stat. § 254.11(9) defines lead poisoning or lead exposure as a BLL of 10 mcg/dL or more.

Tested: The number of children who received a capillary or venous blood lead test. If a child had a venous test within 90 days of a capillary test, the venous test result was used.

Prevalence: The percent of children tested with a BLL of 5 mcg/dL or more.

Childhood Lead Poisoning in Wisconsin

Children who are lead poisoned typically do not look or act sick. Therefore, the only way to know if a child is lead poisoned is to have a blood lead test.

Wisconsin Blood Lead Screening Recommendations

The Wisconsin Blood Lead Screening Recommendations (DHS 2000) were developed based on input from a broad-based advisory committee. These guidelines recommend targeted screening of children who are at greatest risk for lead poisoning.

Children living in the cities of Milwaukee and Racine. The Wisconsin Blood Lead Screening Recommendations include universal testing of all children living in the cities of Milwaukee and Racine. Because the high proportion of old housing in these communities creates a much higher risk of lead poisoning, each child should have a blood lead test three times before the age of 3 years: around 12 months, 18 months, and 24 months. Children aged 3 through 5 years should be tested annually if they meet one or more of the following risk criteria:

1. Lives in a house built before 1950.
2. Lives in a house built before 1978 with recent or ongoing renovations.
3. Has a sibling or playmate with lead poisoning.
4. Is enrolled in Medicaid or the Women, Infants and Children Nutrition Program (WIC) or is uninsured.
5. Has no record of a prior test

Children living outside the cities of Milwaukee and Racine. When seeing children from areas outside the cities of Milwaukee and Racine, health care providers are encouraged to use the *Four Easy Questions* below to determine whether a child is at risk for lead poisoning and needs to be tested at around 12 months and 24 months of age and between the ages of 36 and 72 months if there is no record of a previous test:

1. Does the child live in or visit a house built before 1950 (including child care and homes of friends or relatives)?
2. Does the child live in or visit a house or building built before 1978 with recent or ongoing renovations (including child care and homes of friends or relatives)?
3. Does the child have a sibling or playmate with lead poisoning?
4. Is the child enrolled in Medicaid or WIC?

Federal Medicaid Testing Policy

Children enrolled in Medicaid are required to receive blood lead testing as part of their Early and Periodic Screening, Diagnostic and Treatment (EPSDT, i.e., Health Check) services. More specifically, *“all children enrolled in Medicaid should receive a screening blood lead test at 12 and 24 months of age.... Children over the age of 24 months, up to 72 months of age, for whom no record of a previous screening blood lead test exists, should also receive a screening blood lead test. (HCFA 1999)”*

Lead Testing and Lead Poisoning in Wisconsin

Collection of Blood Lead Test Reports. The WCLPPP began systematically collecting information on all blood lead tests conducted in Wisconsin in 1994. Under the requirements of Wis. Stat. § 254.13, laboratories must provide the WCLPPP with the results and specified demographic information associated with all blood lead tests. This includes blood lead testing performed using point-of-care instruments such as the Lead Care II device. The WCLPPP maintains the blood lead testing data in a relational database (Systematic Tracking of Elevated Lead Levels and Remediation, STELLAR). The STELLAR database contains nearly 2 million records of blood lead tests conducted in Wisconsin since 1996. Because some of those results are for multiple tests for a single child, the database includes tests for more than 1 million children, living at more than 740,000 addresses in Wisconsin. This information forms the basis for analyses and surveillance activities conducted by the WCLPPP and presented in this report.

Additional discussion about the WCLPPP database and key definitions and acronyms are included in **Appendix A: Technical Information**. The blood lead reporting form is included as **Appendix B: Blood Lead Reporting Form**.

Number Tested and Number Poisoned. During 2016, 86,771 children under 6 years of age received a blood lead test. This represents approximately 20% of children under age 6 in Wisconsin. The CDC has set a reference value of 5 mcg/dL for BLL; in this report, $BLL \geq 5$ mcg/dL is used to indicate lead poisoning. In 2016 there were 4,348 children with a $BLL \geq 5$ mcg/dL (5% of children tested).

As shown in **Figure 1**, there have been temporal trends in the numbers of children tested, poisoned, and newly identified with lead poisoning over time. The number of children tested rose over time to peak in about 2010, and has been declining since that time. The number of children with lead poisoning has shown a decline over time as well, although in the most recent years there is little change in prevalence of lead poisoning among children tested (prevalence of 4.4%, 4.6%, and 5.0% in 2014, 2015, and 2016, respectively). The incidence of newly identified lead poisoning cases has shown similar patterns to prevalence of all lead poisoning cases; the incidence in 2016 was 3.7% (compared with 3.2% in 2014 and 3.4% in 2015).



Figure 1a. Children under age 6, number tested, Wisconsin, 1996 - 2016.

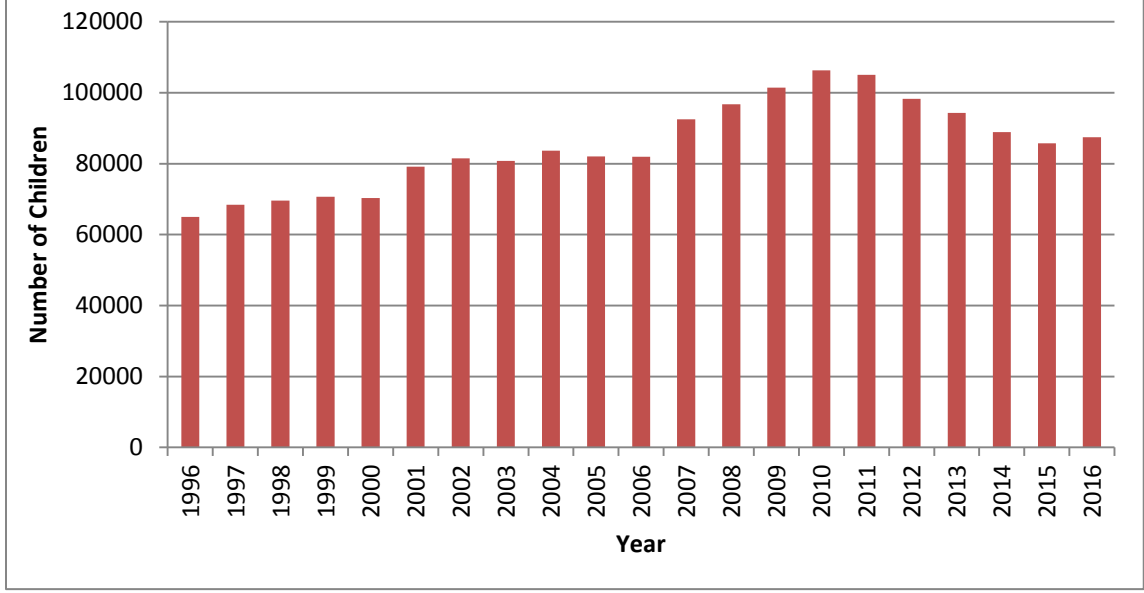
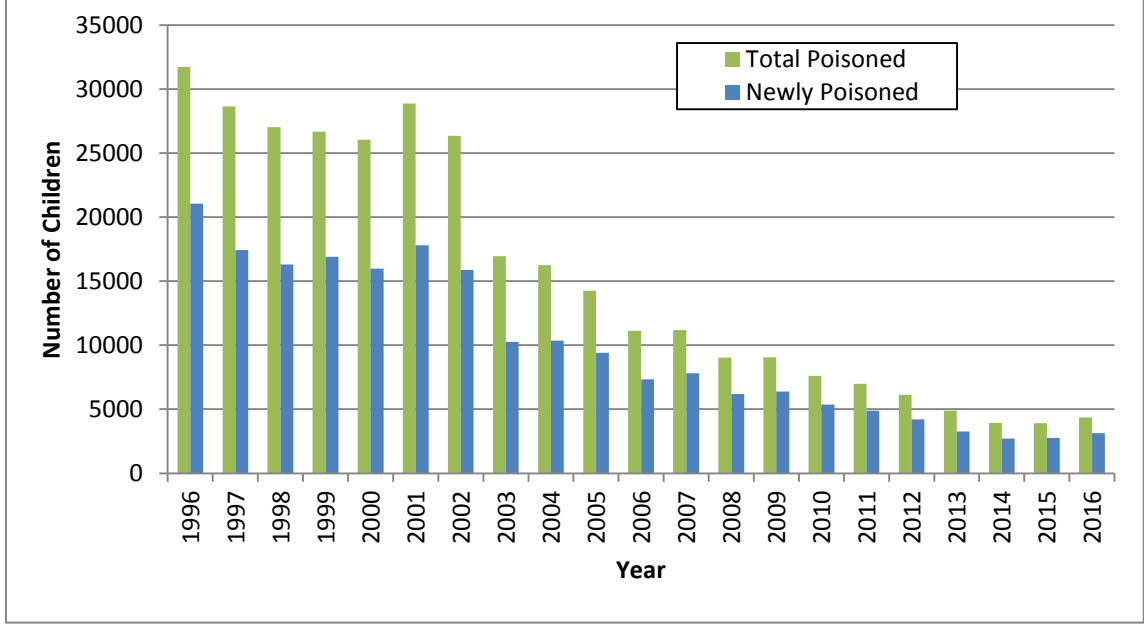


Figure 1b. Children under age 6, number with BLL \geq 5 mcg/dL, Wisconsin, 1996 - 2016.



Factors Affecting Lead Testing and Lead Poisoning

Age of Child. Research indicates that a child’s BLL tends to be highest between 18 and 36 months of age. This is attributed to frequent hand-to-mouth behavior and the increase in mobility during a child’s second and third years, which makes lead-containing dust more accessible to the child. Current screening policy in Wisconsin includes a recommendation to test children who are at risk for lead poisoning at 1 year of age so that, if lead exposure has occurred, it can be identified early and interventions can take place to reduce the BLL. However, it is also very important that children be tested again at 2 years of age or later, when they become more mobile and their risk of exposure to lead is greater. A normal blood lead test at 1 year of age does not mean the child is *not* at risk for lead poisoning later on.

A normal blood lead test at 1 year of age does not mean the child is not at risk for lead poisoning later on.

Table 2 presents information on testing and prevalence of lead poisoning. The prevalence of lead poisoning is highest among children aged 2 through 4 years. Although this is partly because lead poisoning is a chronic condition and prevalence of all lead poisoning includes children who are still poisoned from the previous year(s), it is important to note that the prevalence of *newly* identified blood lead poisoning is also highest at age 2 years, and similar, but lower, at ages 1, 3, and 4 years. Consequently, there are significant numbers of older children who are being exposed to lead and require testing.

Table 2. Children under age 6, number tested and prevalence of lead poisoning, Wisconsin, 2016

Age	Estimated 2016 Wisconsin Population ^a	Total Tested	Total with BLL of ≥ 5 mcg/dL	Newly Identified BLL ≥5 mcg/dL as Percent of Children Tested	All BLL ≥5 mcg/dL as Percent of Children Tested
Less than 6 Years	457,947	86,771	4,348	3.7	5.0
Less than 1 Year	74,856	7,583	164	2.1	2.2
1 Year	75,646	40,138	1,719	3.7	4.3
2 Years	76,333	20,651	1,242	4.0	6.0
3 Years	76,827	8,498	583	3.7	6.9
4 Years	77,094	6,507	442	3.6	6.8
5 Years	77,191	3,394	198	2.8	5.8

^aFrom census.gov

Wisconsin has tested a greater proportion of children than the national average over time (national data not yet available for 2016), as shown in **Figure 2**.

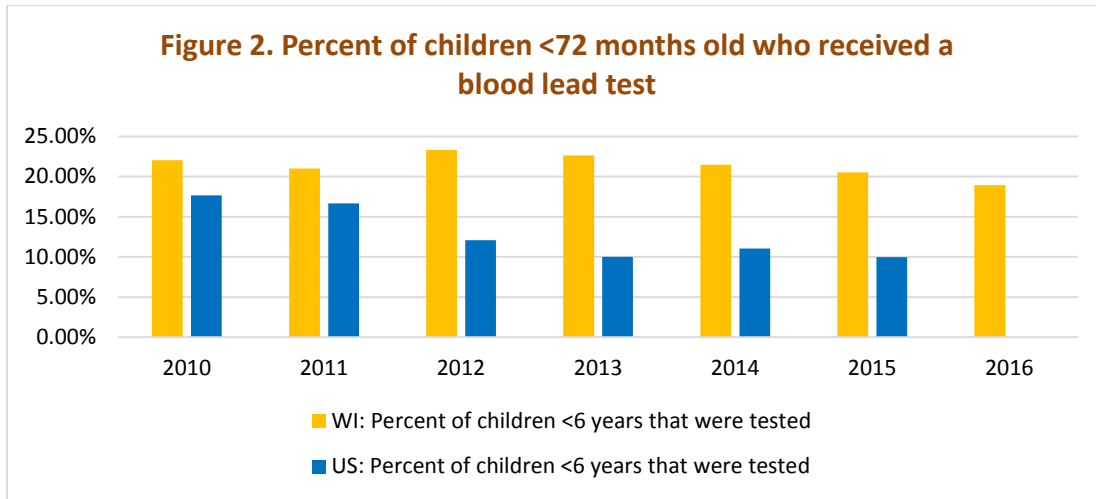


Figure 2 courtesy of the Centers for Disease Control and Prevention and the Wisconsin Division of Medicaid Services

As shown in **Figure 3**, the proportion of children testing positive for blood lead has been declining in Wisconsin and nationwide, but a greater proportion of children in Wisconsin test positive for blood lead compared to the national average.

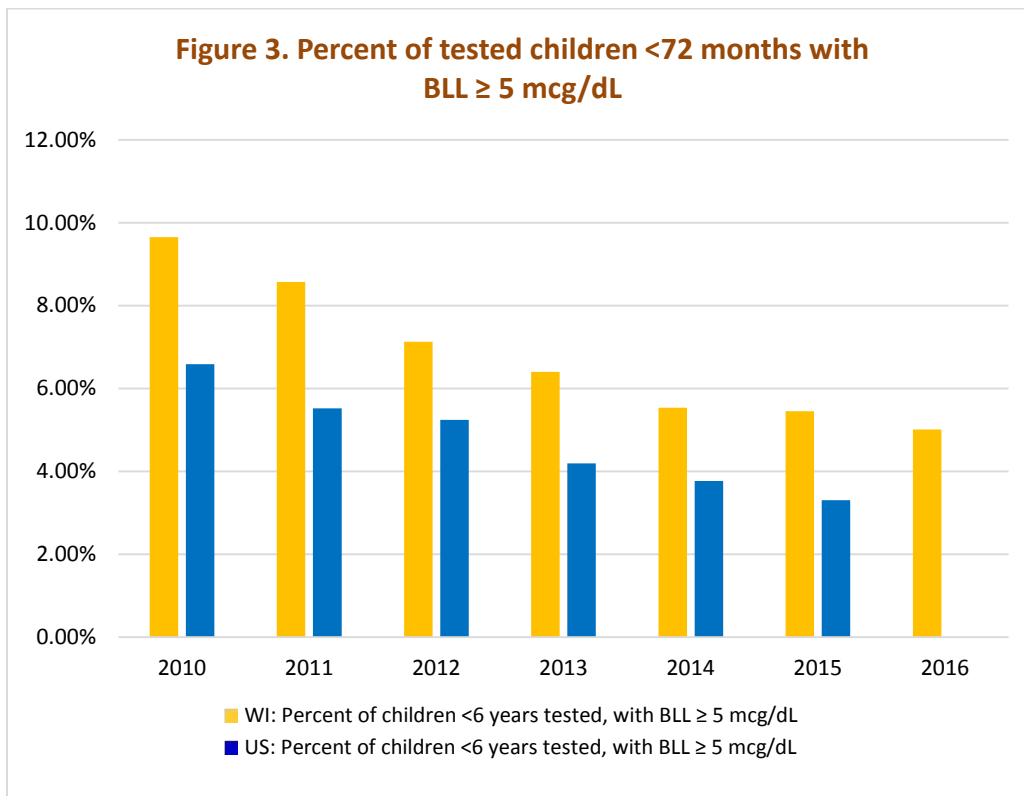


Figure 3 courtesy of the Centers for Disease Control and Prevention and the Wisconsin Division of Medicaid Services

Family Income. Children from low-income families in Wisconsin are at greater risk for lead poisoning, largely because they have limited options for selecting housing. A child who receives either Medicaid health care benefits or vouchers from the Supplemental Food Program for

If all children on Medicaid had been appropriately tested during 2016, it is likely that additional children would have been identified as lead poisoned and could have received the interventions they needed.

Women, Infants and Children (WIC) is considered low income. The Wisconsin Medicaid Program collaborates with the WCLPPP in linking program data to determine blood lead testing and lead poisoning among Medicaid-enrolled children. This data linkage has demonstrated that, despite the federal testing policy, many Wisconsin children enrolled in Medicaid are not tested at the appropriate ages (**Table 3**).

In 2016, only 60% of 1-year-olds, 48% of 2-year-olds, and 14% of children aged 3-5 who were not previously tested, were tested. Only 32% of Medicaid-enrolled children received the required testing at both 1 and 2

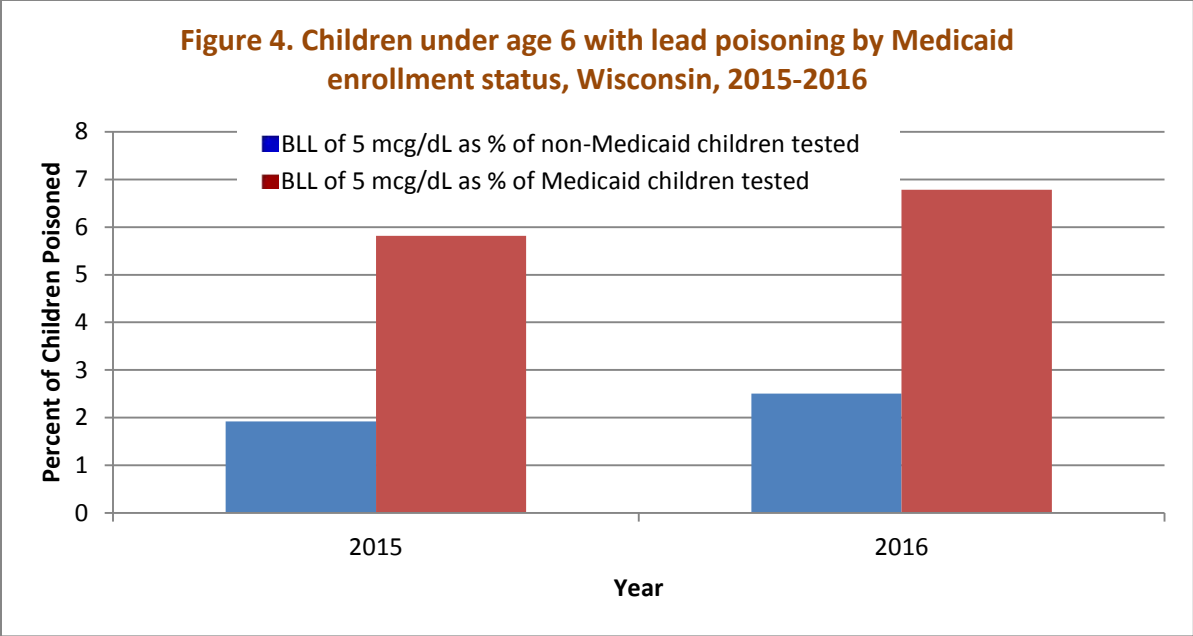
years of age. Working with Medicaid providers to improve these percentages offers the opportunity to identify more children who are lead poisoned.

Table 3. Children under age 6 enrolled in Medicaid, tested in Wisconsin, 2016

Age	Total Enrolled	Tested in Year	Percent Tested in Year
1 Year	36,065	21,608	59.9
2 Years	33,902	16,116	47.5
3-5 Years, not previously tested	21,962	3,172	14.4

The data linkage also shows that Medicaid-enrolled children in Wisconsin are at three times greater risk of lead poisoning than non-Medicaid-enrolled children (**Figure 4**).



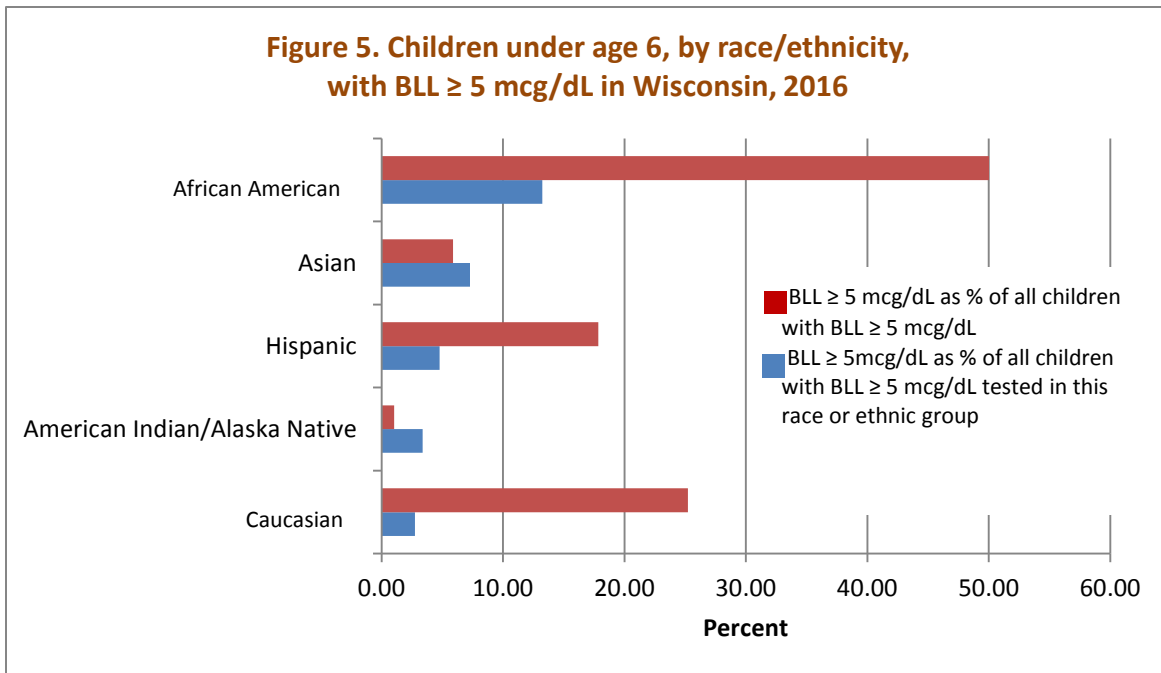


Race/Ethnicity. Wisconsin children of all races and ethnicities have been identified with lead poisoning. However, minority populations share a greater burden of the lead poisoning problem. **Table 4 and Figure 5** present data on the percent of children tested by racial and ethnic group, as well as the percent identified with lead poisoning. While Caucasian children made up the largest proportion of children tested (51%), as well as the largest proportion of children under age 6 in Wisconsin, they also have the lowest rates of lead poisoning. African American children made up a much smaller proportion of children tested (21%), yet they have the highest rate of lead poisoning, accounting for 50% of all lead-poisoned children in Wisconsin.

Table 4. Children under age 6, by race/ethnicity, tested and poisoned in Wisconsin, 2016

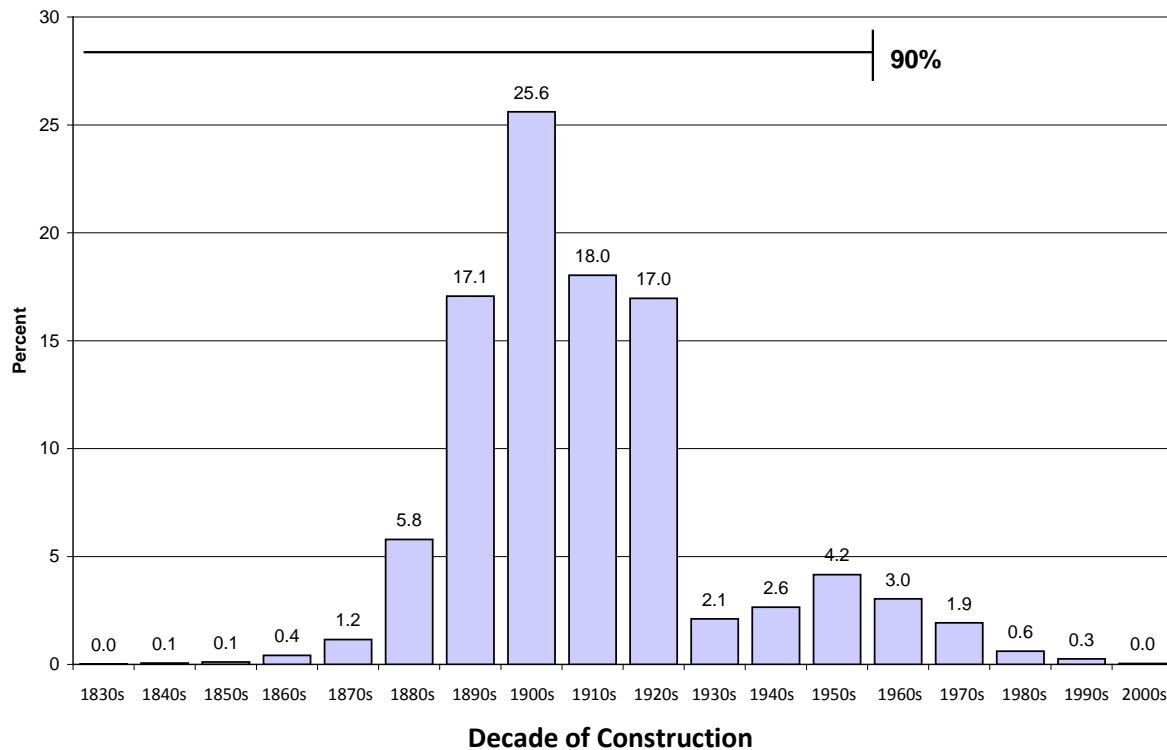
Race/Ethnicity ^a	Total Tested	Total with BLL of ≥5 mcg/dL	BLL ≥5 mcg/dL as Percent of Children Tested	BLL ≥5 mcg/dL as Percent of all Children Poisoned
Caucasian	32,762	903	2.8	25.2
African American	13,540	1,791	13.2	50.0
Hispanic	13,393	639	4.8	17.8
Asian	2,897	211	7.3	5.9
American Indian/Alaska Native	1,096	37	3.4	1.0

^aAs reported to the WCLPPP. All categories of race/ethnicity are non-Hispanic unless otherwise noted. Note that in 2016, there were 22,332 children with unknown/unreported race/ethnicity and 673 children with race reported as Hawaiian/Pacific Islander.



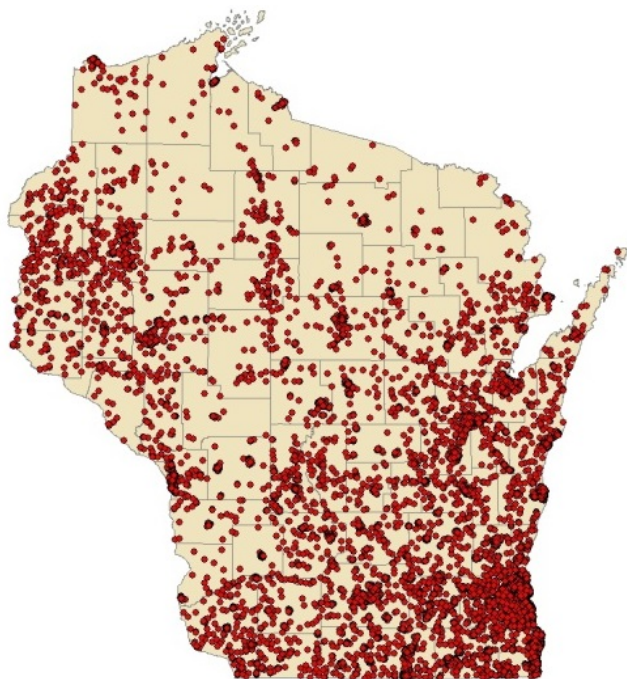
Age of Housing. Lead was added to paint and other coatings, such as varnish, in high concentrations up until 1950. Houses that were built before 1950 have the greatest potential for containing lead-based paint (LBP) hazards. Up until 1978, when the U.S. banned lead from being added to residential paint or other coatings, some lead could still be found in household paint and varnish. National data have shown that children who live in old housing where LBP is more prevalent, are at greater risk for lead poisoning than children who live in newer housing. This same relationship is evident in Wisconsin, where a previous analysis found that 90% of children first identified with lead poisoning from 1996–2005 lived in homes that were built before 1950 (see **Figure 6**; DHS 2008). That analysis matched addresses in tax assessor files from 16 Wisconsin cities with addresses of children who had received blood lead tests, and found that the risk of a child becoming lead poisoned was 6.4 times greater for tested children living in dwellings built before 1950 compared to children living in post-1950 dwellings (DHS 2008).

Figure 6. Age of housing associated with the first diagnosis of a lead-poisoned child under the age of six by decade of construction as a percent of total, 1996-2005.



Lead Exposure – A Statewide Problem

Pockets of Risk. Lead poisoning is a statewide risk, as shown by **Figure 7**; red dots representing addresses of lead-poisoned children appear in every county of Wisconsin.



While lead poisoning is a risk statewide, significantly higher rates are seen in certain communities or parts of communities with higher prevalence of older housing and other risk factors for lead poisoning. The local health department (LHD) jurisdictions (**Table 5**) with the top 10 highest rates are the three cities of Milwaukee, Watertown, and Racine, and the seven counties of Sheboygan, Lafayette, Rock, Marquette, Buffalo, Dodge, and Grant. The rates of lead poisoning among children tested in these jurisdictions range from 5.1% to 10.8%, higher than the 2016 statewide rate of 5.0% (see **Appendix E** for a list of rates for all LHDs).

Figure 7. Addresses where children under age 6 were poisoned in Wisconsin, 1996-2016.

and **Appendix F** for a list by county).

These prevalence rates are for the entire LHD jurisdiction or county; smaller geographical areas such as individual neighborhoods and census tracts may have much higher rates of poisoning.

Table 5. Local health department jurisdictions with the 10 highest prevalence rates for lead poisoning in children under age 6 tested in Wisconsin, 2016

Local Health Department ^a	Total Tested ^b	Total with BLL of 5 mcg/dL or more ^c	BLL ≥5 mcg/dL as Percent of Children Tested
City of Milwaukee	23,651	2,559	10.8
Sheboygan County	1,304	110	8.4
City of Watertown	450	35	7.8
Lafayette County	186	14	7.5
Rock County	1,996	138	6.9
City of Racine	2,438	152	6.2
Marquette County	137	8	5.8
Buffalo County	174	10	5.7
Dodge County	829	44	5.3
Grant County	513	26	5.1
Statewide	86,771	4,348	5.0

^a Children were assigned to a local health department jurisdiction based on the address of residence at the time of the blood lead test as reported to WCLPPP.

^b Tested: Number of unduplicated children receiving a capillary or venous blood lead test during 2016.

^c Number of unduplicated children who had a capillary or venous blood lead level of 5 mcg/dL or more. If a child had a venous test within 90 days of a capillary test, the date, address, and result from the venous test was used.



Eliminating Childhood Lead Poisoning in Wisconsin

Childhood lead poisoning can be prevented by eliminating lead hazards in the environment before children are exposed. This approach is commonly known as primary prevention, and includes a range of activities, from education to elimination of lead hazards from children's environments.

Primary Prevention: Education and Exposure Elimination

Education. Educating the public about lead hazards in the environment and ways to correct the hazards is a critical component of primary prevention. Education can be directed to a variety of audiences, including physicians; families who participate in WIC, Head Start, or child care and home visitation programs; community action and weatherization program participants; construction trades; and property owners. The members of the demographic groups in need of education about avoiding exposure to lead-based paint (LBP) hazards are constantly changing; there are always new sets of parents, physicians, contractors, and rental property owners to be educated. Hence, it is critical to institutionalize the knowledge of lead poisoning prevention within agencies and organizations that have direct contact with these groups so that knowledge is transferred consistently and sustainably. For this reason, education efforts in Wisconsin follow the primary prevention model and partner with local health departments, child care regulators, home visitors, Head Start, and others to share lead poisoning prevention messages.

Most Common Source of Lead Hazards. In older homes, LBP may be found in one or more layers on painted surfaces even though the top coat might be lead-free. Daily activities that create friction, such as raising and lowering painted windows or climbing porch stairs, causing an impact on painted floors and stairs, can cause LBP to break down into lead-contaminated dust. That dust is mostly invisible and can be ingested by a young child unknowingly. Lead dust can be created when LBP is disturbed through home renovation or repair. Lead can also be readily found in soil, most often around a home's exterior foundation, along the drip line where paint chips or dust from the exterior paint have deposited. Children are exposed to lead when they play in the bare soil or when lead dust from the soil is tracked into the house.

Emerging Sources of Lead Hazards. While LBP hazards in homes built prior to 1950 account for the vast majority of childhood lead exposures in Wisconsin, some children have been exposed to non-paint sources of lead. Therefore, education to families with young children about all possible sources of lead is critical.

- **Lead in Garden Soil.** With the resurgence of home gardening, lead in gardening soil has become a concern. Home gardeners are advised to have their garden soil tested for lead before planting vegetables. Other advice is to grow vegetables in a raised bed garden using clean soil and away from any older painted structures.
- **Lead in Water.** It is important to consider lead in water as a potential source of exposure. Lead can get into drinking water through source contamination (such as private wells) or through corrosion of lead pipes, lead solder, or brass components in faucets. The risk of corrosion is higher in older homes as lead pipes and solder were commonly used until 1986.

- **Lead in Other Non-paint Products.** Some cases of lead poisoning have resulted from exposure to less common, non-paint sources of lead. For example, in a few cases, the source has been powders used in cultural ceremonial practices or makeup (e.g., kohl or kajal). Lead has been found in ceramic dishes, children’s jewelry and Mardi Gras beads, toys, clothing, hair accessories, spices, candies, and other children’s products. In 2006 and 2007, many children’s products were recalled for containing lead resulting in widespread media attention and increased consumer protections. The effort has shifted to identifying imported products containing unsafe levels of lead. For more information on unsafe products, go to saferproducts.gov and type in “lead” in the Search box.

Secondary Prevention: Testing

Many children are never tested for lead, including many at high risk for lead exposure. Consequently, many lead-poisoned children are never identified and do not receive treatment, increasing their risk for the myriad health, educational, and social problems associated with lead exposure. As described above, children receiving Medicaid benefits are required to be tested at 1 and 2 years of age in association with their Early and Periodic Screening, Diagnostic and Treatment (i.e., HealthCheck) visits. Children receiving Medicaid benefits who have not been tested before their third birthday are required to have one test by 72 months of age. However, as described in the discussion on testing rates, not all children receive appropriate testing, though children receiving Medicaid are much more likely to be tested than other children. Although the reasons for not receiving required testing have not been fully identified, they likely include one or more of the following:

- A mistaken belief that the child is not at risk or has been tested elsewhere.
- Lack of awareness of the federal testing requirement.
- A decision by parents/guardians not to have their child tested.
- Logistical barriers (e.g., the health care provider refers the child outside the provider’s office or clinic for a blood draw).

Appendix D contains information on how providers may access the Wisconsin Blood Lead Registry to determine a child’s testing status.

Secondary Prevention: Interventions

When a child is identified with lead poisoning (BLL of ≥ 5 mcg/dL), responses vary by LHD. A 2014 survey administered by the WCLPPP found that most LHDs were providing some level of intervention for children with BLLs of 5 mcg/dL or more. In order to appropriately manage limited resources available, many were setting priorities for intervention. These considerations included the child’s BLL, whether the BLL was rising over time, the age of the child, and the age and condition of housing where the child resided. LHD interventions include telephone calls or home visits by a public health nurse, environmental investigations to determine the source(s) of lead exposure, monitoring the child’s BLL, and coordinating follow-up care with the primary care provider and other service providers, e.g., Birth to Three.

When lead hazards are identified, the LHD must order lead hazard reduction measures to be taken by property owners. Many communities have additionally established local housing ordinances to expedite the resolution of cases involving noncompliant property owners. For

communities without a local ordinance, Wis. Stat. ch. 254 provides several enforcement options for the LHD, including posting notices on the property, the ability for the LHD to pay for the correction of human health hazards and then seek repayment from the property owner through local municipal property taxes, and the ability to fine property owners who maintain a human health hazard under Wis. Stat. § 254.58. If the property owner does not comply with orders to correct lead hazards, the LHD may also report the violation to the district attorney of the county in which the property is located. Property owners are then subject to civil or criminal penalties under Wis. Stat. § 254.30.

Apart from remediating lead hazards, educational interventions are also important for mitigating the negative impacts of lead exposure in children. In 2015, the CDC released a guidance document titled [Educational Interventions for Children Affected by Lead](#) (CDC 2015). In many cases, the effects of lead exposure are not manifested until a child is older (e.g., school age); consequently, the CDC recommends that children exposed to lead in early life have a neuropsychological assessment at key educational transition points: first grade (learning to read), fourth grade (reading to learn about new subjects), and sixth or seventh grades (accomplishing a complex project). Educators and others can use the CDC guidance to advocate that these tests be made available for students who have a history of elevated BLLs, even if the BLL was only slightly elevated.

Wisconsin is making significant progress in protecting children from the harmful lasting effects of lead poisoning, even as much work remains to eliminate childhood lead poisoning forever.



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Appendix A - Technical Information

WCLPPP Lead Testing Database

The WCLPPP maintains a statewide database of reported blood lead tests for all Wisconsin children tested since 1996, using the CDC's Systematic Tracking of Lead Levels and Remediation (STELLAR) database management system. The database includes information on the blood lead test (date, blood sample type, provider, result), along with the child's name, birthdate, and address associated with each blood lead test. The child's address at the time of the blood lead test is the address of residence as reported to the WCLPPP. The Milwaukee and Racine health departments maintain their own STELLAR databases, and provide the WCLPPP with their data files on a weekly basis. Data are received both electronically (from analytical laboratories, about two-thirds of records) and via FAX or U.S. Postal Service.

Data Integrity and Quality

The WCLPPP uses a series of quality assurance computer routines to evaluate the data within the statewide STELLAR database on a weekly basis. These routines include checks for duplicated values (duplicate children, addresses, lead tests); children tracked by more than one STELLAR database (e.g., both Milwaukee and the WCLPPP); typos and incorrectly spelled city and county names; and invalid test dates and/or birthdates (e.g., test date occurring before date of birth).

Supplementary Data and Data Sharing

The WCLPPP has data-sharing agreements with the state Medicaid and WIC programs. These agreements allow two-way transfer of data and information between the programs in order to provide the information they need to better fulfill their functions, and ensure that providers are appropriately testing those children at highest risk of lead poisoning.

Medicaid data are merged with WCLPPP data each month to identify enrolled children who have received blood lead tests. This process uses a multi-step matching procedure that accounts for data anomalies such as typos, misspellings, and hyphenated and truncated names.

Blood lead test records are linked with the Wisconsin Immunization Registry each week via the Wisconsin Blood Lead Registry.

Appendix B - Blood Lead Reporting Form

Available at: <https://www.dhs.wisconsin.gov/forms/f0/f00017.docx>

DEPARTMENT OF HEALTH SERVICES Division of Public Health F-00017 (04/2014)		STATE OF WISCONSIN Bureau of Environmental & Occupational Health Chapter DHS 181 608-266-5817											
BLOOD LEAD LAB REPORTING													
This form is authorized under sections 250.04(3) and 254.13, Wis. Stats. and Chapter DHS 181, Wis. Admin. Code. Health care providers and laboratories are required to report all blood lead test results and all other information shown on this form if they obtain or analyze blood to determine lead in blood. Failure to report all this information within the required time limits is subject to forfeiture of up to \$1,000 per day of violation or a fine of up to \$5,000. The Department of Health Services will keep personally identifiable information about the patient confidential and will use these data only for legally authorized purposes.													
Patient's Name (Last, First, Middle Initial)		Medical Assistance Number (If Applicable)											
Date of Birth (mm/dd/yyyy)	Gender <input type="checkbox"/> Male <input type="checkbox"/> Female	Ethnicity (Check Appropriate Box) <input type="checkbox"/> Hispanic <input type="checkbox"/> Non-Hispanic <input type="checkbox"/> Unknown											
Race (Check Appropriate Box) <input type="checkbox"/> Native American <input type="checkbox"/> Asian/Pacific Islander <input type="checkbox"/> Black <input type="checkbox"/> White <input type="checkbox"/> Unknown <input type="checkbox"/> Other, specify: _____													
Patient's Street Address			Apartment Number										
City	County	State	Zip Code										
Parent / Guardian (Last, First, Middle Initial) (If Patient is Under 18 Years of Age)													
Telephone Number of Patient or Parent / Guardian (If Patient is Under 18 Years of Age)													
Home: - -		Work: - -											
Patient's Employer Name (If Patient is 16 Years of Age or Older)		Occupation											
Employer's Address (Street, City, State, Zip Code)													
Name of Health Care Provider			Telephone Number - -										
Address of Provider (Street, City, State, Zip Code)													
Name of Physician (If Different than Health Care Provider)			Telephone Number - -										
Address of Physician (Street, City, State, Zip Code)													
Date Blood Collected (mm/dd/yyyy)	Blood Collection Type (Check One) <input type="checkbox"/> Venous <input type="checkbox"/> Capillary												
ADDITIONAL INFORMATION TO BE PROVIDED BY THE LABORATORY													
Laboratory Name		Clinical Laboratory Improvement Amendment Number											
Address (Street, City, State, Zip Code)			Telephone Number - -										
Date of Analysis (mm/dd/yyyy)	Result: _____ micrograms lead per 100 milliliters of blood												
<table border="1" style="margin: auto;"> <thead> <tr> <th colspan="2">Timetable for Reporting</th> </tr> <tr> <th>Blood Lead Result (micrograms/100 milliliters)</th> <th>Report Within</th> </tr> </thead> <tbody> <tr> <td>45 or more</td> <td>24 hours</td> </tr> <tr> <td>10 - 44</td> <td>48 hours</td> </tr> <tr> <td>0 - less than 10</td> <td>30 days</td> </tr> </tbody> </table>				Timetable for Reporting		Blood Lead Result (micrograms/100 milliliters)	Report Within	45 or more	24 hours	10 - 44	48 hours	0 - less than 10	30 days
Timetable for Reporting													
Blood Lead Result (micrograms/100 milliliters)	Report Within												
45 or more	24 hours												
10 - 44	48 hours												
0 - less than 10	30 days												
Return to: WISCONSIN DEPARTMENT OF HEALTH SERVICES Division of Public Health CLPPP/ABLES, Rm 145 P. O. BOX 2659 Madison, WI 53701-2659 Fax No.: 608-267-0402													

Appendix C - Online Resources

The DHS *Lead-Safe Wisconsin* website has information on the status of lead poisoning in Wisconsin, and ways to treat and ways to prevent the disease. Data, facts, information pamphlets, and much more can be found at <https://dhs.wisconsin.gov/lead>.

The Wisconsin Poison Control Center (1-800-222-2222) provides written guidelines for management of lead-poisoned children. Medical toxicologists are also available for phone consultation and questions about caring for children with lead poisoning.

A manual for local health department staff, *Wisconsin Childhood Lead Poisoning Prevention and Control Handbook for Local Health Departments*, is available at <https://dhs.wisconsin.gov/lead/formspubs.htm>.

Other reliable websites with lead poisoning prevention information:

- Centers for Disease Control and Prevention (CDC) - <http://www.cdc.gov/nceh/lead>
- U.S. Department of Housing and Urban Development (HUD), Office of Healthy Homes and Lead Hazard Control - https://www.hud.gov/program_offices/healthy_homes
- U.S. Environmental Protection Agency (EPA) - <http://www.epa.gov/lead>
- National Center for Healthy Housing - <http://www.nchh.org>

Additional Resources:

- Information for parents on how to protect their children from exposure to lead (CDC) - <https://www.cdc.gov/nceh/lead/parents.htm>
- *Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women* (CDC) - <http://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf>

For more information on education materials for preventing lead poisoning, contact the Wisconsin Childhood Lead Poisoning Prevention Program at 608-266-5817.

Appendix D – Instructions for Health Care Providers to Access the Wisconsin Blood Lead Registry

The Wisconsin Blood Lead Registry (Lead Registry) is a web-based tool that allows you to check a child’s blood lead testing history online during an office visit. The Lead Registry is linked to the Wisconsin Immunization Registry (WIR) and updated each week with new test results, including tests done at all locations—Women, Infants, and Children (WIC) sites; Head Start; and physicians’ offices. The Lead Registry can help you easily identify children who have not yet been tested or are due for another test.

To access the Lead Registry, the person designated to be the organization’s site administrator and all other users need to complete the following forms:

1. Organization Security and Confidentiality (required to be completed by the site administrator prior to gaining access to WBLR):
[https://www.dhfswir.org/docs/WBLR Organization Security Confidentiality Agreement Final%202.pdf](https://www.dhfswir.org/docs/WBLR_Organization_Security_Confidentiality_Agreement_Final%202.pdf)
2. User Security and Confidentiality (The administrator completes this form prior to gaining access to WBLR. All other users who will be utilizing WBLR should sign this form and the completed forms should be kept on file by the site administrator at the provider location.)
[https://www.dhfswir.org/docs/WBLR User Security Agreement Final.pdf](https://www.dhfswir.org/docs/WBLR_User_Security_Agreement_Final.pdf)

The site administrator must fax both of their completed forms to 608-267-0402. For more information about how to access the Lead Registry, please contact Pam Campbell at pamela.campbell@wi.gov or 608-267-3901.

Appendix E – Lead Testing and Lead Poisoning Prevalence by Local Health Department Jurisdiction

Children under age 6 tested in Wisconsin, by local health department jurisdiction, 2016			
Local Health Department^a	Total Tested^b	Total with BLL \geq 5 μg/dL^c	BLL \geq 5 μg/dL as % of Tested
ADAMS COUNTY PUBLIC HEALTH DEPT	156	4	2.56
APPLETON CITY HEALTH DEPT	1,019	24	2.36
ASHLAND COUNTY HEALTH DEPT	343	14	4.08
BARRON COUNTY HEALTH DEPT	397	8	2.02
BAYFIELD COUNTY HEALTH DEPT	152	5	3.29
BROWN COUNTY HEALTH DEPT	4,586	80	1.74
BUFFALO COUNTY HEALTH & HUMAN SERVICES	174	10	5.75
BURNETT COUNTY HEALTH DEPT	127	2	1.57
CALUMET COUNTY HEALTH DEPT	200	7	3.50
CENTRAL RACINE COUNTY HEALTH DEPT	1,455	21	1.44
CHIPPEWA COUNTY DEPT OF PUBLIC HEALTH	692	14	2.02
CLARK COUNTY HEALTH DEPT	331	9	2.72
COLUMBIA COUNTY HEALTH DEPT	627	13	2.07
CRAWFORD COUNTY PUBLIC HEALTH DEPT	148	5	3.38
CUDAHY HEALTH DEPT	380	13	3.42
DE PERE DEPT OF PUBLIC HEALTH	669	4	0.60
DODGE COUNTY HEALTH DEPT	829	44	5.31
DOOR COUNTY HEALTH DEPT	281	1	0.36
DOUGLAS COUNTY HEALTH DEPT	697	3	0.43
DUNN COUNTY HEALTH DEPT	339	7	2.06
EAU CLAIRE CITY/COUNTY HEALTH DEPT	1,269	19	1.50
FLORENCE COUNTY HEALTH DEPT	37	0	0.00
FOND DU LAC COUNTY HEALTH DEPT	1,356	59	4.35
FOREST COUNTY HEALTH DEPT	88	0	0.00
FRANKLIN HEALTH DEPT	489	10	2.04
GRANT COUNTY HEALTH DEPT	513	26	5.07
GREEN COUNTY HEALTH DEPT	444	13	2.93
GREEN LAKE COUNTY NURSING SERVICE	175	7	4.00
GREENDALE HEALTH DEPT	198	3	1.52
GREENFIELD HEALTH DEPT	841	11	1.31
HALES CORNERS HEALTH DEPT	101	0	0.00
IOWA COUNTY HEALTH DEPT	180	8	4.44
IRON COUNTY HEALTH DEPT	57	1	1.75
JACKSON COUNTY HEALTH AND HUMAN SERVICES	237	3	1.27
JEFFERSON COUNTY HEALTH DEPT	767	34	4.43
JUNEAU COUNTY PUBLIC HEALTH SERVICE	392	11	2.81
KENOSHA COUNTY HEALTH DEPT	2,157	87	4.03
KEWAUNEE COUNTY HEALTH DEPT	242	5	2.07

Children under age 6 tested in Wisconsin, by local health department jurisdiction, 2016

Local Health Department^a	Total Tested^b	Total with BLL \geq 5 μg/dL^c	BLL \geq5 μg/dL as % of Tested
LA CROSSE COUNTY HEALTH DEPT	1,290	26	2.02
LAFAYETTE COUNTY HEALTH DEPT	186	14	7.53
LANGLADE COUNTY HEALTH DEPT	212	7	3.30
LINCOLN COUNTY HEALTH DEPT	363	8	2.20
MADISON/DANE COUNTY DEPT OF PUBLIC HEALTH	5,309	64	1.21
MANITOWOC COUNTY HEALTH DEPT	1,053	47	4.46
MARATHON COUNTY HEALTH DEPT	1,447	41	2.83
MARINETTE COUNTY HEALTH DEPT	533	19	3.56
MARQUETTE COUNTY HEALTH DEPT	137	8	5.84
MENASHA CITY HEALTH DEPT	256	5	1.95
MILWAUKEE CITY HEALTH DEPT	23,651	2,559	10.82
MONROE COUNTY HEALTH DEPT	663	30	4.52
NORTH SHORE HEALTH DEPT	1,029	20	1.94
OAK CREEK HEALTH DEPT	650	9	1.38
OCONTO COUNTY DEPT OF HUMAN SERVICES	440	6	1.36
ONEIDA COUNTY HEALTH DEPT	313	3	0.96
OUTAGAMIE COUNTY PUBLIC HEALTH DIVISION	709	12	1.69
OZAUKEE COUNTY PUBLIC HEALTH DEPT	896	28	3.13
PEPIN COUNTY HEALTH DEPT	82	0	0.00
PIERCE COUNTY HEALTH DEPT	371	3	0.81
POLK COUNTY HEALTH DEPT	547	6	1.10
PORTAGE COUNTY HEALTH AND HUMAN SERVICES	878	15	1.71
PRICE COUNTY HEALTH DEPT	141	1	0.71
RACINE CITY HEALTH DEPT	2,438	152	6.23
RICHLAND COUNTY HEALTH DEPT	166	4	2.41
ROCK COUNTY PUBLIC HEALTH DEPT	1,996	138	6.91
RUSK COUNTY HEALTH DEPT	109	3	2.75
SAUK COUNTY PUBLIC HEALTH DEPT	765	13	1.70
SAWYER COUNTY HEALTH DEPT	243	0	0.00
SHAWANO-MENOMINEE COUNTIES HEALTH DEPT	591	22	3.72
SHEBOYGAN COUNTY HUMAN SERVICES	1,304	110	8.44
SOUTH MILWAUKEE HEALTH DEPT	434	15	3.46
ST CROIX COUNTY HEALTH & HUMAN SERVICES	626	5	0.80
ST FRANCIS HEALTH DEPT	134	3	2.24
TAYLOR COUNTY HEALTH DEPT	204	8	3.92
TREMPEALEAU COUNTY HEALTH DEPT	537	19	3.54
VERNON COUNTY HEALTH DEPT	337	16	4.75
VILAS COUNTY HEALTH DEPT	262	2	0.76
WALWORTH COUNTY HUMAN SERVICES DEPT	1,326	42	3.17
WASHBURN COUNTY HEALTH DEPT	147	0	0.00
WASHINGTON COUNTY COMMUNITY HEALTH	771	21	2.72

Children under age 6 tested in Wisconsin, by local health department jurisdiction, 2016

Local Health Department^a	Total Tested^b	Total with BLL \geq 5 μg/dL^c	BLL \geq5 μg/dL as % of Tested
WATERTOWN DEPT OF PUBLIC HEALTH	449	35	7.80
WAUKESHA COUNTY PUBLIC HEALTH DIVISION	4,096	63	1.54
WAUPACA COUNTY HUMAN SERVICES DEPT	431	19	4.41
WAUSHARA COUNTY HEALTH DEPT	210	5	2.38
WAUWATOSA HEALTH DEPT	1,021	18	1.76
WEST ALLIS HEALTH DEPT	1,475	54	3.66
WINNEBAGO COUNTY HEALTH DEPT	1,230	52	4.23
WOOD COUNTY HEALTH DEPT	1,168	13	1.11
STATEWIDE	86,771	4,348	5.01

^aChildren were assigned to a local health department jurisdiction based on the address of residence at the time of the blood lead test as reported to WCLPPP.

^bNumber of unduplicated children receiving a capillary or venous blood lead test during 2016.

^cNumber of unduplicated children who had a capillary or venous blood lead level of 5 μ g/dL or more. If a child had a venous test within 90 days of a capillary test, the date, address, and result from the venous test was used.

Appendix F – Lead Testing and Lead Poisoning Prevalence by County

Children under age 6 tested in Wisconsin, by county, 2016			
County ^a	Total Tested ^b	Total with BLL \geq 5 $\mu\text{g}/\text{dL}$ ^c	BLL \geq 5 $\mu\text{g}/\text{dL}$ as % of Tested
ADAMS	156	4	2.56
ASHLAND	343	14	4.08
BARRON	397	8	2.02
BAYFIELD	166	7	4.22
BROWN	5,249	84	1.60
BUFFALO	174	10	5.75
BURNETT	127	2	1.57
CALUMET	240	7	2.92
CHIPPEWA	692	14	2.02
CLARK	331	9	2.72
COLUMBIA	627	13	2.07
CRAWFORD	147	5	3.40
DANE	5,309	64	1.21
DODGE	927	47	5.07
DOOR	281	1	0.36
DOUGLAS	698	3	0.43
DUNN	339	7	2.06
EAU CLAIRE	1,268	18	1.42
FLORENCE	37	0	0
FOND DU LAC	1,355	58	4.28
FOREST	88	0	0
GRANT	514	26	5.06
GREEN	444	13	2.93
GREEN LAKE	175	7	4.00
IOWA	180	8	4.44
IRON	57	1	1.75
JACKSON	238	3	1.26
JEFFERSON	1,124	66	5.87
JUNEAU	392	11	2.81
KENOSHA	2,170	88	4.06
KEWAUNEE	242	5	2.07
LA CROSSE	1,290	26	2.02
LAFAYETTE	186	14	7.53
LANGLADE	212	7	3.30
LINCOLN	363	8	2.20
MANITOWOC	1,053	47	4.46
MARATHON	1,450	41	2.83
MARINETTE	533	19	3.56

Children under age 6 tested in Wisconsin, by county, 2016

County^a	Total Tested^b	Total with BLL \geq 5 μg/dL^c	BLL \geq5 μg/dL as % of Tested
MARQUETTE	137	8	5.84
MENOMINEE	150	5	3.33
MILWAUKEE	31,047	2,722	8.77
MONROE	663	30	4.52
OCONTO	441	6	1.36
ONEIDA	313	3	0.96
OUTAGAMIE	1,679	35	2.08
OZAUKEE	895	27	3.02
PEPIN	82	0	0
PIERCE	371	3	0.81
POLK	553	6	1.08
PORTAGE	878	15	1.71
PRICE	141	1	0.71
RACINE	3,869	171	4.42
RICHLAND	166	4	2.41
ROCK	1,995	138	6.92
RUSK	109	3	2.75
SAUK	765	13	1.70
SAWYER	243	0	0
SHAWANO	442	17	3.85
SHEBOYGAN	1,306	110	8.42
ST. CROIX	618	5	0.81
TAYLOR	204	8	3.92
TREMPEALEAU	537	19	3.54
VERNON	337	16	4.75
VILAS	274	2	0.73
WALWORTH	1,340	42	3.13
WASHBURN	147	0	0
WASHINGTON	771	21	2.72
WAUKESHA	4,088	63	1.54
WAUPACA	431	19	4.41
WAUSHARA	210	5	2.38
WINNEBAGO	1,501	58	3.86
WOOD	1,166	13	1.11
STATEWIDE	87,443	4353	4.98

^aChildren were assigned to a local health department jurisdiction based on the address of residence at the time of the blood lead test as reported to WCLPPP.

^bNumber of unduplicated children receiving a capillary or venous blood lead test during 2016.

^cNumber of unduplicated children who had a capillary or venous blood lead level of 5 μ g/dL or more. If a child had a venous test within 90 days of a capillary test, the date, address, and result from the venous test was used.



Wisconsin Department of Health Services

Division of Public Health

Bureau of Environmental and Occupational Health

Wisconsin Childhood Lead Poisoning Prevention Program

1 West Wilson Street

P.O. Box 2659

Madison, Wisconsin 53701-2659

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www.dhs.wisconsin.gov/lead

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