Childhood Lead Poisoning – Fact Sheet

Tennessee Childhood Lead Poisoning Prevention Program

Who is at most risk from lead exposure?

Children face a higher risk of lead exposure than do adults. They typically encounter lead in their home or yard as the result of their daily activities and hand-to-mouth behaviors. [[3]

Why is lead exposure a health risk to children?

Lead exposure has serious implications on many bodily systems and is particularly harmful to the brain development of an infant or young child. Children affected by lead poisoning may experience lifelong learning challenges, behavioral problems, and reductions in IQ attainment. There is no safe level of lead in the blood. [2].

What is the most common source of lead exposure?

Children most often encounter lead in the home, the result of deteriorating lead-based paint. Lead was routinely added to both interior and exterior paint in houses constructed prior to 1950. As leaded paint ages, it breaks down into a fine dust, which children unknowingly ingest or inhale. [2].

What is the effect of housing age on blood lead levels in Tennessee?

Currently more than 300,000 Tennessee houses (one in ten/10.2 percent) were built before 1950 [5].

Moreover, 46 Tennessee zip codes contain homes with 27 percent or more pre-1950 construction.

Statewide, the average blood lead level for Tennessee children under age six is 2.44 ug/dL, with an elevated blood lead level (EBLL) rate of 3.3 percent. Those locations with higher rates of older housing exhibit higher rates of EBLLs, with an average blood lead level of 2.55 ug/dL and an EBLL rate of 5.1 percent.

Why is screening for lead important?

While lead poisoning represents one of the most significant environmental threats to children's health, children with elevated blood lead levels often lack recognizable symptoms. [1] For this reason, screening plays a crucial role in both preventing and detecting lead poisoning. Screenings also divulge valuable data on the locations where lead exposures are most prevalent, thereby identifying areas that require closer attention.

The Tennessee Childhood Lead Poisoning Prevention Program (TNCLPPP) is committed to providing education, strengthening surveillance, and sharing resources with families and communities throughout the state.

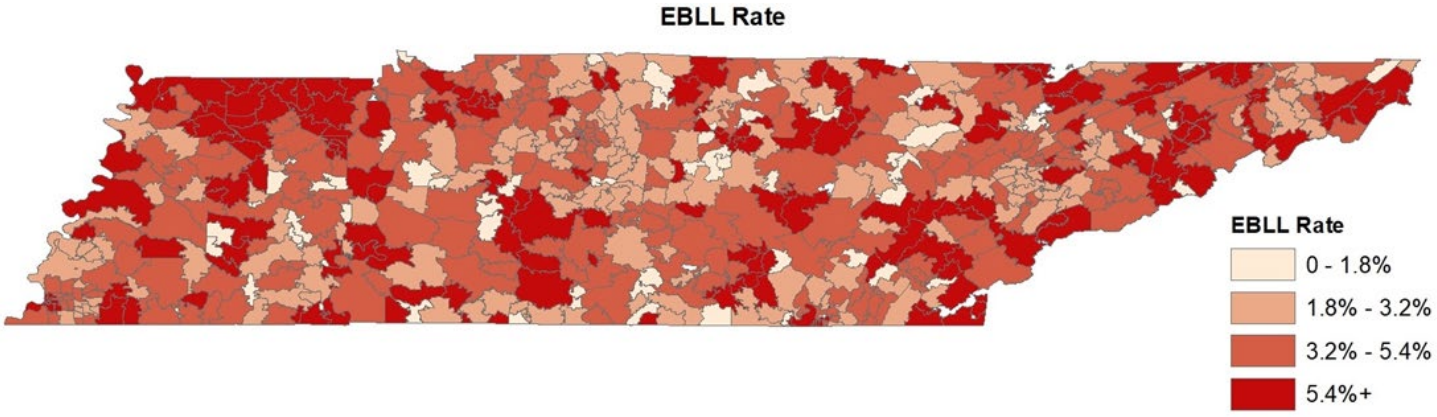
What can I do to reduce lead exposure in my home?

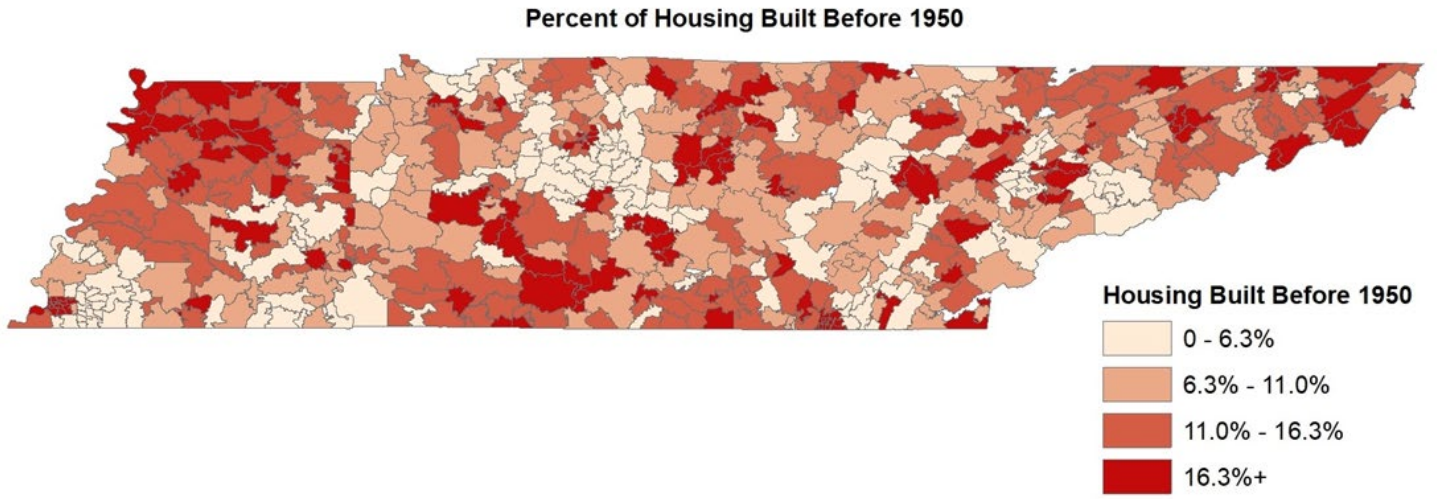
- Carefully monitor and maintain painted surfaces.
- Clean window sills and window frames, doors and door frames, and floors at least weekly, using warm water and a general all-purpose cleaner. Do **not** mix ammonia and bleach, as it results in a toxic gas. [4]
- Rinse mops and mop heads thoroughly and frequently, using a separate bucket.
- Use only safe interior paints on toys, walls, furniture, etc.
- Locate baby cribs away from windows.
- Use a dampened cloth when dusting.
- Clean or remove your shoes before entering the house to avoid tracking in lead from soil.
- Cover bare soil with mulch, shrubs, or grass to prevent exposure.
- Thoroughly wash all foods grown in your garden.
- Consider a sandbox with lead-free sand as an alternative to playing in the dirt.
- Always wash children's hands before eating or drinking and after outdoor play.

Aggregated lead data by zip code and county with at least 27% of houses built before 1950 among children under the age of 6 in Tennessee, 2012-2016

Zip Code	County	Average BLL (µg/dL)	EBLL Rate (rates per 100)
37145	Smith	2.21	2
37165	Dickson	4.38	33
37171	Montgomery	3.07	9
37201	Davidson	2.38	<1
37204	Davidson	2.44	4
37206	Davidson	2.41	3
37212	Davidson	2.62	5
37213	Davidson	2.68	<1
37216	Davidson	2.44	4
37318	Franklin	2.34	5
37350	Hamilton	3.15	8
37351	Hamilton	3.16	14
37403	Hamilton	2.32	<1
37404	Hamilton	2.46	6
37405	Hamilton	2.81	3
37407	Hamilton	2.31	4
37409	Hamilton	3.29	9
37411	Hamilton	2.50	4
37650	Unicoi	3.17	6
37665	Sullivan	3.31	3
37694	Carter	3.19	7
37701	Blount	2.61	3
37710	Anderson	2.36	6
37828	Anderson	3.30	<1
37830	Anderson	2.64	4
37848	Grainger	2.81	<1
37902	Knox	2.02	<1
37917	Knox	2.61	6
38046	Fayette	3.00	<1
38104	Shelby	2.35	10
38105	Shelby	2.47	9
38106	Shelby	2.28	7
38107	Shelby	2.14	7
38108	Shelby	1.97	5
38111	Shelby	1.88	4
38112	Shelby	2.03	4
38114	Shelby	2.05	6
38122	Shelby	1.92	5
38126	Shelby	2.21	5
38235	Carroll	2.58	<1
38240	Obion	2.71	4
38259	Dyer	3.36	13
38453	Lincoln	1.71	<1
38459	Lincoln	1.66	<1
38472	Giles	2.04	6
38542	Overton	2.00	<1

Comparison of EBLL rate and percent of houses built before 1950 by zip code in Tennessee, 2012-2016





- Percent of houses built before 1950 are high among the four metro cities (Davidson, Hamilton, Knox, and Shelby) similarly with EBLL rate (dark red) among children < 6 years old.
- Top left zip codes in Tennessee show a cluster of high percent of houses built before 1950 which is reflected in EBLL rates with clusters of dark red.
- 70% of zip codes in Tennessee resulted in having the same color gradient or were off by one shade of red.

For more information

If you would like more information on lead exposure or lead poisoning preventions, contact the Tennessee Childhood Lead Poisoning Prevention Program at 615-532-8462 or visit the website at: https://www.tn.gov/health/health-program-areas/mch-lead.html

References:

1. Centers for Disease Control and Prevention. Recommendations for blood lead screening of young children enrolled in Medicaid: targeting a group at high risk. MMWR Recomm Rep. 2000;49(RR-14):1–13
2. Centers for Disease Control and Prevention. Lead Poisoning Prevention. https://www.cdc.gov/nceh/lead/prevention/default.htm
3. Cohen Hubal EA, Sheldon LS, Burke JM, et al. Children's exposure assessment: a review of factors influencing Children's exposure, and the data available to characterize and assess that exposure. Env Health Perspect. 2000; 108:475–86.
4. Environmental Protection Agency. Protect Your Family from Lead in Your Home. January 2020. Accessed online at https://www.epa.gov/sites/production/files/2020-04/documents/lead-in-your-home-portrait-color-2020-508.pdf
5. U.S. Census Bureau; American Community Survey, 2018 ACS 1-Year Estimates, Table D904; generated by Isaac Yi; using data.census.gov; <https://data.census.gov/cedsci/table?q=housing%20unit&g=0400000US47&hidePreview=true&tid=ACSDP1Y2018.DP04&vintage=2018>; (22 July, 2020).

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