

Lead Cost Estimates Methodology

Data Source: 2010-2014 confirmed cases, duplicate data removed, unique children (children who are confirmed cases multiple times, highest test was used), children with EBL \geq 10 μ g/dL.

Type of blood test (n=1,022):

Venous: 930 (91%)

Capillary: 80 (8%)

Unknown: 12 (1%)

Range: 10- 68 μ g/dL

Methodology Sources:

Minnesota Department of Health. (2014). Economic burden of the environment on two childhood diseases: Asthma & lead poisoning in Minnesota.

<http://www.health.state.mn.us/divs/hpcd/tracking/projects/burden.html>

Transande, L. and Liu, Y. (2011). Reducing the staggering costs of environmental disease in children, estimated at \$76.6 billion in 2008. *Health Affairs*. 30(5) 863-870.

Canfield, R. L., Henderson, C. R., Jr., Cory-Slechta, D. A., Cox, C., Jusko, T. A., & Lanphear, B. P. (2003). Intellectual impairment in children with blood lead concentrations below 10 micrograms per deciliter. *The New England Journal of Medicine*, 348(16), 1517-1526. doi: 10.1056/NEJMoa022848

Grosse, S. D., Krueger, K. V., & Mvundura, M. (2009). Economic productivity by age and sex: 2007 estimates for the United States. *Medical Care*, 47(7 Suppl 1), S94-103. doi: 10.1097/MLR.0b013e31819c9571

Bureau of Labor Statistics (2011). Consumer price indexes of medical care prices: 1980 to 2011. CPI Detailed Report, Data for January 2011. www.bls.gov/cpi/cpi_dr.htm

National Center for Health Housing. (2015). Reimbursement for Healthy Homes Services: A case study of leveraging existing Medicaid authority in Texas Brief # 3: Healthcare financing for healthy homes. American Public Health Association and National Center for Healthy Housing. <http://www.nchh.org/>

Step One:

Healthcare costs

100% of lead is from an environmental source

Transande and Liu (2011):

Lead Poisoning	Dollar Amount (\$) 2006	Lead Level µg/dL
Healthcare Costs	74.00	10-19
	1,207.00	20-44
	1,335	45-69
Environmental Assessment	327.31	10+

2006 Healthcare Cost Amounts	Medical Care Total Annual Percent Change (4.0-3.4)	2010 Healthcare Cost Amounts	Number of Children in the BLL range	Healthcare Totals
\$74.00	\$2.516	76.52	834	63817.68
\$1,207.00	41.038	1248.04	174	217158.96
\$1,335.00	45.39	1380.39	14	19325.46
Environmental Assessment(2014 Amount)\$327.31			1022	334510.82
				\$634,812.92

Step Two: Lost Lifetime Earnings:

4.6 IQ points for each increase of 10µg/dL (Canfield et al., 2003)* 2.39% decrease in lifetime earning per IQ point (Landrigan et al., 2002)

(10-19) $4.6 * 2.39\% = 10.99\%$

(20-29) $9.2 * 2.39\% = 21.99\%$

(30-39) $13.8 * 2.39\% = 32.98\%$

(40-49) $= 18.4 * 2.39\% = 43.98\%$

(50-59) $= 23 * 2.39\% = 54.97\%$

(60-69) $= 27.6 * 2.39\% = 65.96\%$

Percent Lost in Lifetime Earnings	Lifetime Earnings per Child (M/F)	Lost	Number of Children	Total Lost
10.99%	1,055,542	116004.07	434	50345764.56
	622,653	68429.56	400	27371825.88
21.99%	1,055,542	232113.69	74	17176412.75
	622,653	136921.39	57	7804519.50
32.98%	1,055,542	348117.75	16	5569884.03
	622,653	205350.96	18	3696317.27
43.98%	1,055,542	464227.37	8	3713818.97
	622,653	273842.79	8	2190742.32
54.97%	1,055,542	580231.44	3	1740694.31
	622,653	342272.35	3	1026817.06
65.96%	1,055,542	n/a		0

	622,653	410701.92	1	410701.92
Total:				=121047498.57

Lifetime Earnings Lost for Confirmed Case Children from 2010-2014

\$121047498.57

+

Healthcare Costs for Confirmed Case Children from 2010-2014

\$634,812.92

=

\$121,682,311.40

For questions about methodology or references, please contact Magan Meade, Environmental Epidemiologist, 317-233-9264 or mmeade@isdh.in.gov