

The Price of Pollution: Cost Estimates of Environment-Related Childhood Disease in Minnesota

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Childhood diseases and disorders caused by environmental pollutants cost society more than most people think. A new study quantifies the economic impacts on Minnesota from the following chronic childhood diseases: asthma, learning and behavioral disorders, cancer, lead poisoning and birth defects. The study found that **pollution likely costs Minnesota more than \$1.5 billion per year**. And this is a very conservative estimate—the true cost of pollution, given the effect of these illnesses on families, taxpayers and Minnesota communities, is certainly much greater.

Background

Childhood disease continues to be a serious burden on families and society as rates of asthma, certain cancers, birth defects and learning and behavior disorders increase. While there are multiple, interrelated factors causing these conditions, scientific research suggests environmental factors are important contributors — **contributors that can often be prevented**.

- **Asthma.** Numerous studies have linked childhood asthma attacks to air pollutants such as particulate matter and ground-level ozone.
- **Cancer.** Children's exposure to pesticides, air pollutants and chemicals in drinking water have all been associated with greater risk of

cancer. Children whose parents work with agricultural or industrial chemicals are also at higher risk.

- **Learning and behavior.** Children's exposure to lead has a devastating, well-established impact on brain development. Lead can lower intelligence, shorten attention span, decrease coordination, increase aggressive behavior and lead to learning disorders.

These effects are evident when blood lead concentration is below the regulatory action level. An increased risk for neurobehavioral disorders (Down syndrome, autism, cerebral palsy) has also been linked to childhood or in-the-womb exposure to mercury and various other chemicals—even when exposures occur at very low levels.

- **Birth defects.** Exposures to mercury, dioxins, PCBs and other pollutants are associated with increased risk for birth defects.



Environmental contributors to
childhood diseases cost
Minnesota \$1.569 billion
each year

Prevention of disease is a core public health value. Because many environmental exposures are preventable, analyses of short- and long-term cost impacts on society should help guide public policies.

Annual Costs of Childhood Diseases Attributed to Environmental Exposures (2004 dollars)

Disease	Best Estimate	Range
Asthma	\$30.6 million	\$10.2 – \$35.7 million
Cancer	\$8.2 million	\$3.3 – \$16.3 million
Lead Poisoning	\$1.223 billion	\$1.223 billion
Birth Defects	\$4.5 million	\$4.5 – \$9 million
Neurobehavioral Disorders	\$303 million	\$151.5 – \$606 million
Total	\$1.569 billion	\$1.393 – \$1.890 billion

Results

A conservative estimate of total costs to Minnesota for childhood diseases that can be attributed to environmental factors is \$1.569 billion per year, with a range of \$1.393 billion to \$1.890 billion.

Recommendations

Several policy initiatives would reduce or eliminate some of the key environmental contributors to childhood illnesses in Minnesota.

- Reduce environmental mercury by requiring non-mercury alternatives for all products.
- Reduce pesticide exposure by promoting integrated pest management in homes, schools and communities.
- Phase out the use of toxic flame retardants in products.
- Develop a statewide public health tracking system to help provide early warnings of environmental problems.
- Provide more resources to address lead problems, especially for low-income families.
- Reform our chemical regulatory system to require safer products, comprehensive safety data and the phase out of the most persistent and toxic chemicals.

Full report available at

www.iatp.org and
www.mncenter.org

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References

1. U.S. Environmental Protection Agency. *America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses*. Washington, DC, February 2003. EPA publication #240-R-03-001.
2. Landrigan PJ, Schechter CB, Lipton JM, Fahs MC, Schwartz J. Environmental pollutants and disease in American children: estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities. *Environmental Health Perspectives* 110(7): 721-8, July 2002.
3. Davies K, Hauge D. *Economic Costs of Diseases and Disabilities Attributable to Environmental Contaminants in Washington State*. Collaborative on Health and Environment - Washington Research and Information Working Group, Seattle, WA July 2005.
4. Massey R, Ackerman F. *Costs of Preventable Childhood Illness: The Price We Pay for Pollution*. Tufts University. 2003.