

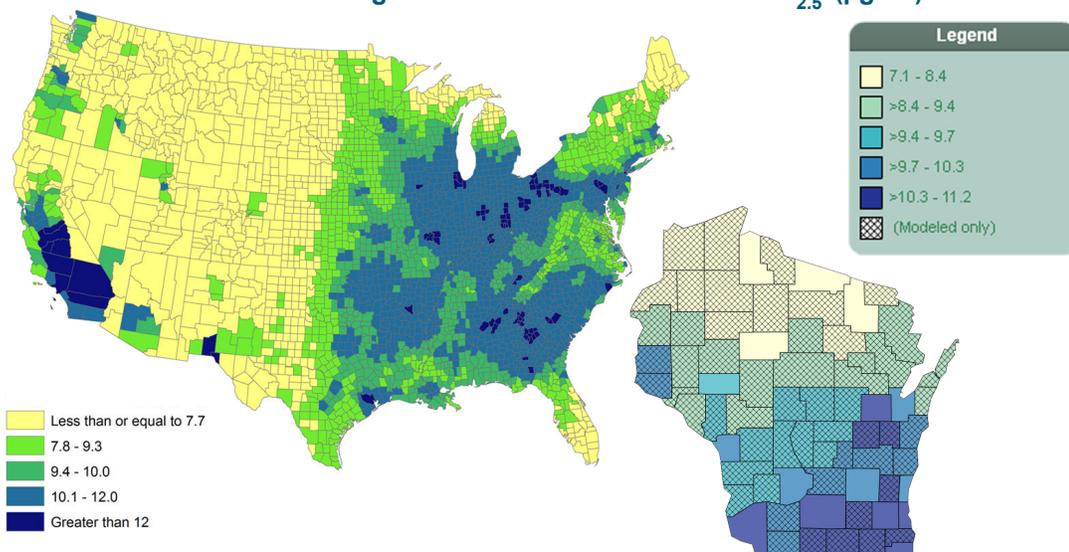
## CDC's National Environmental Public Health Tracking Network

The Environmental Public Health Tracking Network is a dynamic system that provides information and data about environmental hazards and potentially related health problems. It presents what is known about environmental hazards, such as air pollution, and where they might exist, where people are exposed to hazards, and how targeted action can protect health, reduce illness, and save lives.

### AIR POLLUTION (PM<sub>2.5</sub>) AND HEALTH

Air pollution is a leading environmental threat to human health. Particles in the air such as dust, dirt, soot, and smoke are kinds of air pollution that have been linked with health problems. Some particles in the air are large or dark enough to be seen, like some kinds of smoke and soot. Other particles are so small that you cannot see them. Very small particles that are less than 2.5 micrometers wide (smaller than a grain of sand) are known as fine particulate matter or PM<sub>2.5</sub>.

2011 Annual Average Ambient Concentrations of PM<sub>2.5</sub> (µg/m<sup>3</sup>)



PM<sub>2.5</sub> particles are small enough to be inhaled deeply into the lungs. Once fine particles are in the lungs, they can affect the heart, blood vessels, and lungs. People exposed to fine particles over a long period of time can have more heart and lung problems than people who are not breathing this kind of air pollution. Being exposed to any kind of particulate matter may lead to increased emergency department visits and hospital stays for breathing and heart problems and other health problems. In Wisconsin:

**35** Age-adjusted Rate of Emergency Department Visits for Asthma - 2013



**28** Age-adjusted Rate of Hospitalizations for Heart Attacks (Over 35) - 2012



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## Childhood Lead Poisoning in Wisconsin

Each year fewer Wisconsin children are poisoned by lead. However, lead remains a dangerous health hazard for Wisconsin children. While the CDC recommends public health interventions for blood lead levels greater than 5 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ), no safe level of lead has been identified. Even low levels of lead in children's blood have been shown to affect IQ, ability to pay attention, and academic achievement. The main source of lead exposure in the United States is paint from homes built before 1950. The Midwest has a higher percentage of homes built before 1950 than the rest of the US. To help protect children against lead poisoning, neighborhoods with older housing should be targeted for screening and lead removal. The Wisconsin Environmental Public Health Tracking Program (Wisconsin Tracking Program) uses data on childhood lead poisoning to help identify high-risk neighborhoods which can help us focus our collective resources for lead prevention education and mitigation.

### Environmental Hazards



**1 in 5** Wisconsin homes were built before 1940

### Health Effects



The rate of lead poisoning in Wisconsin is **50 percent** higher than the national rate.



Milwaukee students who are exposed to lead before age 3 are three times more likely to be suspended or be held back in school<sup>1</sup>

## Biomonitoring of Cadmium Exposure in Wisconsin

Every day we are exposed to chemicals in our food, water, air, and the products we use. Many of these chemicals are harmless, but some can be hazardous to our health. Measuring environmental chemicals in human tissues and fluids such as blood and urine is known as biomonitoring.

The Wisconsin Tracking Program partnered with the Survey of the Health of Wisconsin (SHOW) to create a biomonitoring project to monitor certain chemical exposures. SHOW is a comprehensive state-wide survey that collects information on individual and community health – everything from sleep habits to the walkability of a neighborhood. Combining exposure data with survey measures provides a clearer picture of Wisconsin's overall health. Wisconsin chose to analyze cadmium because it is a known carcinogen that has been linked to higher risk of breast cancer among Wisconsin women. The cadmium biomonitoring data allows the Tracking Program to track exposure levels and measure the impact of public health interventions and initiatives.

### Health Effects



Smokers in Wisconsin had **nearly double** the level of cadmium in their systems when compared with non-smokers



In Wisconsin, those with the highest cadmium levels were **21%** more likely to have a diagnosis of hypertension than those with the lowest cadmium levels



An earlier study of Wisconsin women found that those with the highest levels of cadmium in their system had **twice the risk of breast cancer** compared to those with the lowest levels<sup>2</sup>

Amato et al. Lead exposure and educational proficiency: Moderate lead exposure and educational proficiency on end-of-grade examinations. *Annals of Epidemiology*. 2012; 22(10): 738-743. Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3791858/>.

McElroy et al. Cadmium exposure and breast cancer risk. *Journal of the National Cancer Institute*. 2006 Jun 21; 98(12):869-73. Available at <http://www.ncbi.nlm.nih.gov/pubmed/16788160>.