

# LEAD POISONING

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## **PUBLIC HEALTH ISSUE:**

Lead poisoning continues to be a significant, preventable environmental health problem, particularly among children. Despite major strides in the elimination of lead poisoning in the population as a whole, children, who are most vulnerable to the harmful effects of lead, continue to be exposed to this toxin at an unacceptable rate.

## **ROLE OF THE HEALTH OFFICER:**

According to RSA 130-A, the state of New Hampshire is responsible for issuing Orders of Lead Hazard Reduction in towns or cities. State law does provide for municipalities to adopt RSA 130-A, which then allows them to assume full and sole legal authority to enforce the provisions of RSA 130-A, except for matters pertaining to licensure and certification of lead hazard reduction professionals and businesses. Currently, no municipality has adopted RSA 130-A.

The New Hampshire Healthy Homes and Lead Poisoning Prevention Program (HHLPPP) within the Division of Public Health Services (DPHS) is the agency addressing lead poisoning prevention and control. At times, the HHLPPP may ask a local health officer to determine if lead hazard reduction activities are occurring at a specific site that is under an Order of Lead Hazard Reduction. This allows state staff to more easily know when work is occurring in order to conduct follow-up inspections to ensure state laws and regulations are being complied with.

Health officers can also play a vital role in disseminating information to homeowners and renovation professionals on lead-safe work practices. The US Environmental Protection Agency issued the Renovation, Repair, and Painting (RRP) Rule with a full effective date of April 22, 2010. The RRP Rule requires that contractors, property managers, and others who perform renovations, repairs and painting projects for compensation in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

## **BACKGROUND:**

Young children are very susceptible to lead's toxic effects. Most children with elevated blood lead levels have no obvious symptoms.

Lead affects every system in the body, particularly the developing brain and nervous systems of young children and fetuses. Effects also include reproductive system disorders, intelligence deficiencies, delays in physical development, cognitive and behavioral changes and hypertension.

In 1978, the Consumer Product Safety Commission banned the manufacture of paint containing more than 0.06% lead by weight on interior and exterior residential surfaces, toys, and furniture. However, lead-based paint continues to be used in marine, military and industrial settings because of its durability.

## **POPULATION AT RISK:**

Lead poisoning can affect people of any age, race, geographic region, or socioeconomic level. Of particular concern, however, are young children (under the age of 6 years) because of their developing central nervous system. Young children are at greater risk because their normal hand-to-mouth activities bring them in greater contact with the lead in their environment. They also absorb and retain the lead they ingest more readily than adults. For these reasons, the HHLPPP recommends that the following children receive blood lead testing:

- All one- and two-year olds living in a home built before 1950.
- All one- and two-year olds living in a pre-1978 home with recent renovations.
- All one- and two-year olds enrolled in Medicaid or WIC.

## **TESTING FOR LEAD POISONING:**

The only way to know whether an individual has an elevated lead level is to have a blood test performed. Sampling for a blood lead test can be done by either capillary (finger stick) or venous collection. An elevated capillary result should be confirmed by a venous blood lead test. Blood lead results are reported as micrograms of lead per deciliter of blood (mcg/dL).

## **LEAD LEVELS:**

There is no safe level of lead in the blood. However, at certain blood lead levels, action is taken by the HHLPPP.

- **6-9.9 mcg/dL** - Children typically show no symptoms. The HHLPPP may notify property owners of resident children age 6 or less who have blood lead levels 6-9.9 mcg/dL. The purpose of this notification is to educate property owners about lead paint, lead exposure hazards, and risk reduction measures. It is not a finding of lead exposure hazards and no action is required of the property owner. A copy of this letter is sent to the parent of the child and to the health officer.
- **10-44 mcg/dL** - Children typically show no symptoms. The HHLPPP performs an environmental investigation to determine the source of exposure and to recommend ways to eliminate exposure. The HHLPPP will issue an Order of Lead Hazard Reduction if the property is a rental property and contains lead exposure hazards. The family will be counseled on risk reduction measures. A complete medical evaluation should be done if the level is 20 mcg/dL or greater.
- **45-69 mcg/dL** - Children may begin to show symptoms (fatigue, irritability, headaches, stomach pains, vomiting, constipation, and tremors). Chelating (the use of drugs to remove lead from the body) is recommended. If chelated, the child must return to an environment with no lead exposure hazards.
- **>70 mcg/dL** - Symptoms (same as above plus convulsions, paralysis, coma and death) may occur. This is a medical emergency requiring immediate hospitalization and treatment.

## **NEW HAMPSHIRE'S LEAD LAW-RSA 130-A:**

Formal efforts for the control of childhood lead poisoning in New Hampshire began with the adoption of RSA 130-A (Lead Paint Poisoning Prevention and Control Act of 1993). This statute provides the DPHS with the authority to inspect rental dwelling units and licensed child care facilities for the presence of lead exposure hazards when a child, less than 6 years of age, has a venous blood lead level of 10 mcg/dL or higher.

When lead exposure hazards are identified in a rental property with a resident child under the age of 6 years with a blood lead level 10 mcg/dL or higher, the DPHS issues an Order of Lead Hazard Reduction to the property owner. For owner occupied properties, a Letter of Recommendation is issued. The DPHS has no legal authority to enforce Letters of Recommendation.

Lead exposure hazards are defined as:

1. Lead based substances which are peeling, chipping, chalking or cracking, or any paint located on an interior or exterior surface of fixture that is damaged or deteriorated and is likely to become accessible to a child;
2. Lead based substances on interior or exterior surfaces that are subject to abrasion or friction or subject to damage by repeated impact;
3. The presence of lead based substances on chewable, accessible, horizontal surfaces that protrude more than ½ inch and are located more than 6 inches but less than 4 feet from the floor or ground; or
4. Bare soil in children's play areas that has equal to or greater than 400 parts per million (PPM) of lead or 1,200 ppm average of lead for bare soil in the rest of the yard.

The statute defines lead based substances as an XRF reading greater than or equal to 1.0 milligram of lead per centimeter squared of surface area (mg/cm<sup>2</sup>) or laboratory atomic absorption (AA) results > 0.5% lead by dry weight.

The statute also requires that all lead inspectors, risk assessors as well as lead abatement contractors, supervisors and workers in New Hampshire must be certified and licensed. More information about certification and licensing is found on the HHLPPP website at <http://www.dhhs.nh.gov/dphs/bchs/clpp/>.

## **THE NEW HAMPSHIRE HHLPPP - CASE MANAGEMENT:**

The HHLPPP provides case management for all children < 6 years of age with venous blood lead levels of 10 mcg/dL or greater. The primary goal of case management is to ensure that children's blood lead levels are reduced in a timely fashion. Case managers provide consultation to health care providers regarding recommended medical protocols for the prevention and management of childhood lead poisoning; educate families about risk reduction measures; serve as a communication link between community agencies and health providers, environmental inspectors and primary health care providers; and track children's' progress from case identification through case resolution.

## **SAMPLE TESTING:**

The National Lead Laboratory Accreditation Program maintains a list of approved laboratories for testing paint, dust, and soil. This list can be found at: <http://www.epa.gov/lead/pubs/nllaplist.pdf>

To test for lead in water, contact the DPHS Water Lab at (603) 271-3445.

For questions concerning lead poisoning and its prevention contact:

New Hampshire Healthy Homes and Lead Poisoning Prevention Program

29 Hazen Drive

Concord, New Hampshire 03301

1-800-852-3345, ext. 4507 (in NH), or (603) 271-4507

1-800-897-LEAD (in NH)

<http://www.dhhs.nh.gov/dphs/bchs/clpp/>