

Health Consultation

Childhood Blood Lead Data in the Population Living near the
Ringwood Mines/Landfill Site, July 1999 to December 2010

RINGWOOD BOROUGH, PASSAIC COUNTY, NEW JERSEY

EPA FACILITY ID: NJD980529739

**Prepared by the
New Jersey Department of Health and Senior Services**

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Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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Summary

Introduction

The Ringwood Mines/Landfill Site (Ringwood Borough, Passaic County, New Jersey) includes abandoned mine shafts and surface pits, an inactive landfill and other disposal areas, and dozens of residences. In the late 1960s and early 1970s, wastes from the Ford Motor Company, including paint sludge, solvents and automobile parts, were dumped at the site. The draft Public Health Assessment (PHA) for the site concluded that there were completed exposure pathways to site-related contaminants in the past, by incidental ingestion of contaminated soil, sediment, paint sludge and surface water. Contaminants include heavy metals, including lead, and organic chemicals associated with paint sludge and other sources.

The draft PHA presented an analysis of childhood blood lead data collected by the Childhood Lead Poisoning Prevention Program (CLPPP) in the period July 1999 to October 2005 in the Upper Ringwood population living on or near the site. Two of the 45 children tested had a blood lead level above 10 micrograms per deciliter of blood ($\mu\text{g}/\text{dL}$). The U.S. Centers for Disease Control and Prevention (CDC) recommends intervention efforts at 10 $\mu\text{g}/\text{dL}$ and above. The elevated blood lead for one child was attributed to potential exposure to lead in paint sludge on a residential property.

Since the draft PHA was completed, more than five additional years of blood lead data have been collected by the CLPPP. This Health Consultation describes the methods used to examine childhood blood lead data from the community and the results of this analysis.

NJDHSS and ATSDR have reached the following conclusions in this Health Consultation.

Conclusion 1

Children's blood lead test results indicate that exposure to lead from paint sludge has occurred in the past, based on one documented case where exposure to paint sludge was considered a likely source of lead. However, blood lead data from children in the community, in general, do not indicate that there is an on-going exposure to lead from the residential soils.

Basis for Conclusion None of the 17 children tested for the first time after January 2006 showed an elevation in blood lead. This may be because: 1) actions have been taken to eliminate paint sludge and contaminated soils from non-residential and residential soils; 2) residential soils with high lead levels are mostly inaccessible or below the surface; and/or 3) families are practicing lead-safe habits to reduce potential exposure to lead in soil.

Next Steps Parents of young children should continue to follow guidelines for routine lead exposure testing.

Since lead exposure may occur from multiple sources, both site-related and other sources of lead should be identified and controlled or remediated wherever possible.

Conclusion 2 NJDHSS and ATSDR do not believe that testing of adults in the community for exposure to lead is necessary.

Basis for Conclusion Generally, young children are far more likely to be exposed to lead in soil than older children or adults, due to greater hand-to-mouth activities, and are more susceptible to the effects of lead exposure. Since young children in the area are not showing evidence of elevated exposure to lead from the site, there is no reason to believe that adults are being exposed to lead from this source at levels of health concern.

Next Steps Adults who remain concerned about personal lead exposure should discuss their situation with a health care provider to determine the need for testing on an individual basis.

NJDHSS and ATSDR will continue participation in meetings of the Ringwood Community Advisory Group (CAG) as needed to address health concerns with community representatives, in particular to address concerns regarding the need for additional biological testing of children or adults.

For More Information Copies of this Health Consultation will be provided to concerned residents via the township libraries and the Internet. NJDHSS will

notify area residents that this report is available for their review and provide a copy upon request.

Questions about this Health Consultation should be directed to:

Environmental and Occupational Health Surveillance Program
Consumer and Environmental Health Services
New Jersey Department of Health and Senior Services
P.O. Box 369
Trenton, New Jersey 08625-0369
(609) 826-4984

Purpose

In May 2006, the New Jersey Department of Health and Senior Services (NJDHSS) and the U.S. Agency for Toxic Substances and Disease Registry (ATSDR) released a draft Public Health Assessment for the Ringwood Mines/Landfill site in Ringwood Borough, Passaic County, New Jersey (ATSDR 2006). Since lead is an important contaminant associated with paint sludge deposited at the Ringwood Mines/Landfill site, the NJDHSS evaluated data on childhood blood lead as part of a draft Public Health Assessment released in 2006 (ATSDR 2006). Since the time that the draft Public Health Assessment was completed, more than five additional years of blood lead data have been collected by the CLPPP. This Health Consultation describes the methods used to examine childhood blood lead data from the community and the results of this analysis.

Background and Statement of Issues

The Ringwood Mines/Landfill Site is located in Ringwood Borough, Passaic County, New Jersey. The site includes abandoned mine shafts and surface pits, an inactive landfill, an industrial waste disposal area, small surface dumps, a municipal recycling area, and dozens of residences. In the late 1960s and early 1970s, wastes from the Ford Motor Company, including paint sludge, solvents and automobile parts, were dumped at the site on the ground, in open pits and in mine shafts. The draft Public Health Assessment for the site concluded that there were completed exposure pathways to site-related contaminants in the past, by incidental ingestion of contaminated soil, sediment, paint sludge and surface water. Contaminants of concern include several heavy metals, including lead, and organic chemicals associated with paint sludge and other sources (ATSDR 2006). As discussed in the draft PHA, there are community concerns about the potential health impacts of exposure to lead among children in the community.

Blood lead is an indicator of exposure to lead. Current state regulations (N.J.A.C. §8:51A), in accordance with federal Centers for Disease Control and Prevention (CDC) guidelines, require health care providers to do a blood lead test on all children in New Jersey at one and two years of age. This is the age at which lead poisoning is most damaging to the developing nervous system. Since July 1999, New Jersey State regulations have required all clinical laboratories to report the results of all blood lead tests to the NJDHSS Childhood Lead Poisoning Prevention Program (CLPPP).

The U.S. Centers for Disease Control and Prevention (CDC) recommends public health intervention efforts for children with a lead level at 10 micrograms per deciliter of blood ($\mu\text{g}/\text{dL}$) and above (CDC 2011; CDC 2005). However, it is recognized that blood lead levels $< 10 \mu\text{g}/\text{dL}$ can harm children, and CDC recommends control or elimination of any source of lead in the environment to which a child could be exposed (CDC 2005).

In the draft Public Health Assessment (ATSDR 2006), NJDHSS and ATSDR presented an analysis of childhood blood lead data collected by the NJDHSS Childhood Lead Poisoning

Prevention Program (CLPPP) in the period July 1999 to October 2005 in the Upper Ringwood population living on or near the site. Data were summarized from 45 children in the community who had been tested one or more times in that period. Two of the 45 children had a blood lead level at or above the intervention level of 10 µg/dL. Based on follow-up investigations by the Ringwood Health Department, the elevated blood lead level for one child was attributed to potential exposure to lead in paint sludge on a residential property, while for the other child the likely cause of elevated blood lead was lead paint during home renovation (ATSDR 2006).

In May 2011, the New Jersey Department of Environmental Protection released results of soil lead concentrations in samples taken from 19 residential properties at the Ringwood Mines/Landfill site. Elevated concentrations of lead (greater than 400 milligrams of lead per kilogram of soil, or mg/kg) were found in surface and/or subsurface soils on 10 of the 19 properties, including very high levels (up to 22,000 mg/kg in the subsurface) (NJDEP 2011). The Ringwood Community Advisory Group (CAG) passed a resolution asking the state and federal public health agencies to evaluate the public health implications of these data. In response, NJDHSS CLPPP worked with local health departments to offer blood lead screening to children in the area, on two dates in June 2011. NJDHSS and ATSDR staff went door-to-door to promote the availability of lead screening and to distribute informational materials about prevention of lead exposure. Blood specimens were obtained successfully from four children; none of the results exceeded 5 µg/dL.

The Ringwood CAG subsequently passed a second resolution asking that blood lead screening be expanded to adults. ATSDR and NJDHSS deferred a decision on the need for this testing until the updated analysis in this Health Consultation was completed.

Methods

Geographic Area, Population, and Time Period

For this Health Consultation, the population included children under six years of age who were living in homes on the following roads at the time of blood lead testing: Peters Mine Road, Cannon Mine Road, Horseshoe Bend Road, Van Dunk Lane, Milligan Drive, Petzold Avenue, Sloatsburg Road, Farm Road, Industrial Parkway, Boro Parkway, Chicken House Road, Manor Road, Margaret King Avenue, and Cable House Road (also named Sheehan Road). This is the same geographic area used in the previous childhood blood lead analysis. All blood lead specimens collected from this population of children less than six years of age during the period July 1, 1999 and December 31, 2010 are considered in the analysis for this Health Consultation.

Blood Lead Tests and Data Analysis

The CLPPP provided to the NJDHSS Environmental and Occupational Health Surveillance (EOHS) Program the results of all blood lead tests from children in Ringwood Borough within the time period stated above. EOHS staff identified all children whose

residential address was on any of the roads listed above. EOHS staff then retained for analysis only one blood lead result per child: the highest venous blood test, or in the absence of a venous blood test, the highest capillary blood test.

Two children who were included in the previous analysis were six years of age or older, so were not included in this analysis. Two children tested before the end of October 2005 who were not included in the previous analysis have been added to this analysis: one whose blood was sampled near the end of October 2005, and one whose address was listed as a post office box, but was included based on last name.

NJDHSS calculated the proportion of blood lead tests equal to or exceeding the CDC intervention level of 10 µg/dL.

Results and Discussion

In the period July 1, 1999 through December 31, 2010, a total of 62 children less than 6 years of age from the population had at least one blood lead test. The distribution of highest blood lead tests from the 62 children is shown in Figure 1. Most of the maximum test results (84%) were 5 µg/dL or lower. Two of the 62 children (3.2%) had a maximum blood lead concentration of 10 µg/dL or higher. These elevated tests occurred in 2004 for one child and 2005 for the other, and were reported in the previous analysis (ATSDR 2006). Subsequent blood lead tests of both children were below 10 µg/dL. As noted above, local health department follow-up investigations attributed the elevated blood lead level for one child to potential exposure to lead in paint sludge on a residential property; for the other child the likely cause was lead paint during home renovation (ATSDR 2006).

Seventeen children were tested for the first time after January 1, 2006. No new cases of elevated blood lead were reported among these 17 children (0.0%). Figure 2 separates the data presented in Figure 1 into two groups: those children first tested before January 1, 2006, and those tested after that date. For comparison, in fiscal year 2007, the percentage of tested children under age 6 years who had a blood lead level of 10 µg/dL or higher was 1.6% statewide and 2.2% in Passaic County (NJDHSS 2011).

Figure 1. Distribution of highest blood lead tests from 62 children less than six years of age, in the period July 1999 through December 2010.

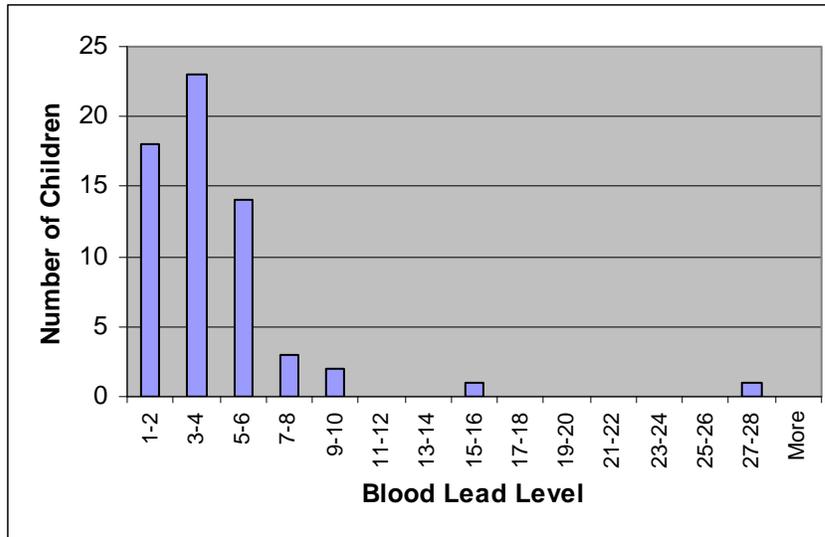
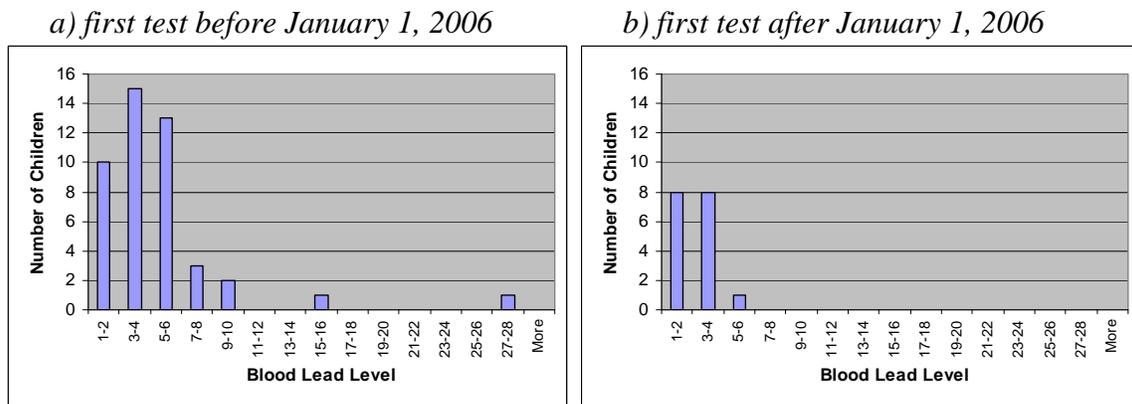


Figure 2. Distribution of blood lead tests from a) 45 children first tested before January 1, 2006, and b) 17 children first tested after January 1, 2006.



The most recent blood lead test results from children in the community do not indicate that there is an on-going exposure to lead from residential soils or other sources. However, exposure to lead from paint sludge has occurred in the past, based on one case where paint sludge was considered the likely source of exposure to lead. There are several reasons why this may be the case: 1) actions have been taken to eliminate paint sludge and contaminated soils from non-residential and residential soils; 2) residential soils with high lead levels are mostly inaccessible or below the surface; and/or 3) families are practicing lead-safe habits to reduce potential exposure to lead in soil.

Generally, young children are far more likely to be exposed to lead from soil than older children or adults, since young children contact soil during play and engage in more frequent hand-to-mouth activity. In addition, children are more susceptible to the effects of lower levels of lead exposure than are adults. Since young children living on or near the Ringwood Mines/Landfill site are not showing evidence of elevated exposure to lead from the site, it is unlikely that adults are being exposed to lead from residential soils at levels of health concern, because adults are less likely to engage in behaviors that increase ingestion of soil.

Conclusions and Recommendations

Children's blood lead test results indicate that exposure to lead from paint sludge is likely to have occurred in the past, based on one case where exposure to paint sludge was considered a likely source of lead. However, blood lead data from children in the community do not indicate that there is an on-going exposure to lead from the residential soils. None of the 17 children tested for the first time after January 2006 showed an elevation in blood lead.

NJDHSS and ATSDR recommend that parents of young children should continue to follow guidelines for routine lead exposure testing. Also, since lead exposure may occur from multiple sources, both site-related and other sources of lead should be identified and controlled or remediated wherever possible (CDC 2005; CDC 2011).

In response to the Ringwood CAG's resolution regarding the offering of blood lead testing for adults in relation to lead in residential soils, ATSDR and NJDHSS do not believe that a systematic program of testing of adults for lead from this source is necessary. Since young children living on or near the Ringwood Mines/Landfill site are not currently showing evidence of elevated exposure to lead from residential soils at the site, there is no reason to believe that adults are being exposed to lead from this source at levels of health concern. However, adults who remain concerned should discuss their situation with a health care provider to determine the need for testing on an individual basis.

As part of the broader public health assessment activities for the Ringwood Mines/Landfill Superfund Site, NJDHSS and ATSDR will continue to work with the Ringwood CAG, and will provide recommendations regarding the need for additional biological testing in general.

Public Health Action Plan

The purpose of a Public Health Action Plan (PHAP) is to ensure that a Health Consultation not only identifies public health hazards but also provides a plan of action to mitigate and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. Included is a commitment on the part of ATSDR and NJDHSS

to follow up on the plan to ensure that it is implemented. The following are actions undertaken or planned in relation to community concerns about lead exposure in the population living near the Ringwood Mines/Landfill site:

Public Health Actions Undertaken by NJDHSS and ATSDR

1. A draft Public Health Assessment was completed in 2006, which included an analysis childhood blood lead data from the community in the period July 1999 through October 2005.
2. This Health Consultation includes an updated analysis of childhood blood lead data for the period July 1999 through December 2010.
3. In June 2011, NJDHSS and ATSDR responded to a petition from the Ringwood Community Advisory Group by offering blood lead screening to children in the area, through services provided by the NJDHSS Childhood Lead Poisoning Prevention Program and local health departments. NJDHSS and ATSDR staff went door-to-door to promote the availability of lead screening and to distribute informational materials about prevention of lead exposure.

Public Health Actions Planned by NJDHSS and ATSDR

1. NJDHSS and ATSDR will make copies of this Health Consultation available to concerned residents via the township libraries and the Internet. NJDHSS will notify area residents that this report is available for their review and provide a copy upon request.
2. NJDHSS and ATSDR will continue participation in meetings of the Ringwood Community Advisory Group (CAG) as needed to address health concerns with community representatives, in particular to address concerns regarding the need for additional biological testing of children or adults.
3. NJDHSS and ATSDR will integrate the findings from this Health Consultation into the final version of the Public Health Assessment for the Ringwood Mines/Landfill site.

Any questions concerning this document should be directed to:

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[ATSDR] Agency for Toxic Substances and Disease Registry 2006. Public Health Assessment for the Ringwood Mines/Landfill Site, Borough of Ringwood, Passaic County, New Jersey. Draft for Public Comment. Atlanta: U.S. Department of Health and Human Services, May 1, 2006.

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Report Preparation

This Health Consultation for the Ringwood Mines/Landfill Site was prepared by the New Jersey Department of Health and Senior Services under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with the approved agency methods, policies, procedures existing at the date of publication. Editorial review was completed by the cooperative agreement partner. ATSDR has reviewed this document and concurs with its findings based on the information presented.

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