

Prevention of Lead Exposure in Ohio

by The Health Foundation of Greater Cincinnati

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Foreword

In 1999, The Health Foundation of Greater Cincinnati entered a partnership with The Anthem Foundation of Ohio to generate white paper reports to assess regional health care needs in four areas of concern: 1) Prevention from the Harm of Health Illiteracy, 2) Prevention of Family Violence, 3) Prevention of Lead Exposure, and 4) Preventive Oral Health Care.

This report was written with the latest available data for a 36-county region, shown below.



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Publications

The Health Foundation of Greater Cincinnati
One West Fourth Street, Suite 512
Cincinnati, OH 45202
(513) 412-7740
publications@healthfoundation.org

If you have a question with regard to the health data used in this report, please contact:

Health Data Analyst
The Health Foundation of Greater Cincinnati
One West Fourth Street
Cincinnati, OH 45202
(513) 241-1400

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Author:	Barry Grossheim
Editing:	Lacona Darrah, Joe Snyder
Expert Panelists:	Bob Bornsheim, PhD, University of Cincinnati Department of Environmental Health Dan Chatfield, Lead Prevention Program Administrator, Ohio Department of Health Dot Christensen, Better Housing League of Greater Cincinnati Marcheta Gillam, Legal Aid Society Bruce Lanphear, MD, Children's Hospital Medical Center Sherry Wilkins, University of Cincinnati Lead Treatment Center

About the Foundations

The Health Foundation of Greater Cincinnati is a 501(c)(4) social welfare organization that awards grants to non-profit and governmental organizations for selected health programs and activities in Cincinnati and 20 surrounding counties including:

- Adams, Brown, Butler, Clermont, Clinton, Hamilton, Highland, and Warren Counties in Ohio;
- Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton Counties in Kentucky; and
- Dearborn, Franklin, Ohio, Ripley, and Switzerland Counties in Indiana.

The Health Foundation concentrates its grantmaking in four focus areas: Strengthening Primary Care Providers to the Poor, School-Based Child Health Interventions, Severe Mental Illness, and Substance Abuse. For more information about the Health Foundation, visit our web site at <http://www.healthfoundation.org> or call us at (513) 241-1400.

The Anthem Foundation of Ohio was established in 1999 to improve the health of low-income and medically underserved Ohioans by investing in preventive health projects and initiatives. The Anthem Foundation awards grants to non-profit and governmental organizations in 36 Ohio counties, including: Adams, Allen, Auglaize, Belmont, Brown, Butler, Carroll, Clark, Clermont, Clinton, Columbiana, Darke, Greene, Hamilton, Hancock, Hardin, Harrison, Highland, Holmes, Jefferson, Mahoning, Mercer, Miami, Monroe, Montgomery, Noble, Preble, Putnam, Scioto, Shelby, Stark, Trumbull, Tuscarawas, Van Wert, Warren, and Washington Counties.

The Anthem Foundation focuses its grantmaking in two areas: preventive oral health care and family violence prevention. The Anthem Foundation is a supporting organization of The Greater Cincinnati Foundation, a charitable organization that builds and preserves endowment funds, identifies opportunities to enhance the quality of community life, and awards grants in an eight-county region in Ohio, Kentucky, and Indiana.

For more information about The Anthem Foundation, please call 513-241-2880, ext. 128.

Table of Contents

Foreword	iii
Acknowledgments	v
About the Foundations	v
Introduction	1
Health Effects	1
Lead Exposure	2
Ohio Statistics.....	3
Target Population	4
Work Underway in the Field	4
Urban vs. Rural Approaches	5
Title X: The Residential Lead Based Paint Hazard Reduction Act of 1992	5
Federal Funding in Ohio	6
Current Programs in Ohio	8
Recommendations	12
Conclusion	13
Resource List	13
Appendix A	15
Appendix B	17

Prevention of Lead Exposure in Ohio

According to the Centers for Disease Control and Prevention (CDC) and the National Center for Environmental Health (NCEH), lead can produce adverse effects on virtually every system in the human body. It can damage the kidneys, the nervous system, the reproductive system, and cause high blood pressure. It is especially harmful to the developing brains of fetuses and young children. A simple blood test can measure lead levels in blood and permit treatment to prevent the irreversible damage lead can cause.

Introduction

Lead is a heavy metal that is strong and durable, which explains its popularity as a material for plumbing pipes and as an additive in paints and metal containers. Once lead enters the environment, it does not break down into simpler elements; rather it remains poisonous for generations unless it is controlled or removed. In addition, lead does not break down in the human body and remains there for a lifetime. Medical treatments that exist today can only reduce the amount of lead in the body, not completely eliminate it. The solution to lead exposure is usually to treat those who have been exposed instead of preventing exposure in the first place. Without prevention, lead exposure will continue to occur.

Health Effects

No amount of lead in the body is safe, especially since lead stays in the body. Most cases of lead poisoning in the U.S. occur through chronic, low-level exposure over many years. Lead can enter the body through ingestion—such as drinking water that has passed through lead pipes or eating lead-based paint chips—or inhalation—such as inhaling dust from lead-based paint or lead-contaminated soils.

Lead impairs all organs, especially the brain, and is associated with dental caries, low literacy

levels, and violent behavior. Lead is also tied to other health issues, as strategies for lead abatement also address asthma and pesticide and allergen removal.

Children under age 6 are especially sensitive to lead, as it is easily absorbed into their growing bodies and interferes more easily with their developing brains, organs, and systems. Pregnant women and women of childbearing age are also at increased risk, as lead can travel into the placenta and affect unborn children.

Harm to children from lead exposure increases as the lead level in their blood increases. Lead levels as low as 10 micrograms of lead per deciliter of blood (micrograms per deciliter is abbreviated $\mu\text{g}/\text{dL}$) are associated with harmful effects on children's learning and behavior. In fact, 10 $\mu\text{g}/\text{dL}$ is the CDC's "level of concern" for lead levels in blood, since studies of large populations have observed adverse health effects in children with this lead level in their blood. However, lead toxicity occurs at levels below this standard.

Very high lead levels can cause devastating health consequences including seizures, coma, and death. The higher a child's lead level and the longer it persists, the greater the chance of adverse effects. On a positive note, a study conducted by the American Academy of

Pediatrics found that the percentage of U.S. children between the ages of 1 and 5 years who had elevated lead levels decreased from 88.2% between 1976 and 1980 to 4.4% between 1991 and 1994. Although these figures show marked improvement in the overall number of children being exposed to lead, nearly 900,000 children still had elevated levels of lead in their blood in 1994.

Lead Exposure

Progress has been made across the United States in reducing the overall rates of childhood lead exposure through comprehensive prevention strategies employed by state, county, and city governments and nonprofit organizations. Lead poisoning is a preventable health problem that can be addressed by environmental and health-related prevention initiatives. Many U.S. agencies have already implemented environmental standards that stipulate removal of lead from gasoline, paint, plumbing, water sources, and food cans. Comprehensive screening measures, physician education, and family and community education programs have made strides in reducing overall lead exposure for children in this country.

The most crucial risk factor for lead exposure is the age of the housing in which children live. Over 80% of all U.S. homes constructed before 1978 contain lead-based paint. The older the house, the more likely it is to contain lead-based paint and the higher the concentration of lead in the paint. As the majority of homes in poor urban areas are older, there is a direct correlation between poverty and lead exposure. According to recent CDC estimates, more than one-fifth of African-American children living in housing

built prior to 1946 have elevated lead levels. However, it is important to note that lead-based paint itself is not a hazard. This paint only becomes a hazard when it begins flaking and deteriorating in poorly maintained housing or when a remodeling or renovation project disturbs lead-based paint surfaces without proper safeguards to contain and cleanup lead dust.

Remodeling and renovation projects are not the only ways people can be exposed to lead. Children can be exposed by chewing on a painted surface, such as a windowsill. Old plumbing may contain lead pipes, which allow lead to leech into the water supply. Large-scale soil contamination from operating or abandoned industrial sites and smelters remains in many areas. Certain household items such as ceramic ware, folk remedies, makeup, and imported vinyl mini-blinds can also put children at risk.

Though steps are being taken across the country to remove lead hazards from areas where children may be exposed, the number of children being subjected to high levels of lead is staggering. Many identified areas of risk throughout the U.S. are underfunded and overwhelmed by the enormity of the problem. In some areas, when a unit has been inspected due to lead detection in an inhabitant, the landlord is only required to inform present and future tenants of the danger. Renovation to decrease the danger is not required. As such, children continue to move into units where others have been poisoned.

Lead abatement in housing is very costly and must be done by certified professionals, who are limited in number. Education strategies are numerous but do not reach all those in need. The CDC recommends universal screening for

census tracts and zip codes where 27% of the housing was built before 1950; however, the financial implications of this proposal are considerable. Though current policies and programs are effective and have made an impact on the health of thousands of young children, more efforts to eradicate lead poisoning hazards must be made in the coming years .

Ohio Statistics

According to statistics gathered by the Ohio Childhood Lead Poisoning Prevention Program (OCLPP), 315,000 children in Ohio currently live in homes with a high risk for lead poisoning. Some at-risk areas have been defined, and all residents of these areas who are under 36 months of age should be tested (see Appendix A). However, the number of identified areas is underestimated due to a lack of data. Based on the sheer number of housing units in the state built before 1950, OCLPP estimates that approximately 2.7 million housing units contain lead-based paint and therefore are potential hazards.

The state has seen a marked increase in childhood lead screening in the last decade. In 1990, the Ohio Department of Health reported 1,347 blood lead analyses. Seven years later, the figure had risen to 125,056. The number of children screened by the end of 1999 should have risen to over 300,000. Of those children screened in 1998, 4.6% had blood lead levels (BLLs) between 10 and 14 $\mu\text{g}/\text{dL}$, 6% had levels between 20 and 24 $\mu\text{g}/\text{dL}$, and 0.5% were greater than 24 $\mu\text{g}/\text{dL}$. This indicates that over 11.2% of all children tested in the state of Ohio had confirmed lead levels over 9 $\mu\text{g}/\text{dL}$, almost triple the national average of 4.4%. The

challenge to the state and its counties and cities is to increase screening of children at high risk and to continue and expand educational activities.

Appendix B lists BLLs and the number of children screened for the 36-county region under review. In Hamilton, Montgomery, and Mahoning Counties (which are all urban counties), a total of 13,917 children were screened in 1999, and 1,205 were found to have BLLs over 10 $\mu\text{g}/\text{dL}$. Hamilton County, one of the most populated, had the highest percentage of children in the 36-county region with BLLs over 25 $\mu\text{g}/\text{dL}$. These results suggest a correlation between older, deteriorating housing in inner cities and the incidence of greater and more severe lead exposure cases.

Though there is a higher incidence of lead poisoning in urban areas, there remain many rural children who are underserved. The rural counties of Mercer, Noble, and Van Wert screened only 292 children in 1999 and found only six cases of BLLs over 10 $\mu\text{g}/\text{dL}$, with five of these cases from Noble and one from Van Wert. These small amounts of data do not give a clear indication of rural BLLs. Despite available state and CDC funds, screening levels in rural areas are too low to adequately determine the extent of lead poisoning. However, the limited results available suggest that the problem is much more severe in low-income urban neighborhoods. If Ohio hopes to eliminate a higher-than-average rate of lead poisoning, it will need to increase efforts in both rural and urban areas.

Target Population

Though screening rates have risen and average BLLs have decreased nationally, some populations of children continue to be disproportionately exposed to lead. In general, children who live in housing built prior to 1950 are more likely to have elevated lead levels than the population as whole. According to a study performed by the CDC:

- 21.9% of African-American children ages 1–5 who were living in older housing had elevated lead levels of 10 $\mu\text{g}/\text{dL}$ or higher;
- 16.4% of low-income children living in older housing had elevated lead levels, and
- 11.5% of children living in older housing in large urban areas had elevated lead levels.

Low-income, African-American children living in older, distressed communities seem to be at the highest risk for lead poisoning. The housing they live in is likely to be poorly maintained and their parents are more likely to be unemployed or living at or below the poverty level. Landlords are less likely to reduce lead hazards in buildings where rents are very low, and investors are unwilling to improve property in areas where disinvestment is already occurring.

Regional Resource Centers in Ohio are targeting zip codes that contain areas with several high risk factors, including poverty, age of housing, and existing incidence rates. Regional Resource Centers also promote neighborhood education and empowerment. By targeting high-risk areas, resource centers are able to show a marked increase in screening rates in these areas as opposed to non-targeted areas where rates remain the same.

Work Underway in the Field

There are many ways to abate and reduce household lead. Lead abatement practices include encapsulation, enclosure, and replacement. Encapsulation is the least expensive option, while replacement is the most expensive. Encapsulation can be as simple as thoroughly painting over lead-based paint that is in good condition and is not flaking. Enclosure may include laminating new drywall over existing walls. Replacement requires the complete removal of surfaces painted with lead-based paint and installation of new windows, doors, and trim. The U.S. Department of Housing and Urban Development (HUD) estimates the cost of lead abatement at \$500 to \$15,000 per

housing unit, depending on the severity of contamination.

Lead reduction practices include repairing damaged paint, covering lead contaminated soil with grass or other ground cover, and cleaning up lead dust. While such efforts are less costly, some experts question the effectiveness of these techniques for reducing BLLs in children with levels less than 30 $\mu\text{g}/\text{dL}$. However, recent studies have shown that some low-cost, low-tech strategies are demonstrating effectiveness.

Ohio law requires that all lead abatement and lead reduction activities be performed under the supervision of licensed lead abatement contractors and by licensed workers, who are in

short supply. The only exception to this requirement is that an individual may do the work on his or her private residence without a license. In addition, Ohio law requires that a licensed inspector or licensed lead risk assessor conduct the inspections to determine the presence of lead-based paint. These requirements further complicate attempts to convince landlords that they can find cost-effective ways to address lead hazards on their properties.

Urban vs. Rural Approaches

Initiatives in urban areas tend to target rental units housing children identified with lead poisoning and owner-occupied residences housing children who may or may not have identified elevated BLLs. Rural efforts also focus on owner-occupied housing but are more likely to target screening and education rather than abatement. If lead poisoning has been identified in a child living in rural rental housing, rural agencies inform the owner of available lead-related services.

Little effort has been made to target educational efforts toward landlords controlling urban housing units where the majority of affected children live. Workshops and educational materials that do target landlords tend to stress the punitive consequences of lead hazards and the costly nature of abatement, giving low-income housing owners little incentive to consider less expensive methods to reduce lead hazards.

Title X: The Residential Lead Based Paint Hazard Reduction Act of 1992

On October 28, 1992, President Bush signed into law the Housing and Community Development Act, a comprehensive housing bill which includes Title X, the “Residential Lead Based Paint Hazard Reduction Act of 1992.” This is the most far-reaching and significant lead poisoning prevention legislation to date, representing a shift in the federal government’s approach to lead poisoning from concentrating on people already poisoned to a housing-based approach to prevent lead poisoning. The preventive measures outlined in Title X affect property owners, landlords, lenders, realtors, insurers, parents, tenants, abatement contractors, inspectors, laboratories, trainers, home remodelers, and state and local government agencies.

In addition to inspections to determine the presence of lead-based paint, Title X mandated risk assessments to identify conditions causing lead exposure. Emphasis was placed on surface dust, which many experts define as the most common vector of poisoning. Title X also employed both short-term and long-term strategies to protect children and address long-term hazard control. In addition, Title X established specific requirements for action in federally assisted housing, setting the federal government up as a model landlord.

Every metropolitan city and state must develop a consolidated plan as a prerequisite to receiving federal housing and Community Development Block Grant funds. Although Title X requires that lead-based paint hazards be explicitly considered in this document, lead paint

abatement is not mandated. Lead-related mandates in Title X include:

- expanded federal public education and information efforts;
- the existence of a national Task Force on Lead-Based Paint Hazard Reduction and Financing;
- guidelines for hazard reduction and evaluation;
- disclosure of information concerning lead upon transfer of residential property;
- contractor training and certification;
- actions to improve and control the quality of abatement and measurement; and
- the distribution of an Environmental Protection Agency (EPA) pamphlet to be used for real estate disclosure.

When Title X was enacted, local mechanisms were not yet in place to identify and control hazards. And although all hazard reduction work funded under this program must be done by certified contractors, only one state had a comprehensive contractor certification program in place. HUD and the EPA have since provided grants of up to \$200,000 to states for setting up contractor certification programs.

Section 1011, Subtitle A, of Title X authorizes a grant program (the Lead Based Paint Hazard Reduction Grant Program [LBPHRGP]) for state and local governments for the evaluation and reduction of lead-based paint hazards in privately-owned housing built before 1978 and occupied by low-income families. From 1992 to 1995, HUD awarded \$280 million to 56 local and state governments to control lead-based paint hazards. Funds can also be used for testing

the BLLs of young children, inspection and testing of homes, temporary relocation of families during hazard control, community education and outreach, and data collection, analysis, and evaluation. At the direction of Congress, HUD has engaged the National Center for Lead-Safe Housing to do an in-depth, long-term evaluation of this program to determine the most cost-effective types of intervention. The final report of findings will be completed in 2000.

Federal Funding in Ohio

In keeping with the severe lead problem in Ohio, the state has received more lead-related HUD grant funds than any other state. In the second round of funding for the LBPHRGP, the City of Cincinnati received \$5,998,390 to reduce hazard in 350 housing units. The State of Ohio also received \$5,792,913 to address 540 units of housing. Montgomery County, Mahoning County, and the City of Springfield received funding in later rounds, being granted \$4,903,030, \$4,295,668, and \$2,966,805 respectively. Overall, Ohio has received eleven grants valued at \$43,577,964, more than 11% of the funds awarded to date by HUD.

In addition to the HUD Lead Hazard Reduction Grants, the Ohio Division of Quality Assurance has received five EPA grants to develop a lead accreditation program. This program helps to ensure that the public has a well-trained and qualified workforce to assist them in identifying and addressing lead-based paint hazards in homes. To date, \$1,481,411 in EPA funds have been awarded. Ohio's program exceeds the federal requirements of the grants by requiring more training hours, more frequent

licensing, and third-party examination of workers.

The Ohio Department of Health also uses funds from HUD to provide programs for the evaluation and reduction of lead-based paint hazards for owners and renters in private housing. Highest priority for lead hazard reduction and lead abatement funding assistance are low-income home owners and tenants who have children under the age of 6 and live in pre-1950 housing with demonstrated lead-based paint or lead-contaminated dust or soil hazards.

The Ohio Medicaid Program provides additional funding for lead poisoning prevention services. A portion of the state's Maternal and Child Health Block Grant funds are also passed through to support local resource centers. All local programs are instructed to bill Medicaid whenever applicable for screening, laboratory, and treatment services for eligible children.

Ohio also established the Ohio Childhood Lead Poisoning Prevention Program (OCLPP), which serves as the head agency for CDC's prevention efforts in Ohio. The program provides for licensing those performing abatement work, approves environmental lead laboratories, directs the implementation of a lead poisoning prevention program, and creates the Lead Program Fund. Ohio has an estimated 2.7 million housing units with some lead-based paint on interior or exterior surfaces. Over 1.5 million of these units were built prior to 1950, and 36% of children under 6 years old (or 315,000 children) live in these possibly hazardous homes. Since lead-based paint in homes is currently the most crucial remaining source of lead exposure for children in Ohio, this hazard remains a reservoir for childhood

poisoning until the lead can be identified and effectively encapsulated, enclosed, or removed.

OCLPP consists of two main program areas: child health and licensure. The Ohio Department of Health houses the child health program and supports statewide operations with funds from the CDC, Maternal and Child Health Block Grants, Medicaid reimbursements, and the Ohio General Revenue. The licensure section of the program, located within the Division of Quality Assurance, is funded through the Ohio General Revenue and HUD and EPA grants.

Through the statewide database STELLAR (Systematic Tracking of Elevated Lead Levels and Remediation) and census data, the OCLPP can accurately estimate the lead poisoning risk in many metropolitan areas. In some areas, there are sufficient data to identify where all children under 36 months of age should be tested. In addition, the state follows CDC recommendations that programs identify risk by tracking zip codes with at least 27% pre-1950 housing. This tracking process has revealed that 27% or more of the housing in the majority of Ohio zip codes were built before 1950.

Beginning in fiscal year 1995, the OCLPP Regional Resource Centers began a targeted educational approach toward childhood lead poisoning prevention, allowing limited resources to be spent in communities with the greatest need. Activities are focused on physician- and neighborhood-based education in order to empower local communities. Each center is required to:

- have screening, diagnostic evaluation, medical management, environmental assessment, and health education;

- have at least one funded staff member dedicated to providing technical assistance, public and professional education, and outreach; and
- enhance services and educational activities through collaboration with other programs.

The OCLPP has also recommended that all children in high-risk target areas be screened twice with at least 12 months between each test. To date, performance measures of the Regional Resource Centers show a greater increase in screening rates in targeted communities throughout the state compared to non-targeted areas. The Regional Resource Centers are currently implementing a statewide education plan to develop community collaboratives and increase local awareness.

Current Programs in Ohio

Resource Centers in the 36-county region include the Clark County Childhood Lead Poisoning Prevention Program, Mahoning County Childhood Lead Poisoning Prevention Program and Southeast Regional Resource Center, City of Portsmouth Childhood Lead Education Project, and the City of Steubenville Childhood Lead Education Project. Several other cities and counties within the region studied in this report are also implementing lead hazard control programs. An overview of these programs and their goals, procedures, services, and funding sources follows.

City of Cincinnati

Since 1992, 14% of the children screened in Cincinnati exceeded the CDC level of concern

(10 µg/dL or higher) for BLLs. Increases in poverty rates and the further aging of the city's housing stock have contributed to these higher levels. Despite rehabilitation efforts since the 1960s, smaller properties have been neglected and continue to be sources of poisonings and elevated BLLs in children. Because 95% of all units in Cincinnati were constructed prior to 1980 and 40% prior to 1940, significant hazards remain. Targeted housing is located within the newly created Cincinnati Empowerment Zone, representing about 15% of the city's total housing units. Approximately 95% of the units within this designated area contain lead-based paint, presenting a challenge to improving and maintaining the housing stock within the zone.

The City of Cincinnati's Department of Neighborhood Services (an interagency cooperative between the Cincinnati Health Department, Neighborhood Housing and Conservation, the University of Cincinnati, Cincinnati Metropolitan Housing Authority, and the Legal Aid Society) received \$5,998,390 in 1993 through the LBPHRGP. With this funding, the city designed the Cincinnati Abatement Program (CAP) with a goal of performing lead hazard reduction on 280 units housing children with identified elevated BLLs.

In May 1999, the City of Cincinnati's Department of Neighborhood Services applied for a second grant of \$2,850,343 from HUD for the Lead Control Program. With the City's Health Department and Employment and Training Division, the proposed project will provide lead hazard control in 125 units of rental housing (including three 25-unit buildings); lead abatement worker and contractor training for 35 participants; and lead awareness training for

100 property owners, managers, maintenance personnel, and rehabilitation contractors. Rental property owners must provide private dollars for at least 50% of the rehabilitation cost per unit, thus providing the necessary matching funds to support the Lead Control Project.

In addition, unemployed and underemployed residents of the empowerment zone will be offered training, licensure, and job placement as lead abatement contractors and workers. The Cincinnati Lead Poisoning Prevention Advisory Committee has also been established to offer assistance to current and future staff. Fifty members have been named to the committee because of their experience with lead poisoning prevention. Participants include contractors, property owners, regulatory agencies, health providers, social service agencies, schools, childcare programs, academic research faculty, public housing staff, Legal Aid attorneys, representatives from the Better Housing League, and parents.

Cincinnati also has a private project initiated by the Better Housing League in collaboration with People Working Cooperatively. This project, called Community Lead Education and Reduction (CLEAR) Corps, works with lead-safe house cleaning and family education. CLEARCorps' goal is to identify low-level, low-tech, affordable lead containment interventions.

Montgomery County

In the City of Dayton (located in Montgomery County) alone, there are 70,613 units built prior to 1978, with an estimated 56,446 of these containing lead-based paint. A shortage of qualified contractors makes the process time consuming and often inefficient.

Montgomery County received a \$4,903,030 grant in 1994 through the LBPHRGP to address lead in 450 housing units. Target areas for the grant are located throughout Montgomery County and the cities of Dayton and Kettering, where free lead testing is available. The Montgomery County Lead Poisoning Prevention Program is administered through the local Community Development Office with assistance from the Montgomery County Board of Commissioners and the Combined Health District.

For residents of designated target neighborhoods, the program offers free lead testing, education, cleaning kits, grant money to make homes lead safe, temporary relocation funds, social services, and low cost loans for additional repairs not covered by grants.

In an effort to offer a holistic approach to lead-based paint hazards, Montgomery County has contracted with several local agencies, including the:

- City Wide Development Corporation, the City of Dayton's nonprofit housing and economic development agency;
- City of Kettering Department of Planning and Community Development;
- COUNTY CORP, Montgomery County's nonprofit housing and economic development agency;
- Combined Health District;
- Visiting Nurses Association, an agency that conducts initial and follow-up blood testing before and after lead abatement;
- Dora Lee Tate and Sunrise Centers, social service agencies;
- Center for Healthy Communities, an academic partnership between Sinclair

College and Wright State University to provide families with outreach and education; and

- JOBCorps, to train persons on how to become certified and licensed in the field of lead hazard reduction activities.

The Montgomery County program focuses on tenant-occupied units housing a child under 6 years old with an existing elevated BLL and owner-occupied units housing children under 6 years old who may or may not have identified elevated BLLs. Tenant-occupied units have been addressed in previous years, but dwindling funds have forced the focus to shift. The initial HUD grant received by Montgomery County terminates after one year. The program hopes to complete an additional 100 units in the time remaining. There is an enormous need in Montgomery County for additional funds to reduce hazards and continue providing outreach.

Miami Valley

The Children's Medical Center of Dayton acts as the head agency for the Miami Valley Lead Poisoning Prevention Coalition. The mission of this collaborative is to improve the health status of children in the Miami Valley through services, education, research, and advocacy. The coalition is comprised of health, housing, and human service agencies; social service organizations; schools; health care providers; community and civic groups; and interested community residents. Coalition members provide information to parents, educators, legislators, policy makers, and the media about community organizing, health services, networking, resource sharing, seminars for health professionals, and

advocacy to promote and increase screenings, treatment, and lead-free housing.

Mahoning County

In 1994, investigators assessed the BLLs of children ages 1-3 in Youngstown (in Mahoning County) who had lived their entire lives in one house. The study used data from the County Auditor's records to determine the age of the housing in which the children lived. An analysis of housing age and average BLL indicated that the mean BLL for children living in homes built prior to 1940 was 6.82. Children living in homes built after 1980 had a mean BLL of 2.48.

In 1996, Mahoning County received \$4,295,668 from the federal LBPHRGP. The money is administered through the Mahoning County District Board of Health to reduce lead hazards in approximately 400 housing units. The Mahoning County Childhood Lead Poisoning Prevention Program offers:

- blood testing for children from 6 months to 6 years of age;
- home lead assessments by a State of Ohio Licensed Lead Risk Assessor for households with children with elevated BLLs of 15 µg/dL or greater;
- nurse consultations;
- environmental consultations;
- professional workshops;
- awareness sessions for parents, educators, caregivers, and medical providers; and
- neighborhood outreach programs.

Through a grant from EPA to the Ohio Department of Health, the Mahoning County Regional Resource Center has also been selected

as a site for the distribution of HEPA vacuums and supplies for the cleanup of lead dust.

In June of 1996, the Mahoning County Board of Health Commissioners contracted with the Center for Urban Studies at Youngstown State University to conduct an environmental health risk study. In an ongoing effort to support the *Healthy People 2000* initiative (the U.S. public health service plan to improve the health and safety of all Americans), the county also identified lead poisoning reduction as a regional objective. The goal of the Mahoning County Childhood Lead Poisoning Prevention Program for the year 2000 is to perform testing for lead-based paint in at least 50% of the homes built before 1950 in an effort to target the neediest areas to reduce the prevalence of BLLs exceeding 15 µg/dL in children from 6 months to 5 years of age.

Scioto County

Scioto County has been identified as a high risk area for childhood lead poisoning due to the high percentage of pre-1950 housing in the region and the fact that at least 15% of children in the county are living below the poverty level. Over 12% of children tested in 1996 had BLLs of 10 µg/dL.

The Portsmouth City Health Department received a Lead Education Grant from the CDC in September of 1998. This grant provides \$18,000 annually for three consecutive years to fund the Scioto County Childhood Lead Poisoning Prevention Program. Working collaboratively with key stakeholders in the community is both a requirement for this grant and a vital means of promoting the program. The grant will help the county increase public

awareness and educate healthcare professionals about lead poisoning and the importance of screening all children from 6 months through 6 years of age. The health department also conducts Medicaid testing and performs probe screenings in target areas. The Scioto County Childhood Lead Poisoning Prevention Program acts as a Regional Resource Center to share information with the entire county.

With limited funds, Scioto County has not been able to address key components of an overall hazard reduction program. Funding is still needed to retain a certified Lead Risk Assessor, conduct free blood testing, and provide lead abatement in private homes as well as relocate families when necessary.

Clark County

Clark County has been ranked the fourth highest county at risk for lead hazards in Ohio. Almost 90% of all housing in Clark County was built before 1950, and many children are still living in hazardous housing that contains lead-based paint.

The Clark County Combined Health District's Childhood Lead Poisoning Prevention Program is funded through the Ohio Department of Health and available CDC money. The program provides:

- city and county screening clinics;
- educational sessions for students, parents, teachers, and medical providers;
- home visits and screening;
- home inspections for households with children with lead levels 20 µg/dL or greater;

- follow up with landlords when units are found to have lead hazards; and
- referrals to the Early Intervention Program for children with a BLL of 15 µg/dL or greater.

The Clark County Combined Health District works cooperatively with Children's Services, various neighborhood organizations, and Lead Safe Springfield to provide property owners with financial assistance for addressing lead hazards. In conjunction with the South

West Regional Resource Center, the cooperative provides educational materials and outreach as well as on-site screenings, public mailings, and local data for the state's STELLAR system.

In 1998, Clark County screened a total of 2,572 children. Over 180 of these children were found to have high BLLs. The goal of the county is to increase screenings and education and to work with Lead Safe Springfield to reduce hazards in more housing units in the City of Springfield.

Recommendations

By their nature, the effectiveness of educational and public awareness efforts is difficult to measure. Nationally, BLLs in children are falling due to a combination of several programs.

Determining whether educational efforts aimed at landlords or the elimination of lead in gasoline or food cans is responsible for lowered overall BLLs in at-risk children cannot be reliably measured. Nevertheless, children with the highest BLLs live in aging, deteriorating housing in low-income, urban neighborhoods with an extremely low rate of owner-occupied properties. The inability to precisely measure results should not be a reason to ignore the connection between housing and elevated BLLs.

Not all lead abatement strategies have worked in the past. Many times, programs failed because there were not enough trained lead abatement specialists for the scope of the work. Also, the government health and housing departments are separate entities, and it takes time to build partnerships between these agencies. Representatives of both agencies should

be involved in lead abatement projects from the beginning, since lead is both a health and a housing concern.

In order to understand the scope of the problem, more BLL screening is needed, both in urban and rural areas. Widespread education is needed about lead exposure hazard, reduction, and prevention. Educational efforts should target landlords, investors, and property management companies operating low-income rental properties where the majority of affected children live. The approach needs to be nonthreatening and stress the low-cost, low-tech methods of reducing lead hazards as part of an ongoing maintenance plan. Also, programs should demonstrate to landlords and property management companies the rationale and cost-effectiveness of regular property maintenance as a way to prevent lead exposure. Although rural screenings may indicate low BLLs, the numbers of screened children are too low to reflect accurately the true extent of lead exposure in rural areas. An emphasis on rural screening

would help identify the full nature of rural exposure.

Rigorous and accurate evaluation methods are needed to measure the effectiveness of lead exposure prevention programs. Existing data about lead levels in blood is insufficient to

demonstrate the benefits of lead control for children with BLLs of less than 30 µg/dL. Results from surveys, screenings, and other evaluation methods can demonstrate the need for and effectiveness of lead exposure prevention programs and leverage funding and support.

Conclusion

Lead poses a public health risk. Once it has entered the human body, lead remains for a lifetime, damaging the brain and other organs. Lead poses a particular hazard to children, whose bodies are still developing, and can cause seizures, coma, and death at very high levels of exposure. The crucial factor in lead exposure is the age of the housing the people live: 80% of houses built before 1978 contain lead-based paint. Ohio alone has at least 2.7 million

housing units with some lead-based paint on their interiors or exteriors.

Many efforts have been made at the national, state, and local levels to educate families and homeowners about the dangers of lead exposure to children and to reduce and prevent future lead exposure. As communities develop better abatement and reduction programs and launch more educational efforts, fewer children will suffer from the irreversible damage of lead poisoning.

Resource List

Contact Name	Agency	Program	Address
	National Alliance to End Childhood Lead Poisoning	National projects and activities to prevent lead poisoning in high-risk, low-income communities	aeclp@aeclp.org
Dan Chatfield, R.S., M.S.E.H.	Ohio Dept. of Health	Lead Poisoning Prevention Program	246 North High Street Columbus, OH 43266-0118 (614) 466-1450 FAX: (614) 752-4157 dchatfie@gw.odh.state.oh.us
Icilda Stevens-Dickerson	Ohio Dept. of Health	Childhood Lead Poisoning Prevention Program	246 North High Street Columbus, OH 43266-0118 (614) 466-3805 FAX: (614) 728-6793 istevens@gw.odh.state.oh.us
Tawana Jones	Montgomery County Community Development	Montgomery County Lead Poisoning Prevention Program	451 West Third Street Columbus, OH 45422 (937) 225-5704

Susan Utt	City of Cincinnati Dept. of Neighborhood Services	The Lead Control Project	Suite 710, Centennial Plaza 2 835 Central Avenue Cincinnati, OH 45202 (513) 352-6117 FAX: (513) 352-6113
Joe Diorio	Mahoning County Board of Health	Mahoning County Childhood Lead Poisoning Prevention Program	50 Westchester Drive Youngstown, OH 44515 (330) 270-2855 FAX: (330) 270-2860
Kim Herrmann	Mahoning County Board of Health	Southeast Regional Resource Center	50 Westchester Drive Youngstown, OH 44515 (330) 270-2855 FAX: (330) 270-2860
Selena Singletary	City of Springfield	Lead Safe Springfield	76 East High Street Springfield, OH 45502 (937) 324-7380 FAX: (937) 328-3489
Priscilla Kirkpatrick	Portsmouth City Health Department	Scioto County Childhood Lead Poisoning Prevention Program	740 Second Street Portsmouth, OH 45662 (740) 353-5153 FAX: (740) 353-3638
Judy Andrews	Clark County Health District	Childhood Lead Poisoning Prevention Program	76 East High Street Springfield, OH 45502 (937) 328-3930 FAX: (937) 328-3489
Sandy Perlosky	Steubenville Health Department	Childhood Lead Education Program	312 Market Street Steubenville, OH 43952 (740) 283-6050 FAX: (740) 283-6165
Vicki Giambrone	Children's Medical Center	Miami Valley Lead Poisoning Prevention Coalition	One Children's Plaza Dayton, OH 45404 (937) 226-8332 FAX: (937) 226-8454 www.cmc-dayton.org
Bruce Lanphear, M.D., M.P.H.	Cincinnati Children's Hospital Medical Center	Lead Hazard Research	3333 Burnet Avenue Cincinnati, OH 45229-3039 (513) 636-3778 FAX: (513) 636-4402 bruce.lanphear@chmcc.org
Dot Christenson	Better Housing League	Healthy Homes Resource Center and CLEARCorps	2400 Reading Road Cincinnati, OH 45202 (513) 721-6855 FAX: (513) 721-8160 bhl@cinternet.net

Appendix A

This list of zip codes represents areas in the 36-county region that are at high risk for lead poisoning.
(Source: Childhood Lead Poisoning Prevention Program, Ohio Department of Health).

Adams	Brown	Clark, cont.	Columbiana, cont.	Hamilton, cont.
45144	45121	45503	44625	45217
45671	46142	45504	44634	45219
45679	45144	45505		45220
45684	45167	45506	Darke	45223
	45168		45331	45224
Allen		Clermont	45346	45225
45801	Butler	45120	45348	45226
45804	45003	45140	45390	45227
45805	45011	45176		45229
45810	45013		Greene	45232
45817	45015	Clinton	45169	45237
	45030	45113	45314	45251
Auglaize	45044	45135	45335	
45885		45142	45387	Hancock
	Carroll	45146		44817
Belmont	43908	45148	Hamilton	44830
43713	43945	45169	45001	45817
43718	43986	45177	45030	45841
43719	43988		45140	
43747	44427	Columbiana	45202	Hardin
43902	44615	43920	45203	43326
43906	44621	43930	45204	43340
43912	44625	43945	45205	43345
43917	44651	43968	45206	43346
43933	44695	44408	45207	45810
43935		44413	45208	45812
43942	Clark	44427	45209	45836
43947	43044	44432	45210	
43950	43078	44441	45211	Harrison
43971	43153	44445	45212	43901
43973	45314	44454	45213	43907
43977	45368	44460	45214	43950
	45387	44490	45215	43973
	45502	44601	45216	43976

Harrison, cont.	Mahoning	Monroe, cont.	Shelby	Tuscarawas
43977	44405	45767	45334	43832
43986	44408	45774	45356	43837
43988	44425		45365	44621
44621	44429	Montgomery		44622
44683	44436	45402	Stark	44624
44695	44452	45403	44601	44629
44699	44454	45404	44613	44663
	44460	45405	44634	44680
Highland	44471	45406	44646	44681
45123	44502	45407	44662	44683
45133	44503	45408	44688	44699
45135	44504	45410	44702	
45142	44505	45417	44703	Van Wert
45612	44506		44704	45832
45679	44507	Noble	44705	45898
	44509	43724	44706	
Holmes	44510	43780	44707	Warren
44611	44511	43788	44709	45140
44624	44601	45727	44710	45152
44627	44672	45745	44714	
44633				Washington
44638	Mercer	Preble	Trumbull	45789
44654	45862	45003	44062	
44681	45898	45311	44076	
		45320	44288	
Jefferson	Miami	45338	44402	
43901	45318	45347	44418	
43908	45356		44420	
43913	45373	Putnam	44426	
43917	45383	45827	44430	
43930		45858	44438	
43938	Monroe	Scioto	44446	
43943	43747	45652	44450	
43945	43754	45656	44483	
43952	43788	45662	44484	
43963	43793	45663	44485	
43964	43915	45671	44505	
43971	43946	45682		
43976	45745	45684		
44615				

Appendix B

The following tables show the number of children aged 0–72 months who were screened for BLLs in the 36-county area in 1999 and their BLLs. (Source: Ohio Department of Health.)

County	No. of children screened	>10 $\mu\text{g/dL}$	10–14 $\mu\text{g/dL}$	15–19 $\mu\text{g/dL}$	20–24 $\mu\text{g/dL}$	25 $\mu\text{g/dL}$ and over	Total elevated BLLs
Adams	237	228	7	2	0	0	9
Allen	726	706	12	7	0	1	20
Auglaize	112	109	3	0	0	0	3
Belmont	417	408	7	2	0	0	9
Brown	290	280	7	2	0	1	10
Butler	1,272	1,190	46	19	10	7	82
Carroll	111	109	1	1	0	0	2
Clark	2,159	1,942	156	46	11	4	217
Clermont	930	897	20	8	2	3	33
Clinton	183	178	4	0	1	0	5
Columbiana	858	789	45	16	5	3	69
Darke	313	300	10	2	1	0	13
Greene	799	785	9	4	1	0	14
Hamilton	8,903	8,193	498	134	50	28	710
Hancock	120	120	0	0	0	0	0
Hardin	204	194	7	2	1	0	10
Harrison	92	88	4	0	0	0	4
Highland	304	291	9	1	3	0	13
Holmes	51	49	1	0	0	1	2
Jefferson	502	482	15	3	1	1	20
Mahoning	2,152	1,788	245	86	26	7	364
Mercer	67	67	0	0	0	0	0
Miami	516	479	24	7	3	3	37
Monroe	81	76	5	0	0	0	5
Montgomery	2,862	2,731	76	40	10	5	131
Noble	92	87	3	0	2	0	5
Preble	184	173	7	2	2	0	11
Putnam	70	67	3	0	0	0	3
Scioto	486	455	22	8	0	1	31

County	No. of children screened	>10 µg/dL	10–14 µg/dL	15–19 µg/dL	20–24 µg/dL	25 µg/dL and over	Total elevated BLLs
Shelby	280	273	3	2	2	0	7
Stark	2,673	2,554	86	23	3	7	119
Trumbull	701	680	17	4	0	0	21
Tuscarawas	350	335	13	1	1	0	15
Van Wert	133	132	0	0	0	1	1
Warren	539	523	9	3	1	3	16
Washington	482	429	38	11	3	1	53
36-county total	30,251	28,187	1,412	436	139	77	2,064