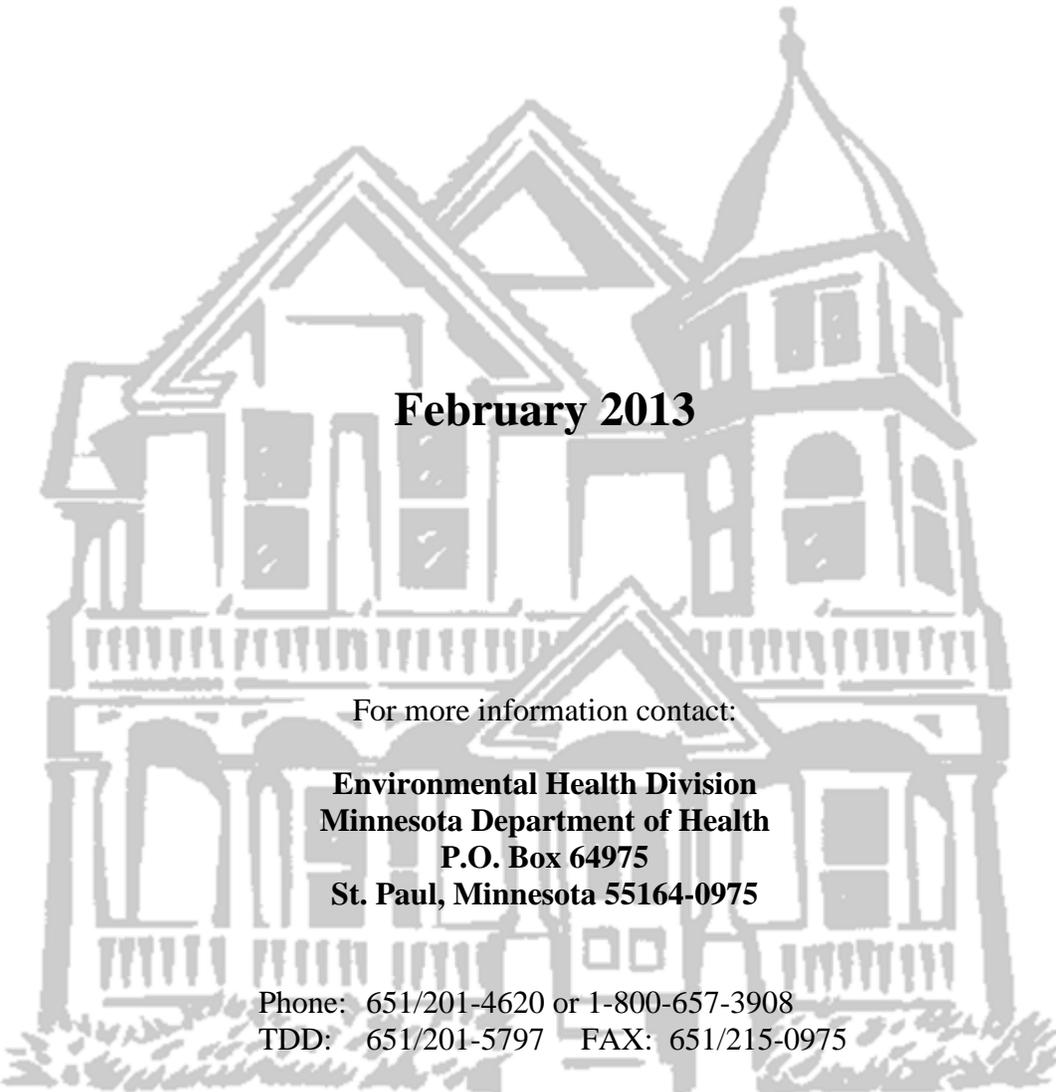


Minnesota's Lead Poisoning Prevention Programs

Biennial Report to the Legislature



February 2013

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**Minnesota Department of Health - Lead Poisoning Prevention Programs
Biennial Report to the Legislature, February 2013**

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Executive Summary

The State of Minnesota has consistently played a leading role in identifying and addressing public health issues related to lead exposure. This report documents activities conducted by MDH between January 2011 and January 2013. Previous reports were prepared for two year periods from January 2001 to January 2011.

The lead program at the Minnesota Department of Health (MDH) has reached a critical crossroads in efforts to maintain a leadership role and protect the health and well-being of the citizens of Minnesota from the potentially devastating effects of exposure to lead and other housing-based health hazards. Federal funding cuts threaten to eliminate surveillance, medical case management, and most planning and education/outreach efforts unless replacement resources are found.

Over the past several years lead poisoning prevention partners have been actively involved in maintaining established lead program capacity and expertise and in transitioning to include healthy homes approaches. The State of Minnesota Healthy Homes Strategic Plan was prepared in 2012 to help direct the transition. It was created using lessons learned implementing the Childhood Lead Poisoning Elimination Plan. The Healthy Homes Strategic Plan calls for a community-based, multi-faceted approach to creating healthier living spaces by addressing health threats like lead poisoning, injuries, asthma, radon, carbon monoxide, and other problems related to moisture or poor ventilation. The final version of the Healthy Homes Strategic Plan is posted on the MDH website and included in Appendix A.

MDH continued to collect information on all lead tests performed on Minnesota residents. The Blood Lead Information System (BLIS) is maintained in an Oracle platform, which allows for high data security and compatibility with other current and projected state agency systems. During 2011 and 2012 the number of blood lead tests performed remained at a high level, reflecting an ongoing awareness of the need to check children for potential exposure to lead. The number of elevated blood lead level (EBLL) cases continued to decrease, which is consistent with national trends. State guidelines were reviewed and amended to include additional public health recommendations for low level blood lead test results. The State Case Monitor continued to guide case management of elevated lead levels by local public health agencies.

MDH lead program compliance staff have continued their efforts in compliance assistance, compliance monitoring and enforcement activities. This is accomplished by promoting education and compliance training, licensing, and registering lead professionals and certifying firms performing regulated lead work, approving training courses, and conducting compliance monitoring and enforcement activities.

All members of the lead program share responsibility for educating and communicating effectively about health risks of lead. They carry out these activities in all areas of the state where cities of the first class have not assumed responsibility for lead inspection and hazard reduction.

Although reported EBLLs are declining nationally and in Minnesota, the state needs to continue to effectively reach the remaining at-risk populations. High-risk populations tend to be diverse,

under-served, highly mobile, and often face barriers that impede effective communication. In addition, lead programs across the nation are transitioning to include “healthy homes” as a routine part of home assessments. Maintaining current program capacity to address these issues will require funding support from the State.

Future activities will focus on maintaining current program capacity, incorporating additional housing-based health hazards as part of a healthy homes program, and assuring effective use of available funds. These activities will include:

- Continuing examination of trends in lead poisoning in the Minnesota childhood Medicaid population and the development of collaborative efforts to reduce exposure and fully use available resources;
- Continuing to offer outreach and education to general rehabilitation contractors working on residential projects; educate them about the hazards associated with working with lead based paint and recent developments in federal rules and regulations;
- Building on lessons learned during local pilot projects in 2012 to implement healthy homes programs statewide;
- Working with health plans to promote awareness of lead, ensure appropriate delivery of services to at-risk children, and sharing information to accurately identify areas of high risk for lead exposure across the state;
- Working to integrate lead poisoning prevention activities into the developing statewide Healthy Homes program.
- Continuing efforts to maintain the high quality of data in the surveillance database through ongoing review of data entry procedures, targeted studies of reporting from laboratories and clinics, and distribution of data reporting outcomes to partners;
- Continuing to evaluate compliance monitoring and enforcement efforts to ensure that a properly trained and skilled lead workforce exists in Minnesota; and
- Continuing to provide compliance assistance and presentations to the public and the regulated community.

Introduction

This biennial report addressing state lead poisoning prevention activities is required by Minnesota Statutes, section 144.9509, subdivision 3, which states:

The commissioner shall examine compliance with Minnesota's existing lead standards and rules and report to the legislature biennially, beginning February 15, 1997, including an evaluation of current lead program activities by the state and boards of health, the need for any additional enforcement procedures, recommendations on developing a method to enforce compliance with lead standards, and cost estimates of any proposed enforcement procedure. The report shall also include a geographic analysis of all blood lead assays showing incidence data and environmental analyses reported or collected by the commissioner.

Due to the time lag involved in collecting, analyzing, and reporting data, some information prior to 2011 may also be presented. This report cost \$3,000 to prepare, including staff time, printing, and distribution costs. Information used to compile this report was obtained from MDH files, including both public and private data sources. The complete 2013 report, along with all previous reports, may be found at the MDH website at: www.health.state.mn.us/divs/eh/lead under the "Publications and Reports" subheading in the "Educational Materials" area, and is available upon request.

Current State Lead Programs

Lead poisoning prevention activities at MDH continue to be housed within the Division of Environmental Health. The Environmental Impacts Analysis Unit, in the Environmental Surveillance and Assessment Section, is responsible for lead-related surveillance activities and was responsible for implementing the Centers for Disease Control and Prevention (CDC)-funded Childhood Lead Poisoning Prevention program (CLPPP). The Asbestos/Lead Compliance Unit, in the Indoor Environments and Radiation Section, is responsible for assuring compliance with state rules and statutes dealing with lead hazards. Other state agencies dealing with lead or blood lead testing include the Pollution Control Agency, Department of Agriculture, Occupational Safety and Health Administration, Department of Natural Resources, Housing Finance Agency, Department of Human Services, and Department of Employment and Economic Development. Cities of the first class and counties also have duties with respect to lead risk assessment and case management.

MDH strives to provide the best possible service to Minnesota families whose children have possible lead-related health problems. MDH also provides needed information about lead issues to county-level health officials, physicians, organized health care providers, and other professionals responsible for preventing and managing lead risks in the most effective and efficient manner possible.

Over 90% of funding for the MDH healthy homes and lead poisoning prevention program comes from federal sources via grants and cooperative agreements. On March 7, 2012 MDH was

informed that CDC would no longer be providing cooperative agreements for the CLPPP and funding ended November 30, 2012. The CDC support allowed MDH to operate the statewide database (which is used to evaluate programs, assess population trends, and target limited resources to areas of highest need), maintain guidelines for screening, case management and clinical practice, provide funding to local agencies for healthy homes assessments, and conduct strategic planning with an array of collaborative partners from government, health care, private industry, and advocates. It also allowed MDH to effectively compete for other federal funding from the Environmental Protection Agency and the Department of Housing and Urban Development. The loss of CDC funding will have a very negative impact on the ability of MDH to maintain lead program capacity.

I. Surveillance Activities

MDH maintains a blood lead surveillance system for the purpose of monitoring trends in blood lead levels in adults and children in Minnesota. Whenever Minnesota residents are tested for blood lead, analyzing laboratories submit the results to the MDH lead program, as mandated by Minnesota Statutes, 144.9502. The results are entered either manually or electronically into the Blood Lead Information System (BLIS) database. BLIS is maintained in an Oracle platform, which allows for high data security, and is compatible with other current and projected state agency systems for data transfer.

As of January 31, 2013 the blood lead database contained 1,544,629 records of blood lead test results from 1,002,989 individual Minnesota residents dating back to 1993.

Specific conclusions based upon the data in BLIS cannot be drawn regarding the actual rates of lead poisoning in Minnesota. Without universal testing or population-based testing of children across the state, the tests reported to BLIS are not representative of the entire Minnesota population. A direct comparison of numbers of children with EBLLs between Minnesota counties is also not appropriate because the counties have different rates of testing. However, the data may be used to identify trends in screening practices from year to year, compare the total number of elevated blood lead levels (EBLLs) reported to MDH over time, and characterize the population currently being screened. The specific definition of an EBLL has been recently revised by CDC (see Section I.D) and is now recognized as five micrograms of lead per deciliter of whole blood (ug/dL).

Presented below are data on lead poisoning in children less than six years old and adults, an overview of projects targeted to at-risk populations, and MDH statewide lead guidance. Further surveillance data are available in the 2011 Surveillance Report (Appendix B). Production of the 2012 Surveillance Report will depend on securing additional funding to support program resources.

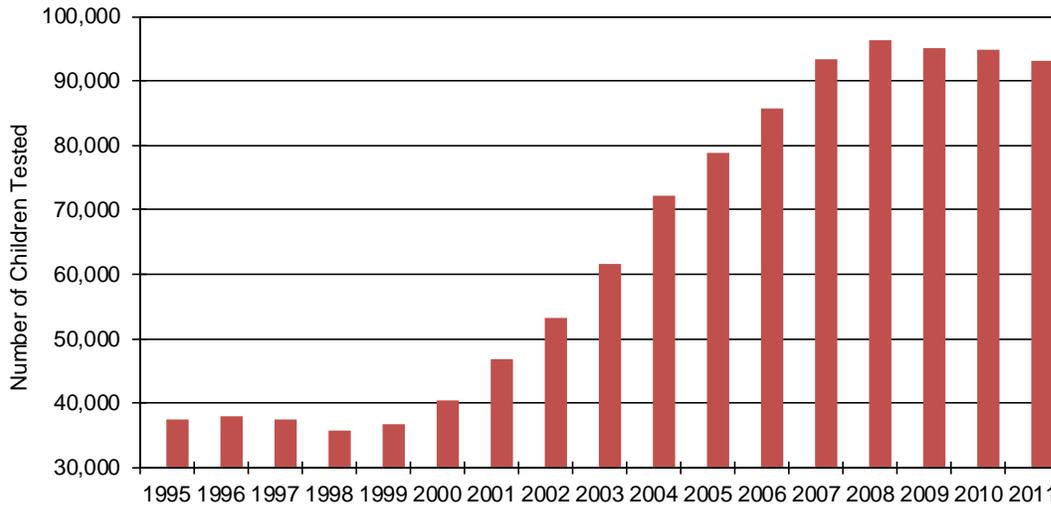
A. Elevated Blood Lead Levels (EBLLs) in Minnesota

Blood Lead Levels in Children

The fewest number of blood lead tests reported to MDH was in 1998 and has been increasing

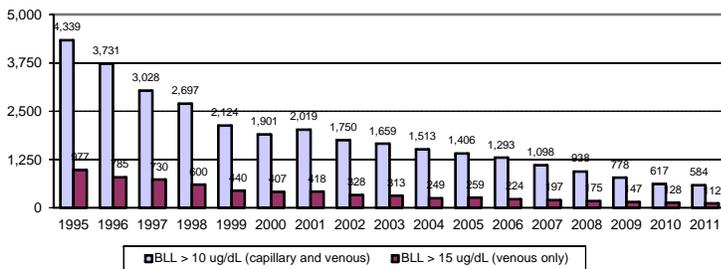
since that year (Figure 1). Since not all Minnesota children are at risk for lead exposure, targeted testing, rather than universal testing, is currently recommended for most areas of the state. Therefore, the optimal level of testing will be less than 100%. The goal is to test all children at risk for exposure to lead. Screening guidelines are discussed on page 8.

Figure 1: Number of Children Tested (less than 6 years old)



The trends in the number of EBLL cases (e.g., tests greater than or equal to 10 $\mu\text{g}/\text{dL}$) in Minnesota children may be compared across years (Figure 2). The general downward trend shown in Figure 2 is consistent with national trends. Numbers are also shown for venous blood lead levels greater than or equal to 15 $\mu\text{g}/\text{dL}$, the level at which an environmental assessment is required to identify and mitigate lead exposure.

Figure 2. Number of Children with Reported Elevated Blood Lead Levels



While the rate of lead testing increased during the 1999 - 2009 period, the number of EBLL cases has slowly declined since 1995. Although these data are difficult to interpret due to many confounding factors, the downward trend for EBLLs suggests that the amount of lead exposure is declining in Minnesota.

Rate of follow-up testing for children with EBLLs

MDH guidelines recommend follow-up blood lead tests for children with elevated blood lead levels. The period of time recommended for re-testing varies according to the initial blood level, but the maximum time is 90 days for any child with a blood lead level of 10 µg/dL or greater (e.g., an EBLL). The assessment of follow-up data is traditionally performed by the Lead Program Epidemiologist. Due to vacancies, and then the federal budget cut, MDH was unable to fill the vacancy and the follow-up data was not assessed during the period addressed by this report. Data from previous years are available in Annual Surveillance Reports and Biennial Legislative Reports. Based on feedback from the State Case Monitor and BLIS staff MDH does not believe that follow-up rates were significantly different than in the past.

Blood Lead Levels in Adults

CDC recommends a level of concern for adult exposure to lead of 25 µg/dL and the Occupational Safety and Health Administration (OSHA) requires action in exposed workers at a level of 40 µg/dL. Minnesota's Adult Blood Lead Epidemiology and Surveillance (ABLES) program began identifying eligible adults on January 1, 1998. The total number of tests reported in 2010-11 for adults in Minnesota is presented in Table 1. The threshold for being considered an “adult” in ABLES assessments was recently changed from 18 to 16 years old.

Table 1: Minnesota residents 16 years or older with a reported blood lead test in 2010-11

# of reports	# of individuals	Range of reported results
19,371	16,595	0.0 to 121 µg/dL

In 2010 there were 458 adults with BLLs of 10 to 24 µg/dL, 106 adults with BLLs of 25 to 39 µg/dL (down from 156 adults in 2007), and 9 adults with reported levels of 40 µg/dL or greater. In 2011 there were 952 adults with BLLs of 10 to 24 µg/dL, 193 adults with BLLs of 25 to 39 µg/dL, and 9 adults with reported levels of 40 µg/dL or greater. Data for 2012 are not yet available.

B. Studies and Projects in At-Risk Populations

1. Lead in Children Enrolled in Medicaid

Medicaid’s Early and Periodic Screening Diagnosis and Treatment (EPSDT) program requires that well-child visits include blood lead testing at both 12 and 24 months. In Minnesota, testing

of children enrolled in Minnesota Health Care Programs (MHCP), including Medicaid, is under the jurisdiction of the Minnesota Department of Human Services (DHS). Recent data show a general trend toward higher rates of testing in MHCP-enrolled children, along with declining rates of EBLs in both MHCP-enrolled and non-enrolled children. However, MHCP-enrolled children remain twice as likely to have an EBL compared to non-enrolled children.

To help sustain these gains, DHS continues to include provisions in their managed care contracts which encourage blood lead testing. A \$30 incentive is provided for every child above the previous year's level of testing. Over the past two years DHS also has included blood lead screening among the performance goals that must be met for health plans to receive the 5% of their contract amount that is withheld at the beginning of each contract year.

In 2009 CDC issued recommendations (August 7, 2009; MMWR:58(RR09)1-11) examining evidence that children in low-income families are experiencing decreases in BLLs, suggesting that the EBL disparity between Medicaid-eligible children and non-Medicaid-eligible children is diminishing. CDC concludes that because state and local officials are more familiar than federal agencies with local risk for EBLs, they should have the flexibility to develop blood lead screening strategies that reflect local risk for EBLs (rather than enforcing universal testing nationwide). After considering testing rates and risk factors, MDH concluded that it would be most appropriate for Minnesota to continue universal testing of Medicaid-eligible for lead exposure and has not suggested a variance from established federal requirements.

2. Lead in Minnesota Venison

Many states have programs in which hunters may donate venison to food shelves by bringing their shot deer to meat processors, who provide the processed venison to food charities. In 2008 the Minnesota Department of Agriculture (MDA) staff obtained venison packages from Minnesota food shelves and examined them for the presence of lead. The results showed 22% of packages had measurable lead fragments. As a result of this discovery, MDA suspended venison distribution from food shelves in Minnesota for the remainder of 2008.

MDH, MDA and the Department of Natural Resources (DNR) responded to requests to testify regarding HF2171/SF1943 in the 2012 legislative session. MDH provided background information on lead toxicity, exposure pathway and calculations, and long-term health implications of various blood lead levels.

More information is available on the MDH Lead Program website at www.health.state.mn.us/lead and the DNR website at www.dnr.state.mn.us/hunting/lead.

3. Lead in Refugees

The Division of Infectious Disease Epidemiology, Prevention, and Control at MDH collects demographic data on all refugees entering the state who receive an initial health screening. In past years the MDH Lead Program has assessed refugee data to characterize lead exposure trends and recommend needed testing. A blood lead test is included in the standard schedule of medical checks for incoming refugees. Due to federal budget cuts and staff vacancies, MDH has not been able to continue to perform data assessment for refugee populations. The MDH Screening

Guidelines recommend any child coming to Minnesota from another country have a blood lead test. Results up to 2010 are listed in the MDH Annual Surveillance report at: <http://www.health.state.mn.us/divs/eh/lead/reports/index.html#surv> .

4. Healthy Homes Pilot studies

In September 2011 MDH issued a request for proposals (RFP) from local public health agencies to participate in implementation grant agreements for healthy homes. Agencies were required to leverage matching funds of 25% as part of the delivery of the services. The scope of work in the RFP had a number of specific focus areas from which the grantees could choose, including:

1. Strategic Planning/Capacity Building
2. Healthy Home Assessments
3. Educating Building Code Officials
4. Smoking Prevention in Multi-unit Housing
5. Community Engagement and Education
6. Reporting Requirements

Applications were due to MDH on October 26, 2011. A total of eight applications were received for the seven available grants. The target population for this grant was low income populations statewide, participants in public assistance programs, and minority populations that have been shown to have health disparities in Minnesota. A review panel consisting of MDH staff from several Divisions was convened and reviewed the proposals. Counties receiving the higher funding level were required to do all six focus areas listed above. Those receiving less funding were required to do focus areas one through three, six, and either four or five. The successful applicants were:

<u>Receiving \$25,000</u>	<u>Receiving \$50,000</u>
City of Minneapolis	City of Bloomington
St. Paul/Ramsey County	Meeker-McLeod-Sibley Community Health Services
Rice Community Health Services	Southwest Health and Human Services
Horizon Community Health Board	



As a first step in implementing the projects MDH scheduled several sessions of the “Essentials for Healthy Homes Practitioners” course, which is offered in Minnesota by the Sustainable Resources Center (SRC), a local training affiliate of the National Center for Healthy Housing (NCHH). Sessions were held in Minneapolis on February 16-17, in Alexandria (northwest MN) on February 27-28, and in New Ulm (south central MN) on March 15, 16. All grantees sent representatives to one of the trainings.

Over 169 healthy homes assessments were completed by participating grantees. Many grantees chose to recruit families through existing programs such as Early Head Start, Department of

Human Services-WIC, adult nursing programs, health plans, newspaper and radio ads, and community outreach events. Families who participated in the program had to have a child under the age of six, or be elderly, low-income, minority populations, or have a high prevalence of radon. Overall 94 homes with children under the age of six, and 22 homes with elderly participated in the projects.

Once the families were identified, most grantees found that it was most effective to conduct the assessment with a housing inspector and a public health nurse. The pilot projects reported that the Healthy Homes Assessments took approximately 1-1.5 hours with an additional hour of documentation. Grantees said that the home assessment form provided by MDH was easy to use and correctly identified issues of concern within the home.

Results from the healthy homes assessment showed that 46% (78 of 169) did not have a working smoke detector, 53% (89 of 169) did not have the required amount of carbon monoxide detectors, 95% (161 of 169) have never tested their house for radon, and 35% (59 of 169) had mold issues within their home.

Grantees had the option to identify existing tobacco free policies in multi-unit housing as well as implement smoke-free policies in multi-unit housing units. In one example, Southwest Health and Human Services completed tenant surveys at six of their properties, with five adopting smoke free policies. Southwest Health and Human services partnered with Southwest Minnesota Housing Partnership, which is a nonprofit organization that owns a large number of low-income, subsidized or section 8 properties in 30 counties in a six county region. The pilot also helped identify 20 other properties within the region that have already established smoke free policies and been added to a statewide smoke-free registry. Summaries of the pilot studies, along with the home assessment form, are in Appendix C.

The CDC budget cuts caused the final two years of the project to be eliminated. Pilot projects reported that just as momentum for the program and collaboration grew, the funding was lost. The need for continued community and inter-agency collaboration is essential for sustainable and significant public health impact. The healthy homes and lead poisoning prevention grants connected people to programs and provided information that empowers residents and the community to improve their homes and health. Residents are becoming healthier, attending school/work, and are motivated to make necessary changes to improve the health of their families, resulting in cost savings for the state of Minnesota.

C. Screening and Case Management

1. Blood Lead Guidelines

MDH has developed a set of four guidelines for lead: Blood Lead Screening, Childhood Blood Lead Case Management, Childhood Blood Lead Clinical Treatment, and Blood Lead Screening for Pregnant Women. These guidelines were developed by collaborative workgroups and have been endorsed by a range of professional health organizations. All four guidelines may be found at the MDH Web site at <http://www.health.state.mn.us/divs/eh/lead/guidelines/index.html> .

Children participating in the Supplemental Food Program for Women, Infants, and Children (WIC) have traditionally been considered to be at risk for exposure to lead. In 2005-2006, MDH funded studies of blood lead levels in WIC recipients in Hennepin and Ramsey Counties, counties with the highest proportion of EBLLs among children less than six years old in the state. Results showed the proportion of EBLLs and the average BLL among WIC children were below corresponding figures in the general population, based on BLIS data. Additional data was collected from four counties (Blue Earth, St. Louis, Stearns, and Winona) and showed similar results. Therefore, participation in WIC in Minnesota does not appear to indicate an additional risk to lead exposure and the WIC population was not included in the current definition of high risk. Detailed reports of these studies are available on the MDH website. All MDH lead guidelines have been revised to remove WIC as an exposure risk factor. See Section D for additional changes to the MDH lead guidelines.

Childhood Blood Lead Screening Guidelines

The MDH Blood Lead Screening Guidelines recommend that physicians order blood lead tests for 1) children residing in specific geographic areas that have a high rate of cases of elevated blood lead and 2) children matching specific demographic groups that have a high rate of elevated blood lead. Universal screening is recommended for children residing in Minneapolis and St. Paul and those recently arriving from other major metropolitan areas or other countries. Testing is also required for children receiving Medicaid. The test is typically performed when the child is one and two years old, but may be done at any time if the parent is concerned or if a high-risk activity (e.g., remodeling a home built before 1950) has recently occurred.

Recent additions to the Screening Guidelines for additional actions for public health medical case management intervention at blood lead test results between 5 and 10 ug/dL have dramatically increased workload for MDH staff working on the BLIS database as many more children are now referred to local assessing agencies for follow-up.

Childhood Blood Lead Case Management Guidelines

The MDH Childhood Blood Lead Case Management Guidelines are intended to serve as minimum case management guidelines for providing services to children with EBLLs. They were developed to establish standardized minimum levels of care. The guidelines help ensure that a qualified case manager is available to oversee the treatment and recovery of each child, and to ensure that steps are taken to prevent further exposure of the child to potential sources of lead. The case management guidelines work in concert with the MDH Blood Lead Screening Guidelines for Minnesota to identify and manage lead exposure in children. Appropriate steps are presented for both capillary and venous test results.

The Case Management guidelines were adjusted to include additional actions for local and state nurses for blood lead test results between 5 and 10 ug/dL. The MDH Lead State Case Monitor, who traditionally has had a few hundred open cases, now has over 1500 open cases statewide.

Childhood Blood Lead Clinical Treatment Guidelines

The Childhood Blood Lead Clinical Treatment Guidelines were designed for physicians to assist them in treating a patient with an EBLL, thus ensuring that all EBLL cases in Minnesota receive a consistent level of care. When a child is diagnosed with an EBLL, making sure the child's environment is lead-safe—and remains lead-safe—is an essential part of the child's care. Providing information to understand potential lead risks and a lead-safe environment for the lead-exposed child is a joint responsibility, involving the public health nurse, the lead risk assessor assigned to the case, and the child's physician.

Blood Lead Screening Guidelines for Pregnant Women in Minnesota

In June 2004, MDH developed Blood Lead Screening Guidelines for Pregnant Women in Minnesota. They are designed for Ob/Gyn physicians, nurse practitioners, and midwives to assist them in screening and treating pregnant women for elevated blood lead levels, thus ensuring that both the women and their children receive appropriate intervention to reduce their lead exposure.

2. Case Management

The MDH State Case Monitor provides technical assistance to all local public health agencies in the state of Minnesota to ensure case management services for children with elevated blood lead. Specifically, the state case monitor's duties include:

- Assuring case management activities and follow-up testing, for children and pregnant women are performed consistent with MDH guidelines;
- Communicating regularly with the Asbestos and Lead Compliance Unit to assess progress on open lead cases and facilitate communication between the Asbestos and Lead Compliance Unit and local lead case managers; and
- Holding educational workshops to educate medical professionals about the Minnesota guidelines for Screening, Treatment, and Case Management. A new round of outreach efforts was conducted in 2011 to raise awareness of new/revised recommendations in the MDH guidelines.

Case monitor activities have helped clinicians improve their adherence to Minnesota Guideline procedures. A reporting and tracking form and case monitoring database were developed in collaboration with local agencies, including an automated process for sending notice letters to local agencies when an EBLL case occurs in their jurisdiction. This allows for complete records on all medical cases and facilitates communication.

The additional steps for medical case management for test results between five and 10 ug/dL (see Section D below for more detail) have dramatically increased the number of cases for the State Case Monitor and local public health nurses across the state. At the end of state fiscal year 2011 there were 67 open cases requiring additional action. The implementation of the new guidelines in state fiscal year 2012 resulted in an increase in the number of open cases to 704. As of the middle of state fiscal year 2013 there were over 1500 open cases. The increase in the number of cases has

been consistent across the state and not focused in one geographic area. The increase in caseload for both state and local lead program staff further emphasizes the need for additional state resources to support the program.

D. Legislative Activities

In addition to the specific legislative report described above, lead program staff members are regularly called upon to provide data, background, and technical perspective on bills addressing lead poisoning.

In response to concerns over the effects of low-level lead exposure in children, the 2009-2010 Legislature directed MDH to revise clinical and case management guidelines to include recommendations for protective health actions and follow-up services when a child's blood lead level (BLL) exceeds 5 µg/dL. Changes for both sets of guidelines, which were implemented in 2011, included adding new guidelines for BLLs between 5 and 9.9 µg/dL, and shifting some of the guidelines previously listed for all BLLs < 10 µg/dL to a new category of all BLLs < 5 µg/dL. In addition, for the 5-9.9 µg/dL range, a recommendation was added for a confirmatory venous test within 3 months to ensure that medical management is targeted only to those cases with confirmed lead exposure above 5µg/dL.

The final format of the guidelines is the result of a compromise between concerns over low-level lead exposure and the best use of limited resources. On balance, the new guidelines reflect, to the best extent possible, the diverse recommendations of the expert panel. While recommendations for test results < 10 ug/dL are appropriate, it is critical to remember that results > 10 ug/dL are, and should remain, the highest priority for medical and public health resources.

II. Compliance Activities

The 2000 U.S. Census estimates that Minnesota has just over 2 million housing units, with over 560,000 of those units built before 1950. Homes built prior to 1950 are the most likely to contain the highest levels of leaded paint. The MDH Lead Compliance Unit ensures the public receives safe and proper lead hazard reduction, evaluation, and analytical services by requiring those services to be conducted according to state regulations, and by trained and licensed personnel, and certified firms. The Lead Compliance Unit was authorized by the U.S. Environmental Protection Agency (EPA) in September 1999 to administer and enforce the lead accreditation and compliance program in Minnesota. The Unit licenses lead risk assessors, lead inspectors, lead workers, lead supervisors, lead project designers, and certifies firms who conduct regulated lead work. In addition, the Lead Compliance Unit approves initial and refresher lead training courses for these disciplines and registers lead sampling technicians.

The goal of regulation and enforcement in the MDH lead program is to limit lead exposure for children with EBLLs and their families, and increase their understanding of lead-related health hazards by ensuring compliance with MDH lead poisoning prevention regulations. This regulatory role contributes to the core public health function of assurance - that is, the process of assuring that populations are having their basic health needs met.

A. Compliance Monitoring

MDH is the primary agency for lead hazard control and for regulating lead-related activities in Minnesota. MDH provides leadership on lead control program issues and works closely with federal, state, and local agencies, and other interested parties. Compliance monitoring involves efforts by the lead program to monitor and evaluate individuals and companies as they perform regulated lead work.

A key objective of lead compliance is to make sure that potential environmental sources of lead exposure for persons with lead poisoning are properly addressed. The medical needs of the lead poisoned person are addressed through the collaborative efforts of surveillance staff, health care providers and case managers. Compliance monitoring involves efforts by the lead program to identify actual and potential environmental sources of lead exposure for persons with EBLLs. The MDH Lead Compliance Unit is responsible for performing environmental interventions in areas not covered by another assessing agency.

Currently, Minnesota has 236 certified lead firms. The total number of firms includes 31 firms that conduct lead inspections, risk assessments and project design. The other 205 firms conduct actual lead reduction services. Seven firms are related to in-house activities conducted by housing rehab programs and property management firms. Of the 236 certified lead firms, 54 % of the certified firms in the state are located in greater Minnesota. The number of certified firms has increased by 86 within the state since 2010. This increase is likely partially due to recent awards of Department of Housing and Urban Development (HUD) funding for lead hazard reduction projects in the Twin Cities and the greater Minnesota area and the EPA RRP regulation that became effective April 22, 2010.

Table 5 reflects the current number of lead licensed individuals as of January 2013. The table also includes the number of registered lead sampling technicians. These licenses are renewed annually if the individuals want to continue conducting regulated lead work.

Table 5: Total Number of Licenses Issued Across Minnesota as of January 2013

License issued	Total in MN
Inspector	4
Project Designer	8
Risk Assessor	203
Supervisor	331
Worker	192
Lead Sampling Technicians	99

The numbers of lead supervisors, lead risk assessors, and lead sampling technicians increased by 11, 5, and 5, 42 respectively, when compared with the December 2010 data available in the 2011 legislative report. The number of lead workers, lead inspectors decreased by 55 and 1, respectively. The number of lead project designers stayed the same. Most individuals choose to become licensed as risk assessors rather than inspectors because of the limited services the

inspector category can provide. The increase of the number of licensed or registered individuals is attributed to HUD requirements for rehabilitation projects (e.g. abatement methods) that use community development block grants in geographic areas of the state and the continued impact of the EPA Repair, Renovation, and Paint (RRP) regulation.

B. Special Projects

MDH is continuing its efforts in providing lead safe work practices information and brochures to licensed residential contractors in the state, including information at the department's website (<http://www.health.state.mn.us/divs/eh/lead>). EPA's Renovate Right brochure has been available since December 2008 and was modified in June 2010 with new graphics and updated information. Residential contractors and other related construction trades are required to provide the new brochure in response to the EPA RRP regulation that was implemented on April 22, 2010.

The Lead Compliance Unit conducted an online survey of Minnesota's 16,000 licensed residential contractors in October of 2012 to determine how well contractors were complying with the RRP and pre-renovation notification regulations. Using the 240 responses to the survey, it was concluded that contractors in the Northeast and Southwest regions of the state were especially out of compliance with both regulations- responding contractors were compliant 17% of the time in the Northeast and 27% of the time in the Southwest. Using this information, the Lead Compliance Unit developed two postcards which were sent to contractors in counties identified as especially at risk for childhood lead poisoning and non-compliance with lead regulations. Additional educational outreach to both contractors and homeowners about lead-safe renovation practices and regulations is planned for 2013.

C. Training Courses

For an individual to be licensed in Minnesota, they must successfully complete a training course provided by an approved training course provider. Currently five providers offer Lead Hazard Reduction training in Minnesota (www.health.state.mn.us/divs/eh/lead/training/index.cfm). Providers must furnish documentation that they employ a training manager and a principal instructor for each of the courses they offer. Both the training manager and principal instructor must meet experience, training and education requirements established in Minnesota Rules (4761.2000-4761.2700). The MDH lead compliance staff regularly review the training course content and ensure that it contains all the required topics.

D. Legislative Activities

The MDH Lead Compliance Unit routinely assists in preparing responses to legislative inquiries on lead hazard reduction, intervention levels, and enforcement. This includes preparing fiscal notes, bill summaries, and required reports.

In the 2009 legislative session, MDH was authorized in Minnesota Statutes, section 144.9508, subdivision 2, items K and L, to adopt rules consistent with sections 402(c)(3), 406(a) and 406(b) of the Toxic Substance Act. In the effort to become an EPA authorized state for the Pre-

Renovation Education (PRE) and Renovation, Repair and Painting (RRP) regulations, MDH commenced its rulemaking process in November 2009 and completed a final draft regulation for public comment in May 2011.

During the final stages of rulemaking (May 2011), it was discovered that the final draft rule conflicted with language in Minnesota Statutes, sections 144.9501 - 144.9512 (lead law). MDH staff consulted with legal counsel in the executive office to discuss administrative options. It was determined that in order to proceed in proposing the desired rule, and also to obtain renewed authorization for rulemaking, changes would have to be made to the lead law. Needed changes have been drafted and will be presented to the legislature for consideration.

E. MDH Compliance Inspections

MDH monitors firms and individuals performing regulated lead work. This is done by verifying that certified firms are employing MDH-licensed individuals to perform regulated lead work in affected property (e.g., single-family residences, multi-family properties, or child-occupied facilities). The monitoring includes both notices and inspections. Non-compliance is managed according to the Health Enforcement Consolidation Act (Minnesota Statutes, sections 144.989 to 144.993). MDH also provides technical assistance to the regulated community through information on lead hazard reduction and compliance issues observed during inspections.

Table 5 reflects the number of lead abatement notices submitted to MDH, the number of inspections conducted by MDH and the number of project sites where enforcement actions were taken against certified lead firms and licensed individuals. Lead abatement notices are required when the “intent” of the work is lead abatement. MDH conducts inspections of lead abatement projects based on the notices submitted by certified lead firms. The numbers reflected in this table are based on the EPA’s fiscal cycle years 2009 and 2010. A cycle year runs from October to September. Therefore, 2009 cycle year is for October 2008 to September 2009, and 2010 cycle year is for October 2009 to September 2010.

Table 5: Number of Lead Notices and Compliance Activities for Fiscal Cycle 2011 and 2012

Item	2011	2012
Number of Lead Notices	421	291
Number of MDH Inspections	32	35
Number of MDH Audits	32	22
Number of Enforcement Cases	11	11

The number of lead notices submitted to MDH decreased by 30% from FFY2011 to FFY2012. This is due in part to a decrease in HUD-related grant activities involving lead hazard reduction activities throughout Minnesota and increased awareness of the renovation industry regarding the regulation of lead hazard reduction activities versus EPA RRP projects. Another factor that may have affected the number of notifications is that HUD grants require contractors to notify MDH when the primary intent is to perform lead hazard reduction in affected properties or when the

hard construction costs for a dwelling unit are greater than \$25,000 which requires abatement of lead paint that is in a deteriorated condition. Since there are more cases involving HUD funding leveraged with CDBG rehabilitation funding and the primary intent is more renovation based versus abatement based, it is reasonable to assume that the number of notified lead projects will decrease over time.

The number of MDH inspections is based on benchmarks defined in a work plan submitted and approved by EPA on an annual basis. The benchmark for both fiscal cycles was 30 inspections.

MDH also conducts audits of licensed risk assessors' risk assessment reports and licensed supervisors' lead hazard reduction reports. In fiscal years 2011 and 2012, 11 cases had enforcement issued for failing to complete the reports in accordance to the Minnesota rule requirements. The remaining enforcement cases during the same time period were based on lead hazard reduction project site inspections or complaints received by MDH.

III. Health Education and Outreach

The MDH Lead Program currently performs outreach and education activities for health care providers and the public through a variety of activities. A strong network has been forged through collaborative approaches to dealing with lead issues. Educational outreach has been conducted for numerous segments of professional and public groups through many types of meetings and presentations. Public awareness of lead issues is further raised through National/Statewide events such as Lead Poisoning Awareness Week and federal requirements for home sellers to disclose information about lead hazards.

A. Collaborative Workgroups

The development and implementation of effective lead poisoning prevention strategies is a collaborative activity. Success requires strong partnerships between public health agencies, health care providers, housing agencies, non-profit organizations, and individual citizens.

MDH was actively involved with the development and implementation of the Alliance for Healthy Homes and Communities (Alliance). MDH hosted a series of meetings with the Alliance to examine issues related to healthy homes and communities which led to the completion of a strategic plan (see Section C of Policy below) and implementation of the Alliance. Statewide meetings were held at the locations on the map to the right. The Alliance is a group of five non-profit organizations were funded by the Minnesota Blue Cross/Blue Shield foundation. The five organizations were Sustainable Resources Center, Minnesota Housing Partnership, Southwest Minnesota Housing Partnership, and the Minnesota Green Communities initiative partners Family Housing Fund and Greater Minnesota Housing Fund. Additional information is available at: <http://alliancehhc.org/>.



The Minnesota Collaborative Lead Education and Assessment Network (MCLEAN), which focused on primarily lead poisoning issues, has been suspended pending additional funding and transition to healthy homes. Although no network meetings were held, the partners who traditionally attend MCLEAN were very engaged over 2012 with drafting, reviewing and completing the Healthy Homes Strategic Plan for Minnesota.

The MDH Lead Program also participated in Lead Testing Task Force. The Lead Testing Task Force is chaired by the Minneapolis Department of Health and Family Support and brings together public health, community health, and managed care organizations, to discuss and plan blood lead testing intervention strategies.

B. Outreach

One of the major partners of the MDH Lead Program is the Minneapolis-based Sustainable Resources Center (SRC). SRC currently receives a grant (per MS144.9512) to do outreach services to rural areas and the Somali population and to perform targeted home cleaning and education services in coordination with local assessing agencies across the state. SRC provides state-funded swab team services along with family education as a short-term primary prevention step to reduce lead exposure. Swab teams use intensive cleaning methods to temporarily reduce hazards from lead dust, and are normally performed as an interim measure until full lead hazard reduction activities are available. Rural outreach on lead education utilizes SRC relationships with Early Childhood Family Education (ECFE), daycares, and other groups that work with families with young children. Somali outreach includes raising awareness of lead issues and capacity building for lead education and remediation. In order to reach at-risk children who are not seen for routine screening, SRC performs lead testing at neighborhood events using the “Leadie Eddie” van. The MDH Lead Program works closely with SRC by providing educational material in appropriate languages, assisting with referrals of EBLL cases for interim lead control, and providing guidance on special projects.

The Minnesota office of the Community Lead Education, Assessment and Reduction Corps (CLEARCorps) also receives a grant (per MS144.9512) to perform blood lead testing, education, and health promotion events across the state.

C. Internet Resources

The Lead Program maintains a web page through the MDH Internet site that provides a number of lead education materials for providers, regulated parties, and the general public (www.health.state.mn.us/divs/eh/lead). The site contains information on hot topics (including current data, projects and requirements), numerous fact sheets, a list of “frequently asked questions” and responses, all publications and reports (including guidelines for screening, case management, and clinical treatment in children, and screening of pregnant women), a downloadable version of a lead education workshop, and links to many external lead resources. The Lead Program web site offers several lead fact sheets and pamphlets in Spanish, Somali, Karin (natives of Burma), and Hmong.

In addition to continuing lead outreach, MDH also significantly expanded content on its healthy homes webpage, available at: <http://www.health.state.mn.us/divs/eh/homes/index.html> . Information is available on asbestos, asthma, carbon monoxide, drinking water, food safety, injury prevention, lead, mold/moisture, pest management, radon, ventilation, and volatile organic compounds.

D. Promoting Lead Awareness

The annual surveillance report for 2011 for all local public health agencies was released on June 30, 2012 (Appendix B). The annual report is purposely prepared at the end of the fiscal year to include the most current data in the year-end analyses. The report included county-specific analyses of rates of screening and EBLs, along with testing rates and rates of EBLs in Minnesota's high-risk populations, including refugee children, children enrolled in Minnesota Health Care Programs, and occupationally exposed adults in calendar year 2011. The Web site link to the full report is emailed to all local public health agencies and other lead stakeholders in Minnesota each year. Production of the Annual Report for 2012 will depend on securing additional resources for the program.

Policy Planning and Program Evaluation

The MDH Lead Program currently has significant gaps in providing public health support for lead poisoning prevention activities. While legislative authority remains in place, the loss of CDC funding has dramatically reduced staffing capacity to undertake current program activities.

A. Data Quality Evaluation

Quality control procedures have reduced errors and increased completeness in the reporting of testing data. Missing information such as the patient's date of birth, address, and the type of test used are obtained for all reported tests when available from testing clinics and providers. After initial entry into BLIS, each record is reviewed for accuracy by a different member of the program staff. The completeness of the reporting data and the timeliness with which it is entered in the database are reviewed annually. Results of this review process are shared with the reporting laboratories, and have contributed significantly to improvements in the quality of data submitted by the laboratories. Data quality evaluation capacity has been greatly diminished by the inability to fill Epidemiology vacancies.

B. Childhood Lead Poisoning Elimination Plan

In 2004 MDH collaborated with a planning advisory work group to develop a strategic plan to end childhood lead poisoning in Minnesota by 2010. This plan, which was endorsed by the Governor, has been known as the Minnesota Childhood Lead Poisoning Elimination Plan

The final version of the Elimination Plan was released in 2011. Strategic planning for MDH in the lead and healthy homes area will be done through the Healthy Homes Strategic Plan for Minnesota which was released in late 2012 (Appendix A). The new healthy homes plan builds on program capacity, collaborations, and methods developed for childhood lead poisoning.

C. Healthy Homes

The MDH lead program continues to collaborate with other areas in the Environmental Health Division and across MDH to implement a “Healthy Homes, Healthy Places” planning effort. The goal of the effort is to examine methods to address multiple housing-based environmental health risks using “healthy homes” concepts. Ensuring that homes are dry, clean, well ventilated, pest-free, contaminant-free, safe, and maintained will help make indoor environments healthier.

Addressing the broad range of housing deficiencies and hazards associated with unhealthy and unsafe homes will require a comprehensive coalition of public health professionals and targeted training. Successful methods and policies for Healthy Homes, Healthy Places may be more easily established using expertise gained from ongoing lead poisoning prevention efforts.

MDH has a potential role of training, educating and providing scientifically based primary preventive practices and procedures that can make homes and other indoor places safer healthier environments. The Healthy Homes, Healthy Places planning effort will complement the Statewide Health Improvement Plan by focusing on the environmental risk factors for both chronic and acute illnesses, helping to reduce health disparities, and implementing primary prevention strategies for homes, schools and work places.

In February 2012, invitations were sent by the Commissioner of MDH to a number of agencies and organizations to participate in a Steering Team for a statewide Healthy Homes Strategic Plan. In addition to several programs within MDH (Asthma, Indoor Air, Lead Compliance, Injury Prevention, Tobacco Prevention) the invitees included:

MN Housing Finance Agency	MN Dept of Labor and Indust.	MN State Fire Marshal
MN Council of Health Plans	MN Public Health Assoc.	MN Medical Assoc.
MN Nurses Assoc.	MN Multi-housing Assoc.	

The completed Healthy Homes Strategic Plan (Appendix A) includes the following:

- A mission statement (“Promote, support, and provide healthy homes for all Minnesotans”);
- An overview of prioritized housing-based hazards to be addressed, high-risk populations, and an assessment of exposure burdens;
- A summary of partners involved or who need to be recruited;
- Resources available for Healthy Homes Strategic Plan implementation and opportunities for collaboration;
- Goals, objectives, and tasks that address identified public health threats;
- Evaluation measures based on scientifically sound data and methods; and
- A sustainability plan to ensure continuity of operations.

The strategic plan is available at: <http://www.health.state.mn.us/divs/eh/homes/hhplan2012.pdf> and is summarized in Appendix B. Results from healthy homes pilot studies with local public health agencies are presented in Section I.B.4 above.

Funding Status

State general funds are an important part of a larger public health effort to address lead poisoning in Minnesota. Overall program support sources are diverse but rely heavily on base state funding to help maintain capacity, both within MDH and with other partners in lead. The state's general fund allocates about \$200,000 annually to the MDH program. These funds are used to help meet MDH statutory obligations and are a critical source of matching funds for federal grant applications. Assessment, assurance, and policy/planning are the three core functions of public health authorities. The environmental health trends identified by assessment (e.g., lead surveillance and compliance activities) will require a strong response with respect to assurance (e.g., compliance monitoring, case management) and policy/planning (e.g., primary prevention, provider/physician education). This will, in turn, require ongoing commitment from state general funds for these activities.

The bulk of funding for the MDH lead program has come from federal sources via grants and cooperative agreements. The lead program has received funds for the last fifteen years from CDC to maintain a CLPPP program, including \$533,490 in Federal FY11 and \$589,731 in Federal FY12. MDH received notice on March 7, 2012 that cooperative agreement will be ending in 2012, with no funding for the final two years of the award received in 2011.

MDH has received Lead Cooperative Agreement and Enforcement grants from EPA since 1994. The funding amount has averaged about \$235,000 for each of the past two years. This funding has provided ongoing development and support for the infrastructure of the ALC Unit. As the program has developed, the requirements of the grant have shifted from program development to compliance assistance, compliance monitoring and enforcement. EPA cannot guarantee that future funding will remain at current level but continues to work with all the Region V state lead programs to ensure that they are informed of funding changes.

The State Government Special Revenue Fund fee account was appropriated at \$57,000 for SFY 2012 (July 1, 2011 – June 30, 2012). This revenue is generated from license, certification and permit fees. MDH does not charge a fee for the independent lead exams or to register lead sampling technicians. Currently MDH regulates 236 certified firms, 738 licensed individuals, 7 training organizations, and 99 registered individuals. A small number of lead professionals are employed by local government (e.g., assessing agencies) and are exempt from credentialing fees.

For state fiscal years 2012-2013, MDH awarded Swab Team Services Grants to Sustainable Resources Center (SRC) and CLEARCorps Minnesota. The grant is authorized under Minnesota Statutes, section 144.9512, subdivision 2, to provide swab team services training to workers and property owners, and provide swab team services on affected properties. Grant funds may also be used to remove and replace building components that are identified by a licensed lead risk assessor as being a deteriorated component that also has deteriorated lead-based paint on it.

SRC is a non-profit community-based organization working in the Twin Cities metro area and greater Minnesota to protect low-income children from lead poisoning. SRC is also a lead certified firm and maintains training permits for lead supervisor and worker training courses. They also provide lead safe work practice training for property owners and other interested

parties. The grant started on November 1, 2011 and will complete its second year on June 30, 2013 with a total budget of \$957,998.

The U.S. National Institutes of Safety and Health (NIOSH) has a purchase order agreement with MDH for approximately \$20,000 per year for semi-annual data related to the Adult Blood Lead Epidemiology Surveillance Program. These funds allow MDH to: (1) put emphasis on collaboration and cooperation on lead surveillance issues, (2) maintain primary prevention activities for adults with EBLs, and (3) prevent “take-home lead” in children.

MDH was awarded a 36-month HUD lead hazard reduction grant that will provide funds through February 2014. Total amount of the HUD grant award is \$1,742,698 to complete 114 non-elevated blood lead levels (EBL) projects and 15 EBL projects. MDH will also sponsor outreach and education events to low and moderate income families and agencies on lead hazards and methods/resources available to address the hazards. The grant will provide 20 educational events reaching approximately 600 people. The SCLHRP grant is again providing training to over 20 contractors to help increase the contractor pool and to equip them to comply with EPA’s RRP training requirements. A new building block to the SCLHRP grant is funding for small scale Healthy Homes production projects that will work in tandem with the lead grant. The Healthy Homes production projects will serve 120 of our 129 awarded lead projects addressing fire safety, trips and falls prevention, carbon monoxide detection, and other hazards along with the lead remediation.

Future Directions

Future directions for the Minnesota Department of Health are largely determined by the requirements set by funding providers and the state legislature. CDC has eliminated all funding for states to continue Childhood Lead Poisoning Prevention programs, which has significantly disrupted MDH Lead Program capacity. Barring additional federal or state funding, MDH capacity for surveillance, case management, education/outreach, and support for guidelines will end in 2013. Ceasing these key areas of the lead program will have a major effect on the ability to respond to elevated blood lead cases, compete for federal hazard reduction funding, and maintaining compliance capacity. MDH will be unable to fully satisfy requirements of MS144.9501 – 9512.

The MDH Lead Program will work cooperatively with the developing MDH Healthy Homes program, as described in the Policy Planning and Program Evaluation section above. Lead poisoning prevention activities at MDH will be incorporated into the overall statewide strategy for making homes in Minnesota healthier. We anticipate a proposal could come before the legislature in 2013 supporting establishment of a healthy homes program to work across agency boundaries and promote healthy housing for all Minnesotans.

Lead program staff members actively improve the recording and transfer of lead test data. Most large laboratories and clinics currently use some form of electronic data management. If MDH is successful in sustaining healthy homes efforts, the current database will need to be overhauled to include housing data in addition to blood lead test result data.

Increasing education, compliance monitoring and enforcement of lead paint regulations continues to be a priority for the state as part of federal grant funding provided by EPA. Because the asbestos and lead compliance programs operate as a combined regulatory program within MDH, education, compliance monitoring and enforcement are done routinely. This is unique in comparison to other state programs within EPA Region 5. MDH's staff is actively involved in public education, outreach, compliance assistance and monitoring, and responding to public inquiry regarding general indoor air, lead and asbestos issues. Compliance and administrative staff have the necessary training and skills to implement compliance and enforcement activities.

Health education is performed by all staff within the lead program using well established information sources and targeted outreach opportunities. As an interdisciplinary program, MDH lead staff will continue to generate unique and innovative approaches to institutional and scientific problems. Approaches will include forming cooperative workgroups to solicit input prior to generating guidelines, cooperating with other agencies to meet common goals, conducting research to address basic problems, and overseeing lead hazard reduction efforts to ensure complete and timely resolution of lead orders.

It will be a challenge to incorporate consistent healthy homes messages in the lead program and all of the diverse collaborating organizations. However, many agencies are very excited about the potential for increased capacity to address a range of housing-based health hazards and are looking forward to new ideas and approaches to promoting public health. The program will strive to remain flexible, responsive, and grounded in the core public health functions of assessment, assurance, and policy/planning.

Conclusions

Lead is a preventable, pediatric environmental health risk. Although lead is found throughout the environment, the major exposure pathway of public health concern for children is through deteriorated lead-based paint.

The MDH blood lead surveillance database collects blood lead reports on all Minnesota residents. State guidelines help standardize screening practices and raise awareness of high-risk populations. The average blood lead level reported to MDH has been gradually declining, consistent with national trends. Diverse populations are targeted to help address public health disparities.

Compliance monitoring ensures that lead hazard reduction is completed consistent with state statutes and best public health practices. This involves working with assessing agencies and licensed lead workers to address exposure issues. Training is provided, inspections performed, and assessments audited as needed to ensure that public health concerns are addressed. Health education is performed by all staff within the lead program using well-established information sources and targeted outreach opportunities.

State funded transition of lead resources to healthy homes needs to occur in 2013 to ensure continuity of service to at-risk residents and families. Successfully implementing healthy homes will involve expanding program relationships to include additional housing and health organizations, an overhaul of data collection systems, and development of new policies.

Appendices

Appendix A: Healthy Homes Strategic Plan

Appendix B: 2011 Blood Lead Surveillance Report

Appendix C: Home Assessment Tool and Overview of Local Public Health Agency Healthy Homes Pilot Study Data

Appendix A

Healthy Homes Strategic Plan for Minnesota

Full document may be found at:

<http://www.health.state.mn.us/divs/eh/homes/hhplan2012.pdf>

Summary

The Minnesota Healthy Homes Strategic Plan (Healthy Homes Strategic Plan) was developed with funding from the Centers for Disease Control and Prevention (CDC) through the Minnesota Department of Health (MDH), and reflects the desire to broaden state level lead poisoning prevention programs into more encompassing healthy homes programs. Many agencies and organizations engaged in health and housing in Minnesota strongly supported this approach, and participated in the planning efforts.

The Sustainable Resources Center (SRC) and the National Center for Healthy Housing (NCHH) conducted the plan development process with support from MDH and the Alliance for Healthy Homes and Communities (Alliance). The process included two statewide meetings and seven regional gatherings and follow up surveys. Participants represented a diverse range of sectors, including public health agencies, affordable housing developers, housing agencies, community planners, community action programs, universities, building and code officials, contractors, environmental advocacy organizations, early childhood educators, local governments, health insurers, and foundations.

The 2012 Federal Budget cut CDC funds for lead/healthy homes by 94%. Several months into the process CDC officially notified MDH that there would be no funding beyond the first year. As a result, this plan was developed with an assumption that the future MDH role in promoting and implementing the plan may be very limited. However, Minnesota has an extensive base of people, programs, and organizations that can contribute to healthy homes and communities, with over 500 existing community assets and resources identified as part of the Healthy Homes Strategic Plan development process.

Why Do Healthy Homes Matter?

The connection between inadequate housing and ill health is well established. A large body of scientific research has demonstrated that numerous housing-related hazards pose a threat to human health. Unhealthy housing is costly in terms of economics, social capital, and personal health.

The healthy homes approach uses well-documented, evidence-based interventions to address these housing-related health hazards. A “healthy home” is a home designed, constructed, maintained, or rehabilitated in a manner that supports the health of residents. The healthy homes approach focuses on the “Seven Principles of Healthy Homes” established by NCHH.

A healthy homes approach is more efficient and has a greater public health impact than single issue-focused programs because it promotes interrelated strategies that include: (1) Changes in structural conditions and building practices; (2) Modification of resident and property owners’ behaviors; and (3) Development or revision of policies, legislation, and service systems to enable healthy housing practices.

Housing and Health in Minnesota

Homes that are poorly constructed or maintained can have a significant impact on the health and safety of residents. In addition, low-income populations and communities of color suffer disproportionately from housing quality concerns. Risk factors associated with poor housing quality and increased risk of housing-related illness include age of housing, poverty, geographic location, age of residents, and race and ethnicity. Asthma exacerbation, childhood lead exposure, radon exposure, and unintentional injuries are four examples of significant housing-related health issues associated with unhealthy housing conditions.

Promoting Respiratory Health

Asthma is a chronic disease in which the airways of the lungs become inflamed or narrowed, resulting in disruptions to normal breathing patterns and significant health consequences. Asthma disproportionately impacts low-income families and people of color living in substandard housing. One in fourteen children and one thirteen adults in Minnesota report that they currently have asthma.

Preventing Lead Poisoning

Housing conditions associated with increased risk of lead poisoning in homes built before 1978 include chipping, peeling, and flaking paint on the exterior and interior of a home; paint on friction- impact surfaces such as windows, doors, stairs, and railings; water leaks, moisture problems; and renovation of old houses without proper use of lead-safe work practices and clean-up. In 2011 there were 3,363 children in Minnesota who had a blood lead level above the CDC reference level.

Improving In-Home Safety

Between 1990 and 2008, the unintentional injury mortality rate for children ages 0-14 in Minnesota declined by 38%. However, falls remain the leading cause of emergency department-treated injury for children in Minnesota. The unintentional fall death rate among adults ages 65 and older in Minnesota is substantially higher than the national rate. Residential fire deaths represented 80% of total fire deaths in 2011. Smoke alarms were absent or inoperable in 29% of residential fire deaths in 2011.

Creating Dry, Pest-and Contaminant-Free Homes

Pests and mold can exacerbate asthma and contribute to allergies and other respiratory illnesses. American Housing Survey data for the Minneapolis-St. Paul metro area demonstrate that over 10% of housing units have water leaks from the outside, and nearly 8% have interior leaks. Gases in indoor air such as carbon monoxide (CO) and radon pose threats to health, including accidental death and increased risk of cancer.

Mission, Goals, and Strategies

To help guide current and future healthy homes efforts the consensus mission statement from the first statewide planning meeting was:

Promote, support and provide healthy homes for all Minnesotans

The mission statement reflects the range of activities and the various roles needed to make healthy homes a reality for Minnesotans. The participants in the first statewide planning meeting also identified seven goals that describe a practical approach for implementing healthy homes in Minnesota. In subsequent meetings around the state attendees created specific strategies and action steps to accomplish the seven goals. Together, the goals, strategies and associated action steps provide a roadmap for healthy homes efforts in Minnesota for the next several years. The seven goals are:

- Connect People, Programs and Information
- Increase Public Awareness and Education
- Adopt Safe, Healthy Housing Policies and Corresponding Regulations
- Implement Widespread and Comprehensive Healthy Housing Inspections
- Develop Capacity in the Medical/Health Care Delivery System
- Provide Increased, Sustainable Funding for Healthy Homes
- Ensure Evaluation Infrastructure and Documented Outcomes

Sustainability

Sustainability for healthy homes means the capacity to support and maintain healthy homes activities over time. This requires long-term strategies such as building on existing partnerships and capacity, leveraging funding, and coordinating existing investments in healthy housing. Strategies to provide increased and sustainable funding for healthy homes in Minnesota include:

1. Support and expand funding for housing rehabilitation and new construction for low and moderate income families from existing local, state and federal sources.
2. Access new investments to improve health and housing conditions where there is an established return on investment in terms of health status and costs.
3. Coordinate investments and activities across sectors so that healthy homes improvements are leveraged.

There is a growing understanding of the impact of unhealthy housing, the critical role housing plays in addressing health and educational disparities, and the importance of addressing home environments in order to improve certain health conditions. The creation of the Alliance reflects this growing interest.

Finally, healthy housing is not a program but a way of doing business so that healthy housing is the expectation. The recommendations in this plan provide all stakeholders with action steps they can take to create the expectation of healthy homes for everyone.

Appendix B

2011 Blood Lead Surveillance Report

Full document may be found at:

<http://www.health.state.mn.us/divs/eh/lead/reports/2011report.pdf>

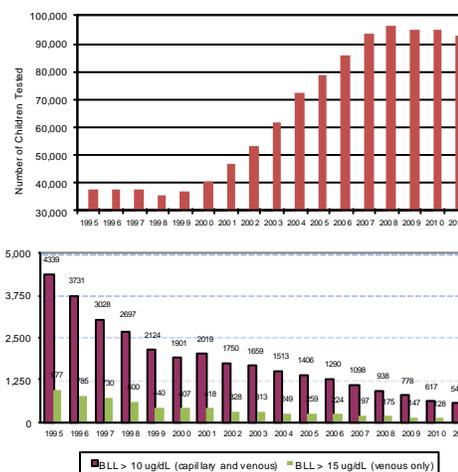
Summary

This 2011 Blood Lead Surveillance Report describes the activities of the Minnesota Department of Health (MDH) Lead Poisoning and Healthy Homes Program (LPHHP) and the data resulting from the MDH Blood Lead Information System (BLIS) for the 2011 calendar year. The report contains a description of the trends in lead testing and elevated blood lead levels in Minnesota, and summarizes activities taking place in Minnesota to prevent childhood lead poisoning. The intent of this report is to provide information for stakeholders in Minnesota, document activities of the LPHHP, and assist local efforts to address housing-based health threats.

As the number of elevated blood lead cases in Minnesota has continued to steadily decline, the MDH LPHHP has been incorporating “healthy homes” approaches into routine lead program activities. Applying healthy homes strategies will help use existing lead poisoning prevention resources to address additional housing-based environmental health threats, including asthma, pests, fire safety, radon, carbon monoxide, and mold/moisture.

Budget cuts at the federal level in 2012 have eliminated future funding for BLIS and most future activities planned for the LPHHP. Without additional resources or restoration of federal funding, it appears likely that the capacity of LPHHP to prevent childhood lead poisoning and implement healthy homes strategies will be significantly diminished in future years.

The number of children tested for lead in Minnesota increased dramatically between 1998 and 2008 and has recently leveled off, with 93,170 children tested in 2011. Fortunately the number of elevated cases has continued to decrease. In 2011 there were 584 children with blood lead levels of 10 µg/dL or greater, and 112 children had venous blood lead levels of 15 µg/dL or greater.



In response to concerns over the effects of low-level lead exposure in children, the 2009-2010 Legislature directed MDH to revise clinical and case management guidelines to include recommendations for protective health actions and follow-up services when a child’s blood lead level (BLL) exceeds 5 µg/dL. Changes for both sets of guidelines included adding new guidelines for BLLs between 5 and 9.9 µg/dL, and shifting some of the guidelines previously listed for all BLLs < 10 µg/dL to a new category of all BLLs < 5 µg/dL. In addition, for the 5-9.9 µg/dL range, a recommendation was added for a confirmatory venous test within 3 months to ensure that medical management is targeted only to those cases with confirmed lead exposure above 5µg/dL.

Appendix C

Home Assessment Tool and Overview of Local Public Health Agency Healthy Homes Pilot Study Data

MINNESOTA HEALTHY HOMES ASSESSMENT TOOL

Date _____

Assessor _____

Housing Info

Address _____ Apt# _____

City _____ Zipcode _____ County _____

Housing Type: (circle one) Owner-Occupied Rental-Single Rental-Duplex Rental-Multi

Approx. year built: (circle one) Pre-1940 1940-1959 1960-1977 1978-2000 2001+

Home Phone: (____) _____ - _____ Number of Occupants: _____

Cell Phone: (____) _____ - _____ Number under 6yrs: _____

Email: _____ Number over 65yrs: _____

Resident Survey

Does anyone who lives in the home smoke?	Y	N	DK
Do visitors ever smoke in your home?	Y	N	DK
Are there extension cords used, inside the home?	Y	N	DK
Is there any condensation visible? OR water/moisture problems/concerns?	Y	N	DK
Are there any visible mold or musty odor problems?	Y	N	DK
Are chemicals, pesticides, cleaning supplies, or medications stored within easy reach of children? (e.g. below the sink)	Y	N	DK
Do you have a problem/concern with pests in the home? (e.g. bodies, fecal pellets or gnaw marks)	Y	N	DK
Has anyone in the house been scalded (burned) by water in the past 12 mo? If yes, did this require medical attention	Y	N	DK
Has anyone less than 6 yrs, that lives in the home, been diagnosed by a health professional with asthma? If yes, has there been symptoms in the past 12 mo?	Y	N	DK
Has any child been injured in the home in the past 12 mo? Did they require medical attention?	Y	N	DK
Have your children been tested for lead? If so, how many _____	Y	N	DK
Has the home been tested for radon? If so, Result: _____ pCi/L	Y	N	DK

Location Key:

- B1** - Bedroom
- B2** - Bedroom
- B3** - Bedroom
- LR** - Living Room
- DR** - Dining Room
- KT** - Kitchen
- BA** - Bath
- HA** - Hallway
- ST** - Stairs
- P1** - Porch
- P2** - Porch
- BT** - Basement
- OT** - Outside

Action Key:

- EO** - Education Only
- ER** - Education and Rehab
- T** - Testing

Condition Key:

- Go** - Good
- Avg** - Average
- Pr** - Poor

Assessor Inspection

Is there any condensation visible?	Y	N	DK	B1	B2	B3	LR	DR	KT	EO	ER		
				HA	ST	P1	P2	BT	BA	Actions:			
Are there any visible mold or musty odor problems?	Y	N	DK	B1	B2	B3	LR	DR	KT	EO	ER		
				HA	ST	P1	P2	BT	BA	Actions:			
Does the bathroom(s) have a working exhaust fan?	Y	N	DK								EO	ER	T
											Actions:		
Does the bathroom have non-slip surfaces?	Y	N	DK	Types:							EO	ER	
											Actions:		
Are there any water damage or water stains?	Y	N	DK	B1	B2	B3	LR	DR	KT	EO	ER		
				HA	ST	P1	P2	BT	BA	Actions:			
Is there evidence of pests in the home?	Y	N	DK	B1	B2	B3	LR	DR	KT	EO	ER		
				HA	ST	P1	P2	BT	BA	Actions:			
Is there a mitigation system?	Y	N	DK	Type:							EO	ER	T
											Actions:		
Are there any missing or non-working smoke alarms?	Y	N	DK	B1	B2	B3	BT	HA					
				all locations required					Actions:				
Are there any missing or non-working CO alarms?	Y	N	DK	B1	B2	B3							
				all locations required			Actions:						

Assessor Inspection (continued)

Is there any chipping or peeling paint?	Y N DK	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER	T	Actions:
<i>If yes, explain:</i>										
Is there any bulging/buckling in the floors?	Y N DK	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions:
Is the home free from hazards that could cause injuries, such as tripping hazards, sharp edges, and missing or broken stairs or railings?	Y N DK	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions: Explain:
Are the railings of a porch, deck, patio or balcony secure? Are all spindles in place, in good condition, and not more than 4 inches apart? Is the railing high enough to prevent falling, a minimum of 36 inches high?	Y N DK Y N DK Y N DK	Explain:						EO ER		Actions:
Do the stairs have proper lighting?	Y N DK							EO ER		Actions:
Are un-vented combustion appliances present? or Dryer? <i>If yes, what types?</i>	Y N DK	Types:						EO ER		Actions:
Is the clothes dryer drum free of lint?	Y N DK							EO ER		Actions:
Are there extension cords used? <i>If so, what is their condition?</i>	Y N DK Ex Avg Pr	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions:
For homes with children										
Is there evidence of smoking in the home?	Y N DK	B1 HA	B2 OT	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions:
Are chemical(s), pesticides, cleaning supplies, or medications stored within easy reach of children?	Y N DK	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions:
Are there window blind cords or other strangulation hazards?	Y N DK	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions:
If there are stair gates, do they work?	Y N DK							EO ER		Actions:
Are window guards present?	Y N DK	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions:
Are there missing or broken electrical covers?	Y N DK	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions:
Are there child tamper-resistant outlet covers?	Y N DK	B1 HA	B2 ST	B3 P1	LR P2	DR BT	KT BA	EO ER		Actions:
The water heater is set at what temperature? Is it safe for children? (<120 F)	_____ F Y N DK							EO ER	T	Actions:

Home assessment data from local public health pilot projects. N = 169 unless otherwise noted.

<u>Issue</u>	<u>N</u>	<u>%</u>	<u>Issue</u>	<u>N</u>	<u>%</u>
# houses with children under 6	94	56%	# with chipping/peeling paint	49	29%
# houses with elderly	22	13%	# bulging/buckling floors	10	6%
Owner occupied	68	40%	# homes free from hazards	102	60%
Rental-Duplex	7	4%	# secure railings (of 124)	89	72%
Rental- Multi	29	17%	# with good spindles (of 105)	78	74%
Rental-Single	32	19%	# with high railings (of 107)	88	82%
No ownership type	33	20%	# with proper stair lighting	129	76%
			# with un-vented combustion appliances	23	14%
# pre-1940	41	24%	# with lint-free dryer drum	113	67%
# 1940-1959	32	19%	# with extension cords	96	57%
# 1960-1977	28	17%	# with poor extension cords	2	1%
# 1978-2000	29	17%	# with evidence of smoking	10	6%
# 2001+	11	7%	# with chemicals in reach of children	53	31%
Unknown	28	17%	# with strangulation hazards	35	21%
			# with working stair gates (of 110)	34	31%
# radon test	8	5%	# with window guards	4	2%
# condensation visible	26	15%	# with missing/broken electrical covers	22	13%
# visible mold	59	35%	# with child outlet covers	47	28%
# working bath fans	123	73%	# with water above 120 degrees (of 90)	17	19%
# with bath non-slip surfaces	94	56%			
# with water damage	51	30%	# of kids with asthma	14	8%
# with pests	25	15%	# of kids in smoking homes	26	15%
# with radon mitigation	4	2%	# of kids not tested for lead	97	57%
# with missing/non-working smoke detector	78	46%	# with kids under six, in pre-1978 homes with peeling paint	28	17%
# with missing/non-working CO alarm	89	53%			