Minnesota's Lead Poisoning Prevention Programs

Biennial Report to the Legislature

February 2005

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Minnesota Department of Health - Lead Poisoning Prevention Programs
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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. The current lead program at the Minnesota Department of Health (MDH) is positioned to maintain that leadership role and protect the health and well being of the citizens of Minnesota from the potentially devastating effects of exposure to high levels of lead. This report documents activities conducted by MDH between February 2003 and February 2005. A previous report was prepared for the period of February 2001 to February 2003. Additional background information on lead issues and a comprehensive overview of basic roles and procedures for the MDH Lead Program was presented in the 2001 legislative report and is not reproduced in this document.

Lead poisoning prevention partners have been actively involved in collaborative lead reduction strategies over the past several years. The State of Minnesota 2010 Childhood Lead Poisoning Elimination Plan (**Appendix A**) is the result of one such effort. It adopted a goal of creating a lead-safe Minnesota where no child would have elevated blood lead levels by the year 2010. The so called "2010 report" recommended using a collaborative, housing-based approach to promote primary prevention of lead exposure. This plan is in concert with federal goals of eliminating childhood lead poisoning by 2010 and formed the basis for much of the discussion of the work group convened to address the study required by the 2004 legislature. In this way, the legislative study workgroup had the benefit of previous planning and did not have to duplicate the "2010 plan" efforts.

MDH continued to collect information on all lead tests performed on Minnesota residents. A new database (Oracle-based) that allows greater data security and secure external links with partners was implemented. The current data indicate that there was a significant increase in the number of blood lead tests performed, reflecting a growing awareness of the need to check for potential exposure to lead. The number of elevated cases has been gradually decreasing, which is consistent with national trends. There also were several key studies performed using the lead surveillance system, including a rural prevalence study, an examination of lead testing in children on Medicaid and refugees, targeted screening projects in Minneapolis and St. Paul, and an effort to increase screening in a suburban area with high risk factors. The state lead guidelines for screening, case management, and clinical treatment were evaluated and will be amended as needed in the future. The State Case Monitor continued to guide case management of elevated lead levels by local public health agencies. Collaborative groups were maintained to help foster a cooperative approach to addressing the multi-faceted lead problem.

MDH lead program compliance staff have continued their efforts in compliance assistance, compliance monitoring and enforcement activities. This has been accomplished by promoting education and compliance training, licensing lead professionals and certifying firms performing regulated lead work, approving training courses, and conducting compliance monitoring and enforcement activities. The main objective of MDH's lead compliance program is to make lead services available that serve and protect public health.

The program rewrote the Minnesota Lead Poisoning Prevention rules so regulated parties have a better understanding of the requirements of licensing, certification and performing regulated lead

work. In conjunction with rewriting the rules, the program has written several fact sheets relating to licensing individuals, certifying lead abatement companies and specifically outlining when the department regulates lead activities. These fact sheets will assist regulated parties to better understand the requirements of the newly revised rules.

All members of the lead program staff share responsibility for educating and communicating effectively about the risks posed by 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 blood lead levels appear to be declining nationally, a high level of commitment will be required from the state if we are to effectively reach the remaining at-risk populations. Those populations tend to be diverse, under-served, and highly mobile. They often face barriers that impede effective communication. Fully addressing these issues will require continued funding support from the State. A legislatively-mandated study was conducted to develop and evaluate the best strategies to reduce the number of children endangered by lead paint. It examined primary prevention and screening strategies, environmental intervention levels, and resources needed for lead hazard reduction. The results of this study are in **Appendix B**.

Future activities will focus on maintaining current program capacity, addressing known gaps in our current knowledge, and assuring effective use of limited funds. These activities will include:

- Working with the Centers for Disease Control and Prevention (CDC) and other agency partners on targeted efforts to reduce exposure to lead, with a special emphasis on addressing the needs of diverse and currently under-served populations;
- 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;
- 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;
- Conducting feasibility studies on the use of electronic data transfer to help ensure that current reporting systems are secure, complete, accurate, and compatible with national databases that may be developed in the future;
- 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 labs and clinics, and distribution of data reporting outcomes to partners;
- Increased educational outreach, especially to pregnant women and women of childbearing age and other at-risk populations;
- Continue 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;
- Continuing to evaluate compliance monitoring and enforcement efforts to ensure that a properly trained and skilled lead workforce exists in Minnesota;
- Continuing to provide education tools and materials to reduce lead poisoning cases among children and adults; and
- Continuing to provide compliance assistance opportunities and presentations to the public and the regulated community.

Introduction

This biennial report addressing state lead poisoning prevention activities is required by Minnesota Statutes (MS), section 144.9509 subd. 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.*

A comprehensive overview of the Minnesota Department of Health (MDH) Lead Program was presented in the report prepared for the Legislature dated February 2001. The complete 2001 report is available at the MDH website at: www.health.state.mn.us/divs/eh/lead. An update report was prepared in February 2003 for the period of February 2001 to January 2003. Rather than duplicate the information in these documents, the current report will only present information and updates on activities occurring during February 2003 to January 2005. Due to the time lag involved in collecting, analyzing, and reporting data, some information prior to 2003 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 and publicly available sources, and is available upon request. The complete 2005 report may also be found at the MDH website at: www.health.state.mn.us/divs/eh/lead.

Current State Lead Programs

Lead poisoning prevention activities at MDH are 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 implements the Centers for Disease Control and Prevention (CDC)-funded Childhood Lead Poisoning Prevention program (CLPPP). The Asbestos/Lead Compliance Unit, in the Asbestos, Indoor Air, Lead 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, Agriculture, Occupational Safety and Health Administration, Natural Resources, Housing Finance Agency, Human Services, and Employment and Economic Development. Cities of the first class and counties also have duties with respect to lead risk assessment and case management.

We make an effort to provide the best possible service to Minnesota families whose children have possible lead-related health problems. We also strive to provide 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.

I. Surveillance Activities

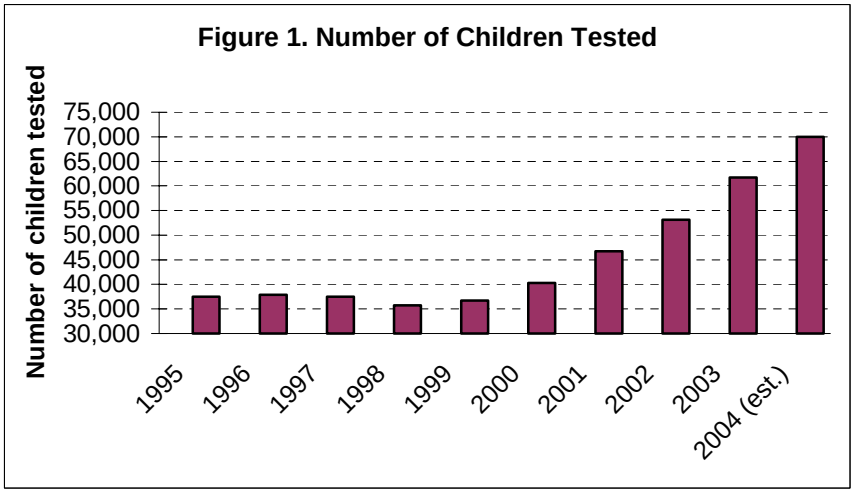
MDH maintains an extensive blood lead surveillance system for the purpose of monitoring trends in blood lead levels in adults and children in Minnesota. To improve data security and expand reporting options, the MDH lead program has changed from a FoxPro DOS system to an Oracle database for the surveillance system. The new database is compatible with other current and projected state agency systems for data transfer. As of January 1, 2005 the blood lead database contained 647,837 records of blood lead test results from 439,730 individual Minnesota residents dating back to 1992. The data are used to help identify populations at risk for elevated blood lead levels (EBLLs). Staff then use this information to help ensure that screening services are provided to groups identified as having the highest risk of lead poisoning and that environmental and medical follow up are provided to children with EBLLs.

It is impossible to draw specific conclusions regarding the actual rates of lead poisoning in Minnesota based upon these data. Since there is no universal testing among children, those tested are not representative of the entire population. Additionally, comparison of numbers of children with elevated blood lead levels between counties is not appropriate since the number of children tested in most Minnesota counties is small. However, it is possible to use the data to identify trends in screening practices from year to year, compare the total number of EBLLs reported to MDH over time, and characterize the population currently being screened. This section presents data on lead poisoning in children less than six years old and adults, an overview of projects targeted to at-risk populations, and work on MDH statewide lead guidance. Further surveillance data are available in the 2003 Surveillance Report (**Appendix C**). The 2004 Surveillance Report will not be available until June 2005 due to the time lag in reporting of blood lead tests for 2004.

A. Elevated Blood Lead Levels (EBLLs) in Minnesota

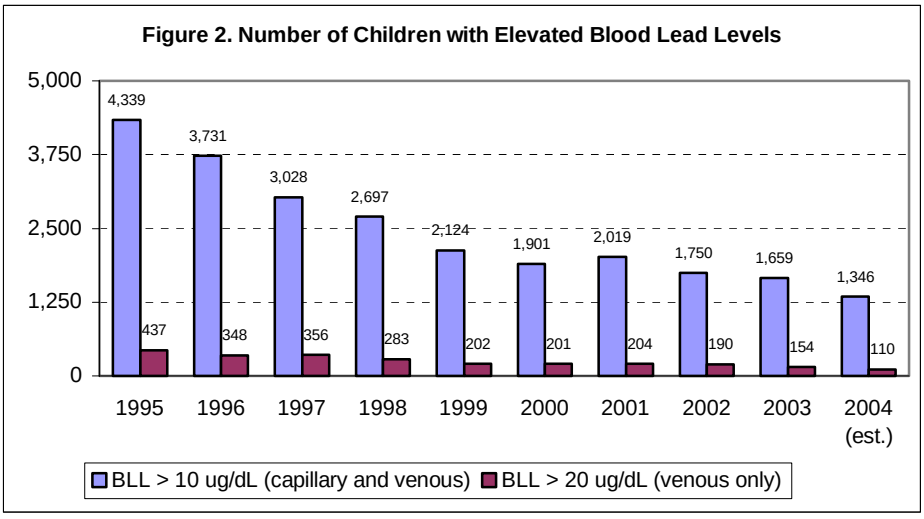
Blood Lead Levels in Children

Figure 1 compares the number of children tested in past years and gives some indication of how screening practices may have changed. Only data for children less than six years old are presented. The number of blood lead tests reported statewide was fewest in 1998 and has been increasing since high-risk areas are better defined, the benefits of lead testing more widely understood, and educational efforts mature. Data for 2004 is estimated (based on the first six months of the year) due to a time lag in reporting from the analytical labs to MDH for tests less than 10 micrograms per deciliter of whole blood (µg/dL; i.e. not considered "elevated"). It can often take several months for these reports to be reported and processed into the MDH surveillance database. The Lead Program is addressing this issue by promoting use of electronic reporting formats, which allow for greater efficiency in handling large numbers of records.



Since not all Minnesota children have a high risk for lead exposure, targeted screening is currently recommended for most areas of the state rather than universal screening. The goal is to test all children at risk for exposure to lead. Therefore, because not all Minnesota children are exposed to lead risk factors, the optimal level of screening will be less than 100 %.

The trends in the number of EBLL cases (e.g. tests greater than 10 µg/dL) in Minnesota children may also be compared across years (Figure 2). The general downward trend shown in Figure 2 is consistent with national trends, but should not be used to conclude that lead is no longer a significant public health threat in Minnesota. Results are also shown for cases greater than or equal to 20 µg/dL, which is the level at which an environmental assessment is required to identify and mitigate lead exposure. Approximately 85 % of the reports above 20 µg/dL in Minnesota come from just two counties (Hennepin and Ramsey), indicating that in specific areas of the state lead poisoning continues to be a major public health problem. For this reason, the MDH Childhood Blood Lead screening guidelines recommend universal testing in the cities of Minneapolis and St. Paul.



While the rate of lead testing increased during the 1999 - 2004 period, the number of EBLL cases slowly declined. Although these data are difficult to interpret due to many confounding factors, the downward trend for EBLLs may indicate that the amount of lead exposure is declining in Minnesota (e.g. the percentage of kids tested who have an EBLL is dropping). Regardless, it is safe to conclude that the average blood lead level in Minnesota has declined over the past seven years.

Blood Lead Levels in Adults

Minnesota's Adult Blood Lead Epidemiology and Surveillance (ABLES) program began identifying eligible adults on January 1, 1998. Lead sources are identified for all adults with venous blood lead levels of 25 µg/dL or greater in the surveillance system. Lead testing data reported to MDH for adults in Minnesota are presented in Table 1.

Table 1: Minnesota Residents 18 Years or Older Reporting a Blood Lead Test

Year	# of Reports	# of Individuals	Range of Reported Results
2003	5,512	4,590	<1 to 86 µg/dL
2004	5,661	4,677	<1 to 103 µg/dL

There were 185 adults with Blood Lead Levels (BLLs) of 25 µg/dL or greater reported to MDH in 2003, and there were 33 adults with reported levels greater than 40 µg/dL. Four of the adults with blood lead levels of 25 µg/dL or greater were women, and none of the adults with blood lead levels of 40 µg/dL or greater were women. Through clinic contacts and laboratory reports, information on occupation was obtained for these patients. Occupations and hobbies contributing to lead exposure in 2003 are listed in Table 2. Adult blood lead data for 2004 will be analyzed in spring of 2005.

Table 2: Minnesota Adults with Elevated Blood Lead Levels in 2003 by Exposure Category

Occupation/Exposure	Adults with Levels of 25+ µg/dL	Adults with Levels of 40+ µg/dL
Auto Radiator Repair	4	1
Sporting Goods Manufacturing (Lead Sinkers)	13	1
Storage Batteries	5	1
Copper Foundry	5	0
Primary Metal Smelting	111	19
Cut Stone Products	4	2
Glass Products (Stained Glass)	12	5
Contractor/Painting	6	0
Bridge and Tunnel Construction	2	1
Ammunition Manufacturing	1	0
Non-Occupational Paint Scraping	2	0
Hobby (Making Bullets)	2	1
Gunshot Wound	2	1
Soldering Project	1	0
Other Exposure	1	0
Unknown	14	1
Total	185	33

B. Studies and Projects in At-Risk Populations

1. Minnesota Lead Data Match Project

National studies have shown that Medicaid-enrolled children are three times more likely to have elevated blood lead levels (above 10 µg/dL) than non-enrolled children (9 % compared to 3 %). 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 if testing has not previously been done. In Minnesota testing of children enrolled in Minnesota Health Care Programs (MHCP) is under the jurisdiction of the Minnesota Department of Human Services (DHS). Despite the testing requirement, nationally only about 19 % of Medicaid-enrolled children ages one to five are tested nationwide.

A joint study was released in 2002 by the MDH Lead Program and DHS. It showed that children enrolled in MHCP had higher lead poisoning rates. Of those tested and found to have EBLLs between 1995 and 1998, 72 % were enrolled in MHCP. MHCP children were nearly twice as likely as non-MHCP children to have EBLLs (9.8 % compared to 5 %).

However, despite their high-risk status, only 13.3 % of MHCP children had blood lead testing in 1998. Low testing rates existed, despite a federal requirement that all Medicaid children receive blood lead testing as a component of their 1- and 2-year-old EPSDT well-child visits. These data also point out that over 40 % of eligible children do not receive a recorded well-child visit, indicating a preventive health care delivery problem that extends beyond the lead issue.

In conclusion, national research shows that Medicaid-enrolled children are a high-risk population. This study indicates that the same is true for Medicaid-enrolled children in Minnesota, and that this population is under-tested. Blood lead testing of MHCP 1- and 2-year-olds during EPSDT well-child visits is necessary in order to identify lead-poisoned children and to comply with federal testing requirements. This demonstrates the need to inform health care providers, as well as caregivers, about the importance of lead testing for MHCP children. In addition, the health care providers of all Minnesota children need to be informed of the importance of timely follow-up testing to ensure that interventions are successful and that children's BLLs are reduced to safe levels. More information is contained in the full-report titled "Elevated Blood Lead Levels in Minnesota and the Medicaid Population" and can be obtained from www.health.state.mn.us/divs/eh/lead/reports/medicaidleadrpt.pdf and in the 2003 Biennial Report to the Legislature. A similar data match process and subsequent report for 1999-2003 is planned for 2005.

2. Countryside Lead Prevalence Study

A grant was prepared by MDH and funded in 2001 by CDC to examine lead poisoning prevalence in a representative high-risk rural area of Minnesota to:

1) Establish accurate prevalence rates for elevated blood lead levels in children in a high-risk rural area;
2) Compare Medicaid population characteristics between rural and urban areas;

3) Evaluate the efficacy of Minnesota Blood Lead Screening Guidelines in a rural area; and
4) Foster a cooperative working partnership between MDH and the Countryside Public Health Department, local clinics, primary health care providers, and other local organizations.

Three counties in Western Minnesota served by Countryside Public Health Services (Swift, Yellow Medicine, and Chippewa) were chosen as the site for the study – completed in 2003.

Blood lead tests were obtained for 76 % of the eligible children. The rate of children with EBLLs (10 µg/dL or greater) in the three-county area identified through capillary and venous blood draws was 2.4 %, and the rate of EBLLs requiring environmental assessment (20 µg/dL or greater) was 0.5 %. These rates are similar to the national averages observed in a recent National Health and Nutrition Examination Survey for 1999-2000.

The two most important predictors of EBLLs in the study children were (1) receiving Medicaid or WIC assistance and (2) spending time in pre-1950 housing. Children whose parents reported assistance through Medicaid or WIC were twice as likely to have EBLLs than those not on assistance, and children whose parents reported that the child spent significant time in a home built before 1950 were twice as likely to have EBLLs as those who did not. Matching of Medicaid enrollment data with blood lead testing data confirmed that the rate of EBLLs was nearly three times as high in Medicaid-enrolled children compared with non-enrolled children. Efforts to determine the age of participants' homes using tax assessors' files also revealed that children living in homes built before 1950 were approximately five times more likely to have EBLLs than children living in homes built in 1950 or later. A manuscript describing this study has been accepted for publication in the July/August 2005 issue of the *Journal of Environmental Health*. Additional information is presented in the 2003 Biennial Report to the Legislature.

Based on their work on the recently completed Countryside Lead Prevalence Project, CLPPP staff Myron Falken, PhD, MPH, Erik Zabel, PhD, MPH, and Maureen Alms, PHN, and Michele Sonnabend, PHN, of the Countryside Public Health Department, were named as recipients of the 2003 Effective Practice Award from the National Maternal and Child Health Epidemiology Awards Committee. This committee consists of 14 organizations, including CDC, the American Public Health Association, the Council of State and Territorial Epidemiologists, the National Association of County and City Health Organizations, the American Academy of Pediatricians, the March of Dimes, and the Association of Schools of Public Health. The award is designed "to recognize and promote excellence in Maternal and Child Health epidemiology research, practice, and leadership." Doctors Falken and Zabel attended the award ceremony in December 2003 to accept the award for the recipients.

3. WIC Pilot Project

Blood lead testing in not routinely performed during WIC clinics in Minnesota even though they serve a population generally at high risk for lead poisoning. A pilot project to investigate the potential for increasing blood lead testing at WIC clinics was conducted in four Minnesota counties (Blue Earth, St. Louis, Stearns, and Winona) with moderate risk for a high rate of elevated blood lead levels. For each child aged 9-36 months whose parent or guardian was willing to participate, an informed consent was completed, a capillary filter paper lead test was

performed, and the parent or guardian completed a risk factor survey containing six questions (Table 3). For the four counties combined, 812 children were tested, and 809 of these also had completed risk factor surveys. Of the tested children, none had lead levels of 20 µg/dL or greater, and two had a lead level of 10 µg/dL or greater. Fifty-six children (7 %) had lead levels of 5 µg/dL or greater.

The two children who had an elevated lead level above 10 µg/dL answered YES to questions 2, 3, and 5, indicating that the children received Medicaid services and lived or spent time in a home built before 1950, two of the primary risk factors for childhood lead poisoning. There were no significant differences in the percentage of children with YES or Don't Know (DK) answers between the children with lead levels of 5 µg/dL or greater and children with levels lower than 5 µg/dL. When combined, the first five questions on the survey indicated that 95 % of the tested children would have been recommended for testing according to Minnesota screening guidelines. Therefore WIC clinics appear to be an efficient way to screen children at risk for lead poisoning. However, the risk factor questionnaire was not effective in predicting which children would have blood lead levels of 5 µg/dL or greater.

Table 3: Survey Questions and Responses for WIC Clinics

#		YES (%)	NO (%)	DK (%)
1	Has the child moved from a major metropolitan area or another country within the last twelve months?	48 (6)	752 (93)	9 (1)
2	During the past 6 months has the child lived in or regularly visited a home, childcare, or other building built before 1950?	265 (33)	394 (49)	149 (18)
3	During the past 6 months has the child lived in or regularly visited a home, childcare, or other building built before 1978 with recent or ongoing repair, remodeling or damage (such as water damage or chipped paint)?	244 (30)	422 (52)	142 (18)
4	Has the child, or his/her sibling or playmate, had an elevated blood lead level?	18 (2)	607 (75)	184 (23)
5	Does the child receive services from Minnesota Care (MnCare) or Medical Assistance (MA), which includes the Prepaid Medical Assistance Program (PMAP)?	501 (62)	286 (35)	22 (3)
6	Has your child had a lead test before?	88 (11)	576 (71)	144 (18)

4. 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. The 2003 refugee data are the most recent information available for matching with the Minnesota Blood Lead Surveillance Database. Refugee children in Minnesota comprise a wide range of ethnic origins, as shown in Table 4.

Table 4: Number and Percent of Refugee Children (0-72 Months) Tested and with Elevated Blood Lead Levels from 2001-2003 Data by Country of Origin

Ethnicity/ Region of Origin	Refugee Children	Children Tested for Lead		Children Tested for Lead Within Three Months of Arrival		Children w/Elevated Level (10 µg/dL)	
Somalia	153	98	64 %	91	59 %	25	26 %
Liberia	98	69	70 %	64	65 %	13	19 %
Rest of Africa	66	38	58 %	38	58 %	13	34 %
SE Asia	23	14	61 %	14	61 %	2	14 %
Former Yugoslavia	34	26	76 %	25	74 %	5	19 %
Bulgaria	4	3	75 %	3	75 %	0	0 %
Former USSR	89	39	44 %	33	37 %	1	3 %
Iran	1	1	100 %	1	100 %	0	0 %
Cuba	2	0	0 %	0	0 %	0	N/A
Total	**469**	**288**	**61 %**	**269**	**57 %**	**59**	**20 %**

Blood lead tests were also matched to refugee information in past years. The rate of testing in refugee children remained between 62 % and 69 % from 1998 through 2003. For the total refugee population who entered the country between 2001 and 2003, 61 % of refugee children who were seen for a health screen were tested for blood lead, and 57 % were tested within three months of arrival. Twenty percent of lead tested refugees had EBLLs in 2001-2003, compared with 21 % in 1999-2000 and 20 % in 1998. This compares to a rate of 2.7 % for children with blood lead tests statewide in 2003. An article describing blood lead levels in Minnesota's refugee population, including rates of lead testing and EBLLs, was published in the MDH publication "Disease Control Newsletter", which is mailed to Minnesota physicians and is available online. A check box for lead testing was added to the refugee health screening form used when new refugees arrive in Minnesota. This should serve to further improve the rate of lead testing in this high-risk population.

5. High-Intensity Targeted Screening (HITS) Projects

St. Paul

In September 2003 the MN CLPPP passed through money via a contract to the St. Paul/Ramsey County Department of Public Health to complete a HITS project for high-risk children. The project targeted screening in one census tract in St. Paul with a disproportionately high number of EBLL cases (Census Tract [CT] 325). The goal was to screen 150 high-risk 1-and 2-year-olds who may not otherwise be screened. Details of the project are found in **Appendix D**.

Minneapolis

In September 2003 the MN CLPPP passed through money via a contract to the City of Minneapolis Children's Environmental Health Program – Environmental Health Services to complete a HITS project for high-risk children. The project targeted the Near-North

neighborhood that is home to the greatest number of subsidized housing units in the Minneapolis metropolitan area, greatest number of pre-1950 homes, the highest ratio of children under 6 years of age, and a significant percentage of families (80 %) living below federal poverty level guidelines (making their children eligible for EPSDT services). This project targeted 150 1- and 2-year-olds who may not otherwise be screened for EBLLs.

The City of Minneapolis contracted with the Minneapolis-based Sustainable Resources Center (SRC) to implement this project. The SRC administers the federal AmeriCorps program in Minnesota that is known as Minnesota Childhood Lead Education and Reduction Corps (Minnesota CLEARCorps).

With Geographic Information Systems (GIS) data maps obtained from the City of Minneapolis, SRC established a geographic progression of activities based upon the most at-risk areas of the City. By combining the detailed maps, neighborhood data and housing data, they were able to focus on the most at-risk blocks and target the areas with the most children under the age of six living in older housing. SRC then walked and drove through the target neighborhoods looking for unlicensed day care sites and other community and faith-based groups that have not previously been included in outreach activities. These names and addresses were added to an outreach database as potential participants. Three databases emerged from this process: 1) General Education and Outreach; 2) Daycare Centers; and 3) Faith Based Communities. The databases are maintained by SRC/CLEARCorps. New contacts will be added as needed. Currently there are over 1,500 entries in the databases.

In January 2004 SRC sent a letter to 117 daycare providers in the proposed North Minneapolis neighborhoods explaining the project and inviting them to participate. The new "Lead Hurts Kids" brochure and a CLEARCorps Minnesota brochure were included in the mailing. SRC has begun calling these 117 targeted daycare centers to establish meetings to introduce daycare staff to the project and establish testing dates. They will also be working through local childcare organizations to identify other potential sites that are in the proposed project area.

Seventy-five community programs, sites and centers also received a letter explaining the testing initiative and inviting them to participate. The new brochure and a CLEARCorps Minnesota brochure were included in the mailing. The community sites that received the mailing have programs that involve children under six and/or their parents. Through this project 150 children were tested. None were found to have blood lead levels of 10 µg/dL or greater. However, all families in the project received educational materials about lead.

Suburban Hennepin County

This project addressed low blood lead screening rates in Hennepin County. There are 46 municipalities in Hennepin County that can be grouped by distance from Minneapolis into first, second, and third ring suburbs (see **Appendix E** for maps). Analysis showed that the density of service providers decreases as one moves away from the city limits of Minneapolis. Hennepin County Community Health Department (HCCHD) serves the entire county, with the exception of the city of Minneapolis. Minneapolis itself has higher screening rates than the rest of the state, partially because lead is a known problem in urban areas, and the Minnesota Screening Guidelines recommend that every child living in Minneapolis and St. Paul be screened.

In 2002 funding from CDC was passed through MDH to HCCHD to increase the number of children screened for blood lead in the outer-ring suburbs of Hennepin County, Minnesota by raising provider's awareness of the Blood Lead Screening Guidelines for Minnesota. Hennepin County staff analyzed data from the CLPPP blood lead surveillance system and determined that while lead risks were present in the outer-ring suburbs of Hennepin County (pre-1950 housing; children younger than six years old) very little blood lead screening occurred there. The project was completed in 2003 and the full report is available in **Appendix E**. Although HCCHD and MDH acknowledge that there were simultaneous activities occurring in Hennepin County to increase blood lead screening rates during the contract period, the data suggest that the screening project did play a role in increasing blood lead screening rates in the outer ring suburbs of Hennepin County, Minnesota. The HCCHD efforts to educate providers about blood lead screening will continue. These activities are supported by a Department of Housing and Urban Development (HUD) Lead Hazard Reduction Grant awarded to Hennepin County in October 2003.

C. Screening and Case Management

1. Blood Lead Screening Guidelines for Pregnant Women in Minnesota

MDH produced Guidelines for Blood Lead Screening, Case Management, and Medical Treatment for children in 2000-2002. In June 2004, MDH added new 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 intervention to reduce their lead exposure.

Prenatal lead exposure is of concern because it may have an effect on cognitive development and may increase delinquent and antisocial behaviors when the child gets older. Prenatal lead exposure may also reduce neonatal weight gain. In addition to fetal risk, lead may be a risk to the mother by causing an increase in blood pressure. Lead is transferred from mother to the fetus because the placenta is a weak barrier to the passage of lead. Therefore, it may be assumed that fetal blood contains the same concentration of lead as maternal blood. CDC and MDH consider 10 µg/dL and above to be an elevated blood lead level for children.

In many cases, high levels of lead in pregnant women arise from maternal occupational exposure. However, other lead exposures may occur, such as: remodeling a home containing lead paint that allows lead dust to become airborne and inhaled; a family member's occupation or hobby resulting in "take-home" lead; using non-commercial home remedies or cosmetics that contain lead; using non-commercial glazed pottery for cooking; and pica behavior of the mother, such as eating soil or pieces of clay pots. There may also be exposure of the fetus to lead coming out of the mother's bones. This may arise from long-term previous exposures of the mother even though lead exposure is not happening during the pregnancy. Lead may come out of maternal bones faster during pregnancy and lactation because of the mother and fetus's need for calcium. A diet rich in iron and calcium may help reduce absorption of lead during pregnancy. Not every woman is at risk for lead exposure, so a risk screening questionnaire should be used to decide when to test a pregnant, or potentially pregnant, woman for lead.

In order to offer prenatal providers more meaningful guidance about how to advise their pregnant patients who may be exposed to lead, the CLPPP obtained a copy of pregnancy and lead guidelines developed by the State of New York CLPPP and the New York Section of the American College of Obstetricians and Gynecologists (ACOG) District II. This document is titled Lead Poisoning Prevention Guidelines for Prenatal Providers and consists of two parts: Guidelines for the Prevention and Identification of Lead Poisoning in Pregnant and Postpartum Women, and Guidelines for the Management of Lead Poisoning in Pregnant Women and Postpartum Women. The CLPPP reviewed these guidelines and found them to be comprehensive and useful from a program perspective. The CLPPP made a formal request to the Minnesota Section of ACOG (Section VI) to review the guidelines from a clinical perspective and recommend the appropriateness of their use in Minnesota. An ACOG staff member reviewed the New York document and approved its content for use in Minnesota. The New York document was modified to constitute the 'Blood Lead Screening Guidelines for Pregnant Women in Minnesota' (**Appendix F**) and was approved by the Commissioner of Health. A single page summary of the guidelines was mailed to Minnesota obstetricians, gynecologists, and nurse midwives on June 16, 2004 (**Appendix G**).

2. Case Management

The 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 that have EBLLS above 10 µg/dL 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.

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. This allows for complete records on all medical cases and facilitates communication. One key issue resolved was the timely reporting back to local agencies when the follow-up test to an elevated capillary test is non-elevated (e.g. venous result less than 10 µg/dL). This assisted in reducing caseloads and helped give the local agencies the most current information available.

In November 2002 all Minnesota lead case managers were surveyed to determine their preferences for a case management outreach activity. The case managers indicated that they would like the CLPPP to present a one-day workshop. They also indicated preferred topics (lead case management, lead education and communications, lead surveillance data, lead toxicological data and data regarding lead in pregnant women, information about environmental case management and lead regulatory and enforcement activities, and the Countryside Lead Prevalence Project). The result of this needs assessment was a series of case management workshops held in May 2003 in St. Cloud, Mankato, Duluth, and Bemidji. Attendees received

numerous lead-related materials and publications, including the CDC's "Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention." Evaluation occurred following each workshop and the workshops were very well received. In particular, the majority of participants indicated that they intended to increase their case management efforts as a result of attending the workshops. CLPPP staff believe that the workshops were an excellent way to network with the local case managers and put a "personal" face on the State lead programs.

D. Legislative Activities

A 5% withhold penalty was established in legislation in 2002, and was implemented in managed care contract language between health plans in Minnesota and the DHS for calendar year 2003. Specific targets for increasing lead screening in high risk populations are a significant part of the measures used to determine the amount of the withhold that may be "earned" back by the plans. MDH staff collaborated with numerous partners in this effort to help raise awareness of lead screening needs by providing data, background, and recommendations. It is hoped that this effort, in combination with a $30 incentive payment to plans for lead tests performed above previous rates (implemented by DHS in collaboration with MDH) and the ongoing corrective action plan, will help get all at-risk children screened for lead.

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 Program ensures the public receives safe and proper lead hazard reduction, evaluation, and analytical services by requiring those services be conducted according to state regulations, and by trained and licensed personnel, and certified firms. The Lead Compliance Program was authorized by the U.S. Environmental Protection Agency in September 1999 to administer and enforce the lead accreditation and compliance program in Minnesota. The program 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 Program 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. 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.

The number of firms certified to perform regulated lead work in Minnesota has stabilized over the past two years. The number of residential lead hazard reduction notices submitted to MDH has decreased when compared to previous reporting periods. The main reason for this is the ability of housing programs to classify work according to intent of the original project. As a result, a large number of residential rehabilitation projects are being done as renovation work and not regulated lead work; however, they are being performed with ever increasing lead safe work practices. This lack of regulated activity has served to limit the number of compliance

inspections and has allowed MDH staff to provide more education on lead awareness and lead-safe work practices to the public and contracting community.

A. Compliance Monitoring

MDH is the primary agency for lead control and for regulating lead-related activities in Minnesota. MDH provides leadership on lead control program issues and works closely with the legislature, 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 the lead compliance program 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.

Table 5 reflects the number of licenses issued by MDH for 2004. The limited number of individuals currently licensed to perform lead hazard reduction work in Minnesota face a potentially heavy workload. Both high-risk housing and persons licensed to do lead abatement work tend to be concentrated in the Twin Cities metro area and Duluth. The relative shortage of licensed lead hazard reduction professionals in greater Minnesota continues to present a challenge, both for public health agencies and families at risk for lead exposure. MDH has taken steps to address this shortage by partnering on a federal lead hazard reduction grant targeting non-Metro areas (the grant is described later in this report).

Table 5: Total Number of Licenses Issued Across Minnesota as of December 2004

License issued	Total in MN
Certified firm	129
Inspector	0
Project Designer	12
Risk Assessor	178
Supervisor	260
Worker	101

The number of lead supervisors and certified firms has remained the same when compared with 2003, whereas the number of risk assessors, workers, and project designers has declined. HUD regulations have had the greatest impact on the number of firms and individuals trained to perform lead hazard reduction work. The greatest shortage of properly trained individuals in any discipline continues to be in greater Minnesota. MDH continues to encourage other state and local agencies in greater Minnesota to develop capacity to address lead hazard reduction needs.

B. Special Projects

MDH continues to improve the capacity of its lead compliance program through an Environmental Protection Agency (EPA) Special Projects for Compliance Assistance Grant. The goals of this grant are to provide the following support for the lead compliance program:

- Develop an interactive database with online access to training course providers by certified firms and licensed individuals who perform regulated lead work;
- Administer independent examinations for licensed disciplines throughout Minnesota and provide funding to Sustainable Resource Center (SRC), which is a nonprofit organization that conducts housing rehabilitation work and lead education and cleanup work in Minnesota; and
- Additional information on this grant may be found in the 2003 Report to the Legislature.

MDH lead program staff have begun development of environmental case management guidelines to assist other assessing agencies in dealing with elevated blood lead cases. These guidelines will assist both MDH and other assessing agencies in establishing consistent approaches and goals for completing lead risk assessments and environmental case closure. An environmental case closure occurs when all lead hazard reduction orders are completed and a clearance inspection demonstrates that no deteriorated lead paint exists and bare soil and dust levels do not exceed the state lead standards for soil and dust (Minnesota Statutes Section 144.9504).

MDH has continued to expand Minnesota's lead program activities by working towards the development of a program pursuant to Section 406(b) under Title IV of the Toxic Substances Control Act (TSCA). The goals of this grant are to:

- Offer Pre-Renovation Education Rule training;
- Develop and publish a newsletter; and
- Work towards the development of state regulations and a plan for attaining State lead program authorization by EPA.

C. Training Courses

For an individual to be licensed in Minnesota, they must successfully complete a training courses 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/prof/trainers.htm). 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. The MDH lead compliance staff regularly review the training course content and ensure that it contains all the required topics.

D. Legislative Activities

Statute

A bill originally introduced in the 2003 legislative session was language modeled after the state

of Maryland's Lead Poisoning Prevention Law. The main components of the bill included provisions for: protection of tenants rights; establishing a housing registry for lead free or lead safe status; liability protection requirements for property owners; enforcement; licensing inspectors and contractors; educational programming; establishing a state wide commission on lead and a cabinet level position; and blood lead screening of children. Many provisions of the bill already existed in state statute and rules, such as: licensing, educational programming and blood lead screening. Provisions such as a lead safe housing registry had been attempted in the past in the state, but were dropped from statute after funding cuts.

Through input from a local partner, the National Paint Coatings Association (NPCA) lobbyists revised the proposed language, which sought to lower the environmental intervention point from 20 to 10 micrograms per deciliter, recognize that two capillary blood lead samples results were the equivalent of one venous blood lead sample result, require local permitting authorities to provide information on lead hazards to permit requesters, create notification requirements similar to Section 1018 of HUD requirements, allow receivership of properties when lead orders are not complied with, provide protection of tenant rights, and create a lead safe housing registry. Although the language for the 2004 session was modified, it still created a burden on existing local and state lead programs by not identifying additional funding sources to comply with stricter requirements of the proposed language.

Through meetings with various stakeholders and the principal author in the Senate, the language was dramatically modified to incorporate the study of remedies available through state and local agencies, industry, and the health infrastructure to provide greater mechanisms in the state to reduce or eliminate lead poisoning. The full report of this study is found in **Appendix B**. The five components of the study include:

1) How to promote and encourage primary prevention;
2) How to ensure that all children at risk are tested;
3) Whether or not to reduce the state mandatory intervention from 20 to 10 µg/dL of whole blood and if a reduction is not recommended whether to develop guidelines on intervention for children with blood levels between 10 and 20 µg/dL;
4) How to provide incentives and funding support to property owners for lead hazard prevention and reduction; and
5) Ways to provide resources for local jurisdictions to conduct outreach.

Rules

During the past two years, MDH has amended the rules governing lead activities in Minnesota. The rules were reorganized and rewritten to clarify rule requirements and amend the lead standards for dust on floor surfaces and window troughs. MDH amended the rules to:

- Conform with federal regulations (EPA lowered the lead content standard for dust on floor surfaces and window troughs and MDH amended its dust standards to equal EPA's standards for these surfaces.);
- Make technical changes for clarification purposes;
- Modify the notification requirements for lead hazard reduction work; and

- Make changes to the lead hazard reduction methods for interior small and large areas, exterior painted surfaces, and soil.

During the rulemaking process, MDH initially received preliminary written comments from interested persons or groups on the current and proposed rules. MDH formed an advisory committee, which was open to all interested parties, to discuss the rule.

From the comments received, MDH finalized the proposed rules and published the Notice of Intent to Adopt Rules Without a Public Hearing on May 10, 2004. Neither comments nor requests for a hearing were received. After the Office of Administrative Hearings reviewed the proposed rules, MDH published the Notice of Adoption and the proposed rules become effective on November 22, 2004.

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) through both notices and inspections (Table 6). Non-compliance is managed according to the Health Enforcement Consolidation Act (MS 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 6: Number of Notifications Received and Inspections Performed by MDH from January 2003 to December 2004

Activity	2003	2004	Total for period
# Notices	199	86	285
# Inspections	23	38	61
# Non-Compliance	5	4	8

III. Health Education and Outreach

The MDH Lead Program currently performs outreach and education activities for 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 and to disclose information about lead hazards.

A. Networking

The development and implementation of effective lead poisoning prevention strategies is a collaborative activity. It requires strong partnerships between public health agencies, health care

providers, housing agencies, non-profit organizations, and individual citizens. As part of a general effort to forge those partnerships, all lead program staff at MDH have assumed at least some responsibility for education and outreach activities, as part of their regular job duties.

The MDH Lead Program attends interagency meetings that conduct studies of statewide data needs and proposed solutions. In Minnesota, we have been funded through CDC to develop an integrated approach for data collection through a program called the National Electronic Disease Surveillance System (NEDSS). The Minnesota NEDSS system is currently used to securely transfer electronic laboratory data to state agency databases, including the MDH lead program.

The Minnesota Collaborative Lead Education and Assessment Network (M-CLEAN) continued to meet two times per year, bringing together statewide lead partners to assist with information sharing, provide program updates, and promote of joint projects. For example, contacts fostered at an MCLEAN meeting led to several federal lead grant applications for lead hazard reduction, lead education, healthy homes, and other issues.

Several staff from MDH assisted the City of Minneapolis in the creation of their lead network. Although the network was started in 1999, work continued in the current period through collaboration and subcommittee meetings. The primary goal of the network is to have lead-safe children throughout Minnesota by increasing the availability of lead-safe housing.

One of the major partners of the MDH Lead Program is the Minneapolis-based Sustainable Resources Center (SRC) The SRC also operates the CLEARCorps (Community Lead Education and Reduction Corps; a federally funded "Ameri-Corps" organization) effort for Minnesota. SRC/CLEARCorps is currently contracted to do outreach services to rural areas and also to the Somali population. Rural outreach on lead education utilizes SRC/CLEARCorps 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. The CLEARCorp segment of the non-profit is equipped to help with primary prevention activities through lead hazard education and remediation activities.

B. Outreach

MDH conducts outreach to both professional and public organizations. Young medical students and practicing physicians are exposed to lead issues and implications through grand rounds presentations, continuing medical education presentations, scientific conferences, and workshops on lead. The MDH lead program also works in collaboration with other MDH environmental health programs to offer educational programs and exhibits in a variety of venues, including home and garden shows, home improvement fairs, the Minnesota State Fair, and conferences dealing with children's health and education, housing and redevelopment issues, and other relevant issues and concerns.

MDH was contacted by the press for information on lead hazards from various sources including children's jewelry, holiday decorations, and imported candy. These requests were handled in

addition to several general background information requests. All information requests were dealt with consistent to MDH guidelines.

Health Plan Workshops

During fall 2003, the CLPPP participated in a series of regional provider workshops along with staff from the MDH C&TC program, SRC/ClearCorp, and sponsoring health plans. The health plans included Medicaid managed care providers UCare Minnesota, Medica, Metropolitan Health Plan, and HealthPartners. The workshops were held regionally to assure the best possible attendance by physicians and other health care providers in the area. The locations for the workshops included Bemidji, Duluth, Mankato, St. Cloud, Willmar, and St. Paul (2), Minnesota and Fargo, North Dakota (where a number of Minnesota patients are seen from Northwestern Minnesota). All participating health plans have clinics in Fargo.

The emphasis of the workshops was the federal requirement to test young children enrolled in Medicaid for blood lead. Learning objectives were developed for the workshops. A comprehensive packet of support materials was distributed during the meetings. These materials included the executive summary of the report "Elevated Blood Lead Levels in Minnesota and the Medicaid Population," the "Minnesota Blood Lead Data Surveillance Report for 2002," a copy of the Blood Lead Screening Guidelines for Minnesota, the Childhood Blood Lead Clinical Treatment Guidelines for Minnesota, the Childhood Blood Lead Case Management Guidelines for Minnesota, and a copy of the Minnesota C&TC Schedule of Age-Related Screening Standards.

Overall, comments about the presentations were very positive. The State Lead Case Monitor noted an increase in both the number of calls regarding screening and the number of tests reported from regions where the workshops occurred. There were also many requests for the Healthy Homes Healthy Kids three-ring binders and for the Sesame Street videos on lead poisoning for clinics to use in their office settings. At the end of each workshop, small group discussions were held to discuss such issues as billing for Medicaid services, barriers to blood lead screening, and screening best practices. In response to the workshops, the health plan workgroup developed a packet of information that was mailed to workshop attendees. This packet included best practices, a description of issues related to on-site hand-held lead analyzers, a description of issues related to lead testing in the clinic, information on blood lead test billing practices, and a list of health plan contact information.

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). It 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-page shows how to sign up for an Email lead list serve that serves as a statewide clearinghouse for lead questions and information to local public health and private partners. This listserv location offers participants the ability to post information and discuss relevant issues about lead poisoning prevention within the state. MDH also posts relevant information to the discussion group and encourages other state groups or individuals to post and respond to information.

D. Promoting Lead Awareness

Efforts to raise awareness of lead poisoning have included national "Lead Poisoning Prevention Week," which was held October 19-25, 2003 and October 24 – 30, 2004. These time periods were designated by key federal agencies that work most directly to prevent lead poisoning: CDC, EPA, and HUD. To support national lead week, the MN CLPPP sought and obtained the endorsement and acknowledgement of this event in Minnesota by Governor Tim Pawlenty. In response, Governor Pawlenty signed proclamations declaring the week of October 19-25, 2003 and the week of October 24-31, 2004 Minnesota Childhood Lead Poisoning Prevention Week (**Appendix H**). For 2003, the proclamation was posted on the MDH Division of Environmental Health web page, as was a call-out box alerting readers to the fact that October 2003 was Children's Health Month and that October 19-25, 2003 was Minnesota Childhood Lead Poisoning Prevention Week. Similar messages were also posted on the MDH Lead Program web page under "Hot Topics." Information about lead week appeared in the MDH publication "The Mailbag" which is sent to all local public health administrators. Local agencies were encouraged to develop 2010 elimination messages for their communities, and were alerted to the availability of technical support materials on the Lead Program website. For 2004, an information packet was sent out to local public health agencies. The packets included the Lead Week Proclamation and Blood Lead Screening Guidelines for Pregnant Women in Minnesota.

Federal requirements promote awareness among homeowners and renters before they move into a new home. EPA and HUD both require sellers and leasers of pre-1978 housing to disclose the presence of known lead hazards, including lead-based paint. Sellers and leasers must also provide purchasers and lessees with any available records or reports with relevant information about such hazards. They must provide purchasers and lessees with the federally developed pamphlet "Protect Your Family From Lead In Your Home." Lastly, sales and leasing contracts must include a Disclosure of Information on Lead-Based Paint and/or Lead-Based Paint Hazards form. These requirements help ensure that families receive the necessary information to make informed decisions and protect their families from lead hazards when purchasing or leasing property. These forms and pamphlets are readily available from MDH.

Contractors are required by federal agencies to provide the property owner with "Protect Your Family From Lead In Your Home" when doing renovation work in any pre-1978 housing. The pamphlet describes the potential lead-based paint hazards that may be created when doing renovation work. The property owner may then clean the property properly after the renovation work is completed, to ensure that no lead-based paint hazards are present when the property is re-occupied. As part of a special projects grant received from the Environmental Protection Agency (EPA), MDH identified two focus areas in rural Minnesota: the Arrowhead Builders Association in northwest Minnesota (Lake County), and the City of Fergus Falls in northeast

Minnesota. The purpose of the grant activity is to provide educational information to contractors concerning the Pre-renovation Education Rule (disclosure) of Toxic Substances Control Act Section 406b. Each focus area is comprised of licensed general contractors and other trades in the construction arena who perform residential renovation work. MDH sent out questionnaires on disclosure to 497 contractors during the summer of 2004.

Annual surveillance reports for all local public health agencies were released on June 30, 2003 and June 30, 2004 (**Appendix C**). 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 EBLLs, along with testing rates and rates of EBLLs in Minnesota's high-risk populations, including refugee children and occupationally exposed adults. The full report and a cover letter were mailed to all local public health agencies each year.

CLPPP staff learned that childhood lead poisoning prevention materials were not routinely disseminated to young families attending Minnesota Head Start Health Clinics. Families enrolled in assistance programs are known to be at greater risk for childhood lead poisoning. In order to assure that these at-risk families receive concise and consistent lead education information, including messages about blood lead testing and primary prevention, the CLPPP began partnering with the Minnesota Department of Education Head Start State Collaboration Director to make lead education materials available to all families with young children who attend a Head Start Health Clinic. In September 2003, 13,000 copies of the CLPPP lead education brochure "Childhood Lead Poisoning Information – How to Make Lead Poisoning a Thing of the Past" were sent to the 34 Head Start Health Coordinators to disseminate to their clients. This was the number of young children between the ages of birth through five-years served by Head Start the previous year. The brochure was developed by CLPPP staff and was developed at the sixth grade reading level, an appropriate reading level for most families seeking Head Start services.

Although Head Start professionals receive basic training in childhood lead poisoning, lead technical support information was made available to them, as well as contact information for CLPPP staff. Head Start staff disseminated the brochures through a variety of venues, including clinic visits, home visits, and parent meetings. Head Start Health Coordinators were asked to provide feedback on the dissemination of the brochure. Comments received indicate that the brochures are being consistently disseminated to families, and that the brochure is a good way to bring Head Start staff up to date on childhood lead issues and to raise their clients' awareness of how childhood lead poisoning might affect their families.

Policy Planning and Program Evaluation

The criteria for a comprehensive state program for childhood lead poisoning prevention were found in the 1994 document "Lead Poisoning Prevention: A Guide for Legislators" authored by the National Conference of State Legislatures and the U.S. Environmental Protection Agency. The authors noted that these criteria, or elements, *generally* include the assurance of: surveillance; screening; reporting; public outreach; case management; environmental assessments; and lead hazard remediation and disclosure activities. The MDH Lead Program currently addresses all elements of a comprehensive state lead program. In addition to having sufficient legislative and staffing capacity to undertake program activities, staff meet at regular

intervals to assess service gaps and plan for ongoing activities. This capacity to address multiple aspects of lead poisoning prevention in Minnesota will contribute to the overall federal effort to eliminate childhood lead poisoning by 2010.

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 cases where the reported BLL is 10 µg/dL or greater. Each record is then reviewed for accuracy a second time, by a different member of the program staff before being entered into the permanent database. The completeness of the reporting data and the timeliness with which it is entered in the database are reviewed periodically. 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. Additionally, analyzing labs are encouraged to send their information electronically. This reduces data entry errors and the time required for the data entry process.

Evaluation of the Blood Lead Information System

In 2004 the CLPPP Senior Epidemiologist evaluated the blood lead surveillance database using the CDC's 'Guidelines for Evaluating Surveillance Systems.' The full evaluation report is available at the lead program website www.health.state.mn.us/divs/eh/lead. A formal evaluation of the CLPPP blood lead surveillance system was last conducted in 1998. Since that time, a new Oracle-based system was developed – replacing an older FoxPro system - and was implemented in June 2003. The new system allows for greater data security and privacy, and improved loading of electronic data. These improvements have been achieved even while the number of received laboratory reports increased from approximately 48,000 during 1998 to 72,000 in 2003. Outside stakeholders have increased confidence in the statewide blood lead surveillance system data, allowing for its use in the development of guidance documents for blood lead screening, case management, and clinical treatment. In addition, accurate surveillance data have been crucial for linking MDH blood lead surveillance data with DHS Medicaid enrollment data, for linking lead data with refugee health data, and for performing the Countryside Rural Lead Prevalence Study.

2010 Elimination Planning

The lead program has developed a plan to eliminate childhood lead poisoning by 2010 (**Appendix A**). During July and August 2004 staff met with a number of key lead partners to discuss a comprehensive list of potential Advisory Group members. The final list of advisory group members is located in **Appendix A**.

The Advisory Work Group met monthly from September 2003 through May 2004. During the first meeting, the group mission and vision were finalized, Minnesota's definition of "elimination" was decided, and the "ground rules" for all subsequent meetings were established. Meetings in October 2003 through March 2004 were used to define specific activities and lead agencies for the plan's goals. Following the April 20, 2004 meeting, the final draft was mailed to all workgroup members for final review and revisions. The final meeting of the planning phase occurred on May 25, 2004 – during this meeting workgroup members made final comments to the plan. It is important to note that the lead program believes that the 2010

elimination plan will remain a "working document" throughout its life. Plan activities will be monitored and revised as needed to assure the successful completion of the established goals and objectives. New activities will be added as determined by the ongoing collection of needs and evaluation data.
The next phase of the 2010 elimination process will be implementation. A subgroup of the 2010 Advisory Work Group will continue to meet into the implementation phase to assure the plan is monitored and revised as needed. It is possible that new advisory group members will be recruited for the implementation phase. The implementation work group will seek to obtain a formal relationship with partner programs (possibly through memoranda of understanding) to assure the successful implementation of the 2010 elimination plan.

Funding Status

State lead 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 $300,000 annually to the program. These funds are used to help meet MDH statutory obligations and are a critical source of "matching" funds for federal grant applications.

The bulk of funding for the MDH lead program comes from federal sources via grants and cooperative agreements. The lead program has received funds for the last nine years from CDC to maintain a CLPPP program, including blood lead surveillance activities. MDH received $735,379 each year in FY03 and FY04. The tenth application will be submitted in February 2005. Although Minnesota has a very good reputation with federal funding agencies, this revenue stream must be revised annually to ensure alignment with federal priorities and is put at risk every three years via a competitive grant application.

MDH has received Lead Cooperative Agreement and Enforcement grants from EPA since 1994. The funding amount has averaged about $250,000 per year. This funding has provided ongoing development and support for the infrastructure of the lead compliance program. As the program has developed the requirements of the grant have shifted from program development to compliance activities. MDH was informed in October 2004 that EPA would be reducing lead grants available to states in Region V by 10% to 20% starting in October 2005.

MDH was awarded an EPA grant in the amount of $111,835 in October 2002. This three-year grant has further expanded Minnesota's lead program activities by working towards the development of a program pursuant to Section 406(b) under Title IV of the Toxic Substances Control Act or the Pre-Renovation Education Rule that is overseen by EPA. This requires that residential renovation contractors provide occupants of units they are to work on with an informational pamphlet prior to starting the work.

The State Government Special Revenue Fund fee account has a flat revenue stream of about $30,000 per year generated from accreditation and training permit fees. MDH regulates about 125 certified firms and 575 licensed individuals. A small number of lead professionals are employed by local government (e.g. assessing agencies) and are exempt from credentialing fees. MDH is also unable to charge a fee for the independent exams provided to individuals wanting a license as a lead inspector, risk assessor, worker, supervisor and project designer.

The U.S. National Institutes of Safety and Health (NIOSH) has a purchase order agreement with MDH for approximately $23,400 per year for quarterly 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 EBLLs, and (3) prevent "take-home lead" in children.

The environmental health trends identified by 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 general funds for these activities.

The MDH Lead Compliance Program and the Minnesota Department of Employment and Economic Development (DEED) partnered to prepare and submit an application to the HUD Lead Hazard Control Grant Program in June 2003. This application was successful and an award of $2,453,664 was made to DEED on October 1, 2003 to provide lead-based paint hazard control intervention services in 315 low-income privately owned housing units. One of the goals is to provide up to $15,000 of lead hazard reduction for each of 15 families (including residential daycare facilities) that have had a child with an EBLL. The target area for the program is the non-entitlement area of Minnesota covered by the Small Cities Program, with additional focus on the five counties of the state identified as having a high lead poisoning risk for rural Minnesota (Beltrami, Otter Tail, Stearns, Blue Earth and Winona Counties). DEED contributed $2,800,000 in local matching funds (Community Development Block Grant) to meet the requirements for submitting the application.

This award was one of several made to jurisdictions throughout Minnesota to address lead-based paint hazards in older housing. The HUD award will also fund the training of various lead professions, and lead education and outreach efforts across Minnesota. This funding will make an enormous contribution toward eliminating childhood lead poisoning in the State by 2010. The CLPPP State Case Monitor (85% FTE on CLPPP) will provide case management support (15% HUD) for families enrolled in the various HUD projects. The State Case Monitor meets weekly with DEED staff in addition to frequent emails and telephone calls.

Future Directions

Future directions for the Minnesota Department of Health are largely determined by the requirements of funding sources. CDC, which funds the Minnesota Childhood Lead Poisoning Prevention Program, has a federal plan to eliminate childhood lead poisoning by 2010. This will require outreach, surveillance, and follow-up activities in areas that have large numbers of children under six years old and have multiple risk factors for childhood lead poisoning. Primary prevention will be a key aspect of the ongoing federal strategies for lead and will need to be emphasized in future Minnesota efforts.

Another goal of CDC is to improve screening rates, information about screening rates, and follow-up services for children with Medicaid status. Screening rates for children with Medicaid status are lower than those for children without Medicaid status, even though federal law states

that 1- and 2-year-olds should be screened for lead poisoning. CDC is encouraging states to link their state's Medicaid data with their statewide surveillance databases in order to determine testing rates for children with Medicaid status. MDH will continue to work with DHS, as funding allows, to gauge testing rates for the young Medicaid population in Minnesota.

As funding allows, MDH is continuing work with the WIC program to assess and remove barriers to screening for lead poisoning at WIC clinics. This high-risk population receives other types of screening which make WIC a likely group for MDH lead program to network with. Currently, cost issues are hindering closer collaboration with WIC. However, the Countryside lead study and WIC pilot project demonstrated that productive collaboration is possible between lead and WIC with respect to lead screening efforts.

Program staff are actively participating in activities to improve the recording and transfer of lead test data. Most large labs and clinics currently use some form of electronic data management. It is crucial that MDH continue to develop the capacity to interact with these data streams effectively so that transcription errors are minimized, and time saved. However, strict compliance with all data privacy limitations is also crucial.

Increasing compliance monitoring and enforcement of lead paint regulations continues to be a priority for both state efforts and requirements as part of federal grant funding provided by EPA. Additional lead compliance capacity has been pursued through a successful application to HUD for lead hazard control projects in collaboration with the Minnesota Department of Trade and Economic Development and the Minnesota Housing Finance Agency.

Conclusions

Lead is a major, preventable pediatric environmental health risk. Children are particularly at risk from exposure to lead, with blood lead levels above 10 µg/dL considered elevated. 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. New state guidelines will 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 (e.g. lead paint removal). 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.

As an interdisciplinary program, the lead staff are required to generate unique and innovative approaches to institutional and scientific problems. These 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. This spirit of creativity and risk-taking is fostered, resulting in a program that is flexible, responsive, and well grounded in the core public health functions of assessment, assurance, and policy/planning.

Appendices

Appendix A: 2010 Lead Poisoning Elimination Plan for Minnesota

Appendix B: 2004 Legislative Study

Appendix C: 2003 Blood Lead Surveillance Report

Appendix D: St. Paul High Intensity Targeted Screening (HITS) Project Report

Appendix E: Hennepin County Suburban HITS Project Report

Appendix F: Blood Lead Screening Guidelines for Pregnant Women

Appendix G: Single-Page Summary of Blood Lead Screening Guidelines for Pregnant Women

Appendix H: Proclamations declaring October 19-25, 2003 and October 24-30, 2004 as Minnesota Childhood Lead Poisoning Prevention Week

Appendix A

2010 Lead Poisoning Elimination Plan for Minnesota

Insert Appendix A Here

Appendix B

2004 Legislative Study

Insert Appendix B Here

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Blood Lead Screening Guidelines for Pregnant Women in Minnesota

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Single-Page Summary of Blood Lead Screening Guidelines for Pregnant Women in Minnesota

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Appendix H

Proclamations Declaring October 19-25, 2003 and October 24-30, 2004 as Minnesota Childhood Lead Poisoning Prevention Week

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