

# ***VERMONT2011***

---

## *Lead Poisoning Prevention*

Report to the Legislature

April 15, 2011



**DEPARTMENT OF HEALTH**  
**Agency of Human Services**

108 Cherry Street, PO Box 70  
Burlington, VT 05402  
1.802.863.7341  
[healthvermont.gov](http://healthvermont.gov)

## ***Table of Contents***

Introduction	3
Requiring Pediatric Providers to Screen Young Children	4
Measuring Progress Toward Universal Screening	4
Data Quality Improvement	6
Screening Children for Elevated Blood Levels in 2010	6
Education and Outreach Activities to Prevent Lead Poisoning	9
Estimates of Public and Private Costs	13
Future of Vermont's Lead Program	14
Conclusion	15
Appendix A – Vermont Blood Lead Testing and Reporting Rule	16

## Introduction

The Vermont Department of Health is pleased to submit this progress report on the status of childhood lead poisoning prevention efforts in 2010 pursuant to Title 18, § 1756. Since 2002, the percentage of young children who have been screened for lead poisoning has increased and the percentage of children with elevated blood lead levels has decreased. In 2007, the Commissioner of Health established 5 micrograms per deciliter (5µg/dL) as the blood lead level of concern for alerting parents and guardians that their children may have been exposed to lead. This is the lowest threshold of concern in the nation.

This annual report documents the Commissioner's efforts over the past year to prevent lead poisoning in young children. It presents the latest data on the number and percentage of children under the age of 6 who have been screened and tested for lead poisoning, and the number found to have lead poisoning at various levels. Historical data on screening are also presented. In addition, the report: describes efforts to make more timely program data available; describes 2010 outreach and education activities intended to improve screening rates; and provides estimates of the public and private costs incurred since July 1, 1993 to prevent, correct, or treat lead poisoning.

A 2006 statewide Lead Task Force prepared a report and recommendations for the Commissioner of Health and the Attorney General. The report, *Get The Lead Out of Vermont*, led to revisions to the Lead Law (Title 18, Chapter 38) and Vermont adopted an aggressive policy to achieve universal testing of young children. The new approach required that, if fewer than 85 percent of 1-year olds and fewer than 75 per cent of 2-year olds had been screened by January 1, 2011, the Department would require by rule that health care providers ensure that such screening is conducted and the results are reported to the Health Department (§ 1755(b)). Finally, a new section on enforcement imposed civil penalties on owners of rental housing who fail to submit annual compliance statements documenting that steps have been taken to ensure that rental properties are safe from lead exposure.

## Requiring Pediatric Providers to Screen Young Children

During 2010, it became apparent that Vermont would not realize the screening targets established in the Lead Law. As a result, the Health Department undertook rulemaking to require providers of pediatric care to test blood lead levels of children ages 12- and 24-months, and report results to the Department. The rule also requires any laboratory that analyzes blood lead levels of Vermont residents to report results to the department. The process the Health Department will use to monitor compliance with testing and reporting is described in the rule. A copy of the newly adopted rule appears in Appendix A of this report.

## Measuring Progress Toward Universal Screening

Every year, the Health Department's *Lead Poisoning Prevention* report presents data on the percentages of young children who have been tested for elevated blood lead levels during the latest year for which data were available. Additionally, each annual report has presented data on the percentage of tested children who had blood lead levels of  $<5\mu\text{g/dL}$ ,  $5\text{-}9\mu\text{g/dL}$  and  $\geq 10\mu\text{g/dL}$ .

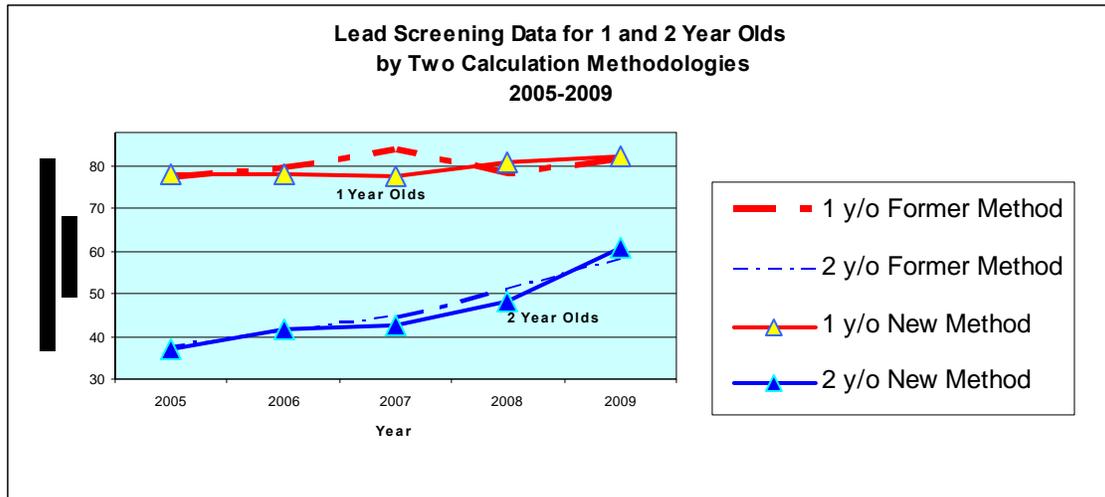
The calculation of the percentage of the 1- and 2-year olds who were lead-screened has historically presented a timing challenge. The annual lead report is due by April 15 of each year. The numbers of 1- and 2-year olds who were lead screened in the previous year is available (numerator) by April, but the previous year population estimates for the number of 1- and 2-year olds living in Vermont (denominator) for the previous year are not available until the following November. Because population estimates have not been available in time for the April report, the Health Department has reported earlier data when population data could be matched to the same year as the screening data. For example, the 2010 report only included screening data through 2008. The program had 2009 screening data but lacked 2009 population data.

Another problem with the screening percentages has been the imprecision of annual population estimates for single year age groups: 1- and 2-year olds. These population estimates start with the preceding decennial census and make adjustments each year based on the number of births, migration estimates, and other factors. The precision of the estimates declines with each year since the decennial census.

During 2010, Health Department epidemiologists, statisticians and program staff explored strategies that would address both problems: lacking population estimates matching the year of the most recent lead screening data, and the imprecision of annual population estimates which introduces statistical noise in the screening percentages. The group recommended using a three-year rolling average population for the three years prior to the testing year. For example, the population estimates matching the 2010 screening data would be the average of 2007 -2009 estimates for 1- and 2-year olds.

This proposed methodology change was presented to the Lead Poisoning Prevention Committee during their August meeting, and the group unanimously supported change. To demonstrate that the newly proposed methodology does not significantly change the results of past screening rates, an analysis was performed to compare the former methodology with the proposed new methodology on data from 2004 through 2009. Figure 1 demonstrates that both methodologies show similar screening trends for 1- and 2-year-olds, but the trend lines are smoother when the new three-year average methodology is used.

Figure 1



This annual report presents screening and elevated blood lead level data using this new methodology.

## Data Quality Improvement

Lead screening results are now available to providers through the child health registry. The child health registry is built on the Immunization Registry and includes other preventive health screenings for children such as lead screening and hearing screening. In preparing to transfer lead screening data to the child health registry, the Childhood Lead Poisoning Prevention Program took the opportunity to assess the quality of the lead screening data, and to correct data errors found such as duplicate names, or missing or incorrect dates of birth. As a result of this effort, the lead screening data in this annual report are more complete and accurate than in previous years.

## Screening Children for Elevated Blood Levels in 2010

Screening children for detectable levels of lead in blood is key to reducing the incidence of elevated blood lead levels. Through screening, children who have been exposed to lead can be identified and appropriate interventions can be initiated to prevent further

exposure to this harmful toxin. In addition, screening allows the Department to track the exposure of lead in children statewide to inform lead poisoning prevention policies.

The Vermont Department of Health’s Childhood Lead Poisoning Prevention Program continues to work toward the goal of universal testing of 1-and 2-year old children in Vermont. Table 1 presents 2010 data on the number of young children who were tested for blood lead levels and the results of those screenings. The data indicate that in 2010, 77.8% of 1-year-olds and 64.3% of 2-year-olds were tested.

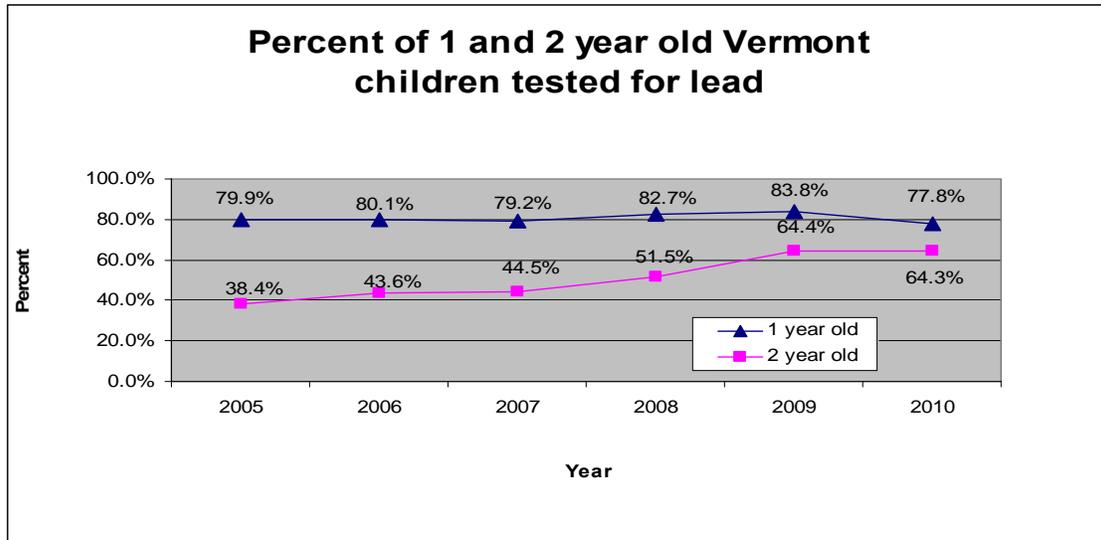
**Table 1**  
**Blood Lead Tests and Levels for Vermont Children Ages 1 and 2, 2010**

<b>2010</b>	<b>Population*</b>	<b># tested</b>	<b>% tested</b>	<b>% &lt;5 µg/dL</b>	<b>% 5-9 µg/dL</b>	<b>% &gt; 10 µg/dL</b>
1 year	6502	5062	77.8	88.3%	9.0%	1.8%
2 years	6421	4130	64.3	90.0%	8.1%	1.3%

\* 3 year average as described above.

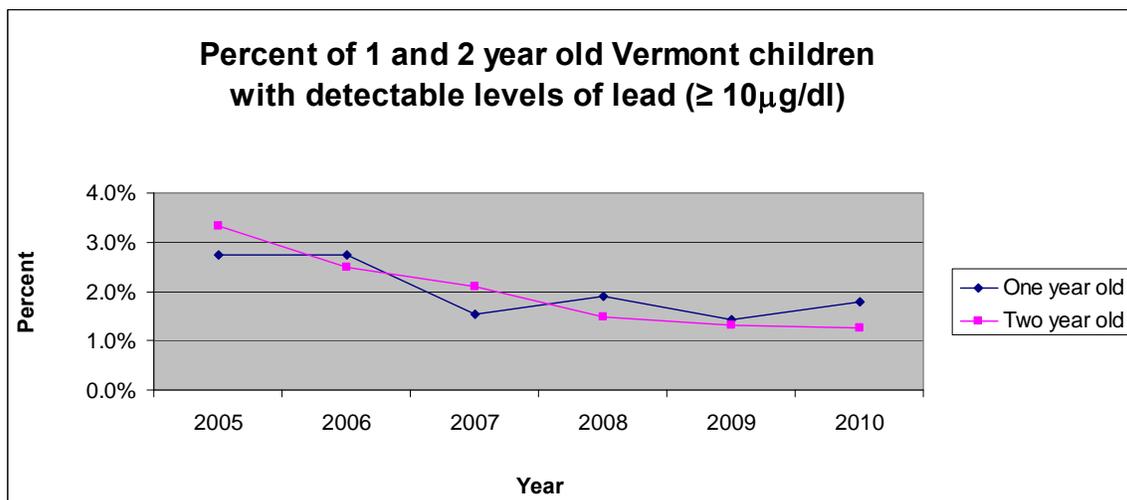
Although these screening rates fall short of the population screening target set by Act 176, the Health Department is confident that the combined activities to improve lead testing rates over the past year should continue to improve these screening rates appreciably in future years. Figure 2 shows a gradual trend over 5 years toward increasing screening rates among 2-year olds, although in 2010 a slight decline was recorded of 4 fewer 2-year olds tested than in 2009. Testing of 1-year olds, however, declined in 2010 by 381 children from 2009. Given the increase in 1-year olds tested in 2009, it is not apparent why the number of 1-year olds tested in 2010 would have decreased. During the current year, the Health Department will work with key stakeholders to emphasize the importance of testing both 1- and 2-year olds and to continue to work to identify and overcome barriers to achieving universal screening.

Figure 2



Vermont has also seen a decrease in the number of children screened who have a lead level greater than 10 micrograms per deciliter as shown in Figure 3. In 2010, screening showed that 1.8% of 1-year olds, and 1.3% of 2-year olds tested had blood lead levels of  $\geq 10 \mu\text{g/dL}$ . This is a marked improvement since 1997 when 6.6% of 1-year olds and 10.7% of 2-year olds were found to have elevated blood lead levels. Nevertheless, until all young Vermont children are screened for lead, there is cause for concern about undetected exposure to this environmental risk.

Figure 3



Historically, a number of barriers to testing have been identified. When surveyed, providers have indicated that difficulty obtaining blood samples from infants and young children poses a barrier to testing. Fortunately, new testing methods have made screening easier for young children and providers. For example, blood can now be collected on filter paper, rather than a tube or pipette. Providers have also voiced concerns about inadequate cost reimbursement for lead screening and a lack of insurance coverage for the procedure. There have also been some inaccurate beliefs about who is at risk for lead poisoning and who is not at risk. Finally, parental opposition to testing poses another barrier to universal testing. Because lead screening of 1-and 2-year olds is a nationally recognized standard of pediatric care, Vermont's new requirement that providers test children is consistent with this standard. The Health Department's efforts to educate providers and parents about the health risks of lead are discussed below.

## **Education and Outreach Activities to Prevent Lead Poisoning**

The Vermont Department of Health has an array of lead education and outreach activities targeted to multiple audiences and designed to prevent lead poisoning and support case management for children with elevated blood lead levels. Some activities are ongoing, while others are special or one-time efforts. These efforts are expected to improve testing rates significantly and decrease the number of children who have any detectable level of lead in their blood.

### **Ongoing Activities**

- Postcards are sent to all Vermont families of 10-month old children (5,200 postcards in 2010) and 22-month old children (5,476 postcards in 2010) to encourage blood lead testing.
- Educational materials and testing recommendations are sent to parents whose child has a blood lead level in the range from 5 µg/dL through 9 µg/dL (683 packets in

2010). The materials include a request form for a free dust wipe kit that enables families to send floor and windowsill dust samples to a laboratory to test for lead. Lab results are sent directly back to the families accompanied by appropriate lead literature.

- All children with a confirmed blood lead level of 10 µg/dL or greater are visited by a Health Department case manager. In 2010, the Childhood Lead Poisoning Prevention Program case manager performed 42 home visits, and distributed educational materials to 55 adjacent properties.
- Health Department district office programs encourage parents to make sure their children are screened. The Early and Periodic Screening, Diagnosis and Treatment (EPSDT) program routinely sends letters advising parents that age-appropriate screening tests are recommended and covered by Medicaid. At WIC visits for 1- and 2-year olds, WIC staff give parents lead fact sheets, and remind parents to have children tested at the 12-month and 24-month Well Child visits with their health care provider. As a back-up measure, children in WIC who are not tested by their providers at 12- and 24-months may be screened by district staff at their 18- and/or 30-month WIC appointments.
- The Health Department's Childhood Lead Poisoning Prevention Program and Maternal and Child Health Division are working closely with the leadership of the Vermont Chapters of the American Academy of Pediatrics and the American Academy of Family Physicians to improve blood lead screening rates and reduce childhood lead poisoning. Strategies to promote universal blood lead screening of 1- and 2-year-olds include articles in newsletters (written and electronic), educational materials for providers and parents at annual chapter meetings, targeted mailings and electronic messages to announce lead initiatives affecting health care providers, and outreach and education materials for peer to peer education.

### Special Activities

- Newsletters were sent to Vermont families living in at-risk neighborhoods (where lead poisoning has been documented) when their children are 6- months old (1,973 newsletters in 2010), and again when they are 9-months old (1,858 newsletters in 2010) to increase awareness of lead hazards, provide tips on living lead safe, and encourage lead screening.
- In 2010, the Health Department successfully implemented a lead screening registry module within the existing Vermont Immunization Registry. This new feature gives health care providers quick access to their patients' blood lead results. This project was initiated in 2009 and required considerable Information Technology development and data cleaning to ensure that the blood lead information transferred between systems is accurate and de-duplicated. The registry not only allows health care providers ready access to their patients' blood lead results, but allows the Health Department to monitor lead screening rates by practice.
- In 2010, the Health Department Laboratory acquired new equipment for analysis of blood lead samples collected on *filter paper*. For this method of analysis, blood is collected by finger stick onto special paper instead of in a tube. Some health care providers find this method easier to use when drawing blood from young children. A study in Kansas has demonstrated a six-fold increase in the number of lead screens obtained by using filter paper testing. Having an additional choice of collection methods is expected to improve blood lead testing rates.
- In 2010, a grant was awarded to the Vermont AAP to increase lead testing rates in pediatric practices, by identifying, educating, and purchasing in-office lead testing machines known as *Lead Care II* for practices that are interested in attempting to increase their lead testing rates. The grant also supports peer to peer education with the goal of further reducing known barriers to blood lead screening.
- A dust wipe kit project, designed as a true prevention effort, was piloted in 2009 focusing on pregnant women and families receiving WIC assistance whose children were 6 months of age. In 2010, the project has grown to include families with

children under a year of age. By identifying lead in dust before a child is crawling or walking, families can take steps to remove or minimize exposure to lead dust hazards. This project was supported by the Attorney General's Office using funding from a settlement in a consumer products case.

- Dissemination of a child's book titled *Henry and Fred Learn about Lead* began in 2009 and continued in 2010. Initially, every public library, every Head Start classroom, every Parent Child Center, and every WIC waiting area received copies of the book. In 2010, several primary care practices received 100 copies each for distribution to their patients, a Building Bright Futures coordinator received 125 copies to distribute in children's "gift bags," two Head Start home visitor programs received copies for distribution at home visits, and the Lead Program case manager regularly provided copies to families as she conducted environmental investigations and home visits. The book and a video are available at <http://www.healthvermont.gov/enviro/lead/index.aspx>
- A new poster was developed for use during National Lead Poisoning Prevention Week in October 2010. The poster was designed to include both the Prevention Week theme—*Lead-Free Kids for a Healthy Future*—and more generic messages that would allow the poster (available in multiple sizes for different settings) to continue to be used after this special week. Poster graphics complement other lead educational materials to provide a consistent visual theme for our target audience of families with young children and pregnant women.
- As a special outreach effort during National Lead Poisoning Prevention Week, a letter signed by the commissioner of health and the state epidemiologist for environmental health, accompanied by lead resource materials, was sent to 421 pediatricians and family physicians in Vermont. The mailing included the aforementioned lead poster and information about the lead module of the Immunization Registry and how to sign up to use it.

### **Activities Related to Essential Maintenance Practices (EMPs)**

- Lead Poisoning Prevention staff developed a training module for Town Health Officers entitled *Lead, Unsafe Work Practices, EMPs & the THO*. The module was presented as a teleconference with an accompanying Power Point presentation. The Power Point presentation and podcast are posted on the Health Department web site at [http://www.healthvermont.gov/local/tho/documents/THO\\_presentation\\_leadconstruction\\_031710.pdf](http://www.healthvermont.gov/local/tho/documents/THO_presentation_leadconstruction_031710.pdf) The Power Point presentation received 3,498 hits.
- In an effort to reach out to students of the building trades, EMP classes were conducted at two career and technical centers (Bennington and Canaan).
- Throughout 2010, Lead Poisoning Prevention Program staff worked with a contractor to develop an electronic filing system for Essential Maintenance Practices Compliance Statements. The system is slated to be deployed in 2011. A demonstration of the new filing system at the December meeting of the Lead Poisoning Prevention Committee was well-received.

### **Estimates of Public and Private Costs**

It is difficult to estimate the costs incurred since 1993 by the public and the private sector to prevent, correct, and treat lead poisoning. With regard to the private sector, the Childhood Lead Poisoning Prevention Program (CLPPP) uses the following algorithm to estimate the costs incurred by landlords to ensure their rental properties comply with Essential Maintenance Practices (EMP). CLPPP assumes that among the 3,695 rental properties and child care centers for which EMP affidavits were filed in 2010, 25% of these properties were in good condition, 50% were in fair condition, and 25% were in poor condition. Further, CLPPP assumes that properties in good condition require \$200 in annual maintenance costs to comply with EMP requirements; properties in fair condition require \$340 in annual maintenance costs; and properties in poor condition require \$520 in annual maintenance costs. Using this formula, the amount spent for these properties in 2010 is estimated to be \$1,293,250.

First-time filing of a compliance statement likely incurs start-up costs to bring a property into compliance (e.g., installing window well inserts and buying a HEPA vacuum).

Approximately 608 properties filed a compliance statement for the first time in 2010.

This assumes an average of \$625 for each new property being brought into compliance.

Additional start up costs for new properties being brought into compliance is \$380,000.

Therefore, a conservative estimate for the total cost to landlords for all properties that complied with the Lead Law in 2010 is \$1,673,250.

In the public sector, the Childhood Lead Poisoning Prevention Program expended about \$364,492 received from the CDC in 2010, the Vermont Housing and Conservation Board expended about \$1,000,000 from the Department of Housing and Urban Development (HUD) in 2010, and the Burlington Lead Program expended about \$500,000. Therefore, about \$1,864,492 in federal funds was spent on reducing lead poisoning in 2010.

In addition, a study completed by Dartmouth College as part of the *Get the Lead Out of Vermont* Task Force Report in 2006 estimated direct health care costs of all children with elevated blood lead levels at \$51,814 per year, and special education costs at \$219,841 a year (considered to be an underestimate because special education costs were calculated only for those children with blood lead levels 25 µg/dL or greater). The Dartmouth report also estimated more than \$79 million per year in lost future earnings of children whose blood lead levels are 5 µg/dL or greater.

Screening costs incurred by families, insurers and providers are not represented in these cost estimates.

## **Future of Vermont's Lead Program**

Since 1993, Vermont's Childhood Lead Poisoning Prevention Program has been supported by federal funds from the Centers for Disease Control and Prevention. This federal program and its funding will end in June, 2011. The CDC is transitioning these funds to a new program called Healthy Homes and Lead Poisoning Prevention. The

funding for Healthy Homes and Lead Poisoning Prevention cooperative agreement is competitive, and Vermont has submitted a funding proposal to address three environmental health issues: (1) reduction of lead exposure and poisoning, (2) reduction of asthma triggers and (3) strengthening Vermont's corps of Town Health Officers to improve the safety of rental housing. Absent this funding, Vermont will need to think creatively about how to operationalize new strategies for continued work to prevent lead poisoning.

## **Conclusion**

In 2010, the Health Department demonstrated our ongoing commitment to universal lead screening of all 1- and 2-year old children through efforts to educate and facilitate testing with provider practices, education and outreach targeted to families with young children, training Town Health Officers and the many other efforts to identify and overcome barriers to universal screening described above. These efforts are expected to result in continued improvement and measureable progress toward universal testing and the prevention of lead poisoning in Vermont.