



Lead Poisoning Prevention: Report on 2024 Program Outcomes and Activities

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In Accordance with 18 V.S.A. § 1756

Submitted to: Vermont General Assembly

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Executive Summary

This annual report on the status of childhood lead poisoning prevention is submitted pursuant to 18 V.S.A. § 1756. The data reflected in this report is from January 2024 through December 2024.

The mission of the Vermont Department of Health's Healthy Homes Lead Poisoning Prevention Program (Program) is to improve the health and safety of all Vermont home environments through surveillance, collaboration, education, and implementation of comprehensive policies and coordinated programmatic activities. The Program conducts a variety of lead education and outreach activities that are designed to prevent lead poisoning, encourage lead testing of 1- and 2-year-olds to meet the state's universal testing requirements, and support case management for children with elevated blood lead levels.

Vermont made progress in 2024 increasing blood lead testing among children under 6 years old. The percentage of children under 6 years old who were tested increased slightly from 9,958 (29.9%) in 2023 to 10,116 (31.0%) in 2024. The percentage of 1-year-olds tested increased from 86.3% in 2023 to 88.3% in 2024. The percentage of 2-year-olds tested remained unchanged from 82.6% in 2023 to 82.4% in 2024. Testing rates are at an all-time high.

Despite increased testing, remediation, and outreach efforts, lead is still a concern among children in Vermont. In 2024, 10,116 Vermont children under the age of 6 were tested for lead and lead was detected in 10.5% (n=1,067). Less than half of those (n=440) had levels greater than or equal to 3.5 micrograms per deciliter ($\mu\text{g}/\text{dL}$), the national blood lead reference value.¹

Overall, among 1-and 2-year-olds tested, 854 (9.3%) had some level of lead detected in their body. Among 1-year-olds tested (n=4,586), 10.4% (n=479) had elevated blood lead levels.² There were 206 (4.5%) 1-year-olds with blood lead levels greater than or equal to 3.5 $\mu\text{g}/\text{dL}$. Among 2-year-olds tested (n=4,579), 375 (8.2%) had elevated blood lead levels. There were 138 (3.0%) 2-year-olds who had blood lead levels greater than or equal to 3.5 $\mu\text{g}/\text{dL}$.

In 2024, the Program prioritized the following activities: conducting outreach, environmental investigations, and case management for families with children who have confirmed elevated blood lead levels; partnering with the U.S. Department of Housing and Urban Development (HUD)-funded partners to reduce lead hazards in the homes of lower-income families; increasing compliance with Vermont's lead law among rental property owners to

¹ The Centers for Disease Control and Prevention (CDC) uses a blood lead reference value (BLRV) of 3.5 micrograms per deciliter to identify children with blood lead levels that are higher than most children's blood levels.

² Vermont's Blood Lead Screening, Reporting, and Response Rules defines "Elevated Blood Lead Level" as having a blood lead level of greater than zero micrograms per deciliter of human blood.

address lead hazards before a child is poisoned; collaborating with Vermont Child Health Improvement Program (VCHIP) to improve testing rates among health care professionals; and providing educational outreach to parents of young children, emphasizing the importance of lead testing.

Introduction

The Vermont Department of Health (Department) submits this report regarding its 2024 childhood lead poisoning prevention efforts pursuant to 18 V.S.A. § 1756. This annual report documents the Department's efforts over the past year, January 2024 through December 2024, to detect and prevent lead poisoning in young children. It presents the latest data on the number and percentage of Vermont children younger than 6 years old who have been tested for lead, with a particular focus on universal testing of 1- and 2-year-olds. (The data focuses more heavily on tests for 1- and 2-year-olds because Vermont's 3- to 6-year-old children are only required to be tested if they did not receive a lead test previously.) Updated historical data on testing rates are also presented. In addition, the report describes 2024 outreach and educational activities intended to improve testing rates and provides estimates of the annual public and private costs incurred in 2024 to prevent lead poisoning.

Measuring Progress

Testing young children for lead in blood is a critical step in the process of reducing the incidence of elevated blood lead levels. Generally, a child's exposure to lead can easily be identified through testing, and appropriate interventions can be initiated to prevent further exposure to this harmful toxicant. In addition, testing helps inform the development of lead poisoning prevention policies by giving the Department the opportunity to track statewide trends in childhood exposure to lead. Per 18 V.S.A. §§ 1755 and 1757, all health care providers in Vermont must test all Vermont children at 12 months and again at 24 months and all Vermont children 36 to 72 months who have not been previously tested.

To calculate annual blood-lead testing rates, the Department divides the number of tests performed by the total number of Vermont children in each age group (i.e., under 1, 1-year-olds, 2-year-olds, etc.). The tables and figures use the 2024 population estimates for Vermont children in each age group.

To calculate the number of children with lead in their bodies, we add the total number of children with detected venous blood lead test results and a percentage³ of children with

³ This percentage, called K factor is based on the historically observed rate of capillary test results found to be elevated upon confirmation with venous retesting.

detected capillary test results. This method was used in 2023 for the first time and is a more accurate way to estimate the number of Vermont children with lead in their bodies.

Table 1 presents 2024 data on the estimated number of young children who were tested for lead and the results of those tests.

Table 1. Blood Lead Tests and Results⁺ for Vermont Children ages 0 – 5 years, 2024

Age	Population [^]	# of Tests	No Lead Detected	<3.4 µg/dL	3.5 to 4.9 µg/dL	≥5 µg/dL
Under 1	5,028	45 (0.9%)	35 (77.5%)	6 (13.5%)	*	*
1	5,194	4,586 (88.3%)	4,107 (89.6%)	273 (5.9%)	91 (2.0%)	115 (2.5%)
2	5,559	4,579 (82.4%)	4,204 (91.8%)	237 (5.2%)	59 (1.3%)	79 (1.7%)
3	5,307	455 (8.6%)	350 (76.8%)	56 (12.3%)	20 (4.5%)	29 (6.5%)
4	5,706	280 (4.9%)	218 (77.9%)	38 (13.6%)	12 (4.4%)	12 (4.1%)
5	5,799	171 (2.9%)	136 (79.3%)	18 (10.4%)	*	*
Total	32,593	10,116 (31.0%)	9,049 (89.5%)	627 (6.2%)	191 (1.9%)	249 (2.5%)

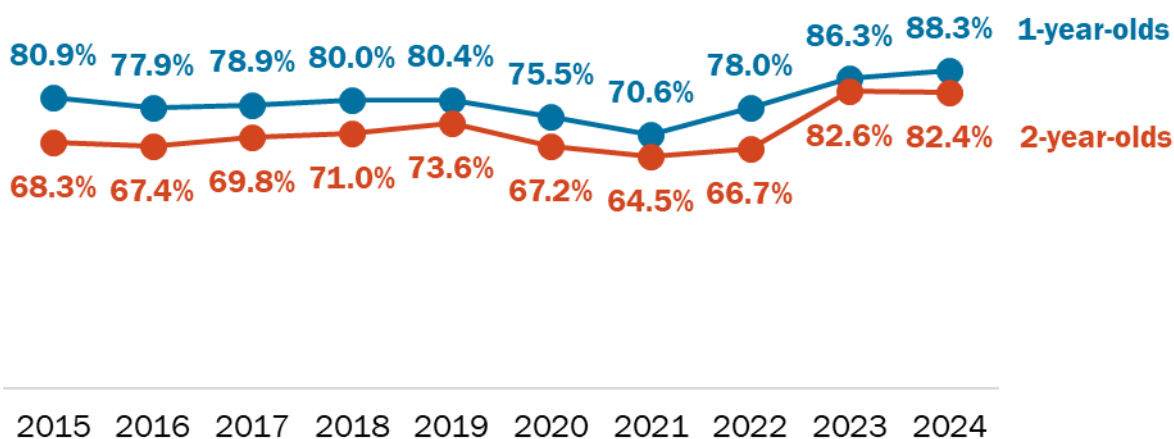
+ Estimated counts and percentages are based on a total number of children with detected venous blood lead tests plus a proportion of children with capillary tests. Due to the estimation methodology and rounding, totals and percentages may not sum precisely.

[^] Population is the 2024 single year of age Vermont population estimates.

* Indicates fewer than six cases in a category that year. A cell may also be suppressed when row and column totals are provided to prevent the computation of the cell with fewer than five cases. Suppression of small numbers ensures confidentiality and data reliability.

Ages: Under 1 year = less than 11 months, 1 year = 11-22.99 months, 2 years = 23-34.99 months, 3 years = 35-46.99 months, 4 years = 47-58.99 months, 5 years = 59-71.99 months.

Figure 1*: Percent of 1-Year-Old and 2-Year-Old Vermont Children Tested for Lead

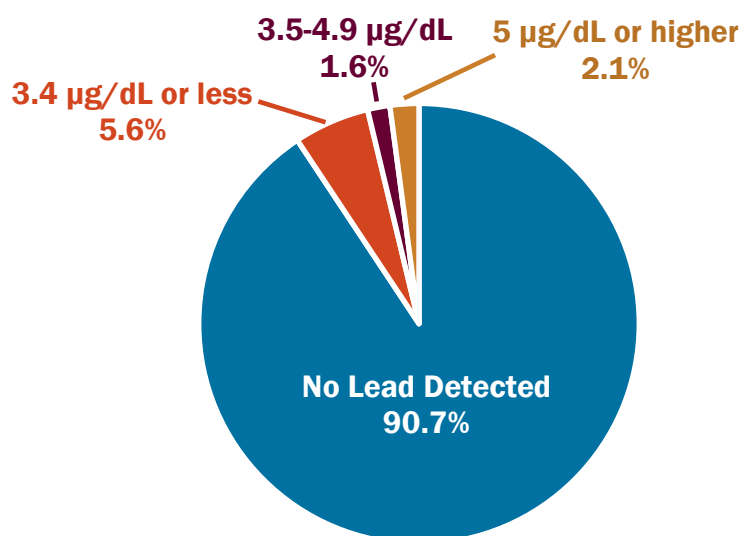


*This graph was recalculated using Vermont population estimates for individual years as the denominator instead of averaging the population from the previous three years; therefore, it cannot be directly compared with annual testing graphs in annual legislative reports prior to last year's report, *Lead Poisoning Prevention: Report on 2023 Program Outcomes and Activities*, published December 2024.

Figure 1 shows the percentages of 1- and 2-year-olds tested over the last 10 years. The percentages of 1-year-olds tested increased, and 2-year-olds stayed the same in 2024.

- The percentage of 1-year-olds tested statistically significantly increased from **86.3% in 2023** (95% confidence interval [85.3,87.2]) to **88.3% in 2024** (95% confidence interval [87.4,89.2]) in 2024.
- The percentage of 2-year-olds tested remained statistically significantly unchanged from **82.6% in 2023** (95% confidence interval [81.6,83.6]) to **82.4% in 2024** (95% CI [81.4,83.4]).

Figure 2*: Blood Levels Among Vermont Children Tested Ages 1 and 2 Years in 2024



*The method used to calculate blood lead levels differs from previous years, therefore, data in this chart cannot be directly compared to data in annual legislative reports prior to last year's report, *Lead Poisoning Prevention: Report on 2023 Program Outcomes and Activities*, published December 2024.

Figure 2 shows the breakdown of blood lead levels of 1- and 2-year-olds combined from January 2024 through December 2024. Overall, 854 (9.3%) had some level of lead detected in their body.

Barriers to Universal Testing

Vermont law (18 V.S.A. § 1755) requires blood lead testing of all 1- and 2- year-olds, otherwise known as universal testing. Lead testing of 1- and 2-year-olds is a nationally recognized standard of pediatric care, and Vermont's universal testing requirement is consistent with this standard. Until 2023, blood lead testing rates had never reached higher than 82% among 1-year-olds and 74% among 2-year-olds. Testing rates reached an all-time high in 2023 that continued in 2024 with 88% of 1- year-olds and 82% of 2-year-olds getting tested for lead.

Barriers to universal blood lead testing have included challenges with data reporting, the lack of in-office testing at some healthcare practices, and delays caused by missed visits. To address these key barriers, the Program is actively collaborating with healthcare providers to:

- Ensure procedures are in place for timely and routine transmission of blood lead test results to the Department;

- Encourage the adoption of in-office blood lead testing; and
- Confirm systems are in place to identify and follow up with patients who have missed a blood lead test.

2024 Education, Outreach and Actions Taken

Outreach and support for health care professionals and education to the public is an integral part of the Program's work. The Program conducts a variety of lead education and outreach activities intended for families with young children and healthcare providers that are designed to prevent lead poisoning, encourage lead testing of 1- and 2-year-olds, and support case management for children with high blood lead levels. Listed below is a sample of education, outreach and actions taken by the Program in 2024.

Programmatic Activities and Outreach

- Conducted outreach during Lead Poisoning Prevention Week (October 20-26, 2024) using the *How Would You Know?* campaign materials and Halloween-themed poster and video on our social media channels.
- Referred families to HUD-funded partners (Vermont Housing Conservation Board and Burlington Lead Program) to reduce lead hazards in the homes of lower-income families.

Targeted Education

- Called, texted, or mailed 399 families with children who had any venous detected level of lead and provided lead poisoning prevention education materials.
- Provided 141 environmental investigations, educational home visits and follow-ups for families of children with venous blood lead levels of 5 µg/dL or greater, the level at which the Program offers a home visit.
- Mailed 9,606 postcards to families with 10-month-old children and 22-month-old children who were born in Vermont, reminding them to have their children tested for lead.
- Mailed 1,825 packets including educational materials and follow-up testing recommendations to families whose children had any detected capillary blood lead level.
- Provided lead education to 34 callers.

Testing Outreach

- We continued to partner with VCHIP to promote proper adherence to the blood lead testing guidelines, help healthcare practices achieve high lead testing rates, and improve reporting rates of lead testing results. VCHIP offered the following peer-to-peer support and strategies to healthcare practices:
 - Provided outreach to 22 healthcare practices (family, pediatric, and naturopathic) by promoting adherence to testing guidelines, addressing barriers to universal testing, and offering quality improvement opportunities.
 - Leveraged relationships with Blueprint Quality Improvement Facilitators and Family and Child Health Coordinators (FCHCs) by discussing declining lead testing rates and supporting outreach to healthcare practices.
- Healthy Homes Designees (staff members in the 12 District Offices of the Vermont Department of Health who spend a portion of their time carrying out lead prevention activities) provided Women Infant Children (WIC) staff education on the importance of blood lead testing in accordance with [Vermont Pediatric Blood Lead Testing and Treatment Guidelines](#) and made referrals to medical homes for blood lead testing to WIC children who were overdue for blood lead testing, needed venous confirmation, or needed a venous retest.

Planned Activities and Recommended Actions

The Program will continue with efforts to reduce lead poisoning by making homes safer for children and increasing blood lead testing rates for 1- and 2-year-olds. This is achieved through educating parents, providing technical assistance to health care professionals, and enforcing the lead testing rules.

Specific activities for the Program to increase testing rates include:

- Continue to send reminder postcards with lead testing information to all families whose children were born in Vermont and are ages 10 and 22 months.
- Continue to work with healthcare practices to address barriers to universal blood lead testing.
- Create and disseminate annual practice reports on blood lead testing for all healthcare practices in Vermont who have 20 or more 1- and 2-year-old patients.
- Continue to connect VCHIP with healthcare practices to promote proper adherence to the blood lead testing guidelines, help healthcare practices achieve high lead testing rates, and improve reporting rates of lead testing results.

- Refresh the “How Would You Know?” digital campaign that targets parents of 1- and 2-year-old children to increase awareness of the importance of lead testing.
- Support local health office staff who educate the public about lead poisoning prevention; encourage their area healthcare providers to perform lead testing; and educate families enrolled in WIC about the importance of lead testing and provide referrals to primary care providers when a child is identified as overdue.

General activities for the Program include:

- Continue to provide outreach, conduct environmental investigations, and provide case management to families with children that have confirmed elevated blood lead levels.
- Add lead poisoning, testing, and housing information that includes geographic information system (GIS) maps featuring areas of elevated blood lead levels, older housing stock, and low-income status to the Environmental Public Health Tracking portal.
- Create lead prevention outreach videos aimed at building awareness among refugee and immigrant communities.
- Continue to collaborate with the Department’s Asbestos and Lead Regulatory Program to educate rental property owners and childcare facilities on the requirements of the Vermont regulations pertaining to lead exposure.
- Maintain and expand partnerships with internal and external partners, such as:
 - Vermont Housing and Conservation Board
 - Burlington Lead Program
 - Vermont Child Health Improvement Program
 - Environmental Public Health Tracking Program
 - Asthma Program
 - Asbestos and Lead Regulatory Program
 - Office of Local Health and WIC

Estimates of Public and Private Costs

The public costs incurred to prevent, correct, or treat lead poisoning were spent by the following entities: the Vermont Department of Health’s Healthy Homes Lead Poisoning Prevention Program spent an estimated \$554,175 in fiscal year 2024, the Vermont Housing and Conservation Board and the Burlington Lead Program report a public spend of an estimated \$1,585,934 for lead poisoning prevention and an estimated \$913,864 in Lead

Hazard Control funds, respectively.⁴ Combined, these organizations spent an estimated \$3,053,973 to reduce lead poisoning in 2024. This amount is down from 2023 (\$3,404,283), but up from 2022 (\$2,363,625).

Due to the complex analysis needed to estimate the private costs incurred to prevent, correct, and treat lead poisoning, it is infeasible for the Department of Health to provide this estimate at this time.

Appendix: Statute

18 V.S.A. § 1756. Annual report

- (a) The Commissioner shall, at least annually, analyze and summarize all aggregate lead screening and testing information provided by physicians, health care facilities, and laboratories and provide this information to all other local and State agencies involved with case management and lead hazard reduction.
- (b) The Commissioner shall also, at least annually, provide to the General Assembly, the health community, and the general public an analysis and summary of such data and a progress report on the Commissioner's efforts to prevent lead poisoning in young children in a format that is easily understandable to nontechnical readers. The report shall include:
 - (1) The number and percentage of children under the age of six who have been screened and tested for lead poisoning and the number found to have lead poisoning at various levels.
 - (2) Estimates of the public and private costs incurred since July 1, 1993, to prevent, correct, or treat lead poisoning.
 - (3) An analysis of barriers to universal blood screening of children under the age of six years.
 - (4) The Commissioner's recommendations for action. (Added 1993, No. 94, § 3.)

⁴ The Vermont Housing and Conservation Board and the Burlington Lead Program receive federal funding directly from HUD.