Report on Maine's Progress Toward Eradicating Childhood Lead Poisoning by 2030

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Submitted by The Department of Health and Human Services
Maine Centers for Disease Control and Prevention

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Executive Summary

Title 22 chapter 252, Lead Poisoning Control Act, is the State's longstanding authority to take action to protect the public from lead poisoning and includes the current goal of the State which is to eradicate childhood lead poisoning by the year 2030 through the elimination of potential sources of environmental lead. Maine is seeing progress towards its goal through the continued efforts to identify more housing units with lead hazards which can be made lead safe for children and to identify more lead-exposed children. Efforts are furthered by the increase in resources available to support lead abatement. While trends indicate that the goal to eradicate childhood lead poisoning by 2030 is likely not achievable, this report includes recommendations aimed at accelerating progress under the current public health model of testing children to find housing with lead hazards to be made lead safe and for proactively addressing lead in Maine's housing supply to reduce the likelihood children would be exposed to lead.

Introduction

This report was prepared for the Maine Legislature's Committee on Health and Human Services, pursuant to 22 MRSA §1314-A which directs the Department of Health and Human Services (the Department) to submit a report covering: 1) progress made toward achieving the goal of eradicating child lead poisoning by the year 2030; and 2) recommendations the Department may have to revise the goal along with any necessary legislation.

The goal to eradicate childhood lead poisoning by 2030 was established in statute by Public Law 2019 chapter 479, introduced to the 129th Maine State Legislature as LD 1116 and enacted as amended. The legislation extended the 2010 target date previously established in Maine's Lead Poisoning Control Act (LPCA). The updated 2030 goal was a response to two amendments to the LPCA enacted in 2019 and 2015 which were both intended to accelerate the State's progress towards eradicating childhood lead poisoning by identifying more housing units with lead hazards and making them lead safe for children. Specifically, the amendments were designed to:

- Identify more lead-exposed children by expanding Maine's requirements to test children for lead exposure to include all children at ages 1 and 2 years; and
- Identify more housing units with lead hazards by lowering the level of lead measured in a child's blood (called a blood lead level) at which the Department will inspect housing to identify and abate lead hazards.

This report describes Maine's progress in the 2005 mandate to support communities with primary prevention of lead poisoning, progress made in the 2015 mandate to increase home lead inspection activity and abatement of identified lead hazards, and progress made toward the 2019 mandate for universal blood testing of 1- and 2-year-old children. The Department believes that despite strong progress on these statutory mandates, it is unlikely that these efforts alone will result in the eradication of childhood lead poisoning by 2030.

This report reviews how the Department is poised to continue making progress toward eradicating lead poisoning and presents options for accelerating progress under the current public health model of testing children to find housing with lead hazards that then can be made lead safe. This report also proposes exploring strategies that would strike at the root causes of lead poisoning and proactively address lead in Maine's housing supply to reduce the likelihood children would be exposed to lead.

Background

Lead poisoning is one of the major environmental health threats for children in Maine, and it is preventable. In young children, exposure to lead causes brain damage that can result in learning and behavioral problems. There is now national scientific consensus that there is no safe level of lead in a child's body.

Lead Poisoning is a public health and housing issue. Lead poisoning in Maine remains primarily a consequence of exposure to old lead paint found in older housing. Lead paint that is chipping, peeling, cracking, or disturbed due to normal wear and tear, damage, lack of maintenance, or repairs and renovations turns into lead dust. Ingesting this lead dust is the most common cause of childhood lead poisoning in Maine. Lead dust settles on surfaces such as floors and windowsills—places where young children crawl, play, put their toys, look outside, and set down bottles and pacifiers. Young children, especially those between nine months and three years of age are at highest risk for exposure to lead dust due to their hand-to-mouth behavior, crawling or spending time playing on the floor, and developing brains.

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Profile of Children with Lead Poisoning in Maine[1]
· 87% live in housing built before 1950
· 79% live in housing with identifiable lead paint hazards
· 73% are enrolled in MaineCare
· 69% live in rental housing
· 38% live in housing where a recent renovation has occurred
· Children who have unusual oral behavior tend to have higher blood lead levels (i.e. >10 µg/dL)

Some, but not all, of the data found in this report related to blood lead testing and children with lead poisoning may be found and explored further through the Maine Tracking Network, a web-based public health data portal. Users can find the data about lead poisoning, blood lead testing, children living in poverty and pre-1950 housing and create customized maps and reports showing data for the State as well as Maine's towns, high-risk areas, and counties.

Access the Maine Tracking Network: https://data.mainepublichealth.gov/tracking/lead

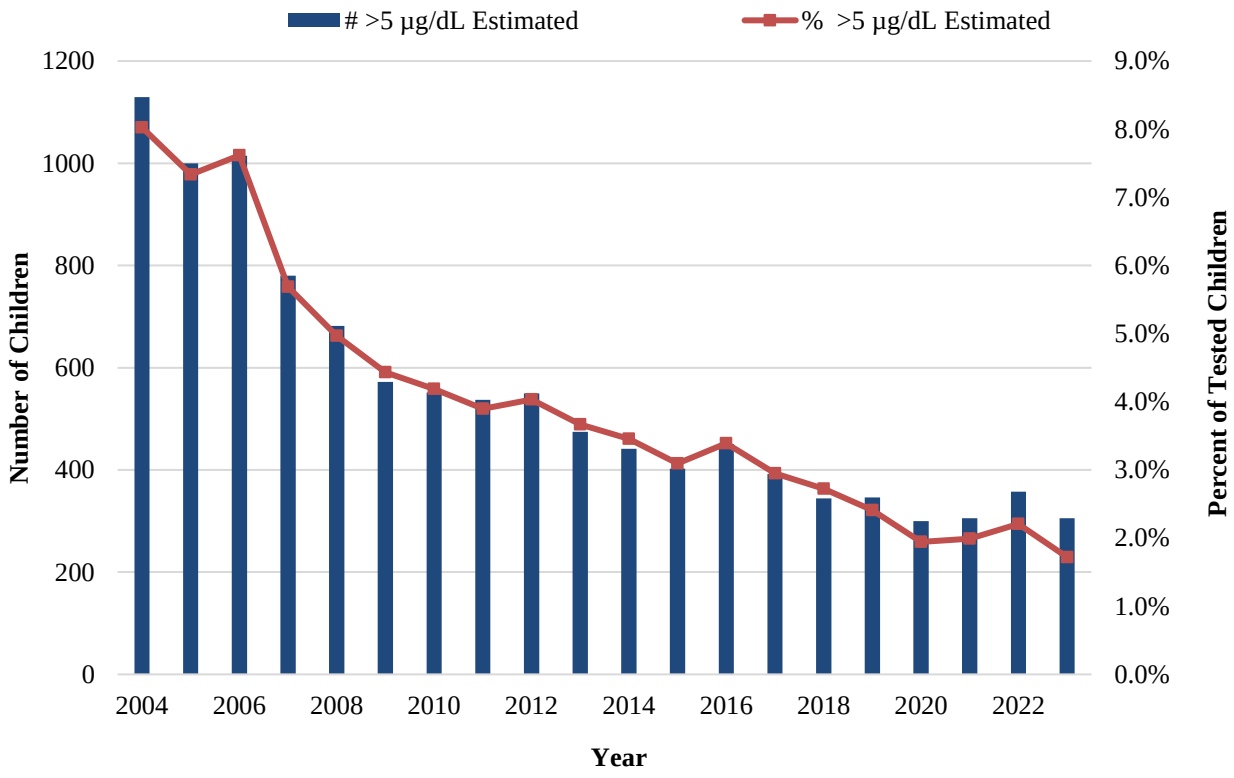
[1] Cluett R., Fleisch A., Decker K., Frohmberg E., Smith A.E. Findings of a Statewide Environmental Lead Inspection Program Targeting Homes of Children with Blood Lead Levels as Low as 5 µg/dL. Journal of Public Health Management and Practice. 2019;25:S76-S83. https://journals.lww.com/jphmp/Fulltext/2019/01001/Findings_of_a_Statewide_Environmental_Lead.13.aspx

Progress Toward Eradicating Childhood Lead Poisoning in Maine

In 2019, Maine established a new statutory goal to eradicate childhood lead poisoning by the year 2030, updating the prior goal of 2010 established in 1991. Maine continues to make progress in reducing lead poisoning, but current trends indicate that it is unlikely the State will meet its goal in the next five years.

Figure 1 below shows how the Department tracks progress towards the goal of eradicating lead poisoning by measuring trends in number of children under 6 years of age with a newly identified blood lead level of 5 µg/dL or higher as well as the percentage of children with a blood lead level of 5 µg/dL or higher among children that were tested. Under Maine's Lead Poisoning Control Act (LPCA), a lead poisoned child is defined as a child up to age 6 years with a confirmed blood lead level of 5 µg/dL or higher (22 MRS § 1315.5-C). In 2023, the most recent year data available, an estimated 300 children, or 1.7% of tested children, had a blood lead level meeting Maine's statutory definition of lead poisoning. While the general trend over the past two decades is a decline in lead poisoning, if current trends continue, there will be approximately 200 lead poisoned children in the year 2030.

Figure 1. Trends in the estimated number and percentage of children less than 6 years of age with blood lead levels > 5 µg/dL, 2004-2023



Over the past two decades, rates and counts of children with lead poisoning have decreased steadily and significantly, but current trends indicate that meeting the goal of eradicating childhood lead poisoning by 2030 is unlikely.

Challenges in Tracking Childhood Lead Poisoning and Interpreting Trends

Figure 1 above displays the Department's best methods for tracking childhood lead poisoning over time. In considering these data, it is important to note that there is a dynamic relationship between progress on improving blood lead testing rates and the number of newly identified children with lead poisoning. As shown in Figure 1, the estimated number of children with lead poisoning has remained about the same since 2019 which results in the appearance of lack of progress. The Department believes this observation is largely a result of the successful implementation of an amendment to the LPCA which expanded Maine's testing requirements to include all children at ages 1 and 2 years beginning in 2019 (see page 7 for a detailed discussion of increasing testing rates in Maine). Testing rates have increased significantly over the past five years which has resulted in Maine becoming more effective in finding children with lead poisoning. Simply put, it would appear that our progress in reducing lead poisoning is being offset by our progress in improving blood testing rates and finding lead poisoned children.

A common public health practice to account for changing testing rates is to evaluate trends in the percentage of lead poisoned children among those tested (the red trend line in Figure 1). Progress is monitored by evidence of a dropping percentage, indicating a reduction in risk of lead poisoning among the tested population. However, if testing rates increase disproportionately among a population of children who are at lower risk of lead poisoning, the percentage measure could decrease for this reason alone rather than any actual change in the underlying risk of lead poisoning.

The Department discussed these measurement challenges in tracking childhood lead poisoning in its 2019 Report to the Legislature. The apparent recent slowing in the rate of decline of lead poisoning is therefore not entirely surprising and is to be expected given the rapid yet unequal changes occurring in testing rates.[2]

[2] Update on Childhood Lead Poisoning Prevention in Maine – 2018. A report to the State of Maine Legislature, Committee on Health and Human Services. Prepared by the Maine Center for Disease Control and Prevention, Maine Department of Health and Human Services. Submitted, January 2019. https://www.maine.gov/dhhs/mecdc/environmental-health/eohp/lead/documents/screening-report-2018.pdf

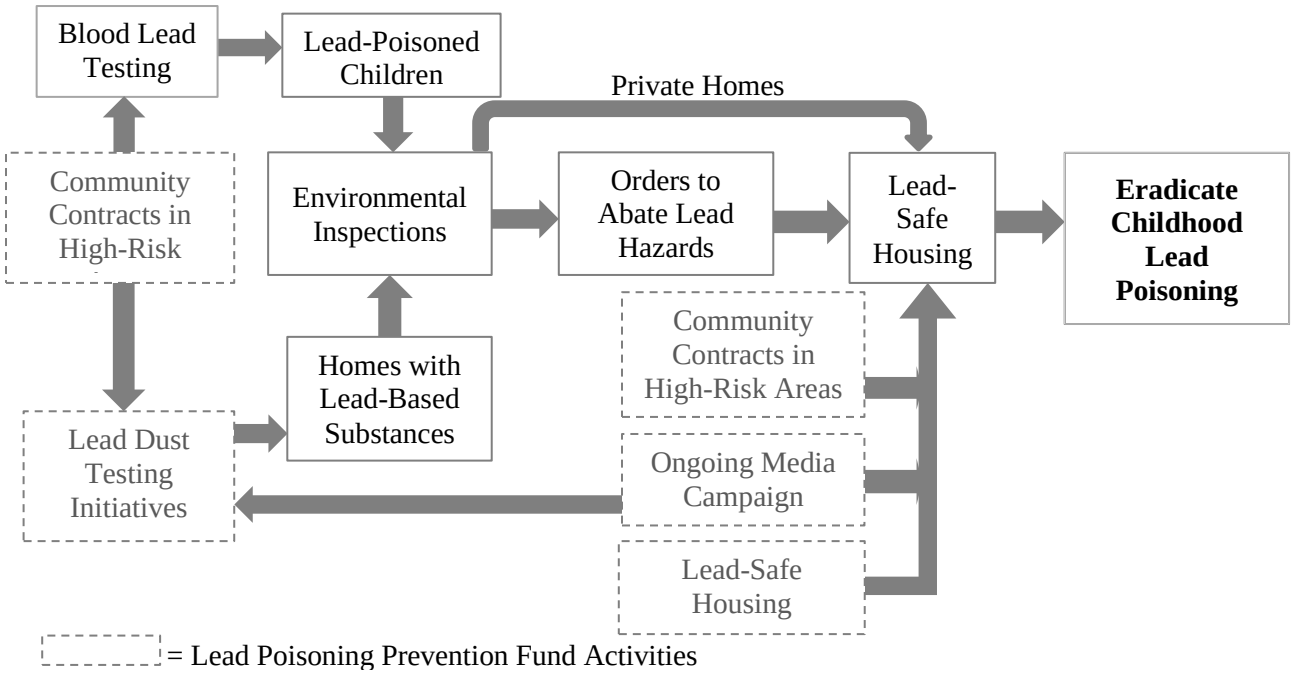
The Lead Poisoning Control Act is Maine's Public Health Approach to Eradicating Childhood Lead Poisoning

The LPCA, 22 MRS §§ 1314-1329, is the statutory foundation of the Department's efforts to prevent and control childhood lead poisoning. It is therefore instructive to review how the LPCA is designed and how it has been amended over the years to better understand the Department's current efforts to eradicate lead poisoning and the recommendations described in the following sections of this report.

The LPCA and its associated rules create a construct of linked public health measures intended to eradicate childhood lead poisoning by:

- Testing children for blood lead to identify children that meet the regulatory definition of lead poisoning;
- Inspecting dwellings for the presence of environmental lead hazards when a lead-poisoned child is identified (for single-family owner-occupied homes, inspections in response to identifying a lead-poisoned child living in the home are discretionary);
- Ordering the removal of environmental lead hazards found in dwelling units to make them lead safe for current and future inhabitants (for single-family owner-occupied homes, the Department may provide technical assistance and guidance in lieu of enforcement); and
- Supporting community-based and statewide primary prevention activities aimed at helping families and property owners take actions to identify potential lead hazards and mitigate exposure to them *before* children are exposed.

F*igure 2. Schematic of the Lead Poisoning Control Act - provides a schematic of the LPCA construct to show the relationship between the law's provisions and its intended outcomes in support of eradicating childhood lead poisoning.*



Amendments to the LPCA to Accelerate Progress in Eradicating Lead Poisoning

In the past two decades, the Maine Legislature has made three major changes to the LPCA, all of which were focused on increasing public health efforts to eradicate lead poisoning.

Establishing the Lead Poisoning Prevention Fund in 2005
In 2005, the Legislature established the Lead Poisoning Prevention Fund (LPPF) under the LPCA (22 MRS § 1322-E-F). The Department is the steward of this dedicated source of revenue that comes from a fee of $0.25 assessed on every gallon of paint sold in the State. The LPPF was specifically designed to create primary prevention activities intended to assist families and landlords with identifying and addressing lead paint hazards *before* a child is exposed and complement the secondary prevention activities in the LPCA (i.e., testing children and identifying lead hazards in their homes). With the resources of the LPPF, the Department has been able to make a long-term investment in lead poisoning prevention in high-risk areas and conduct statewide prevention activities such as lead dust testing initiatives and an ongoing multi-media campaign to increase awareness of lead poisoning and promote blood testing.

Lowering Maine's Definition of Lead Poisoning in 2015
In 2015, the Legislature lowered the State's statutory definition of childhood lead poisoning by linking the definition to the U.S. Center for Disease Control and Prevention's (U.S. CDC) blood lead reference value (BLRV). The BLRV represents an unusually high blood lead level for a child (i.e., it is defined by U.S. CDC as the blood lead level exceeded by only 2.5 percent of U.S. children). The U.S. CDC established a BLRV of 5 µg/dL in 2012 based on the most recent national data.[3] Prior to 2015, the Department by statute linked the definition of lead poisoning to a U.S. CDC blood lead *intervention* level and by rule defined it as a confirmed blood lead level of 15 µg/dL or higher or a persistent level of 10 – 14 µg/dL.

Maine's statutory definition of lead poisoning triggers a series of requirements to inspect the child's dwelling for environmental lead hazards, and if hazards are found, to order the removal of the hazards. The lowering of Maine's statutory definition of lead poisoning resulted in a major increase in the number of children identified as lead poisoned and a major increase in the number of dwellings inspected for lead hazards, ordered to abate lead hazards, and made lead safe. This required a substantial increase in funding for additional staff to coordinate inspection activity, contractors to perform inspections, and associated laboratory services.

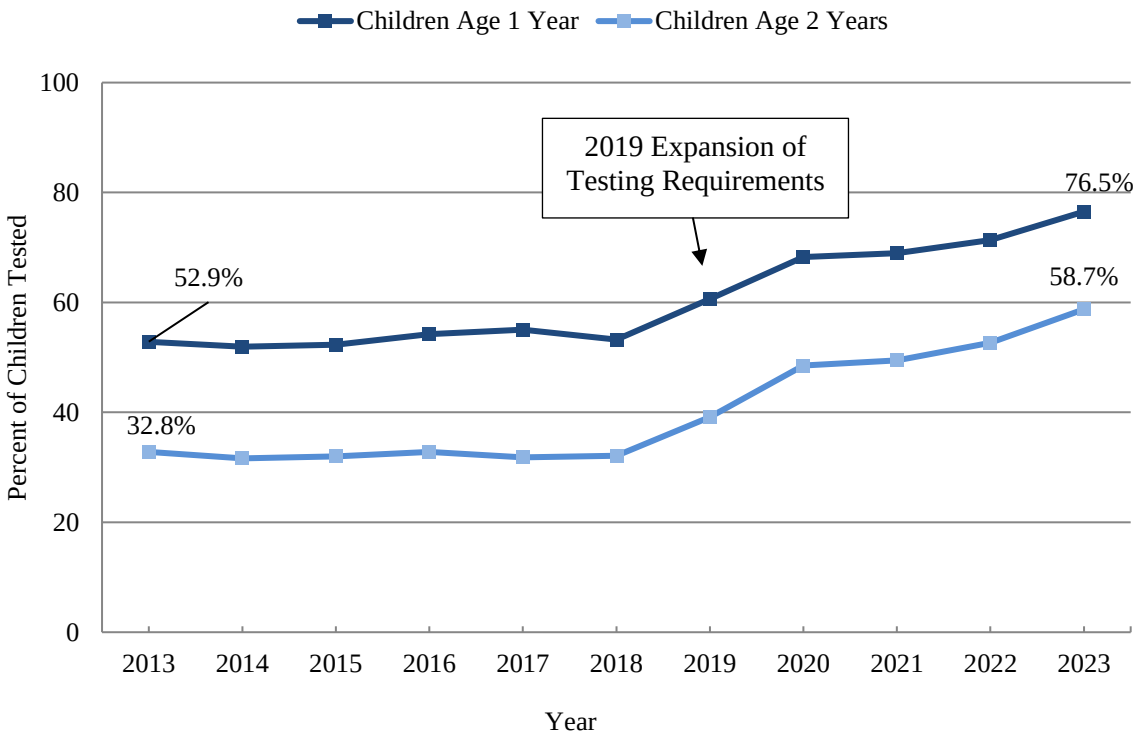
Adoption of Universal Testing in 2019
In 2019, the Legislature amended the LPCA to expand Maine's requirements to test children for lead to include all children at ages 1 and 2 years, sometimes called universal testing. Blood lead testing is the only way to identify a child as meeting Maine's statutory definition of lead poisoning. Testing children for blood lead serves a secondary prevention purpose of identifying lead poisoned children in need of services to remove sources of lead exposure and prevent their lead poisoning from worsening. In Maine, testing children for blood lead also serves as an important primary prevention purpose, because the LPCA requires the Department to inspect all units in a multi-family dwelling when a case of lead poisoning has been found in any single unit. If hazards are found in those additional units, they must also be removed making them lead safe *before* a child is poisoned.

[3] In 2019, the Legislature amended the definition of lead poisoning to unlink the statutory definition from the U.S. CDC BLRV by setting the definition as a confirmed blood lead level of 5 µg/dL or higher. By doing so, the Legislature ensured that any future change to Maine's definition would require additional legislative action and would not automatically change when the U.S. CDC lowered its BLRV. In 2021, the U.S. CDC updated the BLRV of 3.5 ug/dL based on the latest data on blood lead levels in U.S. children.

Increases in Blood Lead Testing

In this section, we review progress on increasing blood lead testing rates in response to the expanded requirements for universal blood testing of children ages 1 and 2 years. Previously, Maine required children enrolled in MaineCare to be tested for lead at ages 1 and 2 years and required all other children to be tested at these same ages unless their providers determined they were not at risk. As Figure 3 below illustrates, after many years of no change, blood lead testing rates began to increase in 2019 and by 2023, 77% of one-year-old children and 59% of two-year-old children were tested for lead in their blood. These statewide increases in testing demonstrate a positive trend toward ensuring families, healthcare providers, and the Department are identifying lead-exposed children and taking steps to remove sources of lead exposure from their environments.

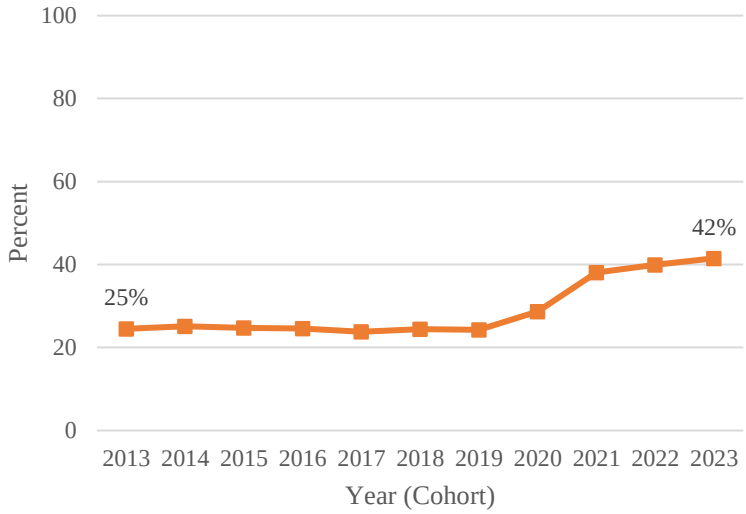
Figure 3. Trends in percentages of one-year-old (12-<24 months) and two-year-old (24-<36 months) children tested for blood lead, 2013-2023



Statewide blood lead testing rates have seen major changes in the last 5 years, likely driven by the expansion of Maine's testing requirements in 2019 to include all children at one and two years of age.

Another way to assess how Maine is doing with increasing blood lead testing rates is to examine how many children had both required tests (i.e. a test at age 1 year and a test at age 2 years). Only 2 out of 5 children who turned 3 years of age in 2023 received both required tests. Looking at testing rates in this way affirms that more work is needed to improve testing rates and ensure that children get both required tests, with an emphasis on improving testing rates among 2-year-old children.

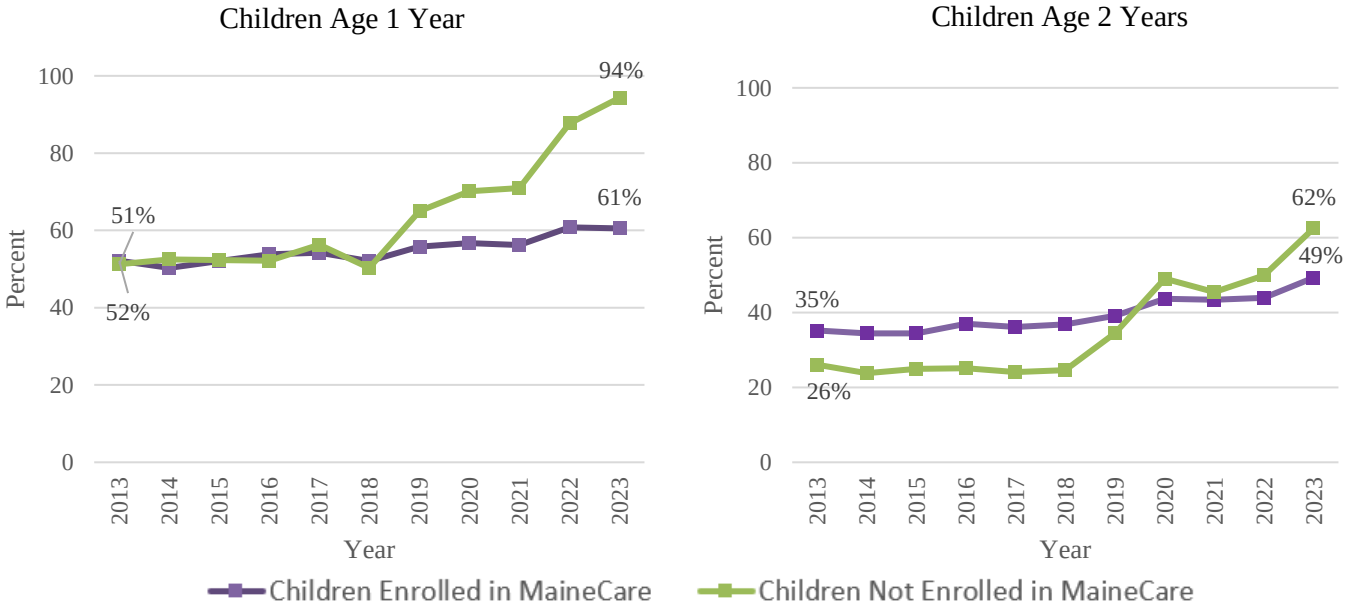
Figure 4. Trends in percentages of children who received a blood lead test at age 1 year and at age 2 years, 2013-2023



In addition to assessing progress towards improving testing rates statewide, the Department analyzes testing rates by MaineCare enrollment status and by location. These additional levels of analyses provide important insight into disparities, help the Department and others understand where to focus efforts to improve testing, and demonstrate that higher testing rates are achievable.

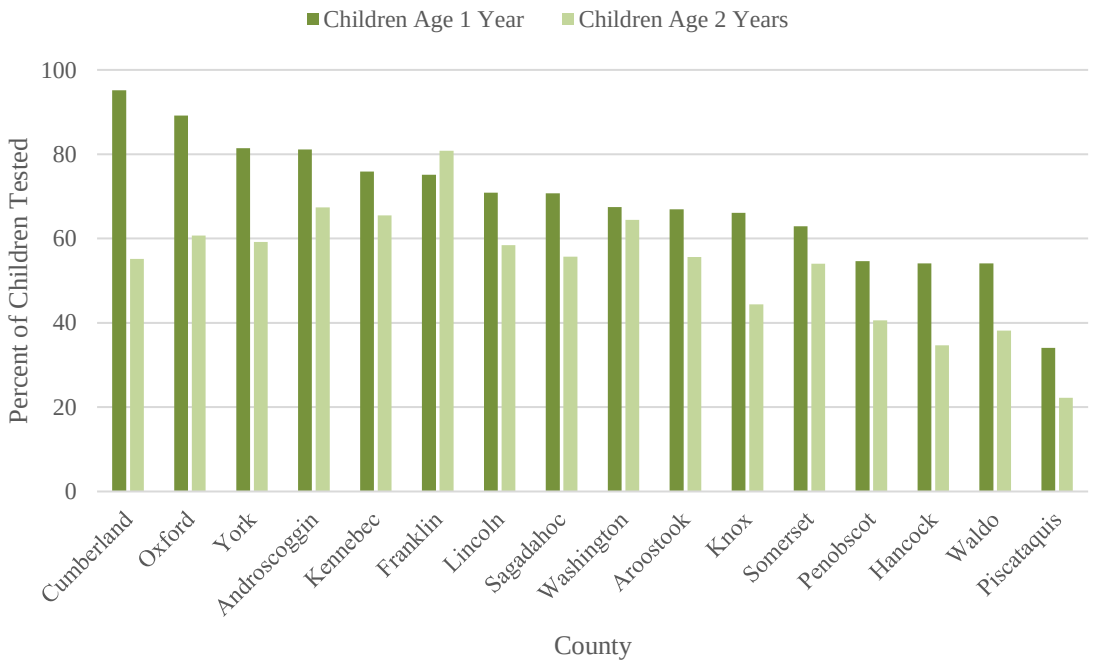
Children enrolled in MaineCare who receive a blood lead test are twice as likely to have a blood lead level that meets Maine's definition of lead poisoning than children not enrolled in MaineCare who are tested. Yet, testing rates among children enrolled in MaineCare have improved far less than children not enrolled in MaineCare (Figure 5). The Department is working to better understand the major causes of these disparate testing rates and is investigating whether lower testing rates among MaineCare enrolled children are related to access to routine primary care, providers' or health systems' approaches to blood lead testing, or other factors.

Figure 5. Trends in percentages of children tested for blood lead by age and MaineCare enrollment, 2013-2023



There is also wide variation in testing rates by county and testing rates in some counties have changed more than others since the expansion of testing requirements in 2019. For example, Franklin County stands out due to relatively high testing rates for 1-year-olds (Figure 6) and even higher testing rates of 2-year-olds (Figure 6), demonstrating that achieving high rates of testing of 2-year-olds is possible. Also of note, are testing rates in Cumberland County which increased from 41% in 2018 to 95% in 2023 for 1-year-olds, and from 19% in 2018 to 55% in 2023 for 2-year-olds.[4] The significant increase in testing in Cumberland County may be related, at least in part, to MaineHealth implementing a system-wide initiative to improve testing rates among its primary care practices by making testing a focus for quality improvement and adopting in-office (also referred to as point of care) blood lead testing in about 25 practices. These differences also provide opportunities for the Department, health systems, and others to identify factors that promote testing and identify where to focus efforts to improve testing going forward.

Figure 6. Percentages of one-year-old and two-year-old children tested for blood lead by county, 2023



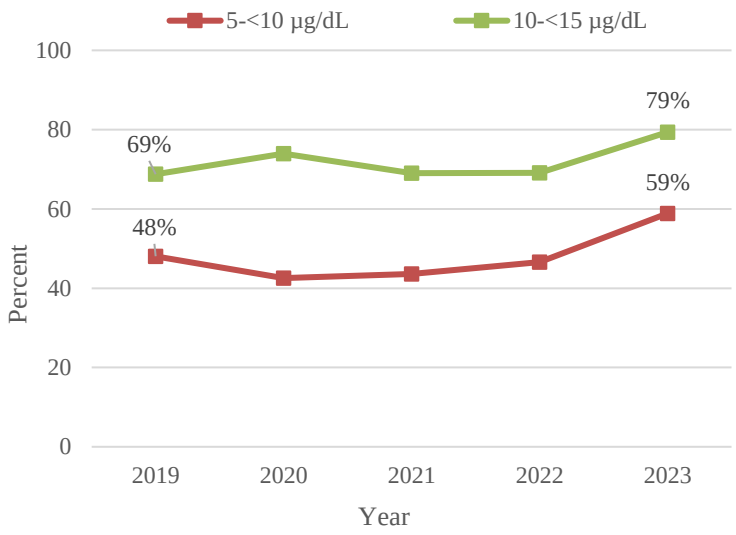
Improvements in Confirmatory Testing

The LPCA defines a lead poisoned child as having a *confirmed* blood lead level equal to or above 5 µg/dL. Most children are initially screened for blood lead with a capillary blood test typically obtained with a finger stick. These capillary tests have the potential to be contaminated from lead on a child's skin, but screening tests avoid the need to make a venous blood draw on a small child. Since 2015, the Department's blood lead screening guidelines have called on health care providers to confirm all initial capillary blood lead test results between 5 and 10 µg/dL within three months. The percentage of children with initial capillary test results between 5 and 10 µg/dL that receive a timely venous confirmation test (i.e., within three months) is increasing but remains below the venous confirmation rate for capillary test results of 10 µg/dL and higher (Figure 7). The Department tracks this measure of timely confirmation testing in order to monitor progress on promptly identifying lead poisoned children so they are connected to services to identify and remove sources of lead exposure from their homes and prevent further exposure. The Department also tracks the annual number of children who received a confirmatory test, regardless of the timeliness, to monitor children who haven't followed up with their doctor and estimate how many children would likely meet the definition of lead poisoning if they had a confirmatory test. In

[4] The 2018 data are available on the Maine Tracking Network: https://data.mainepublichealth.gov/tracking/home

2023, there were 159 children under age 6 with a capillary test result of 5-<10 µg/dL who did not receive a confirmatory test. The Department estimates that about 60 (38%) of those children with unconfirmed tests would have a venous blood lead level of 5 µg/dL or higher and therefore would have been eligible to receive services from the Department to identify and remove sources of their lead exposure.

Figure 7. Trends in percentages of children who received a timely confirmatory venous blood lead test after a positive capillary screening test, by initial capillary test result, 2019-2023



Efforts to Improve Blood Lead Testing and Confirmatory Venous Testing Rates

While testing rates are moving in the right direction, there is work to be done to reach the Department's goal to test 80% of both 1-year-old and 2-year-old children by the year 2026, and erase disparities in testing rates between children enrolled in MaineCare and those not covered by MaineCare.

Following are the major initiatives the Department has supported since 2019 for improving blood lead testing and confirmation rates:

- Deploying a blood lead module within the State's immunization information system in 2019 to help providers better identify children in need of blood lead tests

- Supporting adoption of in-office testing among interested healthcare providers. The LPCA allows Department-approved providers to conduct blood lead screening tests in their offices using an instrument to analyze a child's blood in a just a few minutes. In-office testing is intended to reduce barriers to testing, such as travelling to a laboratory to have a blood sample taken. In addition, with in-office testing, providers can report a blood lead test result to the child's family in a matter of minutes and make an immediate referral for confirmatory testing for children with elevated screening test results. While providers are able to achieve high testing rates without in-office testing, some providers opt for this type of testing as part of their efforts to improve testing rates. In-office blood testing accounts for about half of all blood tests in Maine.

  The Department is implementing a Health Services Initiative using federal Children's Health Insurance Program administrative funds and State matching funds to provide in-office testing equipment to practices with low testing rates and high counts of MaineCare-enrolled patients. To date, 13 practices have committed to participating in the initiative, including 2 practices that have received new in-office testing equipment. The Department anticipates doubling the number of practices that are participating in the initiative in 2025.

- Implementing a system to notify providers and families of children who are in need of confirmatory tests in 2022. The objective of the system is to improve the identification of children that meet Maine's definition of lead poisoning to ensure they receive services to identify and remove sources of lead exposure from their homes and the launch of this initiative coincides with an increase in confirmation rates (Figure 7).

- Making blood lead testing a required performance measure under PCPlus, a new Value Based Care Model for primary care services launched by the Office of MaineCare Services in July 2022. Value Based Care emphasizes improving primary care quality and incentivizes provider performance to fill gaps in testing, screenings, and immunizations.

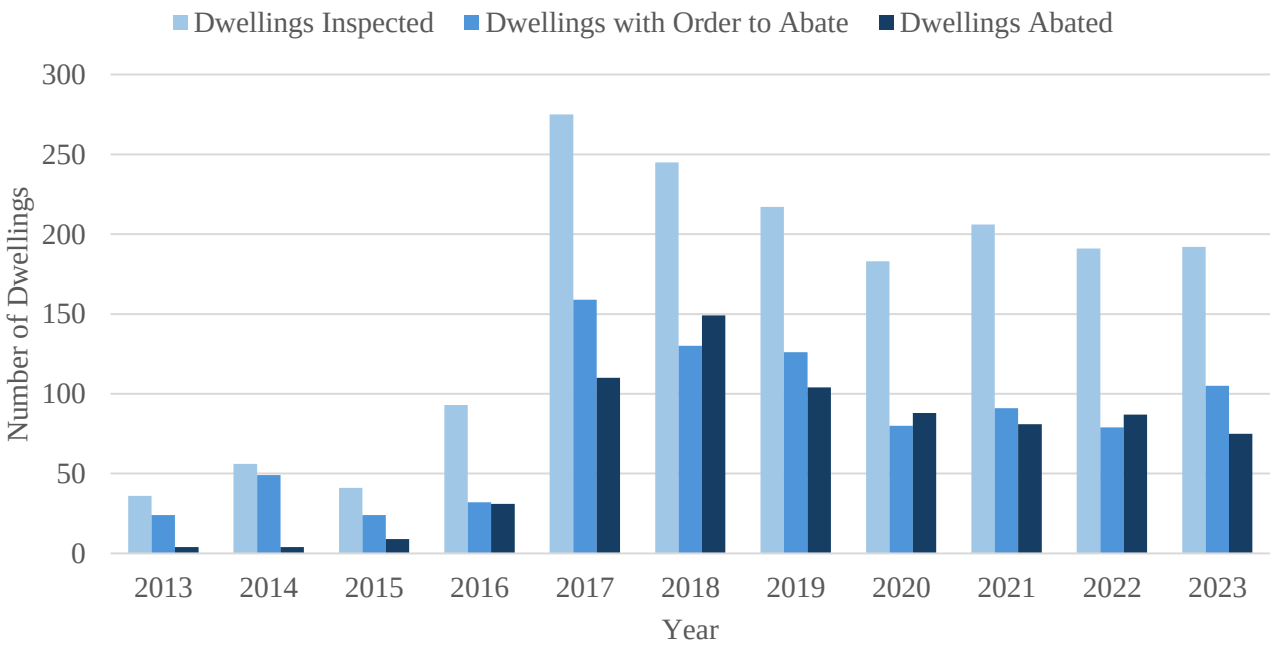
- Initiating a study to determine if there is an association between blood lead testing rates and vaccination rates (as an indicator of access to and utilization of routine preventive care services), for children enrolled in MaineCare compared to children not enrolled in MaineCare to better understand differences in blood lead testing (study results available in 2025).

Increases of Services to Identify and Remove Lead Hazards from Children's Homes

When a case of lead poisoning has been found in a rental dwelling unit, the LPCA requires the Department to inspect all dwelling units in the dwelling for lead hazards (22 MRS § 1320-A).[5] The Department may, at its discretion, also inspect owner-occupied, single-family residences when a child with lead poisoning has been identified as residing in or receiving care in that residence. If lead hazards are found, the Department must order the owner to abate the hazards.[6] In the case of owner-occupied, single-family residences, the Department may provide technical assistance instead of enforcement activity. About two-thirds of children identified with lead poisoning live in rental housing.

The 2015 amendments to the LPCA lowered the blood lead threshold that triggers the inspection of dwelling units for the presence of lead hazards from a confirmed blood lead level of 15 µg/dL (or a persistent level of 10-14 µg/dL) to 5 µg/dL. Maine was one of the first states to offer inspection services at blood lead levels as low as to 5 µg/dL, and this 2015 legislative mandate resulted in a major increase in the number of dwellings inspected and placed under orders to abate lead hazards once adopted in agency by rule (Figure 8).

Figure 8. Trends in number of dwellings inspected and abated for lead hazards in response to a lead-poisoned child or lead hazards in a dwelling, 2013-2023



The number of dwellings inspected and required to abate lead hazards remains much higher following policy changes that require the Department to provide services to more children with lead exposure.

[5] Under the LPCA, "dwelling" means a structure, all or part of which is designed or used for human habitation, including a dwelling unit (22 MRS § 1315(2)), and "dwelling unit" means any room, group of rooms, or other areas of a structure designed or used for human habitation (§ 1315(3)).
[6] "Lead abatement" means any measure or set of measures designed to permanently (for at least 20 years) eliminate lead-based paint hazards (§ 1315(4-B)).

In addition to increasing the number of lead-exposed children that receive inspection and abatement services, the change to the lead poisoning threshold has had an important primary prevention impact. For every unit in a dwelling that the Department inspects in response to a lead-poisoned child, the Department inspects about 1.2 additional units due to the requirement to inspect all dwelling units in a multi-family dwelling when a lead poisoned child is found in any individual unit. Since 2017, the Department has inspected about 1,500 units in response to identifying a lead-poisoned child in a dwelling and nearly 1,800 additional units.

The department has successfully and fully implemented the 2015 amendments to perform inspections when a lead-poisoned child is identified in a residential dwelling in accordance with the requirements of the LPCA. The major increase in inspection services has required the ongoing appropriation of increased funding for the following:

- Expanded and increased costs of contractual services of licensed environmental lead risk assessors who conduct the inspections of dwelling units for lead hazards;
- Increased laboratory staff, equipment, and costs associated with the analysis of lead in environmental samples (dust, soil, water) collected during lead inspections;
- Additional Department and contracted direct service, administrative, and management staff positions to handle the increase in workload; and
- The implementation and maintenance of a modern case management informatics system to replace a decades-old system that was incapable of handling the increase in users and changes to workflows.

Impacts on Inspections and Abatements from new Federal Regulations and Increases in Blood Testing

Current State budget appropriations have been adequate to carry out the increased inspection services and related management of abatement orders. However, any major initiatives to further increase inspection services and management of abatement orders would require additional resources. The Department is currently aware of the following two issues that could impact the Department's workload and resources.

- The Department will likely see an increase in orders to abate lead hazards and requests for technical assistance when the current regulatory thresholds for identifying lead dust hazards are lowered. In October 2024,[7] the U.S. Environmental Protection Agency finalized new, lower standards used to identify lead dust hazards in homes. The new standards will change from: 10 micrograms per square foot (µg/ft^2) to 5 µg/ft^2 for floors and 100 µg/ft^2 to 40 µg/ft^2 for windowsills. Maine will have two years to adopt these new federal standards. Adoption of the lower lead dust hazard standards is expected to result in an increase in inspected dwelling units identified as having lead hazards, which in turn would result in an increase in the number of orders to abate issued by the Department.

- As blood testing rates and confirmation rates continue to improve, the Department expects to identify more children that meet Maine's statutory definition of lead poisoning. To date, large increases in blood testing have not translated into an increase in the annual number of cases of newly identified lead poisoned children (Figure 1) or an increase in the annual number of inspections or abatement orders (Figure 8), but neither are declining.

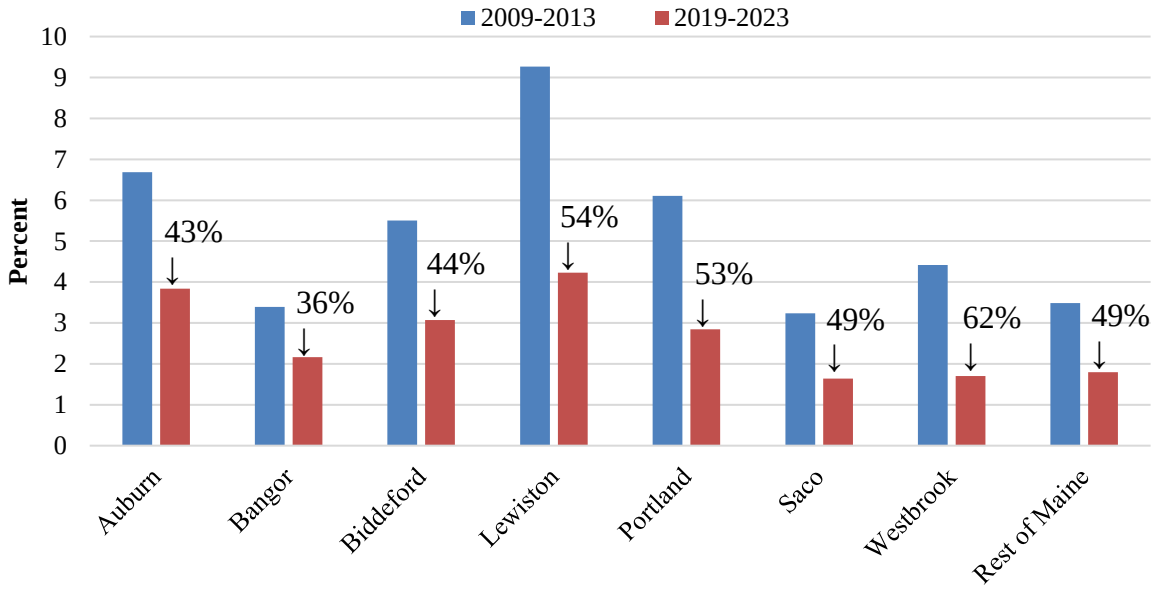
[7] Maine has already adopted EPA's updated dust standard for window troughs of 100 µg/ft^2.

Efforts to Prevent Lead Poisoning from Occurring

In 2005, the Legislature established the Lead Poisoning Prevention Fund (LPPF) under the LPCA (22 MRS § 1322-E-F). The Department is the steward of this dedicated source of revenue that comes from a fee of $0.25 assessed on every gallon of paint sold in the State which generates between $600,000 and $650,000 annually. The LPPF is to be used for designated prevention purposes, including: contracts for community-based outreach and education programs, measures to prevent children's exposure to lead, an annual targeted mailing to young families, an ongoing major media campaign, educational programs for property owners, and the operation of a lead-safe housing registry (Figure 2 of LPCA construct on page 5). The LPPF activities focus on primary prevention interventions intended to assist families and property owners with identifying and addressing lead paint hazards *before* a child is poisoned.

In Maine's highest risk communities where the Department, local governments and other community organizations have focused prevention efforts, rates of children identified with lead poisoning have decreased significantly, and, in some areas, outpaced reductions in the rest of the state (Figure 9). Between 2009 and 2023, the Department consistently awarded contracts to organizations in the high-risk areas of Bangor, Biddeford/Saco, Lewiston/Auburn, and Portland/Westbrook, providing a combined total of $1.75 million in funding in these areas during that timeframe. The Department's funding supports community-based organizations to conduct education and outreach to property owners and families of young children and to build local capacity for lead poisoning prevention.

Figure 9. Reductions in the estimated percentage of children with a blood lead level of 5 µg/dL or higher, by high-risk area, comparing 2009-2013 to 2019-2023



In Maine's highest risk communities where the Department and communities have focused prevention efforts, rates of children identified with lead poisoning have decreased significantly, and, in some areas, outpaced reductions in the rest of the state.

On top of, or sometimes as a result of, the Department's direct support for local lead poisoning prevention efforts, agencies in these areas have also been able to secure additional funding to support lead poisoning prevention, such as awards from the U.S. Department of Housing and Urban Development to abate lead hazards in the homes of residents with low income (see page 19 for more discussion of these important funding opportunities).

Measures to Prevent Children's Exposure to Lead and Targeted Mailing to Young Families

To complement its highly targeted community-based funding in high-risk areas, the Department uses resources from the LPPF to conduct statewide prevention activities to reach the communities across the state that are not classified as high-risk, and which together accounts for 60% of the State's burden of childhood lead poisoning (the remaining 40% of children identified with lead poisoning live in high-risk areas).

Lead Dust Testing

As lead dust is the most common cause of lead poisoning in young children, the Department provides free, do-it-yourself lead dust tests to families with children at risk for lead poisoning to help families take measures to prevent lead exposure and to identify homes with lead-based substances before children are exposed.

The Department makes these lead dust tests available to families through an annual targeted mailing to all Maine families with 1-year-old children, social media campaigns, and community-based partner outreach. In addition, the Department partners with local organizations that provide home visiting services to families with young children to support families in conducting home lead dust test kits. The Department provides families with the test kit, instructions, and online how-to videos in English and Somali to help families perform the lead dust test.[8]

Above: Home lead dust testing involves taking samples of a square foot area of floor surfaces (shown here) and a windowsill to see if there is any lead dust present in the samples.

Between 2017 and 2022, the Department distributed a total of 94,500 brochures offering a home lead dust test kit through its annual targeted mailing campaign or its partners. Across Maine, residents requested a total of 3,010 lead dust test kits and completed a total of 1,102 kits. Among families that completed a test, about one-quarter (247) had dust results that were high and that resulted in further support from the Department to protect children from lead exposure, including technical assistance with cleaning and addressing sources of lead dust, additional dust testing, or a free inspection for lead hazards conducted by a licensed lead risk assessor.

Lead-Safe Housing Registry

The LPCA also includes a directive to allocate funds from the LPPF to implement a lead-safe housing registry (22 MRS § 1322-E(3)(G)). In 2012, the Maine Department of Environmental Protection (DEP) established the registry within an existing tool, MaineHousingSearch.org, an online rental housing listing and search site funded jointly by Maine State Housing Authority, Maine DHHS, 211, DEP, and the Breathe Easy Coalition. Through MaineHousingSearch.org, property owners can include information about lead in units listed on the site by choosing one of three lead-safe status categories. People searching for rental housing can search for units using these categories. As of 2022, about 52% (12,810) of units listed on the site contained one of three lead-safe categories available for property owners to choose when listing a unit. In 2019, the Legislature amended the LPCA to transfer the administration of the registry from the DEP to the Department.

[8] Videos are available on the Maine CDC YouTube channel at https://www.youtube.com/playlist?list=PLuTLj1WGRlCIolPBpI2aX0_EWlC_tZHB2.

Efforts to Improve Primary Prevention Efforts

The Department, with input from an Advisory Board, continues to evaluate and adjust how to most effectively use the resources of the LPPF. In 2023, after completion of an evaluation of LPPF-funded activities spanning the years 2017 to 2022, the Department and the Advisory Board identified the need to shift resources and focus to three primary prevention strategies: community-based contracts in high-risk areas, housing quality improvement, and lead dust testing of older homes.[9]

In 2023 the Department issued a competitive request for proposals for a new five-year cycle of funding for community-based lead poisoning prevention efforts. With the new cycle, the Department continued to prioritize LPPF allocations to community-based prevention activities, and concentrated and expanded resources in Biddeford, Lewiston/Auburn, and Portland/Westbrook to strategically increase the impact of its community-based activities. The chosen communities are those with largest populations of young children, the greatest estimated numbers of children with lead poisoning, and the largest percentages of pre-1950 housing in Maine. The new five-year cycle provides $70,000 in annual funding to an organization in each community and places an increased emphasis on creating local systems and policies to address lead poisoning by addressing housing quality while continuing to support prevention activities focused on education and outreach to families and property owners. The Department is also working with an independent evaluator to implement an evaluation of the impact of this next five-year funding cycle on local systems and ultimately on the numbers and percentages of children with lead poisoning in each area.

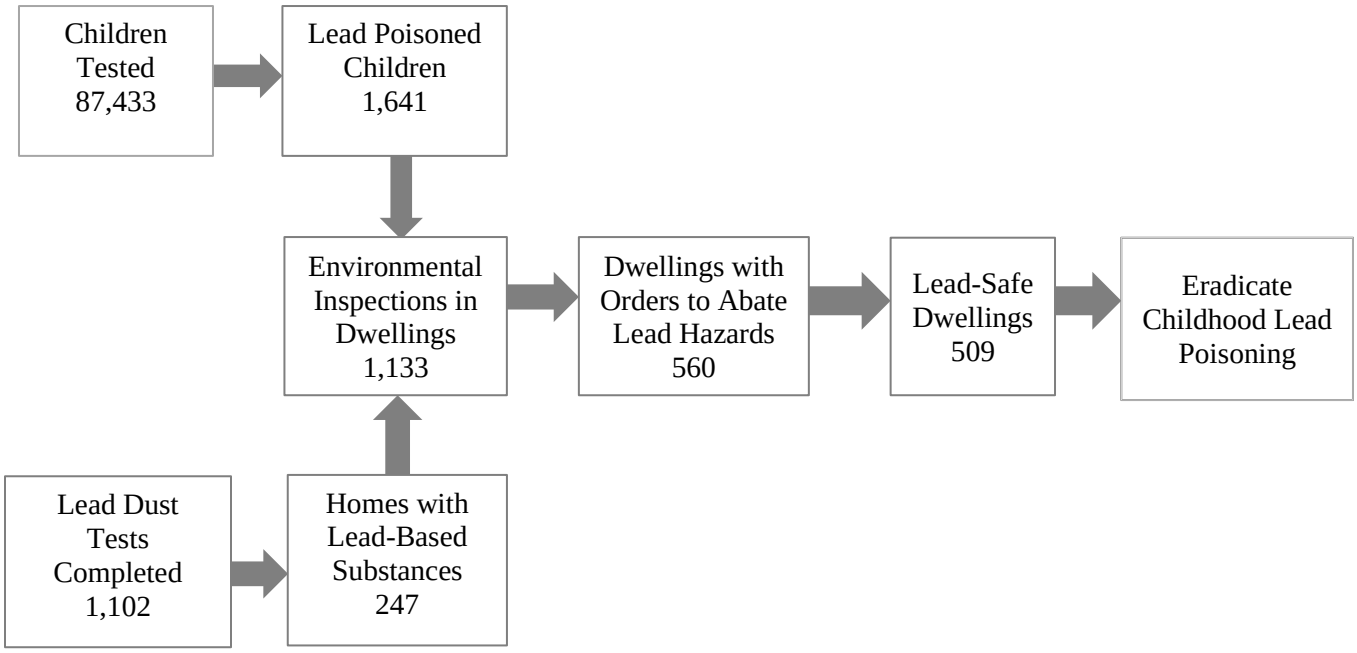
The Department is in the process of evaluating how to scale up and maximize the impact of its statewide efforts, including lead dust testing. The Department is interested in determining if it can improve the response rate to its annual targeted mailing offering a home lead dust test and if it can identify other tactics and make lead dust testing a scalable strategy to increase the number of families that are finding and addressing potential sources of lead exposure *before* their children become lead poisoned.

[9] https://www.maine.gov/dhhs/mecdc/environmental-health/eohp/lead/lppf.shtml#Reports

Eradicating Childhood Lead Poisoning: Next Steps

The recent amendments to Maine's LPCA have resulted in significant, yet unequal, increases in blood lead testing rates for children, increases in inspections of dwelling units, increases in orders to abate identified lead hazards, and more dwelling units made lead safe. Figure 10 below provides a six-year snapshot of how many homes the Department is impacting through its increased lead poisoning control and prevention activities mandated by these recent amendments to the LPCA. Figure 10 makes clear that testing children for blood lead is currently the primary way the Department identifies housing that should be inspected for lead hazards. Initiatives, such as the targeted mailing with offers of lead dust test kits contribute a relatively small amount to the Department's overall inspection activity.

Figure 10: Numbers of children less than 6 years of age tested for blood lead, newly identified lead poisoned children, inspections resulting from either identifying lead poisoned children or presence of lead-based substances, and resulting orders to abate lead hazards, 2017-2022.



While the percentage and number of children with lead poisoning in Maine continues on a downward trend (as shown in Figure 1), the current rate at which housing is inspected and lead hazards are removed does not appear sufficient to achieve the goal of eradicating childhood lead poisoning by 2030. If current trends continue, the department estimates that we would be identifying approximately 200 lead poisoned children in the year 2030 – progress to be sure, but not eradication. Based on current trends, the Department estimates that it could take until 2050 to get close to eradication (i.e., less than 25 newly identified children with lead poisoning). With these trends in mind, the following sections of this report outlines three paths for continuing progress toward eradicating childhood lead poisoning that can be broadly viewed as:

1) Stay the course;
2) Accelerate inspection and abatement activity; and
3) Incorporate more efforts to ensure housing is lead-safe

Path 1: Stay the course

The Department will continue the initiatives described throughout the report to improve blood testing and confirmation rates, especially among the MaineCare enrolled population, as detailed earlier in this report. The Department anticipates this will result in the identification of more lead poisoned children which in turn will result in more inspections of dwelling units, more orders to abate, and subsequently more lead safe homes. Recent experience suggests that increases in blood testing resulting in more comprehensively identifying lead poisoned children will not result in the need for additional Department resources. However, recent experience also suggests that the Department's current level of resources (personnel, contracted inspections, laboratory services) will need to be sustained at current levels for years to come as we continue improvements in blood testing and finding lead poisoned children.

The Department will adopt the newly effective and lower federal standards used to identify lead dust hazards in homes within the next two years. Adoption of these lower lead dust standards is expected to result in an increase in inspected dwelling units identified as having lead dust hazards, which in turn will result in an increase in the number of orders to abate issued by the Department.

The Department also expects to scale up its current efforts at providing free lead dust hazard testing, to increase the number of families that are finding and addressing potential sources of lead exposure *before* their children become lead poisoned. This effort will also result in some level of increase to inspection and abatement activity.

Path 2: Accelerate Inspection and Abatement Activity under the LPCA

As described in prior sections, in 2015 the Maine Legislature effectively lowered the blood lead threshold that triggers the inspection of dwelling units for the presence of lead hazards. This was done by amending the LPCA definition of lead poisoning to be based on U.S. CDC's BLRV. At the time, the U.S. CDC's BLRV was 5 µg/dL. This action resulted in a major increase in the Department's inspection activity and issuance of orders to abate and necessitated significant and ongoing budget appropriation to support this level of increased public health activity (Figure 8).

In 2019, the Legislature amended the definition of lead poisoning to unlink the statutory definition of lead poisoning from the U.S. CDC BLRV by setting the definition as a confirmed blood lead level of 5 µg/dL. By doing so, the Legislature ensured that any future change to Maine's definition would require additional legislative action and would not automatically change when the U.S. CDC lowered its BLRV. Currently, Maine's definition of lead poisoning is set at 5 µg/dL and not linked to U.S. CDC's BLRV. In 2021, the U.S. CDC lowered their BLRV to 3.5 µg/dL based on the latest data on blood lead levels in U.S. children

The Department has already undertaken steps in response to the U.S. CDC's updated BLRV. In 2022, the Department issued guidance to healthcare providers recommending they confirm initial blood lead screening test results in the 3.5 µg/dL to <5 µg/dL range and provide education to families to help them reduce their child's exposure. Confirmation rates of these lower blood lead levels have already significantly improved from 16% to 44%. The Department also plans to pilot providing home lead dust kits and related outreach to families of children with confirmed blood lead levels in this 3.5 µg/dL to <5 µg/dL range to further help them identify and address sources of lead exposure beginning in 2025. This initiative has the potential to result in increased Department inspection activity if home lead dust hazard kits are found to be of concern.

The Department estimates that its current caseload and inspection activity could increase by as much as 50% if Maine's statutory definition of lead poisoning was changed to a blood lead level of 3.5 µg/dL to align with the current federal BLRV. This estimation is based on the changes we saw in 2015 when the threshold was lowered. Thus, lowering the blood lead threshold would be an effective way to increase lead inspection and abatement activity. Changing the statutory definition of lead poisoning would require an amendment to the LPCA and also a commensurate increase in resources appropriated to handle the

significant increase in the Department's workload. Additional resources would be needed for: the increase in lead inspections conducted by contracted licensed lead risk assessors, analyses by Maine's Health and Environmental Testing Laboratory of environmental lead samples collected during inspections, and personnel to coordinate inspection activity, review inspection reports, issue and enforce abatement orders, and liaison between families and their primary care providers.

Path 3: Incorporate More Efforts to Ensure Housing is Lead-Safe

Childhood lead poisoning is fundamentally a public health and housing issue. As such, in considering ways Maine may accelerate progress toward reaching its goal to eradicate childhood lead poisoning by 2030, an additional step that could be considered is assessing opportunities for statewide housing policies and initiatives that could make a large number of homes lead safe without first having to identify a child with lead poisoning. As the Department has entered into new community-based contracts in three high-risk areas[10] focused on housing quality improvement, such efforts would expand housing quality impacts statewide. These efforts would also support goals already articulated in state and local plans for addressing housing quality, such as the State Health Improvement Plan, which has a priority to create healthy and stable housing with a focus on improving the health and safety of Maine's existing housing stock.[11] Initiatives to make housing units lead safe before a child is poisoned may re-direct costs away from state-mandated inspections and lost revenue for property owners, and toward proactive housing quality improvement. These initiatives also spare children from lead poisoning's health impacts.

There are already resources throughout Maine that are at least partially intended to support property owners to proactively address identified lead hazards in housing. Funded by the U.S. Department of Housing and Urban Development (U.S. HUD) and State resources, property owners can obtain no-interest, forgivable loans to pay for the cost to abate lead hazards. Priority for these funds is given to abate lead hazards in the homes of children identified with lead poisoning, but property owners may apply to have their homes inspected and abated at any time.

Specific conditions vary by the funding source, but in general, units are eligible if the residents are at or below certain income levels (i.e., 50-100% of Area Median Income (AMI) or occupied by Medicaid-eligible children) and property owners may be required to pay a portion (10-25%) of the abatement costs. Importantly, these programs may also provide funds to address other health and safety concerns in units, and, after abatement in rental units, they must be maintained as affordable housing for 3 to 4 years by renting to tenants with income at or below AMI and charging rents no higher than federal fair market rates.

In recent years, Maine has grown the amount of public resources available for these purposes. There is now federal funding to support lead hazard abatement for units in Cumberland County, Auburn, Biddeford, and Lewiston, with programs administered by local governments in each of those areas. There are also federal and State resources available for properties throughout the state administered by MaineHousing, which include a collaboration with the Department to provide funding for lead hazard abatement in the homes of MaineCare eligible children through a Health Services Initiative, using federal Children's Health Insurance Program funding and State matching funds.

The Department expects there are now more resources available to support lead abatement than ever before, with nearly $23 million dollars available from 2019 through 2027 to abate nearly 850 units. Table 1 shows funding available for lead hazard abatement in Maine in recent years. These resources are an important part of the lead poisoning prevention ecosystem because they ensure that lead hazards are abated in the homes of identified lead poisoned children and once made lead safe, remain as affordable housing for at least 3-4 years.

[10] As noted on p. 16, these are Biddeford, Portland/Westbrook, and Lewiston/Auburn

[11] Maine Center for Disease Control and Prevention, State Health Improvement Plan 2024–2029 Executive Summary. https://www.maine.gov/dhhs/mecdc/ship/

Table 1: Public Funding Available for Lead Hazard Abatement in Maine, 2019-2027

Service Area	Funding Source	Period	Funding Amount	Estimated Units Abated
Auburn	Federal	2021 - 2025	$3,400,000	110
Biddeford	Federal	2023 - 2026	$3,554,085	95
Lewiston	Federal	2020 - 2024[12]	$6,005,025	175
Cumberland County	Federal	2019 - 2023[8]	$2,541,696	81
Statewide	Federal (U.S. HUD)	2024 - 2028	$5,700,000	196
	State	Effective 2024-2025	$300,000	13
	Federal (CHIP)	2023 - 2025	$1,465,427	80
		Total	**$22,966,233**	**750**

With additional State or federal resources, these public funds could be extended to identify and pay for abatement proactively which would provide an opportunity for scaling up the impact of these funds. For example, the City of Lewiston, which has received the highest amount of funding historically, has successfully enrolled local property owners to abate units without Orders to Abate. In the City's grant cycle that concluded in 2024, two-thirds of the units abated did not have an Order to Abate from the Department. The City of Lewiston has established a goal to replace or rehabilitate the more than 1,400 pre-1950 housing units in a section of the city referred to as the Tree Streets neighborhood which has a higher density of children identified with lead poisoning than other areas of the city. The goal is part of Lewiston's Choice Neighborhood Initiative for which the City received a $30 million award from U.S. HUD. While this funding is not sufficient or intended to address lead hazards in all 1,400 pre-1950 units, part of the award will fund construction of 185 new apartments to replace existing, distressed housing.

There are also other housing-related policy models in other states and cities that could be evaluated to understand impacts and resources required for implementation in Maine. For example, both New York State and New Jersey have adopted policies in recent years requiring owners of multi-unit properties to demonstrate that their units are lead-safe through visual and/or lead dust inspections. In New York, once it becomes effective in 2025, property owners of buildings with two or more units built before 1980 in high-risk communities will have to demonstrate that they have passed an inspection that includes visual inspections for deteriorated paint and outdoor soil conditions, as well as testing for lead dust.[13] New Jersey implemented a similar policy in 2022 that applies to rental properties built before 1978 and requires a visual inspection for lead paint hazards in properties in lower-risk cities and lead dust testing in properties in higher-risk cities.[14] In both New York and New Jersey, property owners have to repeat the inspection requirements every three years and they must remediate any lead hazards identified through the mandatory inspections.

[12] U.S. HUD recently awarded new funding that will be available for four years starting in early 2025 in Lewiston and Cumberland County. The City of Lewiston was awarded $7,750,000 to abate 300 units in Lewiston and the City of Portland was awarded $3,367,960 to abate 110 units in Cumberland County.
[13] New York State Public Health Law §1377, https://www.nysenate.gov/legislation/laws/PBH/1377. Also see: https://www.health.state.ny.us/environmental/lead/advisory_council/meetings/2023-11-08_presentation_1.pdf
[14] New Jersey Administrative Code 5:28A, https://www.nj.gov/dca/codes/codreg/pdf_regs/njac_5_28A.pdf. For additional information about the law see: https://nj.gov/dca/codes/resources/leadpaint.shtml