**MURIEL BOWSER**
**MAYOR**

January 4, 2024

The Honorable Phil Mendelson
Chairman
Council of the District of Columbia
John A. Wilson Building
1350 Pennsylvania Avenue, NW, Suite 504
Washington, DC 20004

Dear Chairman Mendelson:

I hereby submit to the Council of the District of Columbia the enclosed *Childhood Lead Screening Report* for Fiscal Year 2022, which was prepared by the Department of Energy and Environment ("DOEE") pursuant to section 2003(g) of the Childhood Lead Poisoning Screening and Reporting Act of 2002, effective October 1, 2002 (D.C. Law 14-190; D.C. Official Code § 7-871.03(g)).

This report documents blood lead level ("BLL") results, as reported to DOEE, from fiscal year 2022. In October 2021, the Centers for Disease Control and Prevention lowered the elevated BLL reference value from 5 micrograms per deciliter (µg/dL) to 3.5 µg/dL. In Fiscal Year 2022, more than 98% of children tested had a BLL below 3.5 µg/dL. DOEE found no major issues with compliance in reporting of test results by laboratories, healthcare providers, or healthcare facilities. Based on current BLL testing trends and existing risk factors for lead exposure, the primary recommendations of this report are to expand outreach to families and healthcare providers, increase compliance with the requirement that every child be tested twice by the age of 26 months, and implement strategies to decrease the presence of lead hazards in the home.

My administration is available to discuss any questions you may have regarding this report. To facilitate a response to your questions, please contact Collin R. Burrell, Deputy Director, Environmental Services Administration, DOEE, at collin.burrell@dc.gov.

Sincerely,

Muriel Bowser

Enclosure

# Childhood Lead Screening Report
# District of Columbia
## Fiscal Year 2022

**Lead-Safe and Healthy Housing Division**

**Childhood Lead Poisoning Prevention Program**

Department of Energy and Environment
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## Glossary

| | |
|---|---|
| BLL | Blood lead level, a measure of concentration of lead in blood |
| Capillary Test | A blood lead test using blood drawn via a finger or heel stick |
| DC AAP | District of Columbia Chapter of the American Academy of Pediatrics |
| DHCF | Department of Health Care Finance |
| EBLL | Elevated BLL. An EBLL is a single BLL result (capillary or venous) at or above the reference value of 3.5 µg/dL established by CDC in 2021 |
| False Positive | A capillary test result ≥ 3.5 µg/dL followed by a venous test result < 3.5 µg/dL |
| Fiscal Year (FY) | October 1 of each year to September 30 of the succeeding calendar year |
| GIS | Geographic Information System |
| HHLPSS | Healthy Homes and Lead Poisoning Surveillance System |
| Incident Case | A newly confirmed venous blood lead test result ≥ 3.5 µg/dL or two capillary blood lead test results ≥ 3.5 µg/dL drawn within 12 weeks of each other |
| Ongoing EBLL | A preexisting case where a confirmed BLL ≥ 3.5 µg/dL in a previous fiscal year is followed by a BLL ≥ 3.5 µg/dL in a subsequent fiscal year |
| Prevalence | Includes all cases, both new (incidence) and preexisting (ongoing) |
| Screening Test | A blood lead test for a child without a previously confirmed EBLL. A child screened multiple times in a given year is counted only once for each year. |
| Unconfirmed Case | A single capillary blood lead test ≥ 3.5 µg/dL, or two capillary tests ≥ 3.5 µg/dL drawn more than 12 weeks apart |
| µg/dL | Micrograms of lead per deciliter of whole blood |
| Venous Test | A blood lead test using blood drawn from a vein |

## Overview

There is no identified safe blood lead level (BLL).[1] Children less than six years old are especially vulnerable to lead poisoning and its harmful effects. Blood lead concentrations of children living in lead-contaminated environments typically increase beginning in late infancy, peaking at 18–36 months of age, and declining slowly over the next few years.[2] Even low BLLs can damage the brain and nervous system, causing learning and behavior problems and a lower IQ.[3,4] Higher BLLs may lead to hearing and speech problems, delayed growth, organ damage, and death.4

Childhood lead poisoning is preventable. However, persistent environmental lead hazards where children live, learn, and play remain a threat. Known risk factors include minority race/ethnicity, poverty, and housing age.[5] Exposure to lead is most common when children ingest dust, paint chips, or soil contaminated by deteriorating paint in and around homes built before the 1978 ban on lead-based household paint.[6] Exposure to lead may also occur when occupied homes known to have lead materials are being abated or renovated in the presence of the residents.[7] Children are also exposed to lead that enters drinking water via lead pipes, solder, brass fixtures, or valves. Other potential risks include imported candy and spices, certain cosmetics, toys, and toy jewelry, pottery and ceramic cookware, and traditional home health remedies.6

Removing lead hazards from the environment is the most effective way to prevent the harmful long-term effects of childhood lead exposure.7 However, conducting blood lead screening tests, identifying high-risk populations, and ensuring effective follow-up and referrals to recommended medical, environmental, and social services for children with EBLLs and their families remain critical secondary prevention strategies.5,6

## Executive Summary

Under the Childhood Lead Poisoning Screening and Reporting Act of 2002 ("the Act"),[8] all children in the District of Columbia are to be tested for lead exposure at certain ages. The

[1] Centers for Disease Control and Prevention. (2023, February 16). *Blood Lead Levels in Children.* https://www.cdc.gov/nceh/lead/prevention/blood-lead-levels.htm
[2] Advisory Committee on Childhood Lead Poisoning Prevention. Centers for Disease Control and Prevention. (2007, November 2). *Interpreting and Managing Blood Lead Levels <10 µg/dL in Children and Reducing Childhood Exposures to Lead*. 56(RR08), 1-14;16. https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5608a1.htm.
[3] Grosse, S. D., Matte, T. D., Schwartz, J., Jackson, R. J., & Brewer, R. F. (2002). The economic benefits of lead hazard control in U.S. housing. Environmental Health Perspectives, 110(9), 903-907.
[4] Lanphear, B. P., Dietrich, K., Auinger, P., Cox, C., & Braun, J. (2005). Cognitive deficits associated with blood lead concentrations <10 µg/dL in U.S. children and adolescents. Public Health Reports, 120(6), 572-579.
[5] Brown, M. J., Dietrich, K. N., Radcliffe, J., & Gwinn, M. (2016). Environmental disparities in the blood lead levels of young children in the United States. Environmental Health Perspectives, 124(8), 1301-1308.
[6] Centers for Disease Control and Prevention. (2017). Understanding and preventing lead exposure. Retrieved from https://www.cdc.gov/nceh/lead/
[7] Centers for Disease Control and Prevention. (2020). Protecting your family from lead in your home. Retrieved from https://www.cdc.gov/nceh/lead/renovation/index.html
[8] D.C. Official Code §§ 871.01 *et seq.*

legislation also requires DOEE to issue an annual report summarizing and analyzing the lead screening results obtained under the authority of the Act.[9] This report provides an update on the incidence and prevalence of childhood lead poisoning in the District for Fiscal Year 2022 (October 1, 2021, through September 30, 2022). It also describes actions planned and taken to improve compliance with the requirements of the Act and its implementing rules to ensure District children below age six are tested for lead in blood and that lead-exposed children receive medical case management and other follow-up treatment.

For the purposes of this report, children mean those below six years of age residing in the district. In addition, an elevated BLL (EBLL) is defined as one single blood lead test (capillary or venous) at or above the blood lead reference value of 3.5 micrograms per deciliter (µg/dL) set by the Centers for Disease Control and Prevention (CDC).[10] A confirmed EBLL case is one venous BLL test result ≥ 3.5 µg/dL or two capillary BLL test results ≥ 3.5 µg/dL drawn within twelve weeks of each other.

In FY 2022, 14,742 children were tested for lead exposure, and 14,537 of those children were not found to have EBLLs. 205 children (incident and ongoing cases) had an EBLL of 3.5 ug/dL or more.

In FY 2022, DOEE found no major issues with compliance in test result reporting by laboratories, healthcare providers, and healthcare facilities. Based on current BLL testing trends and existing risk factors for lead exposure, DOEE's primary recommendations are to expand outreach to families and health care providers to increase compliance with required testing of every child at both 6−14 months and 22−26 months of age (an easy way to remember: test every child, twice by two), and to implement strategies to decrease the presence of lead hazards in the home.

## Lead Screening Requirements

The 2002 Act and subsequent rulemaking established a universal blood lead screening mandate for children in the District. Each health care provider or health care facility (hereinafter, "Providers") must perform BLL screening for District children at ages 6–14 months and 22–26 months as part of a well-child visit unless parental consent is withheld or an identical test has already been performed within the preceding 12 months.[10] If a child over the age of 26 months has not previously been tested, the child must be tested at least twice before the child reaches the age of six, at least 12 months apart or according to a schedule determined appropriate by the provider.[10] Providers must also conduct BLL screening when a child is at risk for high-dose lead

[9] § 7–871.03. "Childhood Lead Screening and Reporting Requirements." Code of the District of Columbia, code.dccouncil.gov/dc/council/code/sections/7-871.03.html.
[10] Centers for Disease Control and Prevention. (n.d.). Blood lead levels in children: Reference value. Retrieved from https://www.cdc.gov/nceh/lead/prevention/blood-lead-levels.htm
[10] The District's Childhood Lead Poisoning Screening and Reporting Act of 2002, D.C. Law 14-190, D.C. Official Code §§ 7-871.01 et seq.

exposure based on living conditions, a parent's occupational exposure to lead, a history of lead poisoning in siblings or playmates, or as indicated by the child's behavior or development.

## Lead Screening Surveillance

The Mayor delegated to DOEE the responsibility to receive BLL test reports from laboratories and providers undertaking blood lead testing for children younger than six who resided in the District at the time of testing. District law also requires laboratories to immediately report a lead-poisoned child to the provider and DOEE by telephone or fax. Laboratories include healthcare facilities that use a point-of-care testing device to measure lead in capillary blood obtained from a finger or heel prick. DOEE hosts a secure site for laboratories to submit electronic test reports. DOEE processes and uploads the reported information into its Healthy Homes and Lead Poisoning Surveillance System (HHLPSS). DOEE monitors laboratory reporting to identify any uploading errors or reporting inconsistencies and promptly notifies laboratories to address any concerns.

## Data Methods and Case Definition

To assess compliance with lead screening and reporting requirements under the District's universal blood lead screening mandate, DOEE analyzed lead surveillance data from HHLPSS using Statistical Analysis Software (SAS) 9.4, Excel, ArcGIS, Tableau, and other analytic tools. Case counts for FY 2022 are for children who were below six years (72 months) of age and residing in the District at the time of the BLL test.

This report summarizes the results of this analysis for the following measures in FY 2022:

- Number of children tested at least once for blood lead,
- Number and percent of tested children with an EBLL (prevalence),
- Number and percent of tested children with a new EBLL (incidence),
- Distribution of confirmed EBLLs by BLL range, and
- Geographic hotspot areas for lead exposure.

## Elevated Blood Lead Level Reference Value Change

In October 2021, the CDC lowered the elevated blood lead level reference value from 5 to 3.5 ug/dl. In the FY 2021 report DOEE did not report children's EBLLs under 5 because DOEE did not have sufficient staff to accommodate the change until FY 2022.

Thus, in FY 2021, for the purposes of the annual childhood lead screening report, children under age six in the district were considered to have an elevated blood lead level (EBLL) if a blood lead test registered 5 µg/dL or above. In FY 2022 and beyond, the annual report reflects the CDC's revised reference value of 3.5 µg/dL.

## COVID-19 Effect Blood Lead Level Testing

### COVID-19 Introduction

The COVID-19 pandemic led to significant challenges for public services, notably causing a substantial decrease in the number of blood lead level (BLL) tests being administered. This reduction was largely due to safety concerns, facility closures, staffing shortages, difficulties in home visits, a decrease in pediatric services, and potential delays in lab reporting.

### COVID-19 Testing Trends

To better understand BLL testing trends among young children within the District of Columbia during the COVID-19 pandemic, BLL data collected from the FY 2019, FY 2020, FY 2021, and FY 2022 HHLPSS database was analyzed. Results from that analysis can be seen in the table below (Table 1).

**Table 1**: Comparison of children tested by month in fiscal year 2019 – 2022.

| Year | Portion of FY 2019 (Pre- Pandemic) | Portion of FY 2020 (Pandemic) | Portion of FY 2021 (Post-Pandemic) | Portion of FY 2022 (Recovery) |
|---|---|---|---|---|
| March | 1,357 | 828 | 1,368 | 1,670 |
| April | 1,465 | 264 | 1,271 | 1,405 |
| May | 1,408 | 567 | 1,169 | 1,374 |

During the peak impact of the COVID-19 pandemic, specifically between March and May of FY 2020, there was a significant decrease in childhood lead testing, with numbers dropping to 828, 264, and 567 respectively, reflecting the largest effects of the pandemic on childhood lead testing.

The increase in testing numbers within the post-pandemic period of FY 2021 and FY 2022 are attributed to the resumption of regular healthcare services, increased awareness of lead poisoning risks, and targeted efforts to catch up on missed screenings, resulting in a rebound to levels similar to those of FY 2019, pre-pandemic.

Despite the drop in testing in FY 2020, a recovery occurred the following year. By FY 2021, the number of children being tested gradually climbed, indicating resilience and adaptability within the healthcare system, or potentially reflecting changes in public attitudes as people adapted to living within the pandemic. By FY 2022, the numbers had not only recovered but were even higher than the pre-pandemic levels seen in FY 2019, suggesting that the systems and practices put in place during the challenging pandemic years may have helped to increase the number of children being tested for lead.

In FY 2022, DOEE continued to conduct outreach to various communities, including participating in June's Healthy Homes Month and October's National Lead Poisoning Prevention Week. The Department's Lead-Safe and Healthy Housing Division hosted virtual sessions during Lead Week, covering topics like funding for lead paint removal, lead filtration for childcare facilities, and healthy home creation. Sessions were held on October 27th for the Lead Reduction Program, October 28th for tips on creating a healthy home, and October 29th for lead filtration in childcare facilities.

For children with EBLLs, DOEE provided case management, reminders for repeated blood lead testing, and referrals for lead risk assessments/enforcement and other follow-up services.

## Lead Screening Results

**Blood Lead Tests**

For FY 2022, as of September 30, 2022, DOEE's Lead-Safe and Healthy Housing Division (LSHHD) HHLPSS system reported 934 children between 0-72 months of age with an EBLL 3.5 µg/dL, or higher. Of concern, 213 children had not had a follow-up test to confirm their lead level. Further, a proportion of these patients (78 out of 934) were on Medicaid, highlighting the potential for disparities in lead exposure based on socio-economic status. The majority of these children on Medicaid reside in zip codes 20002, 20011, 20019, 20020, and 20032.

This chart displays the trends in children tested for lead from October 2021 to September 2022.

The number of children tested in FY 2022 was 14,742, with increases in the number of children tested during the months of February and March. The highest amount of testing occurred in March, with 1,670 patients tested.

**Elevated Blood Lead Levels ≥ 3.5 µg/dL**

Among the 14,742 children below six tested for lead exposure in FY 2022, 14,537 (98%) had a BLL below the CDC reference value of 3.5 µg/dL (Table 2). This analysis excludes duplicate test results.

**Table 2:** Case detection among all District children screened for blood lead, FY 2022

| Testing information FY 2022 | All tests administered n = 20,569 | Percentage of all tests administered |
|---|---|---|
| ***Number of tests administered < 6 years of age** | 20,569 | 100% |
| **Number of children tested < 6 years of age** | 14,742 | 71% |
| **Not elevated (< 3.5 µg/dL)** | 14,537 | 70% |
| **Blood Lead Levels ≥ 3.5 (n = 205)** | | |
| **Total amount of children tested ≥3.5 µg/dL in FY 2022** | 205 | 100% |
| **New confirmed cases** | 116 | 57% |
| **Ongoing and unconfirmed cases** | 89 | 43% |
| *Number of tests administered by healthcare facilities – This accounts for patients that had multiple tests in a year. | | |

*Distribution of Peak Blood Lead Levels*

The risk of harmful health effects increases as the concentration of lead in the blood rises.[4,11] As stated earlier in this report, studies have shown that even low levels of lead in the blood can have harmful effects on a child's development.[4,10] Higher levels (10µg/dL, 20 µg/dL) of lead in the blood can cause more severe health problems, such as organ damage and death.[4,12] To prevent lead exposure and reduce the risk of long-term and potentially permanent health problems in children, DOEE monitors the distribution of blood lead levels among EBLL cases in the District. This information, in turn, helps target prevention efforts and interventions to areas or groups of children where the risk of lead exposure is highest.

**Figure 1:** Elevated blood lead level (≥ 3.5 µg/dL) distribution among all children under 6 years of age residing in the District of Columbia with at least one reported blood lead test in FY 2022

[4] Lanphear, B. P., Dietrich, K., Auinger, P., Cox, C., & Braun, J. (2005). Cognitive deficits associated with blood lead concentrations <10 µg/dL in US children and adolescents. Public Health Reports, 120(6), 572-579.
[11] Grosse, S. D., Matte, T. D., Schwartz, J., Jackson, R. J., & Sharrett, A. R. (2002). Cumulative lead dose and cognitive function in elderly men: The Veterans Affairs Normative Aging Study. Environmental Health Perspectives, 110(3), 543-548.
[12] Needleman, H. L., Gatsonis, C. A., Kennedy, D., et al. (2002). The long-term effects of exposure to low doses of lead in childhood: An 11-year follow-up report. The New England Journal of Medicine, 346(22), 1621-1627.

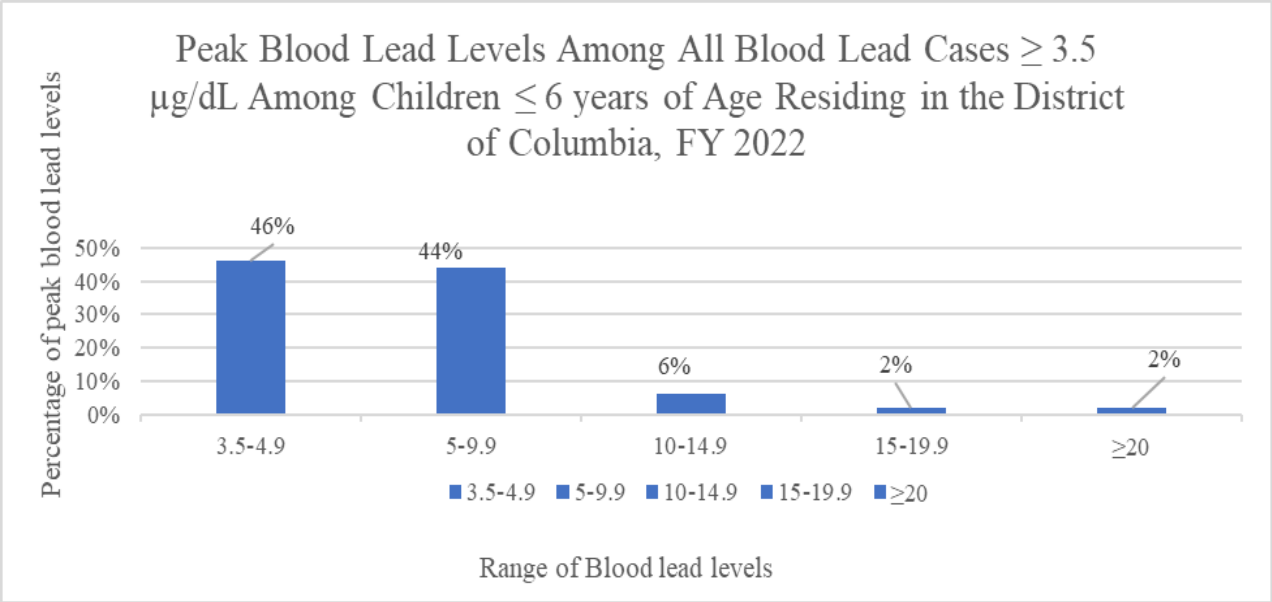



Figure 1 shows the distribution of peak blood lead levels among the 205 children who had at least one confirmed lead level ≥ 3.5µg/dL in FY2022. The data indicates that nearly half of the children (46%) had peak blood lead levels ranging from 3.5 µg/dL to 4.9 µg/dL. Another 44% had peak blood lead levels ranging from 5 µg/dL to 9.9 µg/dL. A proportion of children had peak blood lead levels in the range of 10 µg/dL -14.9 µg/dL (6%), 15-19.9 µg/dL (2%), and ≥20 µg/dL (2%).

**Table 3:** Elevated blood lead cases by Zip code, cases ≥ 3.5 µg/dL (N = 205) in FY 2022

| Zip code | Cases ≥ 3.5 |
|---|---|
| 20001 | 9 |
| 20002 | 22 |
| 20003 | 10 |
| 20007 | 5 |
| 20008 | 5 |
| 20009 | 9 |
| 20010 | 14 |
| 20011 | 51 |
| 20012 | 4 |
| 20015 | 4 |
| 20016 | 4 |
| 20017 | 11 |
| 20018 | 11 |
| 20019 | 9 |
| 20020 | 27 |
| 20024 | 1 |
| 20032 | 9 |

The data in Table 3 presents the number of children who tested ≥ 3.5 µg/dL by zip code. The highest number of cases was reported in zip code 20011, where 51 children had elevated blood lead levels. The zip codes with the next highest number of cases were 20002 and 20020, with 22 and 27 cases respectively. The zip codes with the lowest number of cases were 20007, 20008, 20012, 20015, 20016, and 20024, each with only 5 or fewer cases reported.

These findings offer valuable insights into the geographical distribution of elevated blood lead levels and can serve as a foundation for targeted interventions. In the future, the Lead-Safe and Healthy Housing Division plans to develop on these findings by conducting further analysis and implementing targeted prevention and

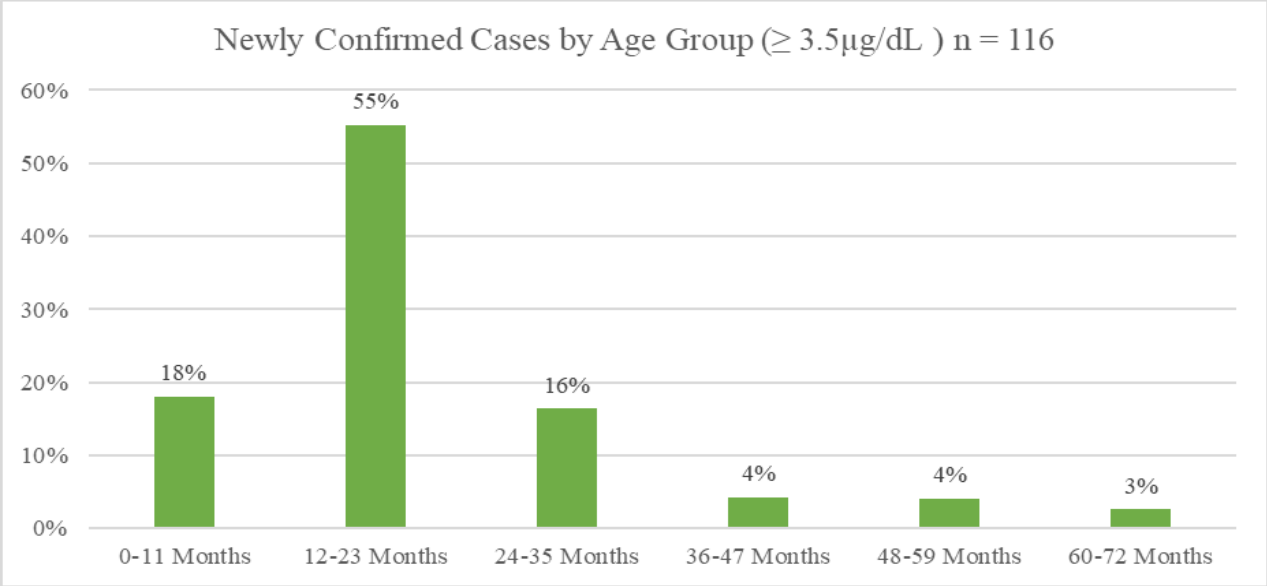
intervention strategies.

*Incident Cases*

This section focuses on the distribution of newly confirmed EBLL cases by age group and considers follow-up blood lead test results. These findings highlight the importance of follow-up testing and interventions for children with EBLLs.

The chart below displays the distribution of newly confirmed EBLL cases by age group, with a total of 116 cases reported. The highest proportion of cases was found in children aged 12-23 months, accounting for 55% of all cases, followed by the 0-11 months age group, which accounted for 18% of all cases. In contrast, the 24-35 months age group accounted for a smaller proportion of cases at 16%, while the 36-47 months, 48-59 months, and 60-72 months age groups had the lowest percentages of cases at 4%, 4%, and 3%, respectively.

**Figure 2:** Newly confirmed case distribution among all children residing in the District of Columbia with at least one reported blood lead test in FY 2022.




These findings suggest that children in the 12-23 month age group are at higher risk of developing EBLLs and will require targeted interventions to address this health concern. Children in this age group may be more vulnerable to lead exposure due to factors such as their increased likelihood to engage in behaviors that increase their risk of lead exposure, such as eating deteriorated paint chips or soil, materials known to have a more concentrated level of lead. Young children also have higher lead absorption rates compared to adults.[12]

[12] Needleman, H. L., Gatsonis, C. A., Kennedy, D., et al. (2002). The long-term effects of exposure to low doses of lead in childhood: An 11-year follow-up report. The New England Journal of Medicine, 346(22), 1621-1627.

In addition to age-related factors, other determinants may contribute to a higher risk of lead exposure in the 12–23 month age group, including socioeconomic status, housing conditions, and geographic location. Children living in older homes with lead-based paint or in neighborhoods with high levels of lead in the soil or water can lead to increased risk. Therefore, targeted interventions to address these risk factors are necessary to reduce the incidence of EBLLs in this age group.

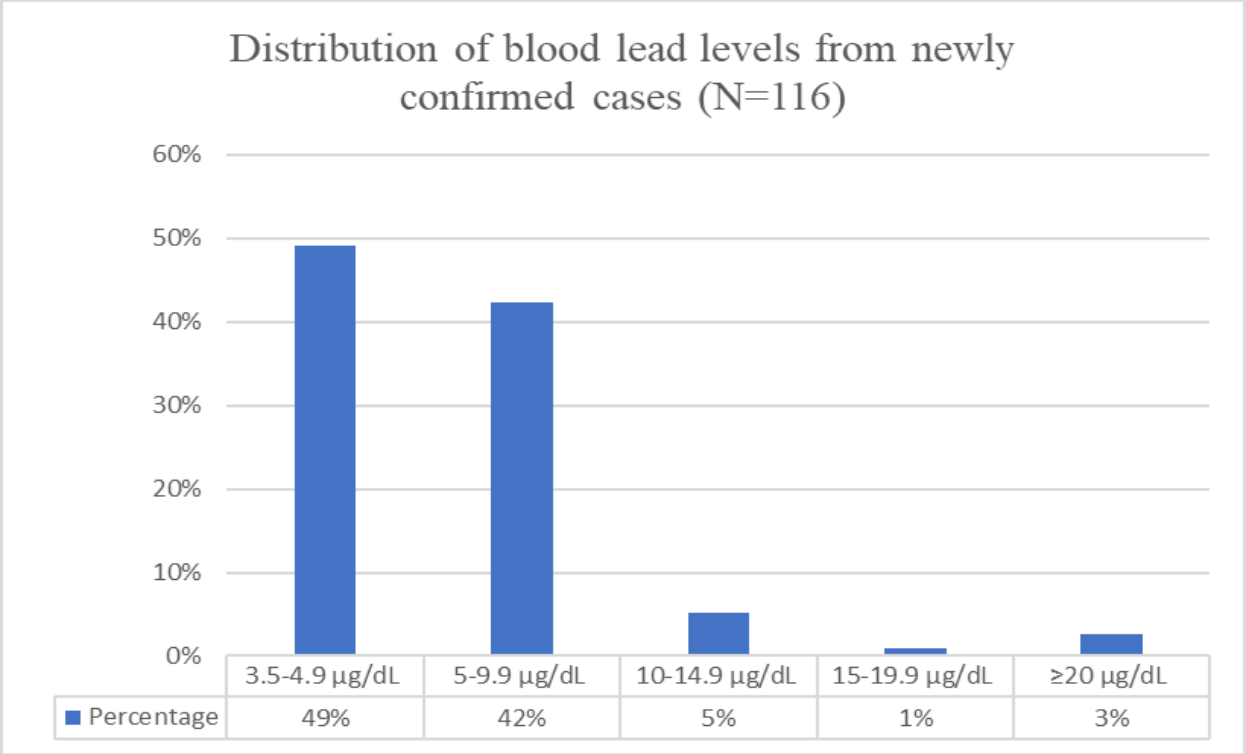
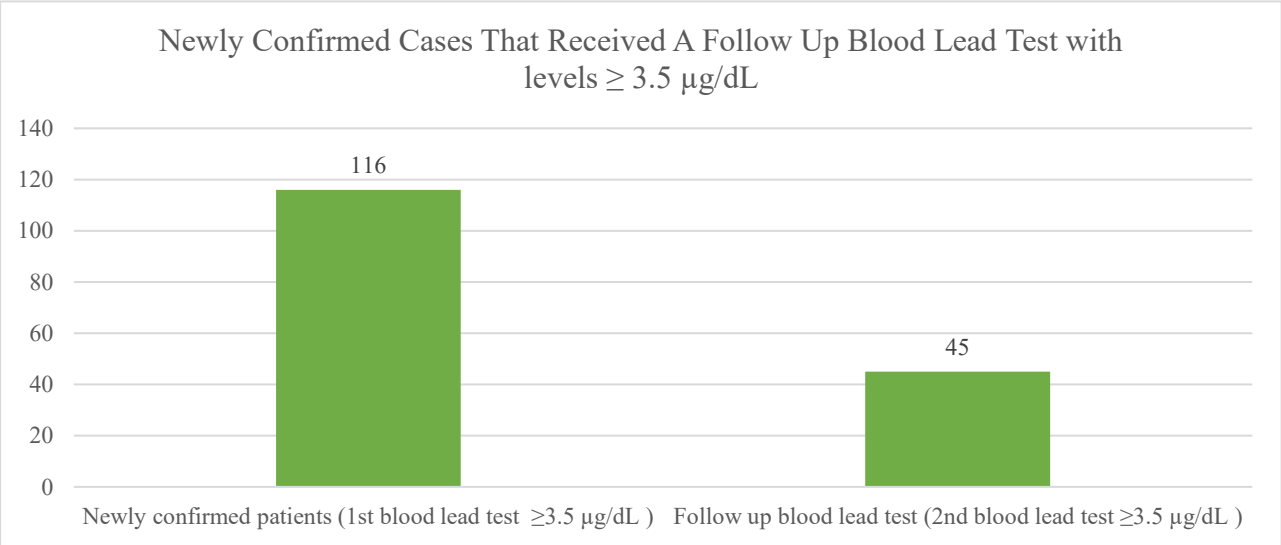



**Figure 3:** Newly confirmed cases with a blood lead level ≥ 3.5 µg/dL among all children under 6 years of age residing in the District of Columbia with at least one reported blood lead test in FY 2022.

The chart above provides the distribution of peak blood lead levels in 116 newly confirmed cases in FY 2022. The majority of patients had peak blood lead levels in the range of 3.5 µg/dL - 4.9 µg/dL, accounting for 49% of all cases. The second highest proportion of cases fell within the 5 µg/dL - 9.9 µg/dL range, representing 42% of all cases. The percentage of cases in the 10 µg/dL - 14.9 µg/dL and 15 µg/dL - 19.9 µg/dL ranges were lower, with 5% and 1% of cases, respectively. Finally, the highest blood lead levels, classified as ≥ 20 µg/dL, accounted for 3% of all cases.

**Figure 4:** Newly confirmed cases that received a follow up blood lead test with levels ≥ 3.5 µg/dL




The chart above indicates that of the 116 newly confirmed patients who had an initial blood lead test with levels 3.5 µg/dL, 45 had a follow-up blood lead test with levels ≥ 3.5 µg/dL. This indicates that nearly 39% of the newly confirmed patients had persistent EBLLs and will require further targeted interventions to address this health concern.

## Elevated Blood Lead Level Map

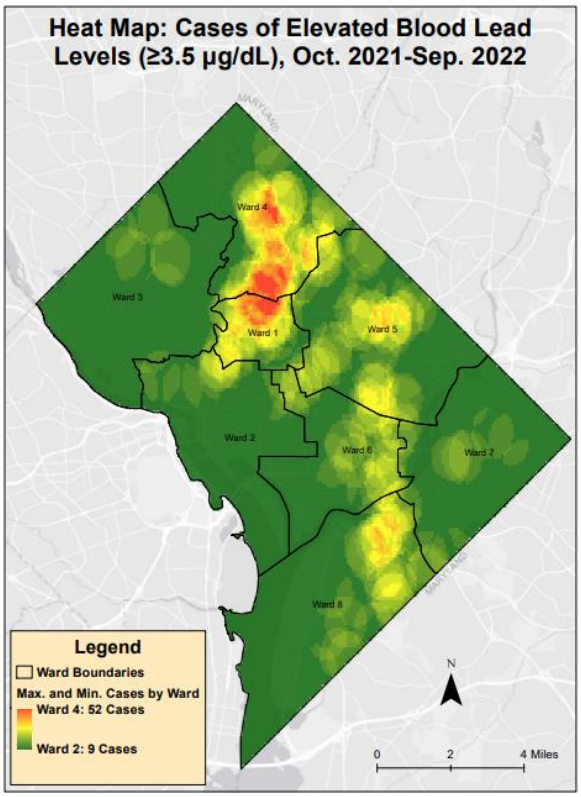



**Figure 5:** Hotspots for new confirmed elevated blood lead cases ≥ 3.5 µg/dL among District children under 6 years of age, FY 2022.

With a widespread distribution of pre-1978 housing, the District is a high-risk jurisdiction for residential lead hazards. Almost two thirds (63%) of owner-occupied units and one-third (34%) of renter-occupied units in the District were built before 1950.[13] The District also exceeds fifty states in the portion of housing (34%) built in 1939 or earlier, with 9 in 10 homes likely to have had lead-based paint.[13] GIS mapping of case data for FY 2022 reveals case clustering along the Georgia Avenue corridor in Wards 1 and 4, with additional clustering in Ward 6 (Figure 5). The Georgia Avenue corridor is home to some of the District's most vulnerable residents, including Latin American and African-born District immigrant and refugee populations. Case clusters are also visible east of the Anacostia River in

[13] US Census Bureau. (n.d.). American FactFinder - Results. Retrieved from https://factfinder.census.gov/

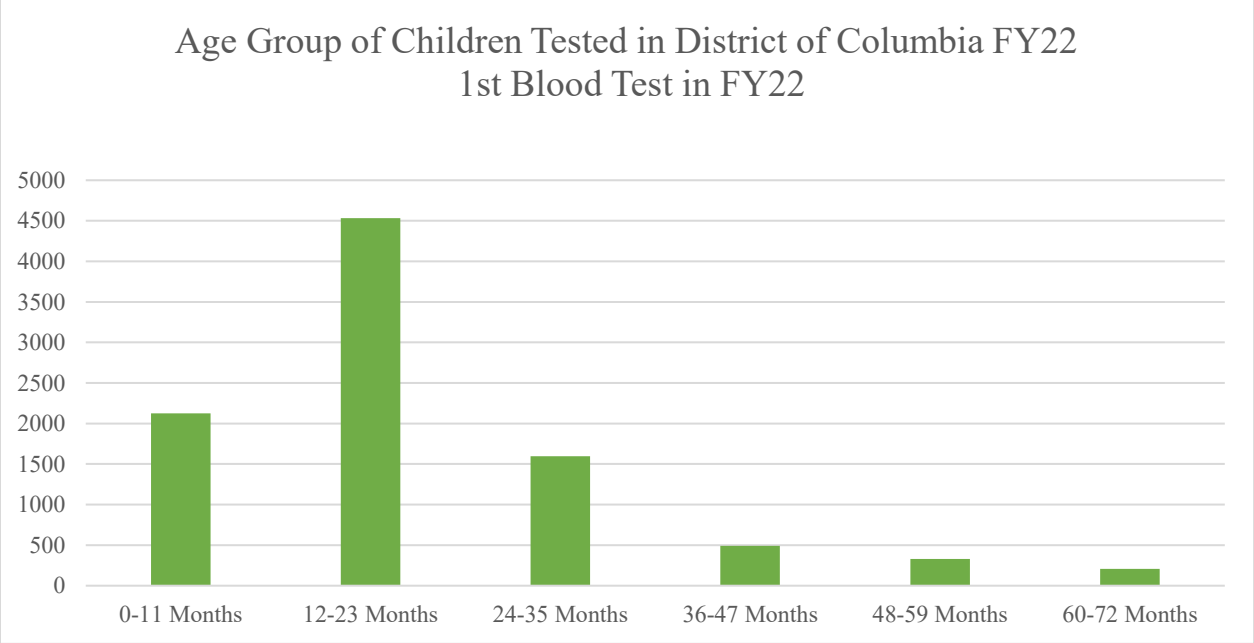
parts of Wards 7 and 8 in areas with predominantly African American residents, many of whom live in poverty. Wards 5 and 8 also appear to have a larger proportion of cases than the size of their respective child populations would warrant. Together, Wards 1, 4, 5, 6, and 8 accounted for nearly 80% of the blood lead levels equal to or greater than the CDC reference value of 3.5 µg/dL in FY 2022.

## Lead Screening Compliance

The District requires two blood lead tests by 26 months of age and testing up to six years of age if a child has not previously been tested for blood lead or has had a likely exposure to lead.[14]

Eligible children were born in the same or past fiscal year, d under the age of 2, and tested and/or retested for lead by healthcare providers. Figure 6 includes FY 2022 data from the DC Vital Records Department (DCVRD) for children born between October 1, 2020, and September 30, 2022, and tested between October 1, 2021, and September 30, 2022.

**Figure 6:** Children who received their first blood test in FY 2022




Based on the data, health care provider and facility testing were above 50% for children aged 26 months and younger in FY 2022. Further analysis reveals that the majority of children who had their first blood lead test in FY22 were tested between 12-23 months of age.

[14] District of Columbia Department of Energy and Environment. (n.d.). Lead Poisoning Prevention - Children 6 Years and Younger. Retrieved from https://doee.dc.gov/page/lead-poisoning-prevention-children-6-years-and-younger

In FY 2022, DCVRD identified 12,984 children who were eligible for blood lead level testing. To gauge the testing rate, LSHHD conducted a compliance analysis. This involved categorizing the total number of eligible children by ward, and then comparing these figures to the actual number of children tested in each ward.

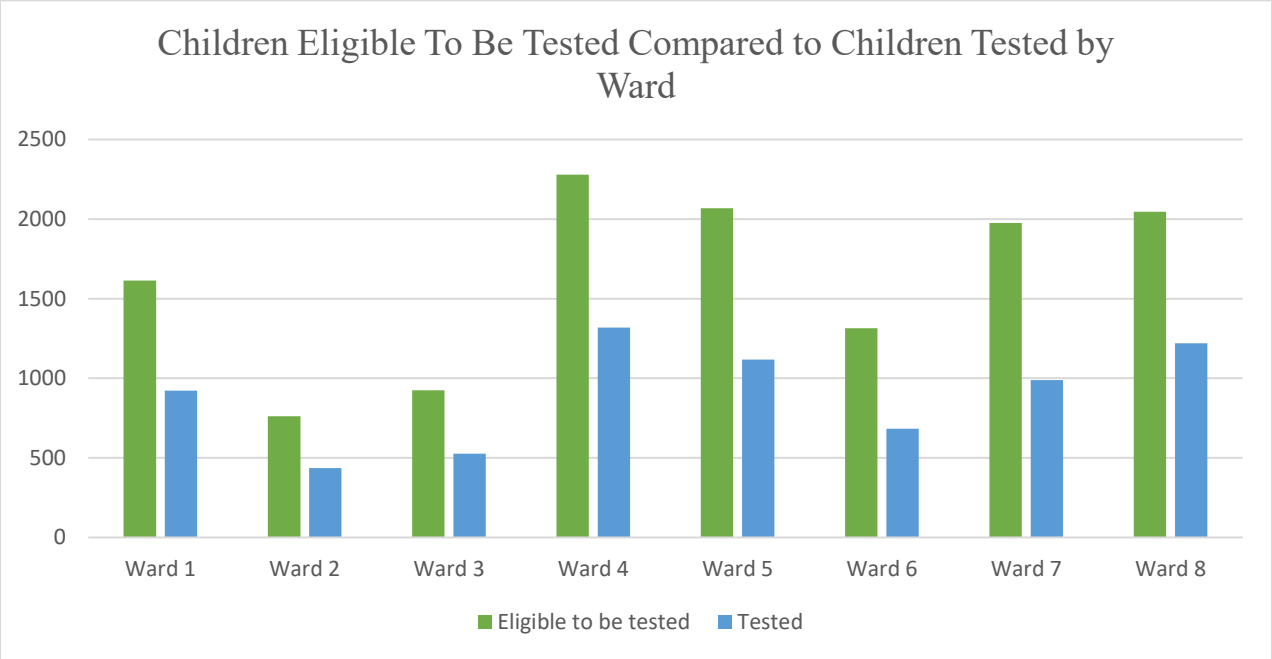
Out of the 12,984 children identified as eligible for testing by DCVRD, 7,211 (55.5%) were tested by healthcare providers and documented by DOEE. This analysis sheds light on the extent of blood lead level testing among eligible children in the district and can aid in pinpointing areas for lead testing improvement.

**Table 4:** Compliance percentage of children separated by ward

| Ward | Compliance percentage of children tested |
|---|---|
| Ward 1 | 57% |
| Ward 2 | 57% |
| Ward 3 | 57% |
| Ward 4 | 58% |
| Ward 5 | 54% |
| Ward 6 | 52% |
| Ward 7 | 50% |
| Ward 8 | 60% |

As shown above (Table 4), the LSHHD successfully reached a significant percentage of patients within the various wards—all above 50 percent. DOEE calculated these percentages by separating the number of children eligible within their respective ward as provided by DCVRD, using the HHLPPS system to compare the number of patients tested by LSHHD within the same ward, and dividing the two numbers to reach a percentage.

**Figure 7:** Children eligible to be tested compared to children tested by ward




As seen in Figure 7, compliance with testing requirements was highest in Wards 4 (58%), and 8 (60%), both of which were inthe 70$^{th}$ percentile for the District; in FY 2021, that compliance rate was only achieved by Ward 3. The LSHHD is taking serious measures to effectively tackle the compliance rate by partnering with sister agencies to address community needs and working with the CDC-funded grantees to serve specific ward residents.

## Lead Reporting Compliance

The District requires laboratories to report all BLL test results for children to DOEE's Childhood Lead Poisoning Prevention Program within one (1) week of analysis. DOEE interprets "laboratories" to include point-of-care testing to ensure a complete dataset of lead testing in the District. All EBLL test results greater than 10 µg/dL must be reported immediately. Healthcare providers and facilities must report EBLLs to DOEE within 72 hours of laboratory notification of the test result. For children with confirmed EBLLs, healthcare providers or facilities must provide medical case management and treatment, follow-up BLL testing, lead awareness and poisoning education, and appropriate referrals for social and environmental services. Failure to perform any of these actions is enforceable and may result in fines of up to $100 per violation.

The District also requires:

- Laboratories that perform or analyze blood lead tests for children residing in the District to forward all test results to DOEE and the health care provider or facility where the blood sample was taken;

- Health care providers or facilities to forward all EBLL results immediately to the child's parent or guardian; and

- Health care providers or facilities to provide written evidence of testing for lead exposure that includes the date of the test and the test results upon request of the child's parent or guardian.

In FY 2022, laboratories appeared to largely comply with the District's blood lead test reporting requirements. DOEE has no direct evidence that health care providers or facilities have failed to comply with the requirements related to reporting test results to parents or guardians of children less than 6 years old. Similarly, DOEE has no evidence that health care providers and facilities failed to comply with parent or guardian requests for written details regarding their child's blood lead test and test result.

DOEE collaborates with other District agencies and organizations to remind pediatric healthcare providers of blood lead testing and reporting requirements. In FY 2022, DOEE and the Department of Health Care Finance (DHCF) jointly issued a reminder letter to providers during October's National Lead Poisoning Prevention Week. DOEE and DHCF also continued to support the efforts of the District of Columbia Chapter of the American Academy of Pediatrics (DC AAP) to pilot a quality improvement project with pediatric practices to increase blood lead testing of young children. The project serves as a learning collaborative for pediatricians committed to improving lead screening within their practices.

## Holistic Approach to Addressing Lead Contamination

The District acknowledges the significance of primary prevention, early intervention, and testing young children for lead poisoning. DOEE has three branches within the LSHHD and other administrations working collaboratively to address lead issues in the District. Below is a synopsis of each program's involvement.

**The Healthy Housing (HH) Branch** is responsible for receiving all lead tests for children under 6 years of age in the District. The results primarily arrive at the HH Branch electronically and are reviewed manually to detect any inconsistencies. If inconsistencies are detected, the reporting lab is contacted for clarification. If DOEE personnel determine that a child has been poisoned by lead, DOEE's public health analysts work with health care providers and parents or guardians to ensure they are knowledgeable about the services DOEE and sister agencies have available to combat lead poisoning. The public health analysts provide ongoing case coordination, education, and support as needed through calls, texts, emails, home visits, and referrals to additional services. A few key services performed by our public health analysts include:

- Confirmatory blood lead tests: DOEE's public health analysts make initial calls to parents or caregivers in all EBLL cases ≥ 3.5 µg/dL. For unconfirmed cases, (i.e.,

those where EBLL reports are from only one capillary result), public health analysts encourage confirmatory venous testing for the child if the test has not already been scheduled or performed.

- Repeat blood lead tests: DOEE's public health analysts use HHLPSS to track compliance with the recommended schedule of repeated blood lead tests for EBLL cases. As needed, public health analysts remind parents/guardians and physicians about when the child's next follow-up blood lead test is due.

- In-Home risk assessments: DOEE's public health analysts routinely refer children with EBLLs ≥ 3.5 µg/dL to DOEE's Lead Compliance and Enforcement Branch (discussed more in the following section). If warranted or beneficial to District residents, DOEE refers both EBLL and lead enforcement cases to available resources for home remediation repair, including the Department of Housing and Community Development and District of Columbia Housing Authority.

Initial visits to EBLL homes typically included a public health analyst and lead risk assessor from the Lead Compliance and Enforcement Branch. The lead risk assessor conducts an environmental investigation that includes use of an X-Ray Fluorescence (XRF) Analyzer and collection of dust, water, bare soil, food, spices, makeup, medicine, and other samples.

**The Lead Compliance and Enforcement Branch (LCEB)** ensures compliance with the Lead-Hazard Prevention and Elimination Act[11] and implementing regulations.

LCEB works directly with homeowners, residents, and property managers when the HH Branch identifies an EBLL case. LCEB collaborates with the HH Branch on many in-home visits to determine if any potential sources of lead contamination exist in the house, including:

(1) Conducting lead risk assessments (i.e., testing of chipping or peeling paint and water for lead) to confirm the presence or absence of lead-based hazards.

(2) Engaging with clients monthly until compliance is reached. This includes education about temporary measures such as cleaning and creating barriers between the child and the hazard.

(3) When a lead permit is required, ensuring that all hazards are addressed according to DOEE regulations.

(4) Conducting audits of permits, certified professionals, property managers, and accredited training providers to ensure compliance with regulatory requirements.

[11] D.C. Official Code §§ 8-231.01 *et seq.*

(5) Reviewing clearance reports to ensure all components are properly addressed.

DOEE-certified lead risk assessors conduct a lead risk assessment, which includes a visual assessment, XRF testing, dust/soil sampling, and photographs in the home to identify the cause of lead poisoning. When a lead-based paint hazard is identified, DOEE requires its elimination by issuing the property owner or manager an Order to Eliminate Lead-Based Paint Hazards (Order), or in the case of owner-occupied homes, a Notice of Lead-Based Paint Hazards (Notice) to address the identified hazards. DOEE will issue a Notice or Order as appropriate and notify the property owner about DOEE's regulatory requirements.

The LCEB is partially funded by a grant from the U.S. Environmental Protection Agency (EPA) to implement professional certifications, accreditations, and permitting operations. The LCEB certifies individuals to work in the District and provide DOEE quality control by monitoring the activities and work product of a subset of these certified professionals. The total number of certified individuals and business entities is broken down as follows:

**Table 5:** Lead Compliance Certifications.

| **Discipline** | **Total Number of Newly Certified/Recertified in FY 2020** | **Total Number Certified in the District at the end of FY 2021** | **Total Number Certified in the District at the end of FY 2022** |
|---|---|---|---|
| Certified Workers | 218 | 464 | 529 |
| Certified Inspectors | 21 | 46 | 52 |
| Certified Risk Assessors | 48 | 109 | 115 |
| Certified Supervisors | 41 | 79 | 95 |
| Certified Project Designers | 0 | 2 | 2 |
| Certified Business Entities | 46 | 175 | 216 |

| | | | |
|---|---|---|---|
| Dust sampling Technicians | 8 | 26 | 22 |

DOEE-certified lead risk assessors hold multiple outreach and education sessions throughout the year, where they provide information related to lead permit requests, obtaining lead certification, lead training courses, and risk assessment and clearance examination procedures. These sessions provide beneficial information to clients before conducting any lead-related work.

Outreach is vital in preventing EBLL cases by bringing awareness to contractors and property owners about lead hazards and remediation strategies using lead-safe work practices. In FY 2022, the LCEB engaged three (3) accredited training providers, conducted inspections, and issued 128 lead abatement permits for lead activities in dwelling units, child-occupied facilities, and commercial properties.

**Figure 8:** Lead-Based Paint Hazards Distribution Across District Wards

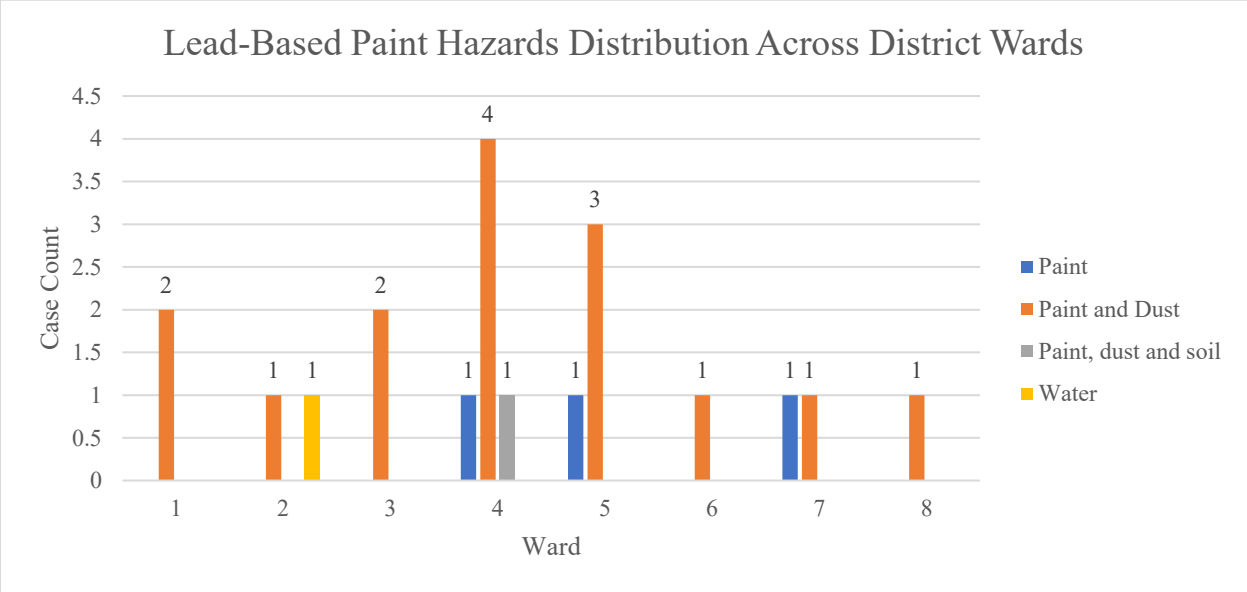



Figure 8 shows the lead-based paint hazards discovered during EBLL homes inspections across Wards 1 to 8. Ward 4 exhibited the highest count with 6 instances spanning “Paint,” "Paint and “Dust,” and “Paint, dust and soil.” Wards 3 and 6 have the least variation, each revealing “Dust” and "Paint and Dust.” Ward 5 presents 4 instances across 2 categories. Wards 7 and 8 collectively have three instances, respectively, mostly of “Paint” and “Paint and Dust.” Based on this data, we suggest targeted mitigation efforts, especially in Ward 4 due to its higher hazard frequency. Wards 3, 5, 6, 7, and 8 should focus on mitigating paint and dust hazards. By

prioritizing these areas and strategies, we can efficiently reduce the risks associated with lead-based paint.

The majority of lead exposures were associated with the "Residential exposure" category, which encompassed various sub-categories including "Toys," "Household Furniture," and "Kitchen Utensils." In particular, toys and kitchen utensils were a notable source of exposure. Household furniture was identified as an area of lead exposure, though to a lesser extent. Besides residential exposure, our data pointed out "Cultural/Traditional exposure," where the primary source of lead was "Spices."

**The Licensing and Certification Branch** addresses lead in drinking water in District-licensed child development facilities (CDF). The program was first established in the Childhood Lead Exposure Prevention Amendment Act of 2017.[12] Through the legislation, the District is committed to addressing lead in drinking water at recreation facilities, public and charter schools, and CDFs. The law mandates that the Department of General Services sample and test public schools and recreation facilities drinking water sources. Charter schools are responsible for sampling and testing drinking water sources at their schools, while DOEE supports compliance at CDFs. The Act defines a drinking water source as "a source of water from which a person can reasonably be expected to consume or cook with the water originating from the source."[13] Each CDF is required to locate all drinking water sources, install and maintain filters for reducing lead at all drinking water sources, and post conspicuous signs on water sources that are not drinking water sources. Any non-drinking water sources should not be used for cooking or consumption. In addition, all CDF drinking water sources must be tested for lead annually and if a test result indicates a lead concentration above 5 parts per billion (ppb), the drinking water source must be shut off within 24 hours after receiving the test result. Then, the CDF willdetermine the proper remediation steps (with the help of professional services) and notify parents and guardians of the attending children of the test results and remediation steps. Further, DOEE and the Office of the State Superintendent of Education (OSSE) are required to report annually on CDF compliance with the Childhood Lead Exposure Prevention Amendment Act.

In FY 2022, DOEE inspectors collected 1,262 drinking water samples from 156 CDFs, including 1,024 samples from 109 child development centers, 132 samples from 25 child development homes, and 106 samples from 22 child development expanded homes. Ward 8 had the most facilities sampled in 2022. Of the samples collected, six (6) child development facilities had at least one water source with a lead concentration exceeding 5 ppb.

Implementing a lead filtration program is important to OSSE and DOEE's shared commitments to ensure that children and staff at childcare facilities in the District are not exposed to unsafe levels of lead from drinking water sources. Since the implementation of the Act, CDFs have

[12] D.C. Law 22-21, D.C. Official Code §§ 38-821.01 *et seq.*
[13] *Id.* at § 38-821.01(1C)(A).

installed lead filters, tested for lead in drinking water, and implemented necessary corrective actions. In the future, more webinars will take place for "Lead in Water" compliance education for all CDFs. This ensures that all facilities understand the current legislation and allows for continued updates. OSSE and DOEE will continue to work collaboratively to improve the implementation and monitoring of water sources in CDFs to ensure that children and staff at childcare facilities in the District are not exposed to lead from drinking water sources.

The **Lead Reduction Program (LRP)** was established in FY 2021 through funding DOEE received from the U.S. Department of Housing and Urban Development to assist eligible households with lead-based paint hazard reduction activities. The primary purpose of the LRP is to protect the maximum number of young children under the age of six from lead poisoning in the District. To be eligible, the household must meet income requirements, and the property must have been built before 1978. Priority for this program is given to households with children under the age of six. Once DOEE receives a complete application with required documentation and verifies that a household is eligible for LRP, they are assigned to a non-profit that coordinates with contractors to:

- Complete a Lead Inspection and Risk Assessment (LIRA) to identify lead-based paint and health or safety hazards;
- If lead-based hazards are discovered during the LIRA, prepare a scope of work and assign it to a contractor;
- Once the scope of work is assigned, schedule and complete the work (during this phase, inhabitants may be required to relocate to a temporary lead-free facility); and
- Perform a lead clearance test prior to the household reoccupying the dwelling.

The **Lead Pipe Replacement Assistance Program (LPRAP)** assists property owners by paying a portion or all the costs to complete the replacement of a partial lead service line. Residential service lines with lead or galvanized pipes in private space and non-lead pipes in public space qualify for LPRAP. Every eligible property owner can receive coverage for 50% of their costs (up to $2,500) regardless of income. Some residents will qualify for up to 100% assistance depending on household size and income. After a homeowner submits a complete application, DOEE will process the application and assign a relief level based on the applicant's household size and income. The next steps include:

- DOEE will notify the homeowner of the assistance level for which they have been approved and send the homeowner DC Water's Contractor List;
- The homeowner will choose a contractor from the Contractor List to perform the replacement;
- The chosen contractor will submit a Cost Proposal Form, with the homeowner's signature, to DC Water for review; and
- Once DC Water recommends approval for the Cost Proposal, DOEE will send the homeowner a Benefit Confirmation Letter detailing the next steps.

## Recommendations

Based on the findings of this report, below are key recommended strategies and activities to improve future childhood lead screening, surveillance, and prevention in the District of Columbia.

| Action | Description | Agencies | Completion Date ▪ |
|---|---|---|---|
| **Blood Lead levels** | Implement preventive measures based on the FY 2022 Compliance analysis. The compliance analysis helps identify patients that are eligible to be tested within the District, any areas with a high population of eligible children can be targeted for possible outreach. | DOEE | 9/30/23 |
| **Enhance the understanding, prevention, and tracking of childhood lead poisoning through a comprehensive approach.** | Extend monitoring to other potential hotspots based on data trends from FY 2022.<br><br>Gather detailed information on lead exposure sources, affected populations, and geographical distribution. Utilize heat maps to visually represent the distribution and intensity of lead poisoning cases. | DOEE | 9/30/23 |
| **Continuous updating of the lead registry** | Develop an annual review process for the lead registry to ensure data accuracy and relevancy.<br><br>Integrate the lead registry with other relevant healthcare databases for comprehensive view and analysis. | DOEE and hired contractor, Chesapeake Regional Information System for our Patients (CRISP) | 9/30/23 |
| **Improve linkages to recommended services for children with EBLLs.** | Based on the surveillance model findings, develop targeted interventions for focus areas due to the high volume of patients that are obtaining an elevated blood lead level. | DOEE | 9/30/23 |

| | | | |
|---|---|---|---|
| | Expand collaboration with other utilities and departments, including housing and health, for a multi-pronged approach to lead mitigation. And to ensure more children are being tested | DOEE and other governmental agencies | 9/30/23 |
| **Community outreach supported by DOEE** | Utilize the findings from the compliance analysis to create targeted outreach programs in communities with high EBLL incidence and identified hazards. | DOEE | 9/30/23 |
| **Compliance** | Conduct regular compliance audits to ensure that guidelines are being followed and interventions are working. | DOEE | 9/30/23 |