**Supplemental Material**

1. **Child and housing characteristics for cases included versus those excluded from analysis**

Supplemental Table 1 presents a comparison of child and housing characteristics for cases included versus those excluded from analysis. The only significant difference between the two groups was child age. Those excluded from the analysis were older. The mean age of children included in the analysis was 1.4 years; for those excluded it was 2.3 years (p=0.0001).

1. **Soil and water sampling and results**
   1. **Methods**

In addition to paint and dust samples collected during environmental inspections, risk assessors tested for lead in tap water and soil outside the home.

Risk assessors obtained two cold water samples from the faucet primarily used for drinking and cooking. The “first-draw” sample followed a request to families not to use the tap for at least 6 hours, and risk assessors obtained the second, “flushed water” sample after running the water for 5 minutes. Water samples were analyzed for lead by the Maine Health and Environmental Testing Laboratory (HETL), using U.S. EPA Method 200.8 with an Agilent 7500s ICP-MS ORS (Agilent Technologies, Santa Clara, California). A water sample was classified as a lead hazard if it exceeded the EPA action level (15 ppm). We considered the home to have a water hazard if the risk assessors determined at least one sample to be a water hazard.

Risk assessors used a trowel to collect the top one-half inch of soil from two areas—the building perimeter and potential child play area. The perimeter sample included 5-10 soil samples collected from all sides of the building, at least 2 feet from each other and 2 feet from the foundation. The child play area sample included 3-10 soil samples at least 1 foot apart in an X-shaped grid. Soil samples were analyzed for lead by the Maine HETL, according to U.S. EPA Method 6010B using an optical spectrometer (Optima 4300DV, PerkinElmer Inc., Shelton, CT. A soil sample was considered a lead hazard if lead levels exceeded the Maine Department of Environmental Protection (DEP) standards for soil (play area: 375 ppm, building perimeter: 1000 ppm) samples (Maine DEP 06-096 Chapter 424). The state of Maine employs more stringent soil standards than those specified by EPA (play area: 400 ppm, bare soil: 1200 ppm) (40 C.F.R. §745.65). We considered the home to have a soil hazard if the risk assessors determined at least one sample to be a soil hazard.

**2.2. Results**

*Inspection characteristics*

Risk assessors obtained water samples in 82% of homes, and of those, 99% had both a “first-draw” and “flushed water” sample. Risk assessors obtained soil samples in 41% of homes (snow cover or frozen ground prohibited soil sampling in a subset of homes). Of homes with soil samples, 63% had perimeter samples, and 62% had play area samples. As compared to homes associated with BLLs of 10 µg/dL and higher, risk assessors tested water (80% vs 89%, p=0.12) and soil (41% vs. 43%, p=0.73) slightly less often for BLLs of 5-9µg/dL.

*Lead hazard characteristics*

Only 2% of children lived in homes with water hazards. We found no difference in lead levels in the first-draw water sample or flushed water sample between BLL groups (Supplemental Table 2), and water lead levels were not correlated with BLLs (Spearman’s r = -0.0097 for first-draw water sample and 0.02 for flushed water sample).

Thirty-four percent of homes with soil samples had a perimeter soil hazard and 13% had a play area soil hazard. Children with BLLs of 5-9µg/dL, as compared to children with BLLs ≥10µg/dL, lived in homes less likely to have play area soil above the Maine DEP standard (16% vs. 38%, p=0.04). Play area soil lead levels were not correlated with child BLL (Spearman’s r = 0.13, p=0.22). Perimeter soil lead levels did not differ by BLL (Supplemental Table 2).

1. **Evaluation of Pre- and Post-Abatement Blood Lead Levels**
   1. **Methods**

The analysis was restricted to include children who: had a follow-up venous blood test 1-6 months post-abatement; lived in a rental home; and, were confirmed to live in the same dwelling pre- and post- abatement. If a child had more than one follow-up BLL test between 1-6 months post-abatement, the most recent test was used for the analysis. The State of Maine Health and Environmental Testing Laboratory provided the actual blood lead values for all results initially reported as less than the laboratory reporting limit of 3µg/dL. Percent difference was computed as the [(vBLLpost-abate – vBLLpre-abate) / vBLLpre-abate] × 100.

* 1. **Results**

Thirty-two children met the criteria for inclusion in the exploratory analysis. On average, a post-abatement BLL was obtained 2.8 months after the abatement and was, on average, 37% lower than the pre-abatement BLL. Only one child had a BLL that increased (3 ug/dL) post-abatement. Four children (13%) had no change in BLL; all others (84%) had a decrease in BLL with an average reduction of 46%. Supplemental Figure 1 presents a scatter plot of percent difference in pre- versus post-abatement BLL by pre-abatement BLL.

Supplemental Table 1. Child and housing characteristics for cases includeda versus those excludedb from analysis

|  |  |  |
| --- | --- | --- |
|  | Cases included in analysis | Cases excluded from analysis |
|  | n=351 | n=131 |
|  | Median (IQR) or % | |
| **Child characteristics** |  |  |
| Blood lead level (µg/dL) | 6(4) | 6(3) |
| Age (years)\* | 1.4(1.1) | 2.3(1.8) |
| Medicaid insurance (%) | 73 | 76 |
| **Housing characteristics** |  |  |
| Home owned (vs. rented) (%) | 31 | 35 |
| Age of home (%) |  |  |
| Pre 1950 | 87 | 85 |
| 1950-1978 | 7 | 6 |
| Post 1978 | 6 | 9 |

Abbreviation: BLL: blood lead level.

Due to rounding, percentages may not sum to 100.

\*Significant at a p-value of 0.0001

a Missing data for participants included in analysis (n=351): 3 participants missing Medicaid status, 3 housing status, and 50 house year.

b Missing data for participants included in analysis (n=131): 2 participants missing Medicaid status, 4 housing status and 31 house year.

Child and housing characteristics in Table 1 where a majority of data (>50%) was missing for excluded cases were not included in this table.

Supplemental Table 2. Results of soil and water lead sampling overall and by BLL for all casesa

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Overall | | | BLL  5 to 9 µg/dL | BLL  ≥10 µg/dL |
|  | n=351 | | | n=272 | n=79 |
|  | Median (IQR) or % | | | | |
| **Water** | |  | |  |  |
| First draw (ppm) | | | 0.3(1.1) | 0.3(1.1) | 0.4(1.1) |
| Flushed draw (ppm) | | | 0.3(0) | 0.3(0) | 0.3(0) |
| Water draw exceeding EPA action level (15 ppm) | | | 2 | 2 | 0 |
| **Soil** | | |  |  |  |
| Play area average (ppm) | | | 98(294) | 81(223) | 128(609) |
| Dripline average (ppm) | | | 1200(2360) | 1200(2367) | 2184(3043) |
| Play area exceeding Maine DEP standard (375 ppm) (%)\* | | | 21.6 | 15.6 | 37.5 |
| Dripline exceeding Maine DEP standard (1000 ppm) (%) | | | 54.4 | 54.2 | 55.6 |
|  |  | | |  |  |

Abbreviation: BLL: blood lead level, DEP: Department of Environmental Protection.

\*Significant at a p-value of <0.05

a Missing data for participants overall (n=351): 63 missing first draw water, 65 missing second draw water, 208 missing any soil test data, 263 missing play area soil, 263 missing dripline soil.

Supplemental Figure 1. Percent difference in pre- and post-abatement venous blood lead levels by pre-abatement blood lead level for children confirmed to have remained living in the dwelling pre- and post-abatement.