



Community Brief: Residential Lead Inspection Pilot Review

September 9, 2024

ACKNOWLEDGEMENTS

This review was made possible through the participation of individuals in THEP's Residential Lead Inspection Pilot. Families shared their feedback via interviews. Current staff Meghan Morris and Cecilee Pitman from the Family Health program (delivered by Interior Health), and Cindy Hall and Wendy Goodrich from the Community Program Office (delivered by AtkinsRéalis Canada Inc.) were also interviewed to validate the information collected from program data and family interviews, and to add their perspective on the experience of the program. Administrative data was provided by Interior Health and AtkinsRéalis. The report was reviewed by Morgan Sternberg, Wendy Goodrich and Cindy Hall of AtkinsRéalis, Dave Bell and Clare North from Teck Trail Operations, and Meghan Morris and Cecilee Pitman from Interior Health. Data analysis benefited from the work of Lindsay Lister of Gold Island Consulting. Interviews with families were conducted by Michelle Laurie associates, and production of this community brief was a collaborative effort by Michelle Laurie, the Trail Area Health & Environment Committee Lead Facilitator, THEP's Community Program Office/AtkinsRéalis and Teck Trail Operations.

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BACKGROUND

Since 2019, the Trail Area Health & Environment Program (THEP) has offered pilot Residential Lead Inspections (RLI), via Enhanced Healthy Families Healthy Homes Support (ES). The RLI pilot is targeted to families with children aged 6 to 36 months¹ with elevated blood lead (Pb) levels. Elevated blood lead levels are above the BCCDC's Exposure Investigation Level (EIL) of 5 ug/dL. At over 5 ug/dL, a child's blood lead is reportable in BC and they are eligible for ES from THEP. **RLI includes testing of water, paint, soil and dust in the home environment, with the aim of identifying potential exposures to lead.** The RLI pilot uses a modified U.S. Department of Housing and Urban Development (HUD) approach².

Between 2019 and early 2024 about half of the eligible ES families participated in the RLI pilot (33 families participated, representing 36 children, and 37 homes). Identifying sources of lead in a child's home helps identify potential contribution to a child's elevated blood lead level, it also empowers families to take steps to protect their health³. We note there may be other sources of lead exposure in a child's daily life and RLI focuses on four potential residential exposure sources.

The purpose of the RLI pilot review is to better understand the value of the pilot to families and to inform recommendations, and suggest next steps for THEP.

OBSERVATIONS

1) RLI is helping families according to 100% of those interviewed along with staff.

Data collected through the RLI pilot provides ES families with information on the potential lead sources present in their own home environment. In addition, it empowers families to share what they learned with friends and extended families as well as through daycares and to the community via social media. RLI led to:

- increased understanding of the various potential sources of household lead exposure;
- changed behaviours (such as increased cleaning and hand-washing);
- increased understanding that a child's potential exposure to lead in paint and soil depends on the condition of paint and the quality of ground cover; and
- in some cases, mitigation or abatement projects to reduce or remove potential exposure sources.

2) Lead exposure source prevalence was most common for paint, followed by dust, and then soil.

At every RLI property, at least one substance tested above the applied thresholds for lead content (see figure below).

The most frequently identified potential exposure sources were paint and dust. In 78% of RLI homes, **both** paint (in poor/fair condition) and dust were identified as potential exposure sources. Exposure risk

¹ Children of ages outside this range were part of pilot.

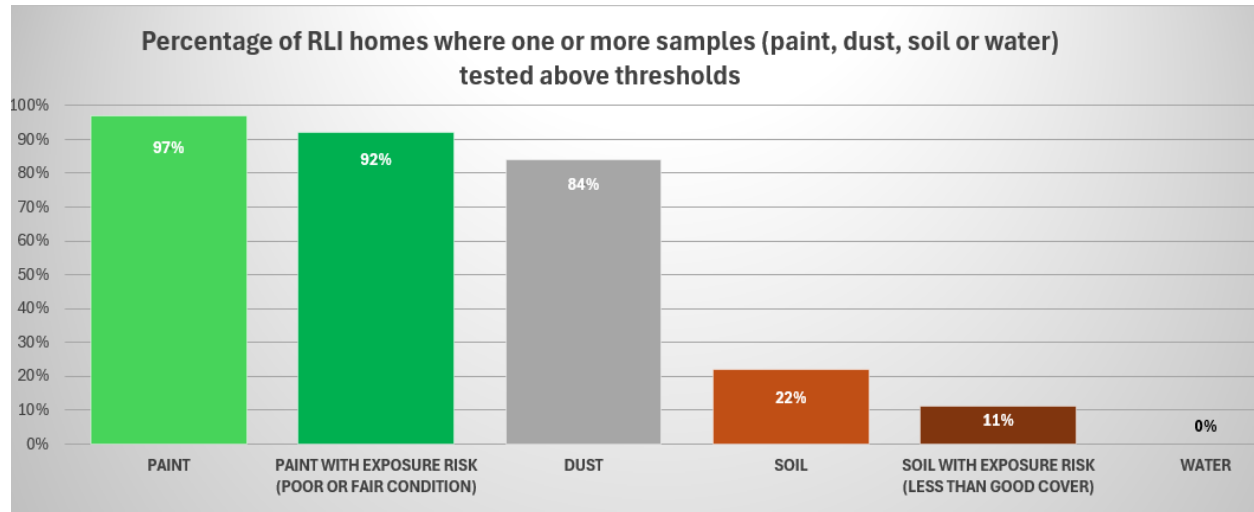
² Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing. U.S. Department of Housing and Urban Development, Office of Healthy Homes and Lead Hazard Control. 2nd Edition. July 2012.

³ There are many other things in a child's environment can influence brain development (such as stress, trauma, nutrition, play, exploration, and nurturing).

from lead in paint that is in good condition is low, however, if the paint is disturbed or deteriorates to fair or poor condition, the potential exposure risk increases.

Many RLI properties had their soil managed previously. A potential soil exposure risk⁴ was identified at 11% of RLI properties, where soil management had not been completed.

Drinking water was not identified as a potential exposure source at any of the properties since all samples showed lead concentrations below the drinking water standard.



* Indoor Dust is compared to the *United States Environmental Protection Agency (US EPA), Hazards for Lead in Paint, Dust and Soil (TSCA Section 403)*, (January 2020). Note that there is not an equivalent Canadian standard.

*Paint refers to samples testing above *Canada's Surface Coating Materials Regulation, (SOR/2016-193)*.

*Soil is compared to the THEP Soil Management Program (SMP) risk-based standard of 400 ppm Pb.

*Drinking water is compared to the *Guidelines for Canadian Drinking Water Quality (GCDWQ), Health Canada (August 2024)*.

3) RLI may be a contributor to lowering blood lead levels.

Of the 35 children who had their blood tested after RLI, 31 (89%) showed a blood lead decrease below the EIL⁵ and three others showed levels that were trending lower. Acknowledging this is a limited dataset, this decrease suggests that RLI may be a contributing factor in reducing blood lead levels, in addition to independent factors (e.g., age related decrease in BLL, behaviour changes, nutrition, etc.).

CONCLUSIONS & RECOMMENDATIONS

Based on the environmental data collected, along with interviews with RLI participants (12 of 33) and staff (4), THEP has gained a better understanding of the value of the pilot to families and broader programs. The following summarizes conclusions and recommendations.

The RLI pilot provides home-specific results on potential lead sources to participants, provides a big picture understanding of factors that may contribute to elevated blood lead levels in children, and

⁴ > 400 parts per million (ppm) Pb with poor or average ground cover

⁵ Elevated Investigation Level (EIL) = Blood lead level exceeding 5 µg/dL

empowers families to make changes in behaviours and/or undertake mitigation measures in their home to reduce exposure risks.

In addition, the RLI pilot helped focus the conversation between staff and families back to the core messaging of the program **to reduce exposure to lead from all potential sources**. Within the limitations of this study, we found an association between RLI interventions and reduced blood lead levels that THEP suggests is explored further.

It's recommended that RLI continue as a standardized support to benefit families of children with elevated blood lead levels.

This includes:

- Continued dust sampling to provide household-specific information
 - reinforce messaging to all families in THEP area that dust comes from a combination of sources (e.g., air, soil and paint) and higher lead dust levels are typically found around entranceways followed by play areas
 - focus future dust sampling to entranceways and play areas.
- Continued water sampling to rule out a potential lead source and reinforce messaging on running taps in the morning and other ways to reduce any potential exposure from lead detected in water.
- Continued soil testing and management activities delivered via the Soil Management Program (including exterior paint testing).
- Continued paint testing (interior) (as of January 2024 is part of HFHH program).
- Increased communications with families as **feeling supported** at all stages was shown as a **critical benefit of RLI**.
- Share information and learning with community partners, such as daycares, who may benefit from the data to improve their own programs.
- Update and improve THEP public messaging based on findings.

Future study could focus on:

- Prevalence and common locations of lead in paint in Trail Area homes, including an evaluation of paint condition to assess exposure risk. Data may support guidance on managing lead in paint, lead safe renovation supports and there may be an opportunity to better target messaging and resources.
- Comparing blood lead and behaviour trends of ES families that did not receive RLI during the same period. For example, amongst the group that did not participate in the RLI pilot:
 - what was the trend in blood lead levels; and
 - were behaviours modified or changes made in the home environment to reduce potential sources of lead exposure.
- Consider how RLI, or elements of RLI, could benefit the community as part of the HFHH primary prevention program.