

Lead-based paint exposure in New Zealand dwellings

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This report examines non-occupational exposure to lead-based paint from 2014 to 2024, as part of Environmental Health Intelligence NZ's (EHINZ) Hazardous Substances Surveillance System. Lead absorption notifications are strongly linked to older dwellings, particularly those built before 1940, when lead levels in paint were highest. Since 2014, 391 notifications from lead-based paint have been recorded in New Zealand. Renovation activities can generate lead dust, creating an exposure pathway. Lead poses serious health risks, especially for children and pregnant women, affecting neurological, renal, cardiovascular, and developmental systems. These findings highlight the ongoing need for public awareness and prevention measures in older dwellings.

Exposure to lead is a major public health concern

The World Health Organisation (WHO) recognises lead as one of the top ten chemicals of concern, and there is no known safe level of exposure to lead, particularly for children (WHO 2024). In New Zealand, blood lead levels (BLL) of 0.24 µmol/L (5 µg/dL) or higher must be reported under the Health Act 1956. Since 2014, EHINZ has recorded 391 notifications associated with lead-based paint exposure (Environmental Health Intelligence NZ 2025). However, this figure is likely to underestimate the true burden of exposure, as blood lead levels of 0.24–0.47 µmol/L were not notifiable before 9 April 2021 and therefore were not captured in surveillance data before that. Lead-based paint remains one of the most frequently reported known sources of non-occupational lead exposure.

Renovation activities, such as sanding, stripping, or disturbing old paint, pose a significant risk in older dwellings due to the generation of dust containing lead. Soil and dust contamination from lead in this way becomes an exposure pathway (Blunden 2020; Health New Zealand | Te Whatu Ora 2026).

Health effects of lead exposure

Lead exposure poses serious health risks, affecting multiple body systems and vulnerable populations (Health New Zealand | Te Whatu Ora 2026), including:

- Adverse effects on neurological, renal, cardiovascular, haematological, immunological, reproductive, and developmental systems.
- Increased susceptibility to long-term health impacts among children and pregnant women.
- Severe poisoning that can ultimately result in death.

Lead hazard levels

Older dwellings are more likely to contain lead-based paint. Renovations can lower the hazard if old paint is removed or sealed safely, but increase it if lead layers are disturbed. The following hazard levels are adapted from Health NZ (2026):

Period	Hazard level	Reason
Pre-1940	Very High	Paintwork contains high lead content
1940–1959	High	Paintwork probably does contain high lead content
1960–1979	Medium	Paintwork possibly does contain high lead content

1980+

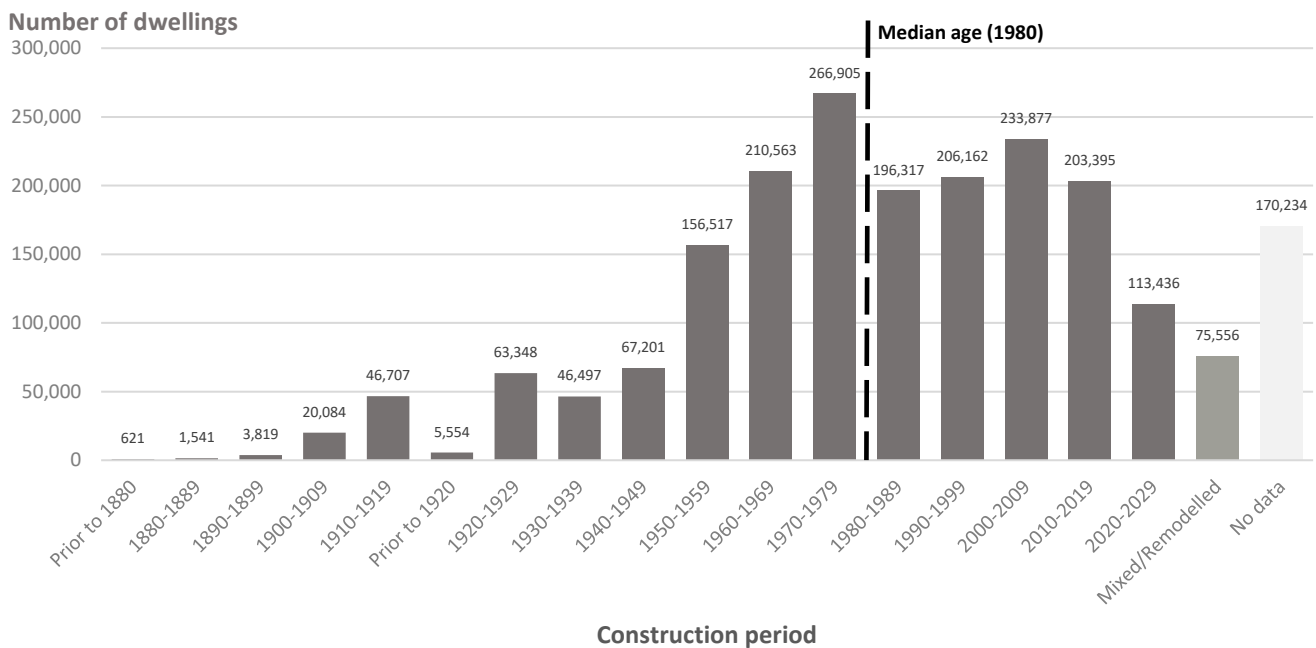
Low

Paintwork may generally be assumed to have a very low lead content, unless old stock or industrial specification paint was used.

Dwellings with potential for lead-based paint exposure

New Zealand’s housing stock has a median construction year of 1980. Nearly 900,000 dwellings predate the 1980 phase-out of lead-based paint, including over 180,000 built before 1940, when lead levels in paint were at their peak (Figure 1) (QV 2024).

Figure 1. New Zealand dwellings, by age, 2024



Note 1: The District Valuation Roll (DVR) data by Territorial Authority includes age and valuation assessments from 2021 to 2023, current as of 5 June 2024.

Note 2: Dwellings comprise 89% residential and 11% lifestyle properties.

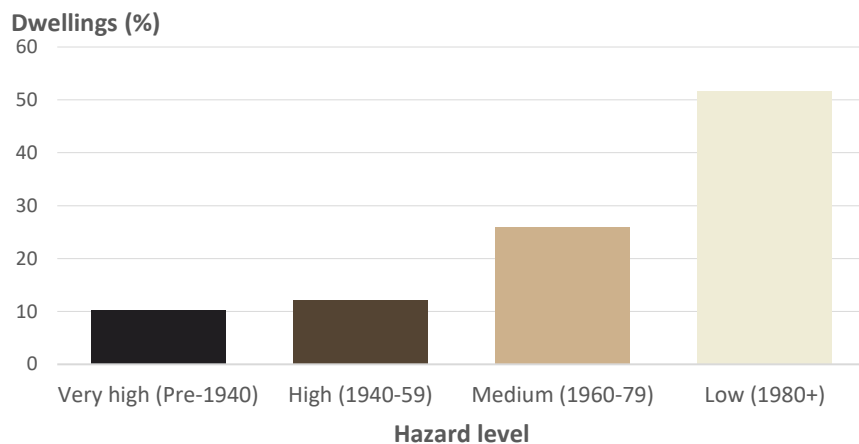
Note 3: See ‘Data for this report’ section for dwelling definition (Stats NZ 2024).

Source: QV, 2024

Most New Zealand dwellings (51.7%) fall into the low hazard category for lead paint (built from 1980 onward), 25.9% into the medium hazard category (1960–1979), and 12.1% into the high hazard category (1940–1959). Dwellings built before 1940, classified as very high lead paint hazards, make up 10.2%. These categories exclude dwellings with unknown age or remodelling history (Figure 2). Renovations may increase or decrease hazard levels, depending on whether old paint was removed, sealed, or disturbed.

Note on colour schemes in this report: Brown tones represent dwelling age-based hazard categories (potential lead-based paint exposure), while red tones represent dwellings with notified lead-based paint exposure within the same hazard categories.

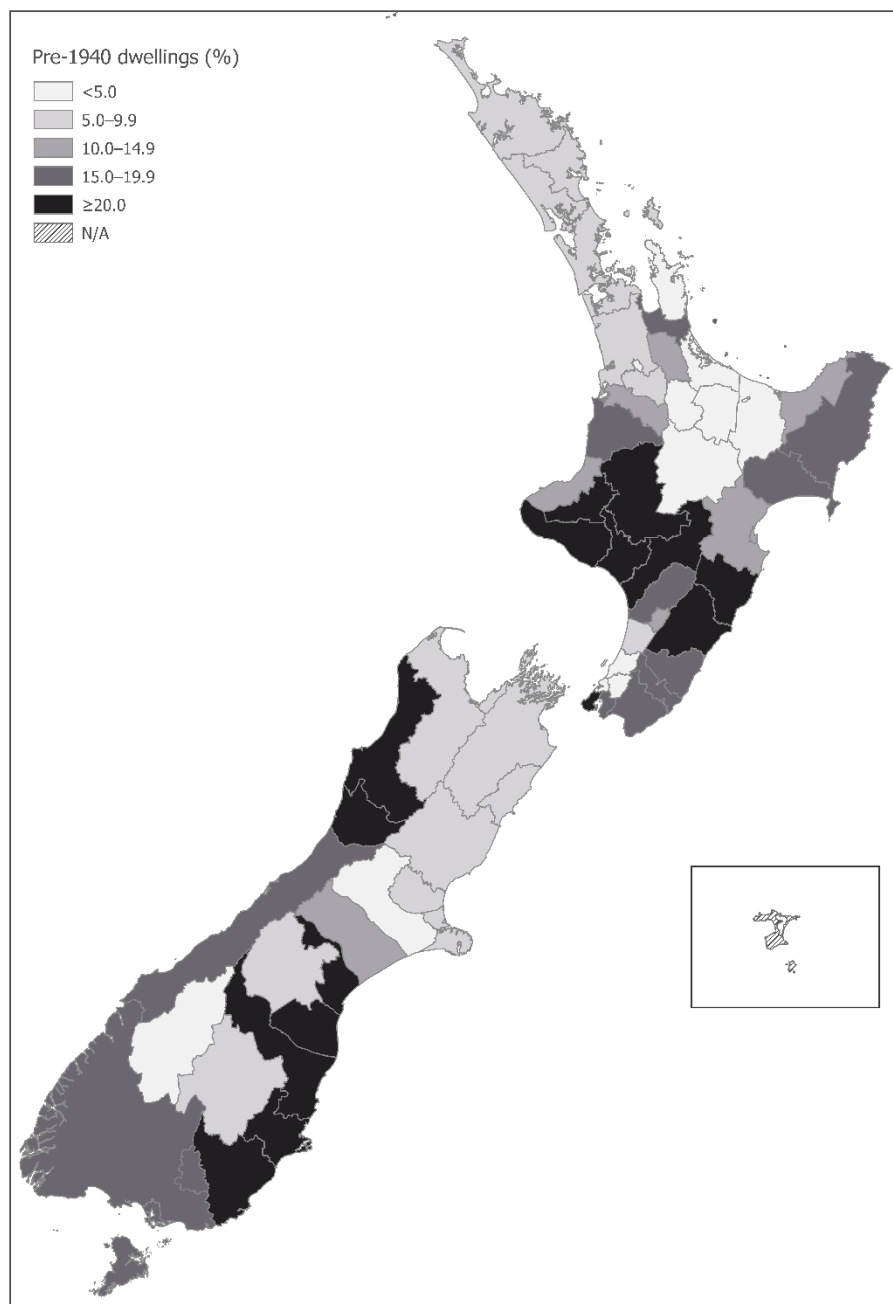
Figure 2. New Zealand dwellings by hazard level, 2024



Source: QV, 2024.

This map shows the distribution of dwellings in the very high lead-based paint hazard category across Territorial Authorities and highlights geographic variation in the pre-1940 dwelling stock. The proportion ranged from 0% in Kawerau to 32% in Grey District.

Figure 3. New Zealand dwellings built before 1940 by Territorial Authority, 2024.



Source: QV, 2024.

Notifications from lead-based paint exposure

Between 2014 and 2024, 322 dwellings had 391 notifications recorded in HSDIRT. In this report, notifications refer to index cases in HSDIRT and do not represent unique individuals (Environmental Health Intelligence NZ 2025); a person may therefore have multiple notifications over time, and a dwelling may be associated with multiple notifications from the same or different people (see the [metadata](#) for the case definition). These were also categorised by building age (Figure 4) and level of hazard (Figures 5a and 5b). The median year of construction for affected dwellings was 1940, and most had external wooden walls and steel or iron roofing.

Figure 4. Notifications due to lead-based paint, by dwelling age, 2014–2024



Note 1: Dwellings comprise 89% residential and 11% lifestyle properties.

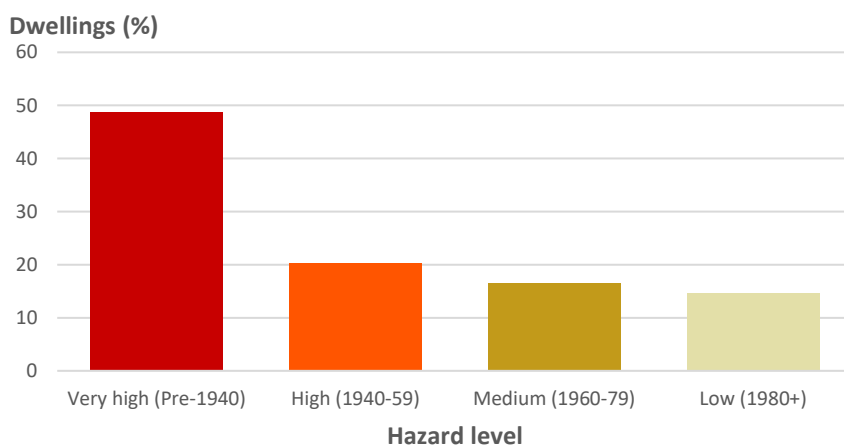
Note 2: Construction year for mixed/remodelled and missing (N/A) records was verified using Property Value, HSDIRT notes, and imagery.

Note 3: See 'Data for this report' section for dwelling definition (Stats NZ 2024).

Source: HSDIRT, 2025; QV, 2024.

Nearly half (157) of affected dwellings were built before 1940 (Figure 5a). Of the 322 dwellings, 41 had multiple notifications; 61% of these dwellings were built before 1940. One dwelling recorded nine notifications over 5 years.

Figure 5a. Notifications due to lead-based paint, by dwelling and hazard level, 2014–2024

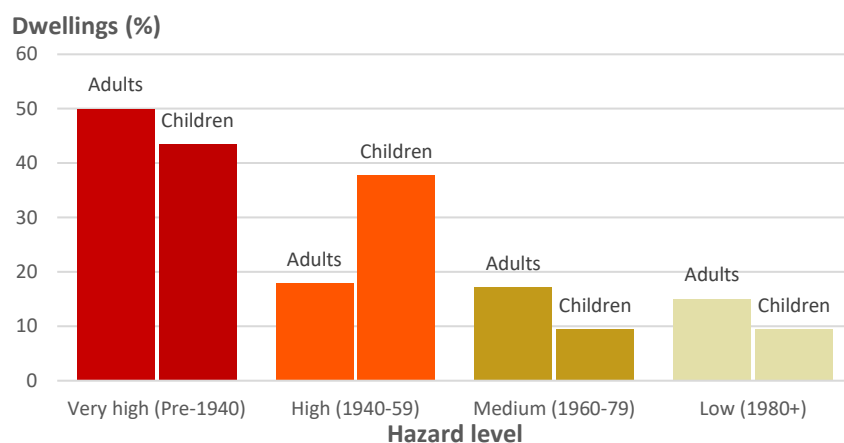


Source: HSDIRT, 2025; QV, 2024.

A total of 53 dwellings accounted for 71 notifications involving children, including repeat notifications for the same child. Among these dwellings, 43% were built before 1940 (Figure 5b). In the high hazard category, the number of dwellings with child notifications was twice that of dwellings with adult notifications (Figure 5b). The reasons for this difference are uncertain and may reflect testing practices, as children are more likely to be

offered blood lead testing when exposure is suspected, and because more dwellings fall within the high hazard category than the very high one.

Figure 5b. Notifications due to lead-based paint by dwelling and hazard level, by adults (15+ years), and children (0–14 years), 2014–2024



Source: HSDIRT, 2025; QV, 2024.

Across the entire 2014–2024 period, 71 out of 126 notifications involving children were due to exposure to lead-based paint.

Children are at higher risk due to lead’s irreversible impact on cognitive and neurobehavioural development. Blood lead levels as low as 0.17 $\mu\text{mol/L}$ (3.5 $\mu\text{g/dL}$) may be associated with decreased intelligence, behavioural difficulties, and learning problems in children (WHO 2024). Most children with elevated blood lead levels are asymptomatic or display non-specific symptoms (Health New Zealand | Te Whatu Ora 2026).

Notification rates by dwelling

To provide context for differences in dwelling stock across hazard levels, notification rates were calculated per 1,000 dwellings (Table 1), showing notifications by dwellings relative to the number of dwellings in each group. Dwellings built before 1940 had a notification rate approximately 16 times higher than those built from 1980 onward (QV 2024; HSDIRT 2025). These rates reflect the relative likelihood of lead-based paint notifications based on dwelling age, not individual exposure risk, which can also be affected by factors such as renovation activity, occupant behaviour, and case detection.

Table 1: Lead-based paint notification rate by dwelling hazard level, New Zealand, 2014–2024

Hazard level	Dwellings with notifications	NZ dwelling stock	Notification rate (per 1,000 dwellings)
Very High (pre-1940)	157	188,171	0.83
High (1940–59)	65	223,718	0.29
Medium (1960–79)	53	477,468	0.11
Low (1980+)	47	953,187	0.05
Total (known construction age)	322	1,842,544	0.17
Total (including unknown construction age)	331	2,088,334	

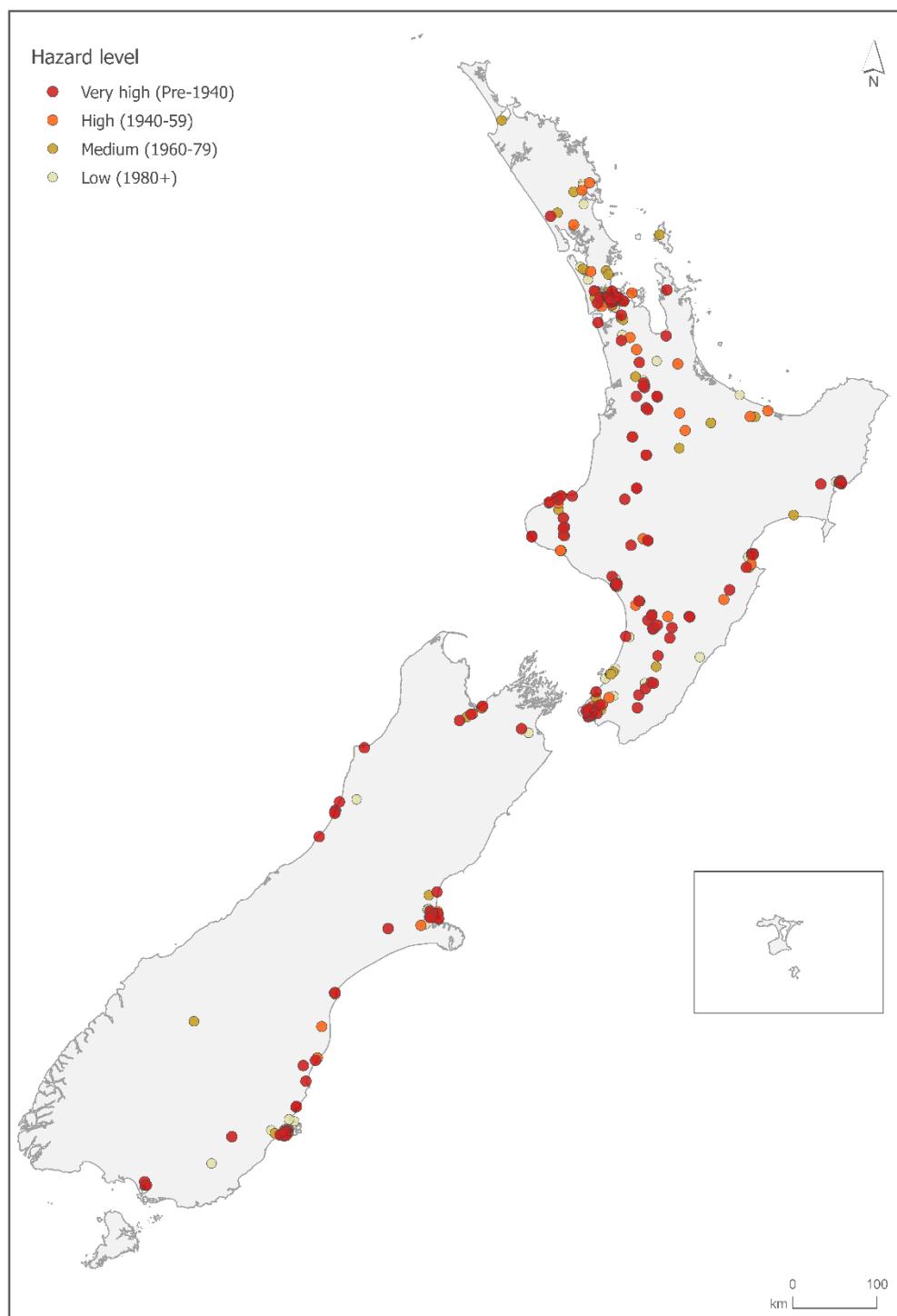
Note: Notification rate = number of dwellings with ≥ 1 notification per 1,000 dwellings in each hazard category. Dwellings with unknown construction age are excluded.

Source: HSDIRT, 2025; QV, 2024.

Geographic distribution of lead-based paint notifications

Notifications occurred across both the North and South Islands, with most affected dwellings located in urban areas (78%) (Figure 6). Among all dwellings nationwide classified as having a very high lead paint hazard, 51% were located in urban areas and 40% in rural areas (QV 2024; HSDIRT 2025).

Figure 6. Notifications due to lead-based paint by dwelling and hazard level, 2014–2024

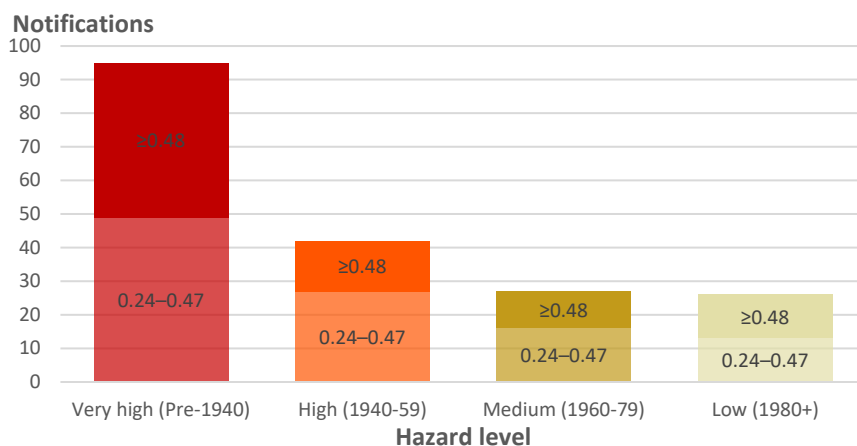


Source: HSDIRT, 2025; QV, 2024.

Blood lead levels among notified cases

Notifications since 9 April 2021 (when the notifiable threshold was lowered to 0.24 µmol/L) indicate that most blood lead levels (BLLs) fall within the 0.24–0.47 µmol/L range across all hazard levels (Figure 7). One notification exceeded 2.17 µmol/L, involving a child living in a pre-1940 dwelling. This represents the highest blood lead level recorded, where lead-based paint was identified as the primary exposure source since the lowering of the notification threshold.

Figure 7: Notifications due to lead-based paint by BLL (µmol/L) and hazard level, 2021–2024



Source: HSDIRT, 2025; QV, 2024.

Median blood lead levels (BLLs) varied across hazard levels among adults. The highest adult BLL observed was 1.91 µmol/L in pre-1940 dwellings classified as very high hazard, while the highest median adult BLL (0.50 µmol/L) was also recorded in pre-1940 dwellings.

Interpretation for children is limited due to the very small number of notifications (n=2) in the low hazard category. Among these, the highest blood lead level was 2.11 µmol/L, identified in a dwelling built after 1980 (low hazard level), with exposure attributed to lead-based paint and pica. Children’s exposure is also influenced by behavioural or dietary factors, particularly among very young children and those with pica (14 of 71 notified HSDIRT child notifications), due to frequent hand-to-mouth activity. Similar patterns have been observed in the United Kingdom, where enhanced laboratory prompting to test children with pica or iron deficiency increased the identification of childhood lead notifications (UK Health Security Agency 2023).

Case study: National Public Health Service — Wellington, Hutt and Kapiti

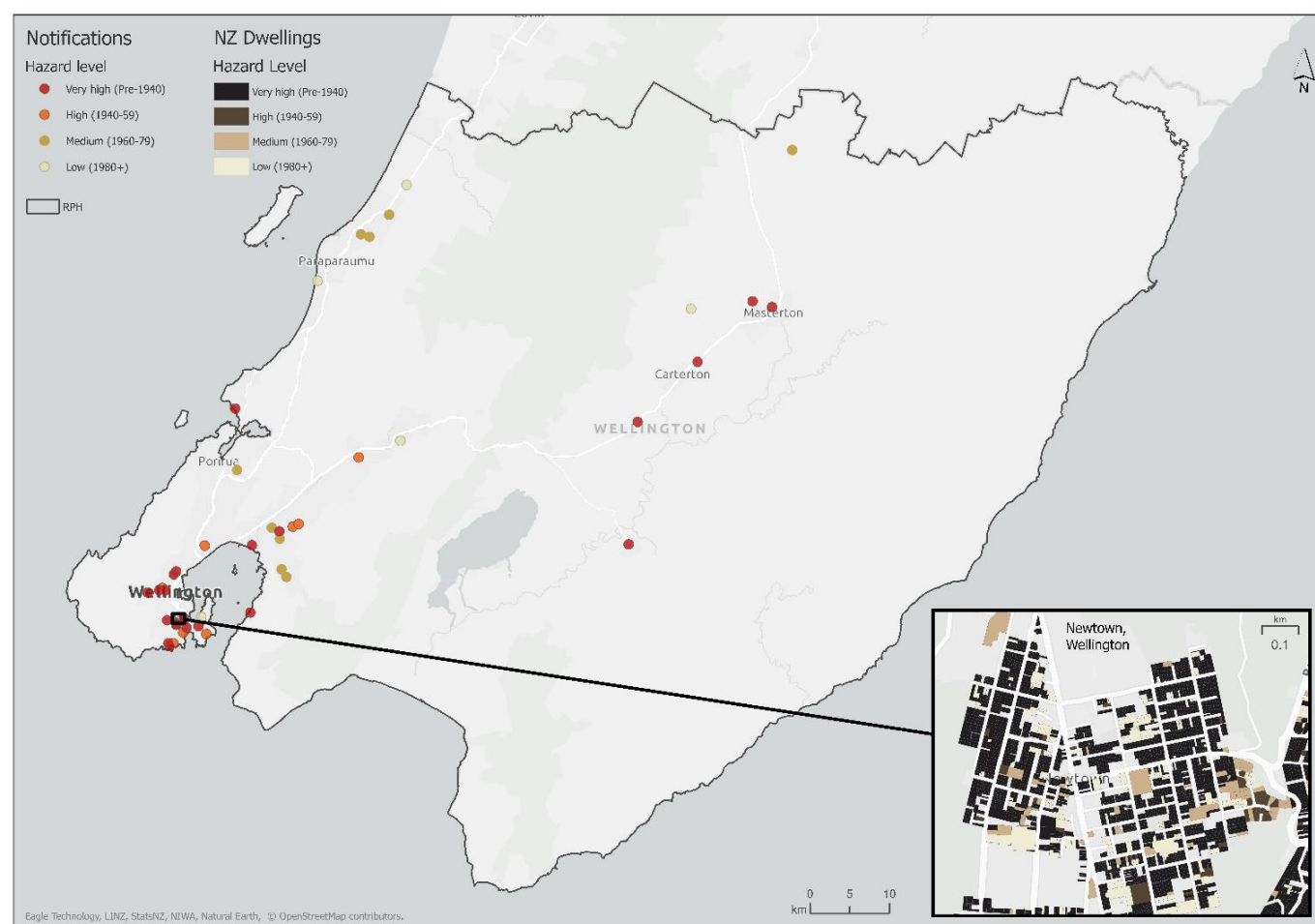
To provide regional context, lead-based paint exposure notifications in the National Public Health Service — Greater Wellington were examined (Figure 8). Between 2014 and 2024, 44 dwellings in these districts had lead-based paint notifications (14% of 322 national dwellings associated with such notifications), with half built before 1940 (Table 2, Figure 8). Around 17% of all dwellings with known age in these districts are classified as ‘Very high’ hazard, meaning their paintwork is likely to contain high lead content (Table 2), compared with 50% of dwellings with notifications from lead-based paint recorded at this level. This provides useful context for local prevention and awareness activities, particularly in areas with older dwelling stock.

Table 2: Notifications due to lead-based paint and dwelling stock, by hazard level, National Public Health Service – Wellington, Hutt and Kapiti, 2014–2024

Hazard level	Notifications		Stock in NPHS – Greater Wellington	
	Number of dwellings	% dwellings	Number of dwellings	% dwellings
Very High (pre-1940)	22	50%	31503	16.6%
High (1940–59)	8	18%	28135	14.8%
Medium (1960–79)	9	20%	55786	29.4%
Low (1980+)	5	11%	74563	39.2%
Total (known construction age)	44		189987	
Total (including unknown construction age)			205829	

Source: HSDIRT, 2025; QV, 2024.

Figure 8: Notifications due to lead-based paint by dwelling and hazard level, National Public Health Service – Wellington, Hutt and Kapiti, 2014–2024



Source: HSDIRT, 2025; QV, 2024.

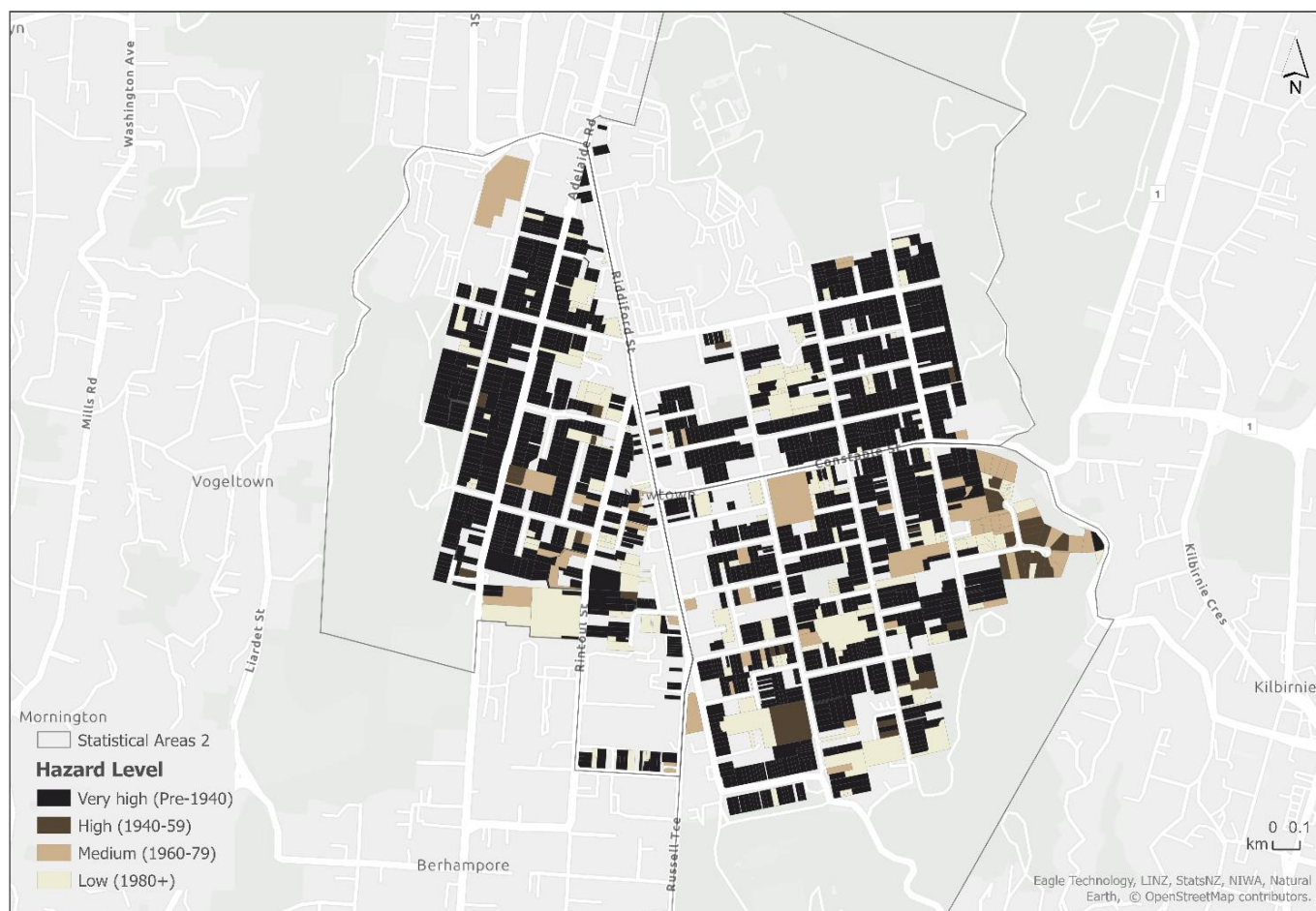
In Wellington City, 68% of dwellings with notifications were built before 1940. City-wide, 27% of all dwellings fall into the ‘Very high’ hazard category, while in Newtown, this proportion increases to 60% (Table 3 and Figure 9).

Table 3: Dwellings by hazard level, Newtown, Wellington, 2024

Hazard level	Number of dwellings	% of dwellings
Very High (pre-1940)	1383	59.7%
High (1940-59)	39	1.7%
Medium (1960-79)	215	9.3%
Low (1980+)	681	29.4%
Total (known construction age)	2318	
Total (including unknown construction age)	2471	

Source: QV, 2024.

Figure 9: Dwellings by hazard level, Newtown, Wellington, 2024



Source: QV, 2024.

This area provides a useful regional example because dwelling and notification data can be examined at the suburb level. Although notification numbers are small and do not demonstrate a statistical correlation, comparing notification patterns with local dwelling lead hazard levels helps identify where lead-safe renovation advice and prevention may be most relevant.

Recommendations

Exposure to lead is preventable (WHO 2024). Improving public access to clear information, particularly for parents and caregivers, is critical. Health NZ (2026) emphasises the need to identify all lead hazards, assess exposure pathways, and develop management plans that integrate environmental abatement with safe renovation practices and education.

Therefore, we recommend:

- Encouraging household-wide blood lead testing in pre-1940 dwellings, when a case of notifiable lead absorption is identified (Health New Zealand | Te Whatu Ora 2026), with a focus on children and pregnant women in the household.
- Promoting lead-safe renovation and maintenance practices.
- Targeting education to pregnant women and families with young children, especially in areas with older housing, to help them recognise unsafe paint conditions.
- Maintaining national surveillance of non-occupational lead exposure to monitor trends and assess the impact of interventions.

Conclusion

Lead exposure from deteriorating paint in older dwellings, especially those built before 1960, remains a public health concern in New Zealand. Approximately 1 in 5 dwellings with known construction age fall into the high or very high lead paint hazard categories. The higher number of notifications in these oldest dwellings underscores the need for targeted prevention and enhanced public awareness. Children face heightened risks due to the irreversible effects of lead on cognitive and neurobehavioural development, with negative impacts at lower levels often without clear symptoms (WHO 2024). As a result, exposure in children may be under-recognised until higher levels of concern trigger investigation.

[The interactive map](#) provides a practical way for local authorities and health professionals to identify areas with older dwelling stock, support targeted messaging, and help reduce preventable lead exposure.

Acknowledgements

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DATA FOR THIS REPORT

This report uses data from EHINZ's HSDIRT on reported non-occupational/unknown source lead absorption notifications from 2014 to 2024, as well as DVR data from Quotable Value (QV), current as of June 5, 2024.

On 31 December 2024, Stats NZ estimated the number of private dwellings to be 2,089,400 (Stats NZ 2024). It defines a dwelling as any building or structure, or part thereof, that is used (or intended to be used) for human habitation. It can be of a permanent or temporary nature and includes structures such as motels, hotels, prisons, motor homes, huts, and tents. At the highest level, dwellings are classified as private or non-private (Stats NZ 2024).

To view the map with QV data categorised by hazard level, visit [New Zealand dwellings, by lead-based paint hazard level](#).

For additional information on data, methodology, including spatial information, and limitations, see the [Metadata](#).

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