



# THE TRUTH ABOUT LEAD (AGAIN)

Graham Aveyard from Environment Canterbury wants key organisations to break the cycle of concern and reaction to the health effects of lead in paint by taking action now.

**T**HE GREEKS identified it as early as the second century BC; the Romans knew it as morbi metallici. In 1656, its health impacts were “rediscovered” by Samuel Stockhausen, a German physician.

The use of internal household paints containing lead during the 19th century increased domestic childhood exposure. Before this time, lead had been predominantly an occupational hazard.

Toxicity to children from lead paint was identified in Australia in 1897, an important step in the understanding of childhood lead poisoning. Subsequently, in 1909, white lead interior paints were banned in France, Belgium and Austria.

Despite accepted widespread understanding from the 1950s that lead paint was the cause of serious childhood illness, it took until the 1960s and 1970s for lead to eventually be reduced in paint from as much as 50 per cent to 1 per cent and, more recently, to less than 0.1 per cent. Higher concentrations of lead in domestic paint is still used in countries such as India or the Philippines.

## Long-lasting health impact

New Zealand is estimated to have 250,000 weatherboard properties of an age where lead paint would have been used. Maintenance, removal, repair or general deterioration is likely to have contaminated the surrounding area to the extent that analysis routinely confirms lead concentrations in the soils sufficient to impact human health.



THERE IS NO  
KNOWN SAFE  
BLOOD LEAD  
LEVEL.

Ingested lead can be stored in bone within the body and gradually released over many years; the half-life of lead within bone is 10 to 25 years. Once lead has entered the body in great quantities, a person can be affected for much of their early life. Lead can be released again from the bone during pregnancy and can affect the foetus.

Lead is not required in the human body. There is no known safe blood lead level. We know young children absorb four to five times as much ingested lead as adults from a given source, most probably due to their rapid growth and development. This coincides with the maximum period of development of the brain, the primary organ to suffer long-term damage from absorption of the metal.

It is difficult to quantify the impact on public health, due, in part, to limited data on those affected, and the lack of obvious symptoms even in those with blood lead levels above the action level set by public health services in New Zealand, Australia and the United Kingdom.

Annual notifications of cases in New Zealand are typically between 100 and 200. The process is limited to people who have sought medical care and who, on investigation, have been identified to exhibit raised blood lead (>10µg/dL).

Those identified are predominantly working-age males, of white New Zealand/European backgrounds (more than likely to be due to occupational exposure). The greatest number of those affected are painters/decorators, showing that, once removed, lead paint presents a significant hazard to those in close contact with it.

While there are examples of significant childhood exposure, these seem to be limited in number, and we don't have the evidence base to link these with exposure to soil rather than to internal or external lead paint removal. As a result, there is a lack of clear national understanding on the burdens of lead within the population which urgently requires investigation.

The cycle of 'concern' and 'reaction' to this issue never seems to get broken. As a result, we return time and again to act to protect our children from entirely preventable impacts on their health from paint.

## Limitations to current regulations

Some contaminated land professionals consider revision of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS) and Hazardous Activities and Industries List (HAIL) to be the solution.

The NESCS relies on a site having a contaminative historic land use to drive remediation triggered by consented development. There are lesser used regulatory powers such as building codes or the Health Act; however, declaring the property contaminated and adding it to a list of contaminated sites provides no immediate solution.

However softly the message is delivered, the attitude of contaminated land and consenting professions is to shy away from declaring and registering 250,000

homes as potentially contaminated. The issue continues to remain in the too hard basket, where it has resided ever since HAIL was defined.

The real concern is much more straightforward and rather more pragmatic. In New Zealand there are 1.84 million residential properties being subject to around 20,000 territorial district consents, meaning that if every consent had an NES (Contaminated Soil) component, it would take 100 years to address each of the 250,000 properties potentially affected by lead paint contamination. Clearly, we need to find an approach that delivers far shorter term and real outcomes.

Lead is a good deal more than a contaminated land issue; most of the time as professionals we are dealing with nuances of risk or the "significant possibility of significant harm". Lead is more in your face as a risk than this; we can point to

actual harm from ingestion of the contaminant – from a variety of sources and often in unremarkable circumstances – which actually affects exposed individuals.

## Breaking the cycle

The solution requires a combined and coordinated effort between the Ministry of Health, Ministry for the Environment, regional and district councils and the public health services of district health boards. No one can address this issue alone. So what could be done?

Even though the RMA and NESCS won't necessarily deliver change within an acceptable timeframe, HAIL does provide a backstop catch-all Category I: "Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment."



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This should be sufficient to address cases of higher probability of existence of hazard, whereas regulation such as the Health Act could deal with situations where paint is literally falling off old timber properties. In addition, any site investigation prompted by other HAIL uses should also address the potential for risk from historic lead paint removal or deterioration.

Increased focus should be directed through medical services to those people occupying property that is likely to pose a threat and on increased numbers of blood lead tests from non-occupational patients (particularly children) exhibiting possible symptoms. This would provide a greater number of cases with which to understand the exposure thresholds more fully.

Councils supporting DHB public health teams should also follow up on notified cases of raised blood lead levels to provide

advice and options for managing or removing the source. Education campaigns targeted to locations of greatest risk could also start to address the less visible cases of soil contamination.

Much of the above is only a first response using existing rules, powers or opportunities. In time, a more robust regulatory approach is required. However, we can't wait for a solution to appear miraculously from the depths of that too hard basket while we wait for something more specific to be developed.

### Time to 'take the lead'

I completed a dissertation on the impacts of lead paint as a degree project and have spent 32 years of my career in its shadow. I have decided that I am not willing to leave this for the next generation to resolve and let the cycle begin again. This is why, I believe, along with many fellow professionals, that we should be 'taking the lead'. 🇳🇿



Graham Aveyard is science team leader – contaminated land for Environment Canterbury. Prior to that, he worked as an environmental health officer – contaminated land health risk for Auckland Council and is a former UK environmental protection manager and environmental health officer.

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