

Lead absorption notifications

HIGHLIGHTS:

- Lead notifications decreased from 2009 to 2017
- Males were the most affected
- People aged 45–54 years have the highest notification rate
- Lead-based paint was the most common source of non-occupational lead exposure in both children and adults
- For occupational lead notifications, painter was the most common occupation



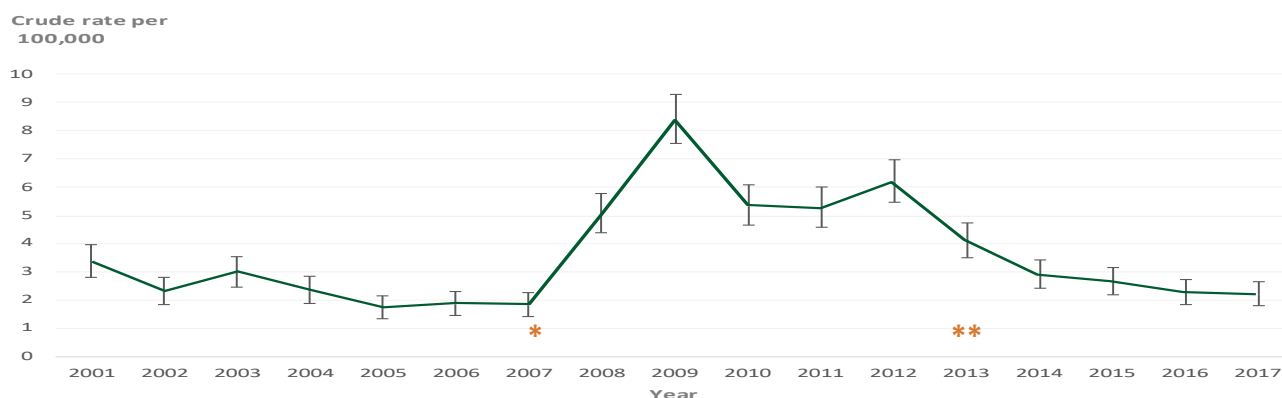
Lead absorption is an important under-recognised public health issue

The World Health Organization (WHO) lists lead among 10 chemicals of major public health concern. Lead poisoning accounts for about 0.6 percent of the global burden of disease and is one of the most common childhood diseases of toxic environmental origin (WHO 2010). Young children are at greater health risk than adults. Their behaviour and physiology make them more likely to be exposed and more susceptible to absorbing lead. When lead is ingested or inhaled, it travels to the bloodstream where it largely accumulates in bones, from which it may be released back into the bloodstream (Ministry of Health 2012). In New Zealand, lead absorption is a notifiable disease if the whole blood lead level is greater than or equal to 0.48 micromoles per litre ($\mu\text{mol/l}$). At this level, public health interventions are required for children and non-occupationally exposed adults (Ministry of Health 2012).

Lead notifications decreased from 2009 to 2017

There were 105 notifications of lead absorption in 2017 (2.2 per 100,000) compared with 106 notifications in 2016 (2.3 per 100,000). The notification rate of lead has decreased by 74% from 2009 (8.4 per 100,000) to 2017 (2.2 per 100,000) for adults (15 years and over) and total notifications (Figure 1), while the notification rate for children (0 to 14 years) has remained relatively constant.

Figure 1: Lead absorption notification rate, 2001-17 (crude rate per 100,000)



Note: *In 2007, direct laboratory notifications were introduced, the non-occupational notifiable blood lead level was lowered from 0.72 to 0.48 $\mu\text{mol/L}$ and enhanced occupational screening was introduced in the Auckland region. ** In 2013, the HSDIRT was rolled out to all health districts.

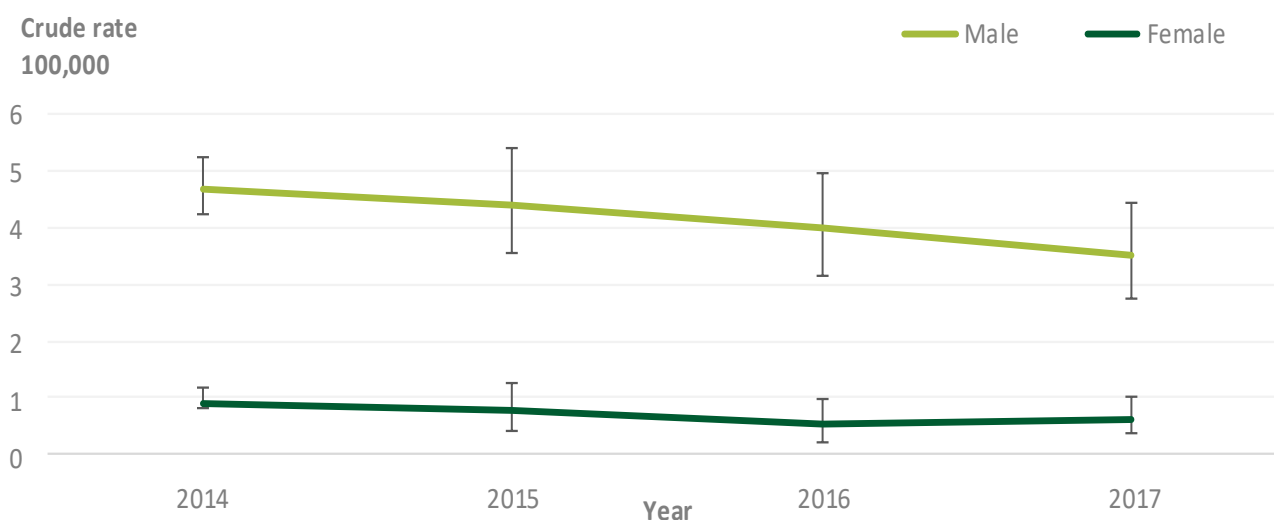
Source: Institute of Environmental Science and Research; HSDIRT

Lead absorption notifications

Males were the most affected

From 2014 to 2017, the majority of all lead notifications have been males (83 notifications), in comparison to 15 notifications from females. In 2017, the lead notification rate was much higher for males (3.5 per 100,000; 83 notifications) than for females (0.62 per 100,000; 15 notifications). Over time the lead notification rate for males has slowly decreased from 4.7 per 100,000 in 2014 to 3.5 per 100,000 in 2017. For females the rate has been relatively constant (0.9 per 100,000) in 2014 and (0.6 per 100,000) in 2017.

Figure 2: Lead absorption notification rate, by sex, 2014-17



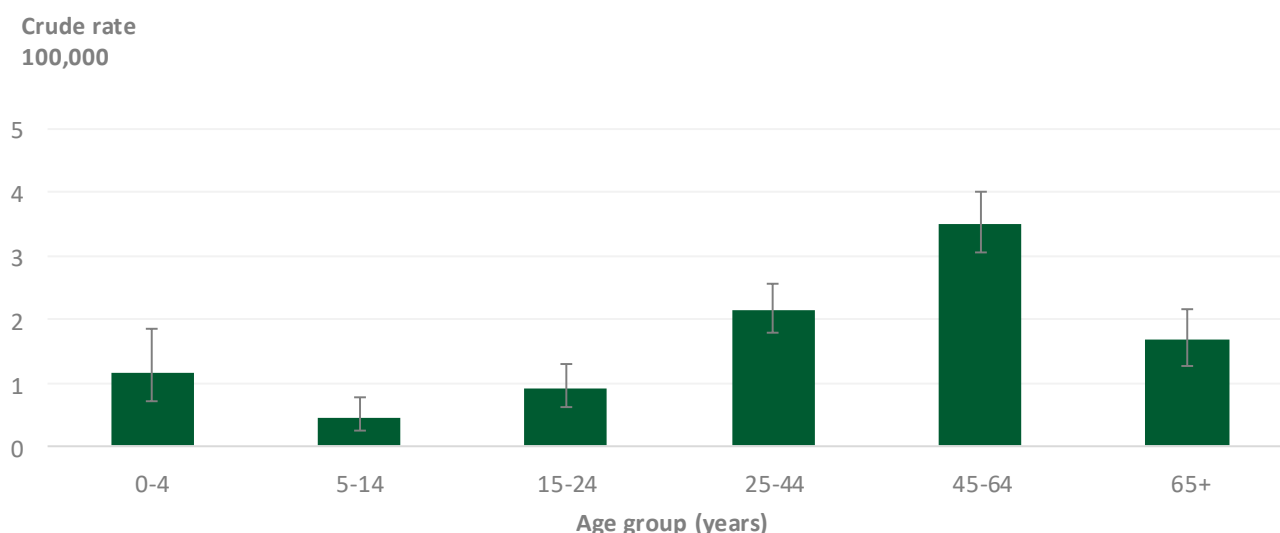
Source: HSDIRT

People aged 45–54 years have the highest notification rate

In 2017, the most common age groups were 45-64 years (44 notifications) and 25-44 years (29 notifications).

In the five-year period 2013–17, the highest lead notification rate was among people aged 45–54 years (219 notifications, 18.1 per 100,000), followed by 25-44 years (138 notifications, 11.0 per 100,000) (Figure 3).

Figure 3: Lead absorption notification rates, by age group, 2014-17, four-year period



Source: HSDIRT

Lead absorption notifications

Highest number of notifications for European/Others

In 2017, the most common ethnic group among lead absorption notifications was European/Other with 64 notifications.

In the 2014-17 period, the most common ethnic group was European/Other with 329 notifications, followed by Māori with 33 notifications. A large number of notifications were of unknown ethnicity.

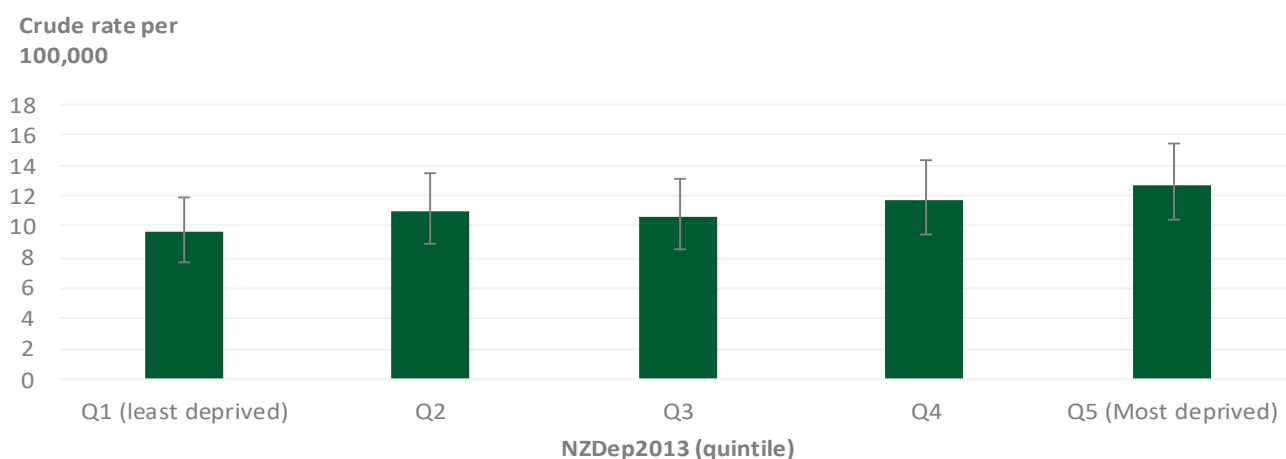
Table 1: Lead absorption notification rate, by ethnic group (prioritised), 2014-17

Ethnicity	Number of notifications
Asian	25
European/Other	306
Māori	33
Pacific	5
Unknown	85
Total	485

Lead notification rates are relatively consistent across socioeconomic deprivation quintiles

In 2017, the number of lead absorption notifications was highest among those who resided in deprivation quintile 5 (most deprived) areas (106 notifications), and lowest in quintile 1 (least deprived) areas (84 notifications). However, the rates were relatively similar across NZDep2013 quintiles in 2014-17 (Figure 4).

Figure 4: Lead absorption notification rate, by NZDep2013 quintiles, 2014-17four-year period



Source: HSDIRT

For occupational lead notifications, painter was the most common occupation

In 2017, there was a total 38 lead absorption notifications (37 % of all lead notifications) where occupation was recorded as the source of exposure. Painter (24 notifications) was the most commonly reported occupation, followed by Radiator repairer and Sandblaster (2 notifications each). From 2014 to 2017, the most common occupation has been painter (90 notifications). (Table 2).

Table 2: Number of lead absorption notifications by occupation, 2014-17

Rank	Year			
	2014	2015	2016	2017
1	Painter (20)	Painter (17)	Painter (29)	Painter (24)
2	Metal worker (5)	Radiator repairer (5)	Foundry worker (3)	Radiator repairer (2)
3	Mechanic (4)	Builder (3) and Metal worker (3)	Metal worker (3)	Sandblaster (2)

Lead absorption notifications

Lead-based paint was the most common source of non-occupational lead exposure in both children and adults

In 2017, there were 95 lead absorption notifications, with the source of exposure recorded as non-occupational or unknown (Table 3). Lead-based paint (38 notifications) and indoor rifle ranges (8 notifications) were the most common sources of lead exposure. Of the 95 notifications, 12 were for children under 15 years old, nine of which were due to exposure to lead-based paint in the home.

In 2017, other sources of lead exposure included Bullet/ Sinker manufacture (3 notifications) , Traditional medicine and cosmetics (4 notifications) and Pica (3 notifications)

From 2014 to 2017, the most common source of non-occupation exposure is lead based paint (111 notifications) (Table 3).

Table 3: Number of non-occupational or unknown lead notifications, by source of lead, for adults and children, 2014-17

Rank	Year			
	2014	2015	2016	2017
1	Unknown/Other (30)	Unknown/Other (34)	Lead based paint (24)	Lead based paint (38)
2	Lead based paint (23)	Lead based paint (26)	Unknown/Other (22)	Unknown/Other (22)
3	Indoor rifle range (17)	Indoor rifle range (20)	Indoor rifle range (12)	Indoor rifle range (10)

Source: HSDIRT

FURTHER INFORMATION

Related environmental health indicators for Hazardous Substances are available from the [EHINZ website](#) .

DATA FOR THIS INDICATOR:

Rate are presented per 100,000 population. Repeat blood lead tests taken within a year of the original test have been excluded from this data unless further investigation has resulted. additional information for this indicator is available in the [Metadata sheet](#).

REFERENCES:

Ministry of Health. 2012. The Environmental Case Management of Lead exposed Persons: Guidelines for Public Health Units: Revised 2012. Wellington: Ministry of Health.

World Health Organization. 2010. Childhood lead poisoning. Geneva: World Health Organization.

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CITATION:

Environmental Health Indicators Programme. 2018. Lead absorption notifications. [Factsheet]. Wellington: Environmental Health Indicators Programme, Massey University.