

Hazardous substances-related hospitalisations

This factsheet presents a national indicator, which allows us to monitor hospitalisations from unintentional hazardous substances injuries and exposure.

Key facts



Children under five had consistently significantly higher rates of hazardous substance-related hospitalisations than other age groups, and their most common injury was from solvents, hydrocarbons and corrosive substances



Males have had consistently higher rates of hazardous substance-related hospitalisations than females since 2006



Māori had higher hospitalisation rates from hazardous substance injuries than non-Māori in 2018



“Burns” was the most common hazardous substance injury resulting in hospitalisation in the last ten years



Hazardous substance-related hospitalisations were highest in high deprivation quintiles (NZDep2013)

Injury from hazardous substances affects all age-groups, in all parts of New Zealand

A hazardous substance is anything that can explode, catch fire, oxidise, corrode, or be toxic to humans as defined in the Hazardous Substances and New Organisms Act 1996. This definition does not include medicines in finished dose form, alcohol other than industrial alcohol, or radioactive materials. Injuries from hazardous substances in New Zealand are often preventable, and a high proportion of these incidents are caused by substances used in everyday domestic and workplace situations.

Acute health effects from exposure to a hazardous substance include (but are not limited to) headache, nausea and vomiting, and skin corrosion and burns. Chronic health effects include asthma, dermatitis, nerve damage, and cancer (MBIE 2013). It is important to note that this data does not adequately capture chronic disease from a hazardous substance, as the cause of the chronic disease can often not be identified.

Most hazardous substance-related hospitalisations are unintentional

There are on average 692 hazardous substances-related hospitalisations per year in New Zealand, 72% of which are from unintentional/accidental exposure. Since 2006, males have had more than double the rate of unintentional hazardous substance-related hospitalisations compared to females. For intentional exposures and exposures with unknown intent, males and females do not differ in their rates of hospitalisation (Table 1).

Table 1: Hospitalisations related to hazardous substances, by intent, sex and year (age-standardised rate per 100,000)

Year	Unintentional		Intentional		Unknown	
	Male	Female	Male	Female	Male	Female
2006	21.7	7.6	3.0	4.5	0.3	0.6
2007	18.9	6.1	3.2	3.5	0.7	0.4
2008	20.0	6.3	3.3	4.2	1.6	0.8
2009	21.2	8.5	3.3	4.6	1.3	1.2
2010	17.2	5.8	4.0	3.9	0.9	0.9
2011	17.8	7.7	3.6	3.9	0.7	0.6
2012	17.2	6.1	3.2	4.7	1.1	0.6
2013	14.7	5.9	3.2	4.2	0.8	1.1
2014	15.8	4.9	4.0	5.8	0.5	0.8
2015	14.2	5.7	3.2	4.9	0.6	0.4
2016	14.4	6.7	4.0	5.5	0.5	0.4
2017	15.3	7.2	2.9	5.5	0.8	0.8
2018	14.1	6.5	4.6	4.8	0.5	0.3

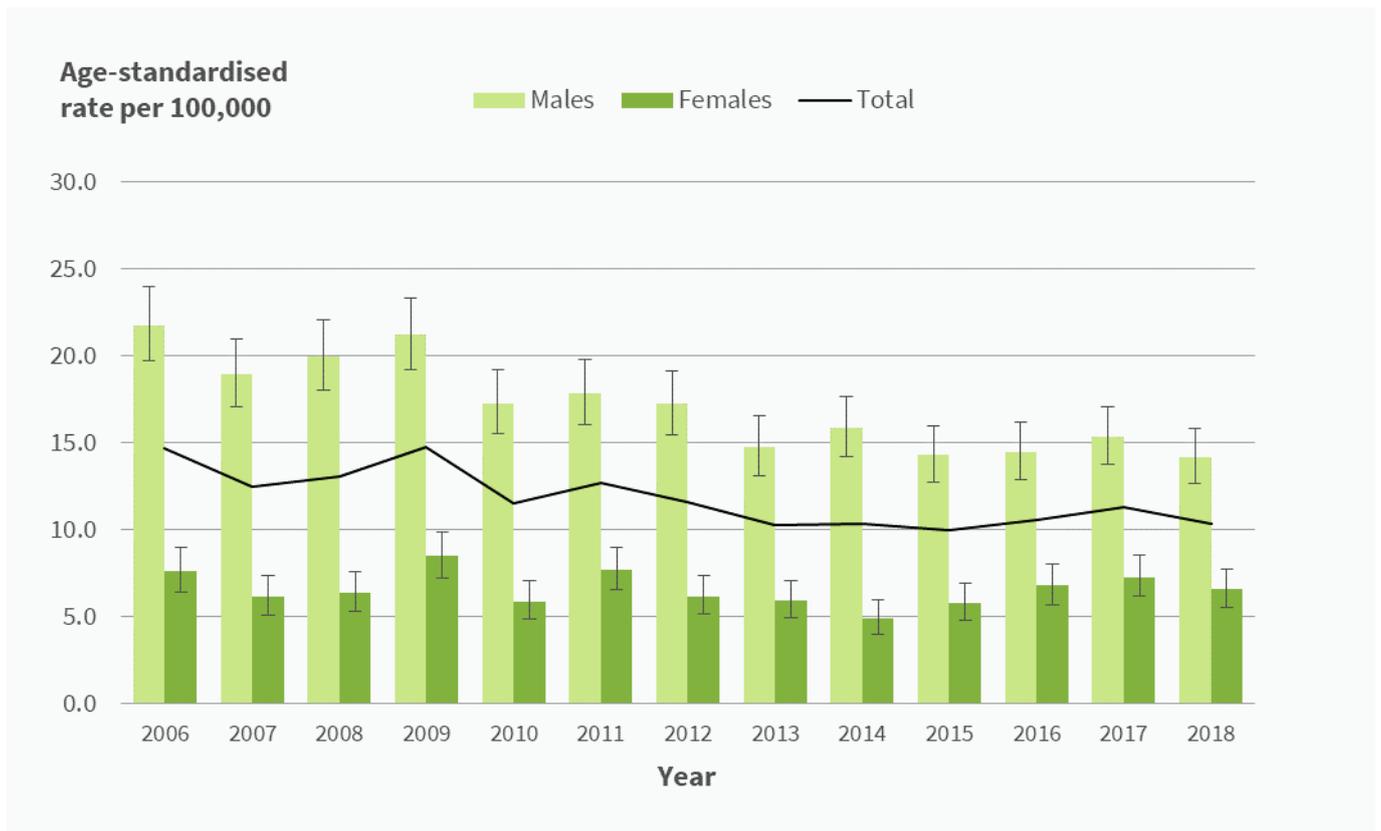
Source: National Minimum Dataset, Ministry of Health

The following analysis of hazardous substances hospitalisations focuses on unintentional exposure cases only. This is because most intentional exposure cases (such as carbon monoxide poisoning from inhalation of vehicle exhaust and intentional ingestion of a known hazardous substance) cannot be prevented by legislative controls.

Males had consistently higher hazardous substances-related hospitalisation rates than females

Since 2006, males have had more than double the rate of hazardous substance-related hospitalisations compared to females. However, rates of male hospitalisations from hazardous substance injury have decreased, from 21.7 to 14.1 per 100,000 (in 2006 and 2018 respectively). Female hospitalisation rates have not changed in this time (Figure 1).

Figure 1: Hospitalisations related to hazardous substances, by sex, 2006 – 18 (age-standardised rate per 100,000)



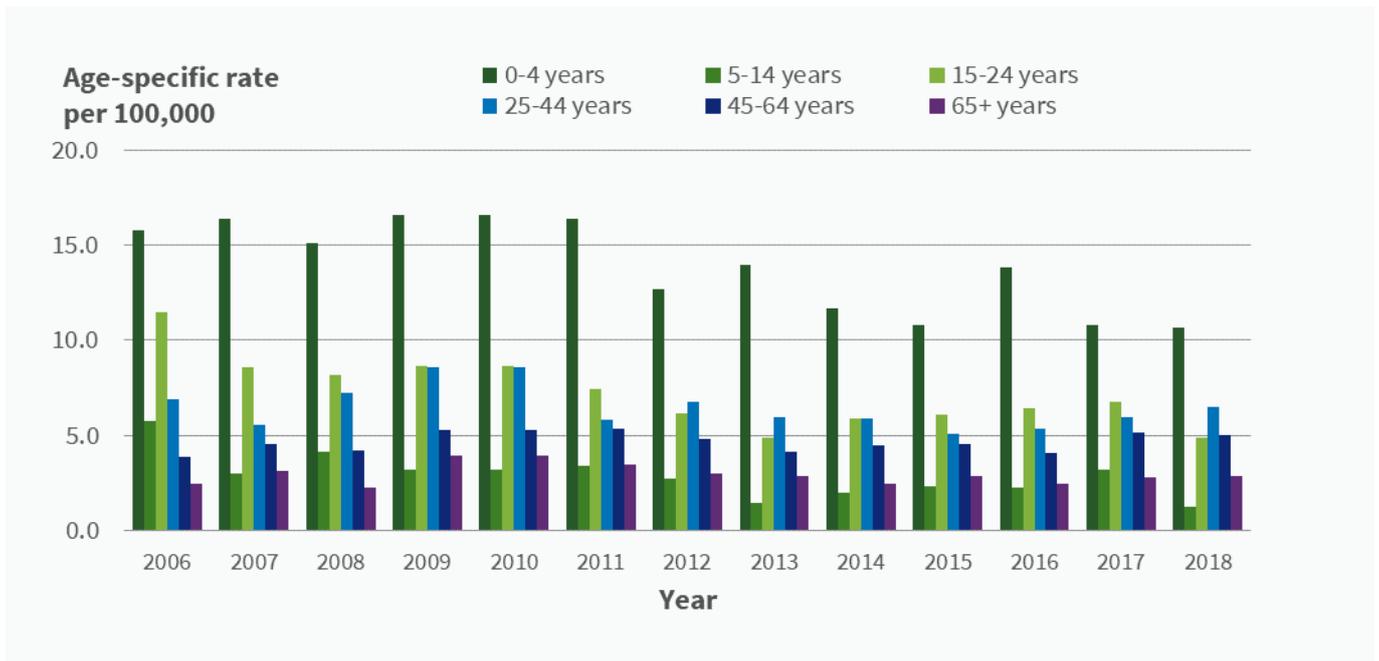
Source: National Minimum Dataset, Ministry of Health

Children under five years old had the highest rates of hazardous substance-related hospitalisations every year

Children interact with their environment differently from adults, meaning their exposure to potentially harm-causing agents or substances is greater. Children’s behaviour, such as putting hands and objects in their mouth, as well as their play and exploratory activities, influence their exposure. Depending on their age, children may be less able to avoid hazards and may be more susceptible to some exposures because their organs (particularly their brain) and bodily systems (such as their immune system) are still developing.

Children under five years old have disproportionately high rates of hazardous substance-related hospitalisations when compared to every other age group (Figure 2). Though this does seem to be decreasing over time, there has been no statistically significant change. In 2018, the hospitalisation rate for children under five was 10.6 per 100,000, with the next highest age group being 25–44-year-olds with a rate of 6.5 per 100,000.

Figure 2: Hospitalisations related to hazardous substances, by age group, 2006–18 (age-specific rate per 100,000)



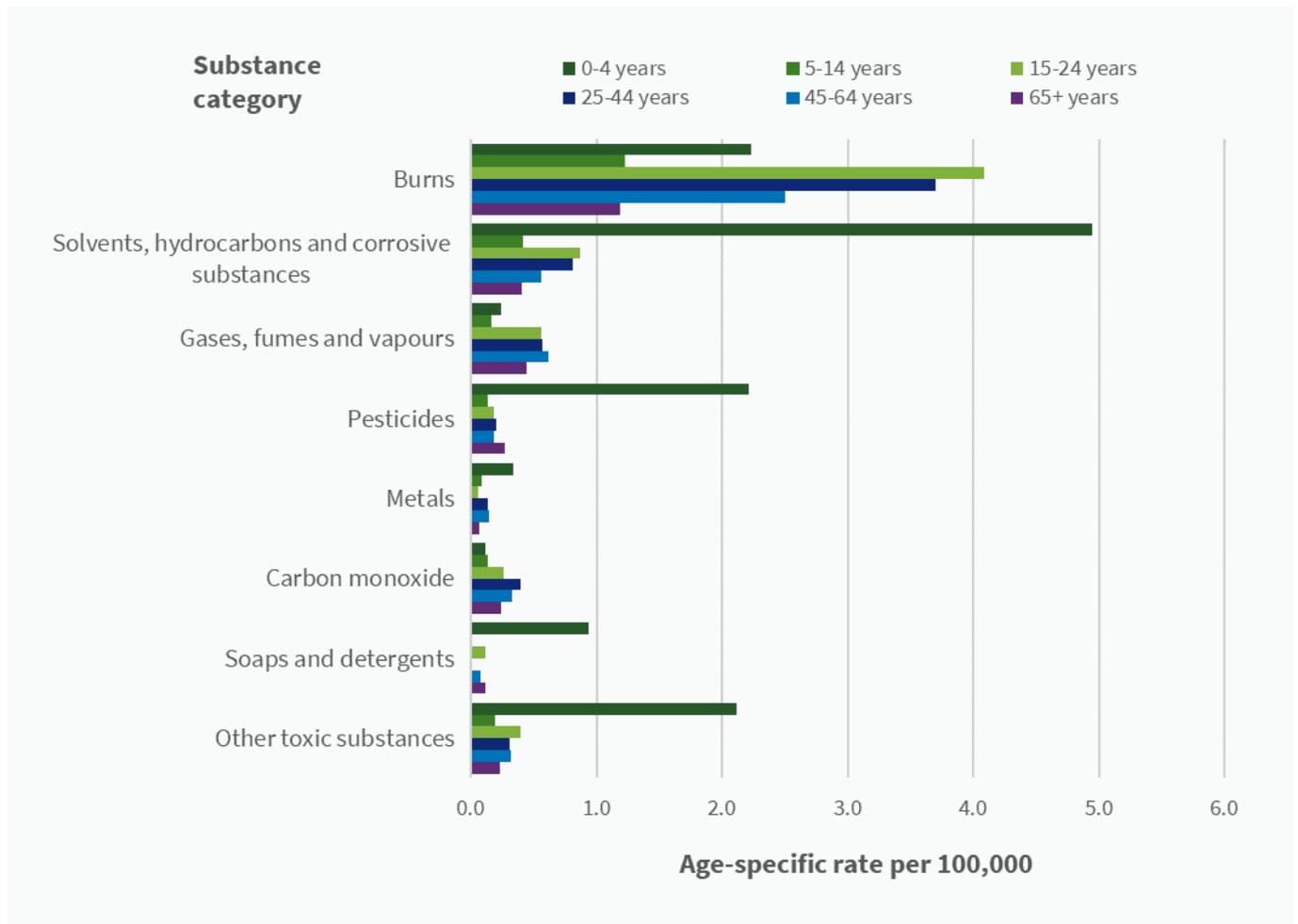
Source: National Minimum Dataset, Ministry of Health

Solvents, hydrocarbons and corrosive substances were the most common cause of hazardous substance-related hospitalisations in children under five years old

There were 798 hazardous substance-related hospitalisations among children under five in the ten years from 2009 to 2018. Of these, 306 were due to injury from “solvents, hydrocarbons and corrosive substances”, a rate of 4.9 per 100,000 (Figure 3). This is more than five times the rate of every other age group in this substance category and includes substances such as household bleach and glue. The next highest rate of hospitalisation was for “burns” in the 15–24 year age group. “Burns” had the highest total number of hospitalisations – 2,418 across all age groups, and includes injuries from fireworks, gas explosions, and petrol.

As well as “solvents, hydrocarbons and corrosive substances”, children under five years old had disproportionately high rates of hospitalisations from “pesticides” (herbicide, insecticide, rat poison), “soaps and detergents”, and “other toxic substances” which includes disinfectant, ammonia hair dye, and any unspecified substance.

Figure 3: Hospitalisations related to hazardous substances, by age group and substance category, 2009–2018 (age-specific rate per 100,000)

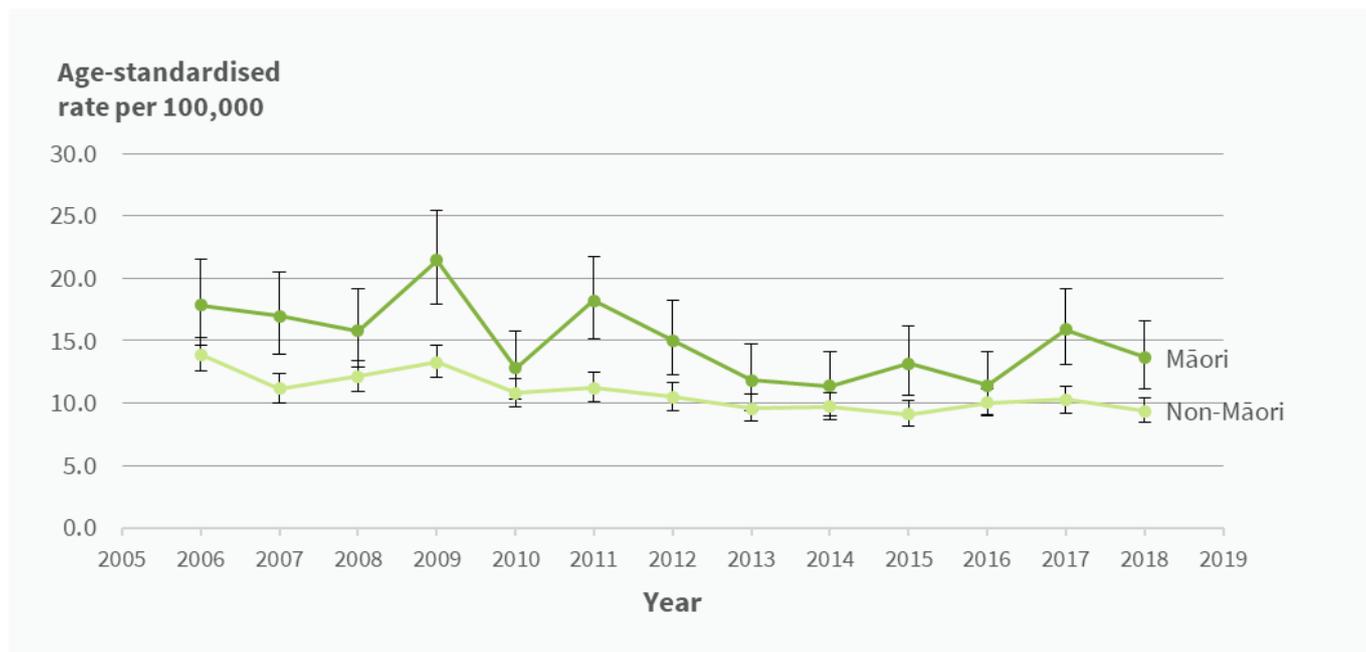


Source: National Minimum Dataset, Ministry of Health

Māori had higher hazardous substance-related hospitalisation rates than non-Māori

On average, between 2006 and 2018, Māori had higher hospitalisation rates than non-Māori for hazardous substances exposure (Figure 4). In 2018, the rate for Māori was 13.7 per 100,000, higher than the rate for non-Māori (9.4 per 100,000).

Figure 4: Hospitalisations related to hazardous substances, by ethnicity, 2006 – 18 (age-standardised rate per 100,000)

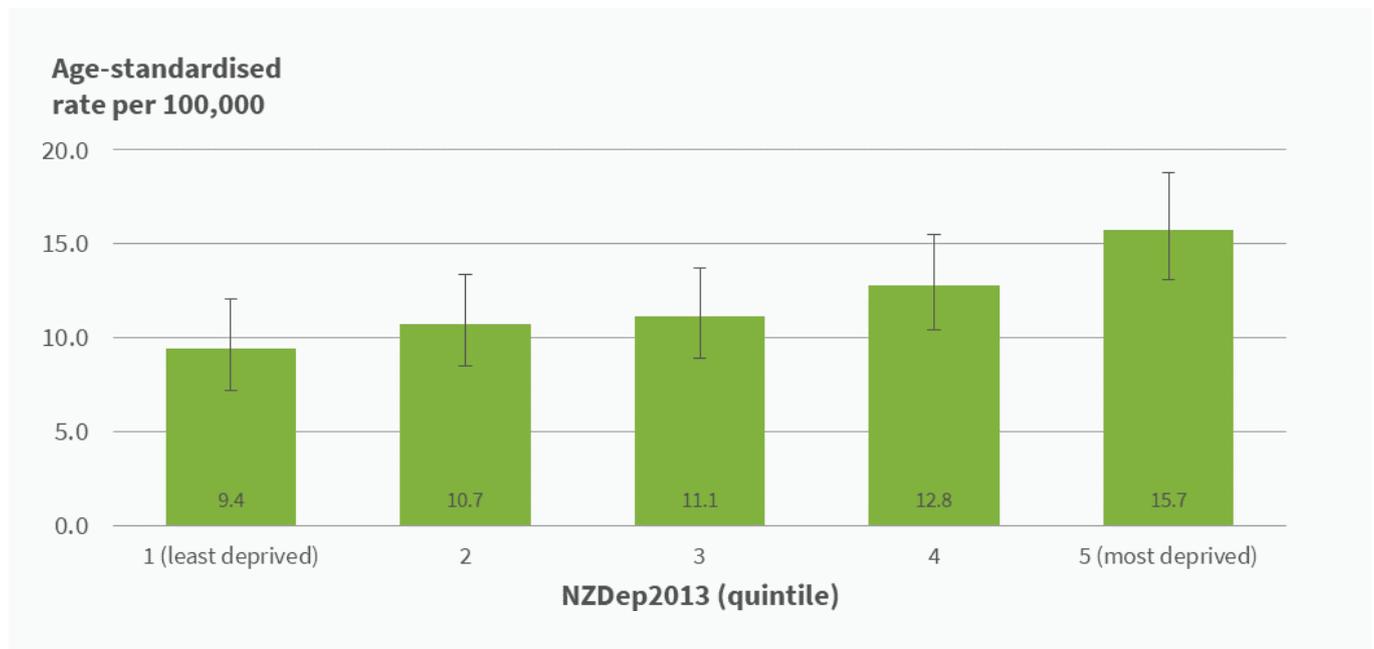


Source: National Minimum Dataset, Ministry of Health

Hazardous substance-related hospitalisation rates increased with socioeconomic deprivation in 2018

In 2018, rates of hospitalisations due to hazardous substance injuries continued to be higher among those residing in deprivation quintile 5 areas (most deprived) compared to quintile 1 areas (least deprived) (Figure 5).

Figure 5: Hospitalisations related to hazardous substances, by deprivation, 2018 (age-standardised rate per 100,000)



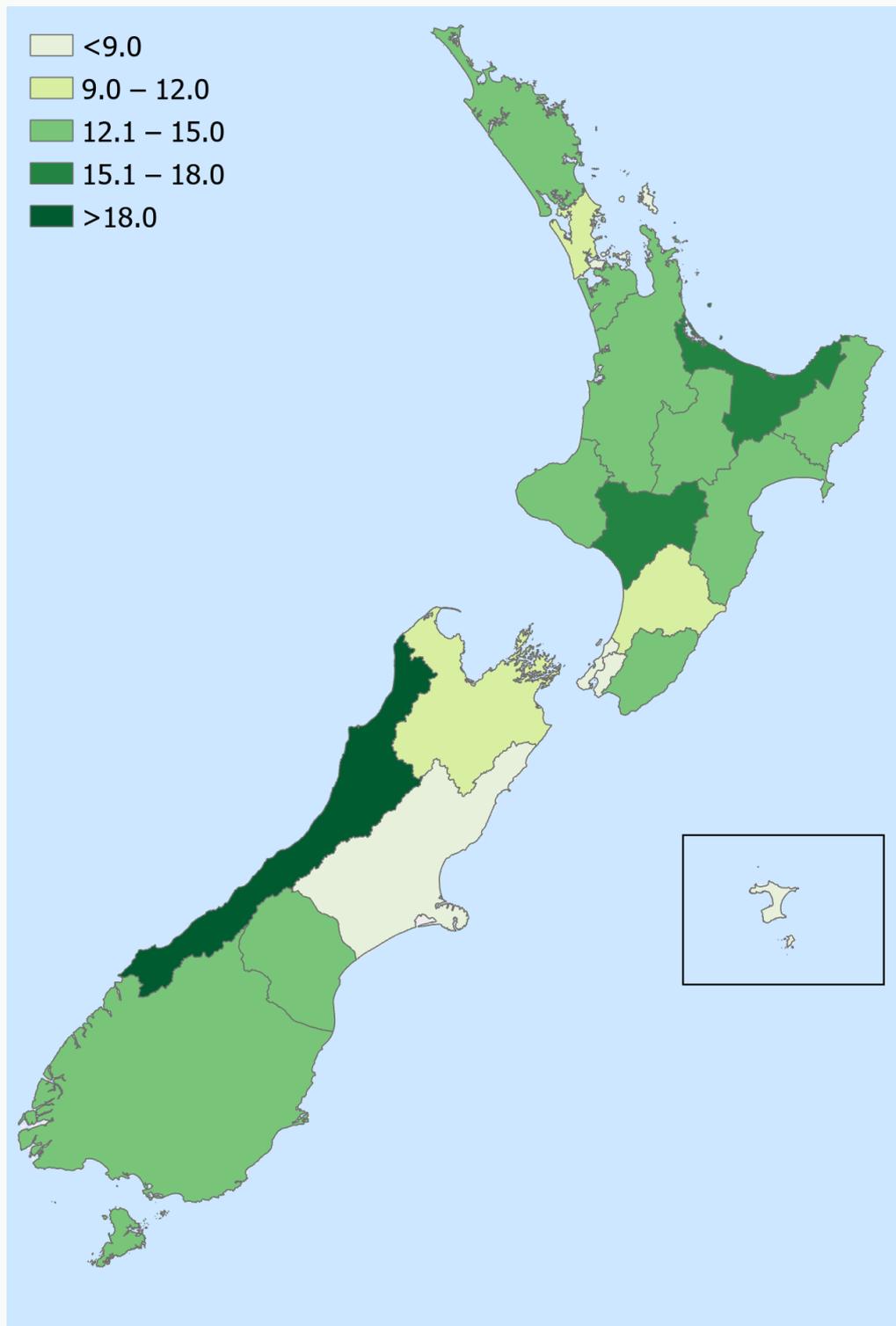
Source: National Minimum Dataset, Ministry of Health

West Coast District Health Board (DHB) had the highest rate of hazardous substance-related hospitalisations over ten years

In the ten years from 2009 to 2018, West Coast DHB had a rate of 19.8 hazardous substance-related hospitalisations per 100,000 – the highest rate of any New Zealand DHB, and almost double the national average of 11.3 per 100,000 (Figure 6). The next highest rates were for Bay of Plenty and Whanganui DHBs (15.6 and 15.3 per 100,000, respectively).

The DHB with the lowest rate was Capital and Coast, with a rate of 5.7 per 100,000.

Figure 6: Hospitalisations related to hazardous substances, by DHB, 2009 – 2018 (age-specific rate per 100,000)



Source: National Minimum Dataset, Ministry of Health

Data for this indicator

This indicator reports hazardous substances-related hospital discharges using data from 2006 onwards. Data has been pooled to give sufficient numbers for analysis where appropriate.

Unless otherwise stated, all differences mentioned in the text between two values are statistically significant at the 5% level or less, because the corresponding 95% confidence intervals do not overlap.

References

Ministry for Business, Innovation, and Employment. 2013. *Work-related Disease in New Zealand*. Wellington, New Zealand.

Other hazardous substances topics include:

[Health effects of hazardous substances](#)

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Further information

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