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Related indicators

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Hazardous Substances Notifications

This factsheet presents data relating to hazardous substances injuries entered into the Hazardous Substances Disease and Injury Reporting Tool from 2014–2021.

Children (0–14 years) are most likely to be injured from hazardous substances in the home through unintentional ingestion while adults (15+ years) are most likely to unintentionally inhale hazardous substances at work or in the home.

Hazardous substance notification rates ranged from 2.0–2.4 per 100,000 from 2016–2019 before declining in 2020 (0.8 per 100,000) and 2021 (1.3 per 100,000).

From 2017–2021, notification rates among children aged 0–4 years were elevated for both males (3.8 per 100,000) and females (3.6 per 100,000) compared to older age groups.

From 2019–2021, hazardous substance notification rates were similar between more and less deprived areas, based on NZDep18.

From 2014–2021, over half of all hazardous substances notifications came from Regional Public Health

A hazardous substance is any substance that has any of the following properties:	A hazardous substance does NOT include:
Explosive	Medicine in finished dose form
Toxic	Alcohol when classified as a food item
Oxidises	Chemical toxins associated with food (poisoning)
Flammable	Radioactive materials
Corrosive	Manufactured items (eg, button batteries)

Hazardous substances classifications

In New Zealand, any injury or disease caused by hazardous substances must be notified to the Medical Officer of Health. Examples of cases that should be reported include:

- a fireworks injury
- ingestion of cleaning products or cosmetics
- poisoning with agrichemicals (including spraydrift incidents)
- unintentional carbon monoxide poisoning
- illness caused by exposure to solvents or chlorine
- contact dermatitis due to chemicals
- huffing of butane and other hydrocarbons.

This factsheet reports on hazardous substance injury notifications from the Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) which was developed in 2013. It includes data on substances covered by the Hazardous Substances and New Organisms Act (HSNO) 1996 and part of the Health Act 1956 ("poisoning arising from chemical contamination of the environment"), including unintentional carbon monoxide exposures, blue-green algae, and agricultural spray drift.

Children (0-14 years) most likely to unintentionally ingest hazardous substances in the home

Of the 88 hazardous substance notifications involving children (0–14 years) from 2017–2021, 48 were cases where the substance was unintentionally ingested, with 40 of those occurring in the home. Table 1 below presents the most common unintentionally ingested chemical group over this time period.

Table 1 Number of notifications involving children unintentionally ingesting a hazardous substance within the home, by hazardous substance category, 2017–2021.

Hazardous substance category	Count
Other cleaning products	9
Fragrance/diffuser/essential oils	7
Sanitiser/disinfectant/antiseptic	6
Car products (cleaning, oils etc)	5
Petrol/diesel	4
Pesticides/insecticides	3
Other	3
Bleach	3
Total	**40**

Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Adults (15+ years) most likely to unintentionally inhale a hazardous substance in the workplace

Of the 324 hazardous substance notifications involving adults (15+ years) from 2017–2021 , 126 were from unintentional inhalation, with 72 of these occurring in the workplace and a further 40 occurring within the home (Table 2). Carbon monoxide was the most common hazardous substance unintentionally inhaled both in the workplace and in the home, with sodium hypochlorite (pool chlorine gas) being reported in both categories as well. Unknown chemicals were also common. Other exposure routes including ingestion, eye and skin contact accounted for 60-75 notifications each for various locations.

Table 2 Number of notifications involving adults unintentionally inhaling a hazardous substance within the home or workplace, by hazardous substance group, 2017–2021.

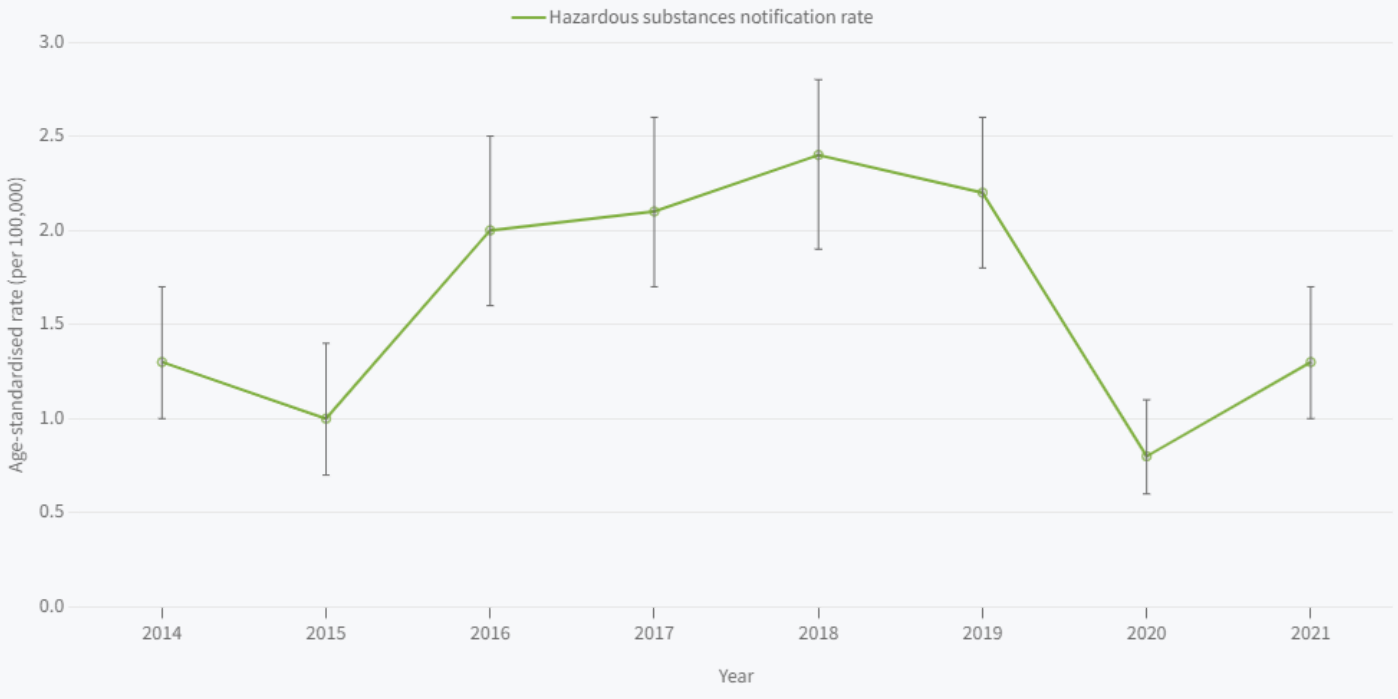
Exposure Place	Hazardous substance category	Count
Workplace	Unknown/unrecorded	18
	Carbon Monoxide	16
	Harmful gases of unknown/unrecorded origin	7
	Sodium Hypochlorite/chlorine gas	6
	Fumes from combustion/fire	6
Home	Carbon monoxide	13
	Sodium Hypochlorite/chlorine gas	8
	Cleaning Agents	3
	Unknown/unrecorded	3

Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Hazardous substances notification rates remain low since 2020

From 2016–2019, hazardous substances notification rates were stable, ranging from 2.0–2.4 notifications per 100,000 (Figure 1). However, rates declined in 2020 (0.8 per 100,000) and remained low in 2021 (1.3 per 100,000). This decline is predominantly due to a decrease in adult (15+ years) notifications, with notifications for children (0–14 years) declining in 2020 before returning to pre-pandemic rates in 2021. This decline in HSDIRT notifications was also recorded for lead notifications, which are reported on the hazardous substances page of the EHINZ website.

Figure 1 Hazardous substance notification rates, 2014–2021.



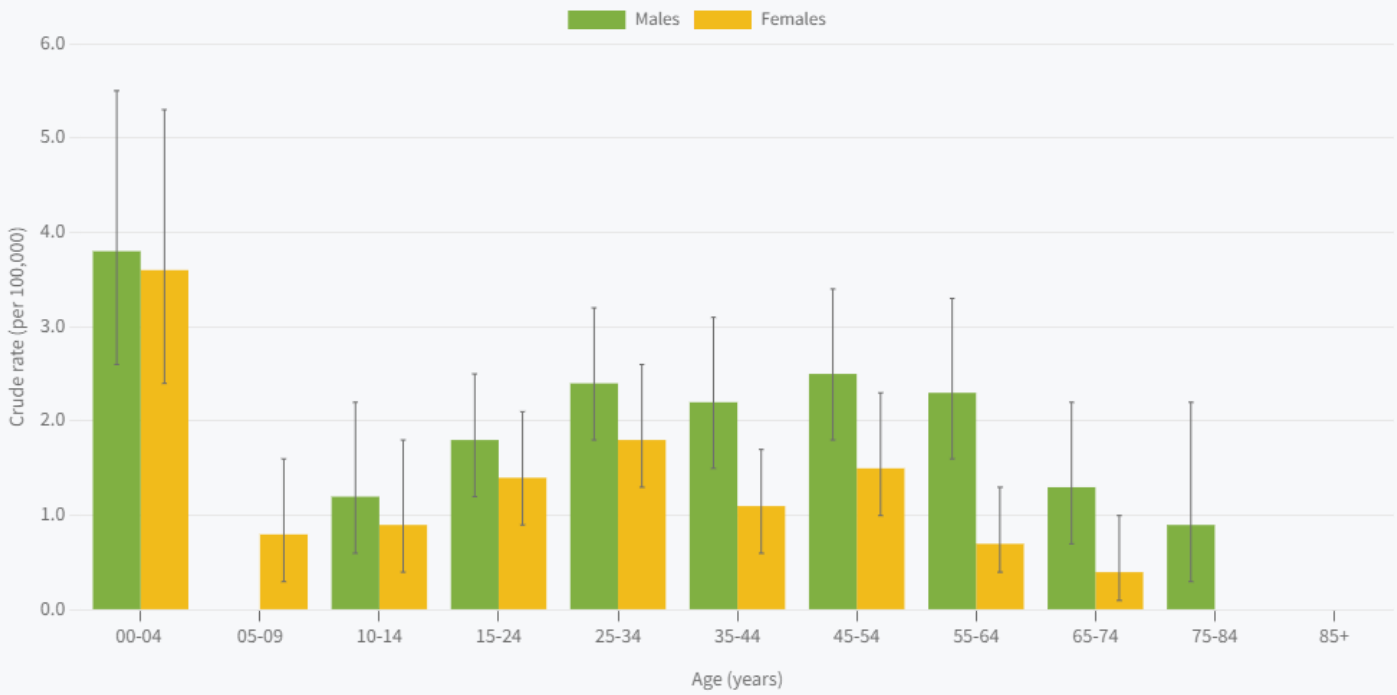
Note 1: 95% confidence intervals have been presented as error bars.
Note 2: The rate is suppressed due to an unreliable estimate with small numbers. See Metadata for more information on how to interpret this graph.

Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Children, 0–4 years, have high notification rates for both males and females

From 2017–2021, children aged 0–4 years had the highest notification rates for both males (3.8 per 100,000) and females (3.6 per 100,000) (Figure 2). The difference in notification rates between males and females also increases with age, with the rate for males aged 35+ years being at least double the rate seen for females of the same age bracket.

Figure 2 Hazardous substance notification rates, by age and sex, 2017–2021.



Note 1: 95% confidence intervals have been presented as error bars.
Note 2: Missing rates have been suppressed as it is an unreliable estimate based on small numbers. See Metadata for more information on how to interpret this graph.

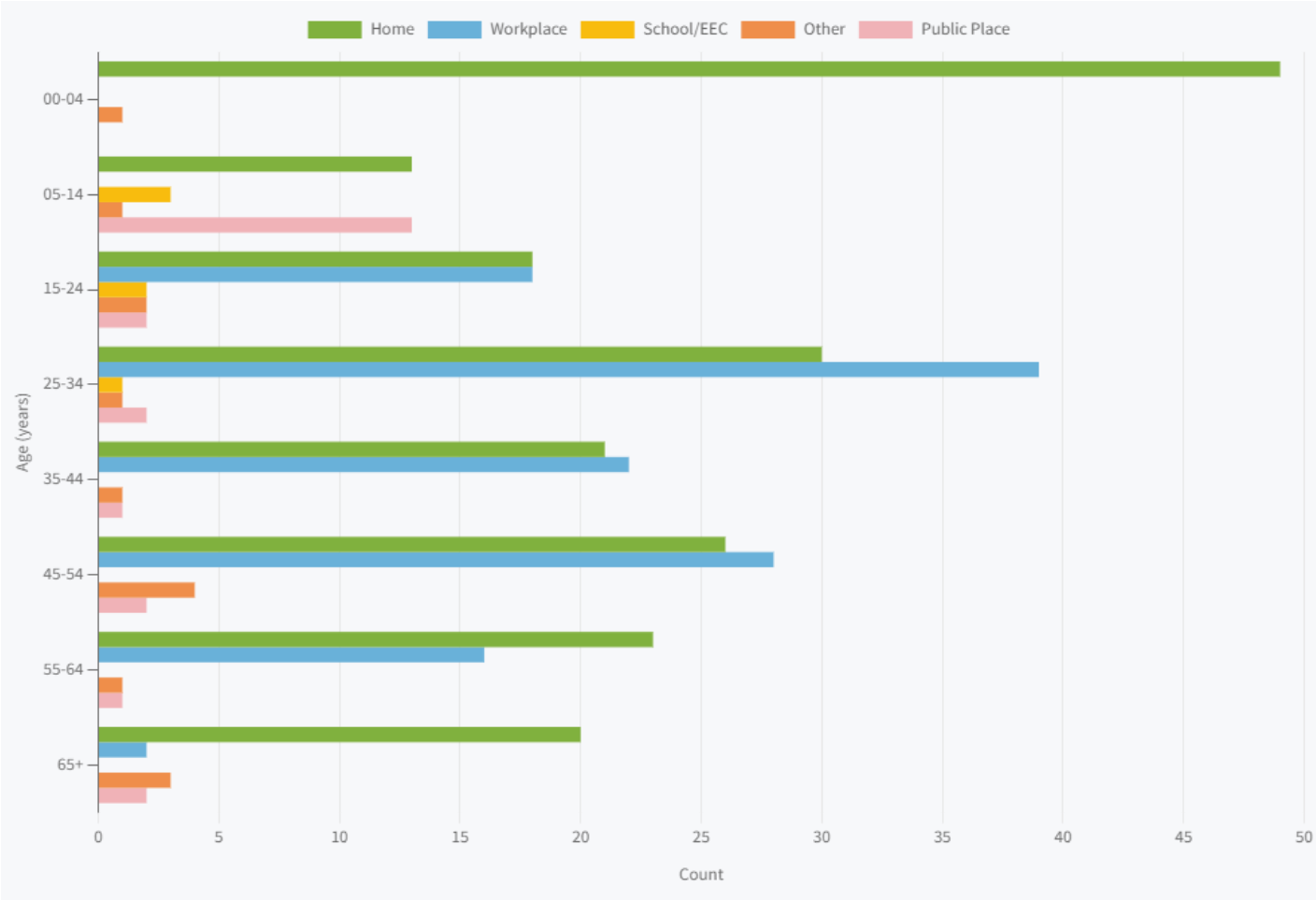
Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Hazardous substance injuries are most common in the home for children, and the home or workplace for adults

From 2017–2021, the majority of hazardous substance injuries involving children (0–14 years) and older adults (65+ years) occurred in the home (Figure 3). There was also a large number of injuries in a public place for 5–14 year olds. However, the majority of these (11/13 notifications) relate to a single mass event involving chlorine exposure at a public pool in 2021 'Upper Hutt pool incident: WorkSafe issues notice prohibiting H2O Xtream slides from being used'. Stuff, 2 April 2021.

Over the same time period, 2017–2021, working age adults (15–64 years) were equally likely to be injured by a hazardous substance at home or in the workplace. These trends are also reflected in the data back to 2014 when HSDIRT became available throughout New Zealand.

Figure 3 Hazardous substance notifications, by age and place of exposure, 2017–2021



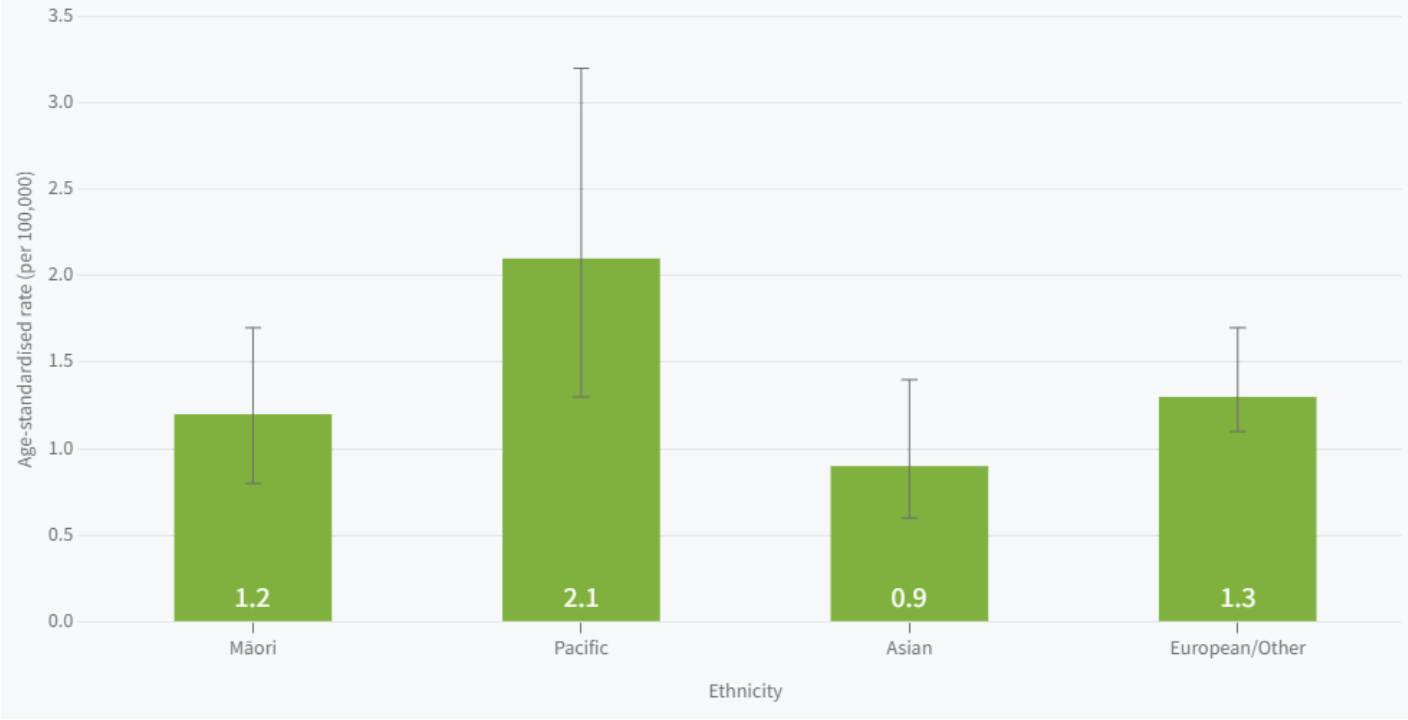
Note 1: Five notifications did not record the age and have been excluded from this figure.
Note 2: Forty notifications had an unknown/unrecorded place of exposure and have been excluded from this graph.
Note 3: Some notifications record more than one place of exposure, meaning total notifications presented here may be greater than the total notifications for the given time period.

Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Hazardous substance notification rate is high for Pacific Peoples

From 2019–2021, the hazardous substances notification rate was marginally higher among Pacific Peoples (2.1 per 100,000) compared to other ethnic groups (Figure 4). This was not the case in previous years with age standardised rates for all ethnic groups being similar aside from rates for the Asian ethnic group, which were lower than all others.

Figure 4 Hazardous substance notification rates, by ethnic group, 2019–2021



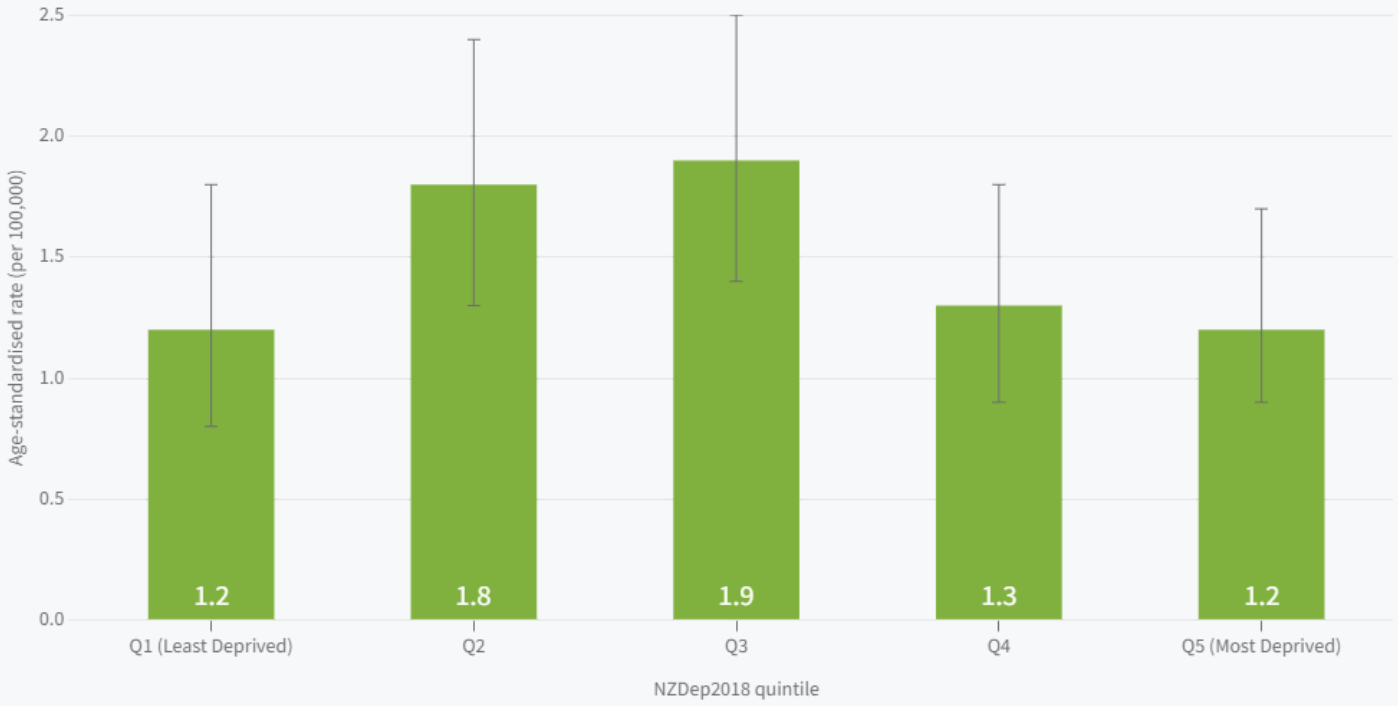
Note 1: 95% confidence intervals have been presented as error bars. See Metadata for more information on how to interpret this graph.
Note 2: 22 notifications did not record ethnicity over this timeframe and have not been included here.

Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Hazardous substances notification rates across all deprivation quintiles are similar

From 2019–2021, the hazardous substance notification rate was similar between those living in the least deprived areas (1.2 per 100,000) and those living in the most deprived areas (1.3 per 100,000) based on NZDep18 (Figure 5).

Figure 5 Hazardous substance notification rates, by NZDep18 quintiles, 2019–2021



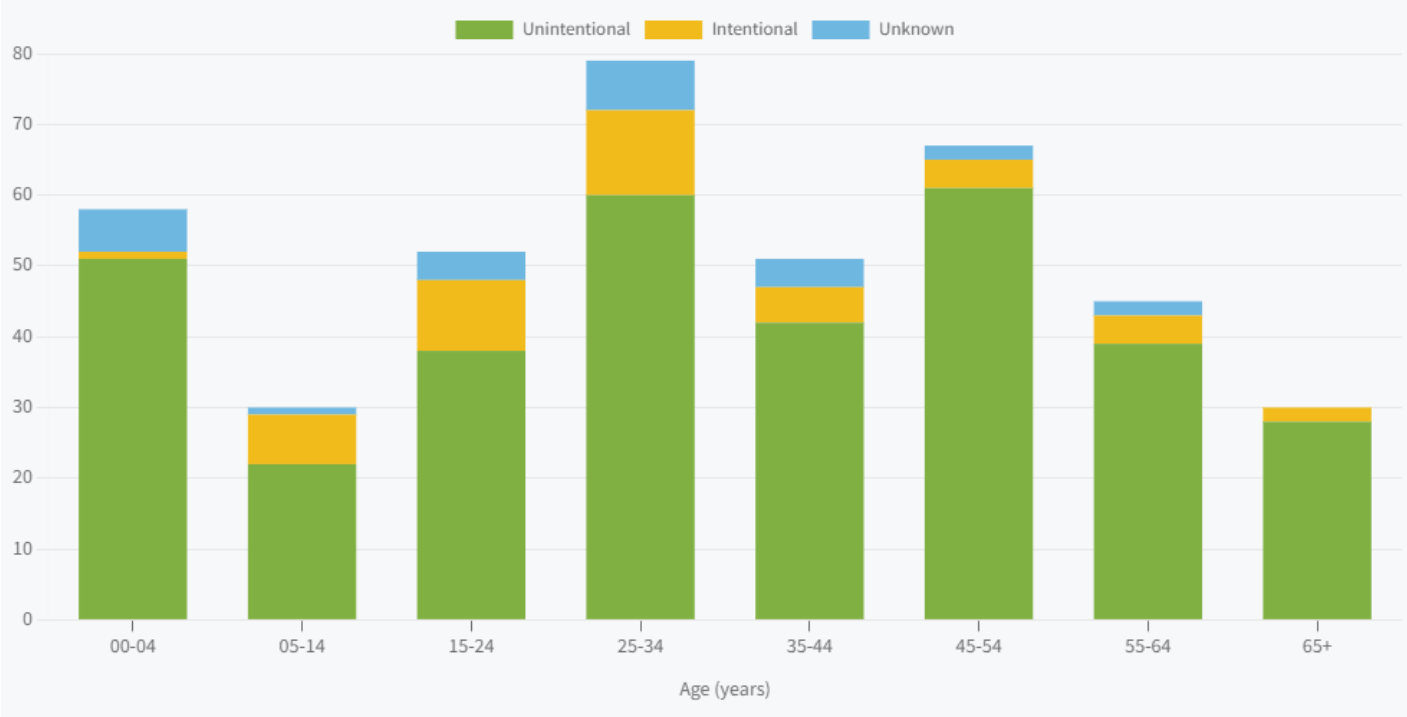
Note 1: 95% confidence intervals have been presented as error bars. See Metadata for more information on how to interpret this graph.
Note 2: Seven notifications did not record address over this time period and have been excluded from this figure.

Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Majority of hazardous substance notifications are from unintentional exposures

From 2017–2021, unintentional hazardous substance notifications made up roughly 90% of notifications, where intent was known. However, intentional notifications were more common among children, adolescents and young adults, 5–34 years, with roughly 20% of notifications being intentional exposures (Figure 6). Of the 29 notifications involving children to young adults, the most common substances involved were household cleaning products (six notifications) and bleach (five notifications). There was no notable difference in intent based on deprivation or ethnicity.

Figure 6 Hazardous substance notification, by age and intent, 2017–2021



Note: Five notifications did not record the age over this time period and have been excluded from this figure.

Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Over half of all hazardous substance notifications come from Regional Public Health

From 2014–2021, roughly 60% of all hazardous substance notifications (385/619) came from Regional Public Health, which includes Wellington, Porirua, Hutt Valley, Wairarapa and Kapiti Coast (Table 3). The majority of these notifications came from either an emergency department clinician, 232 notifications, or directly from the Public Health Unit, 101 notifications.

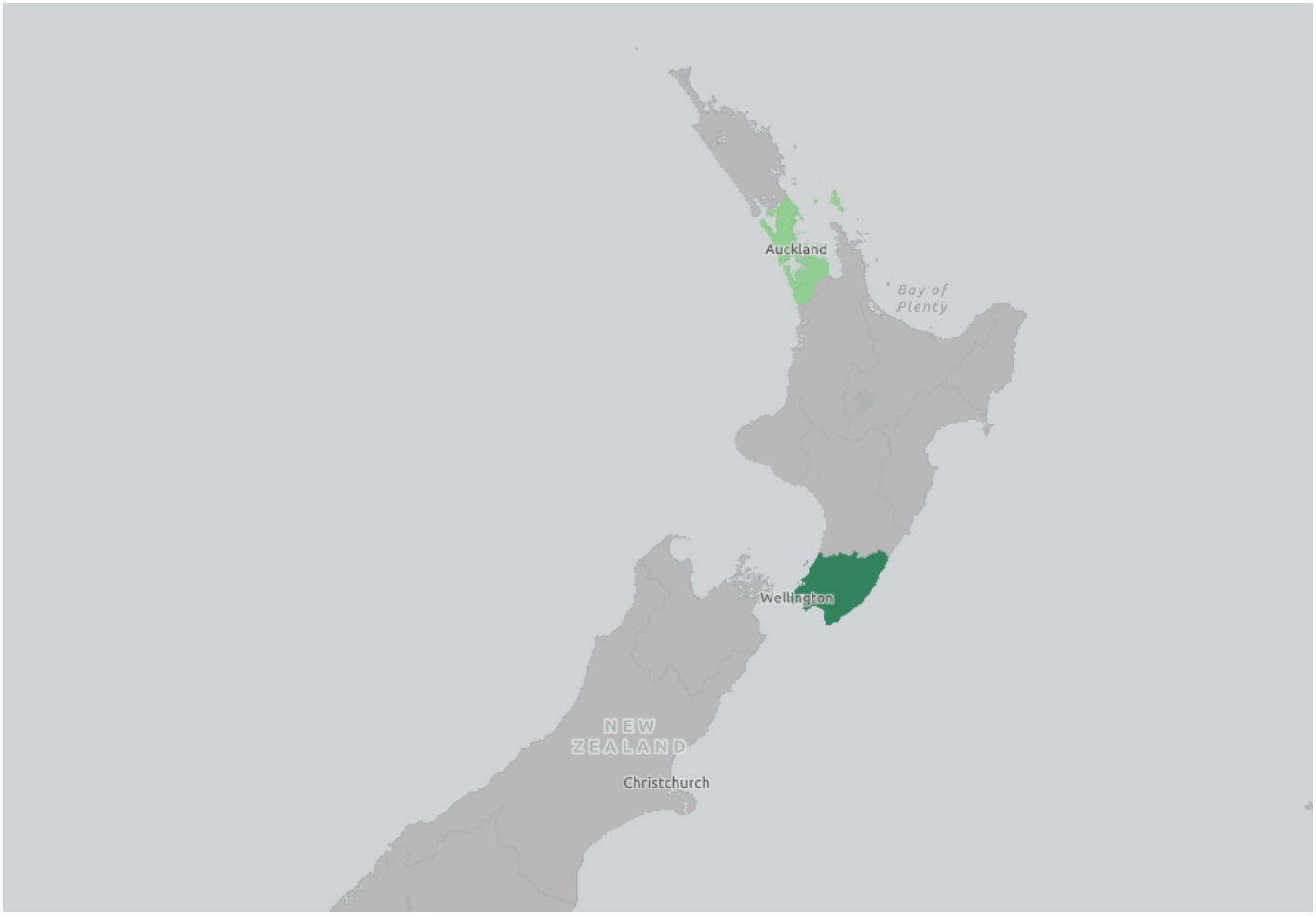
Table 3 Hazardous substance notifications, by Public Health Service and reporting source, 2014–2021

Public Health Service	ED clinician	Public Health Service	Other	Other hospi-tal clinician	General Practitioner	Laboratory	Unknown	Total	Crude Rate (per 100,000)
Regional Public Health	232	101	9	5	11	2	25	385	9.4
Auckland Regional Public Health Service	19	1	62	45	7	2	11	147	1.1
Community and Public Health	11	0	1	0	14	0	1	27	0.5
Taranaki Public Health	13	0	0	0	0	0	6	19	2.0
Waikato Public Health	3	1	1	2	2	3	0	12	0.4
Toi Te Ora - Public Health	1	2	2	0	2	1	1	9	0.3
Hawke's Bay Public Health	0	5	0	0	0	1	0	6	0.4
MidCentral Public Health	0	0	0	2	2	2	0	6	0.3
Nelson-Marlborough Public Health Service	1	1	0	0	2	0	0	4	*
Public Health South	2	0	1	0	0	0	1	4	*
Hauora Tairāwhiti	0	0	0	0	0	0	0	0	*
Ngā Tai Ora, Public Health Northland	0	0	0	0	0	0	0	0	*

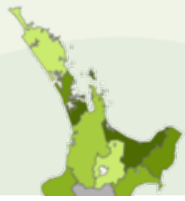
Note: *The rate is suppressed as it is an unreliable estimate based on small numbers. See Metadata for more information on how to interpret this table.

Source: Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) 2022.

Table 3 Hazardous substance notifications, by Public Health Service, 2020–2021



Interactive regional dashboard



Data for this indicator

This indicator reports HSDIRT hazardous substances notifications from 2014 to 2021. The data were extracted from the HSDIRT system on 8 March 2022. Updates or additions made to HSDIRT after this date are not reflected in this factsheet.

Crude rates presented in this factsheet do not take into account varying age distributions when comparing between populations.

Age-standardised rates presented in this factsheet take into account varying age distributions when comparing between populations.

All 95% confidence intervals have been presented as error bars on graphs. Unless otherwise stated, all differences mentioned in the text between the two values are statistically significant at the 5% level or less.

For additional information, see the metadata link below.

Other related topics include:

Non-occupational lead absorption notifications

Occupational lead absorption notifications

Hazardous substances-related deaths reported to the coroner in New Zealand

Hazardous substances-related deaths registered in New Zealand

Unintentional hazardous substances-related hospitalisations

Unintentional hazardous substances exposures in children (0–14 years)

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Further information

For descriptive information about the data Metadata Sheet

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