Notifications of waterborne diseases with recreational water as a risk factor

This surveillance report presents information on notifications of campylobacteriosis, giardiasis, and cryptosporidiosis, for which contact with recreational water (eg. lakes, rivers or the sea) was recorded as a risk factor using data extracted from the EpiSurv database in March 2026. The percentage of cases with risk factor information reported is also included.

Key facts

- In 2024, there were 89 notifications of campylobacteriosis, 49 notifications of cryptosporidiosis, and 37 notifications of giardiasis where contact with recreational water (eg. lakes, rivers or the sea) was recorded as a risk factor. However, these figures are highly likely to be underestimates.
- In 2020–24, none of the twenty health districts had sufficient risk factor information for campylobacteriosis notifications to allow a reliable calculation of a crude rate of disease where recreational water contact was a risk factor. Five and four districts had enough data for both cryptosporidiosis and giardiasis, respectively.
- Notifications submitted for the Auckland Regional Public Health Service (covering Waitematā, Auckland and Counties Manukau districts) during 2020-24 contained almost no risk factor data.

About waterborne diseases & risk factor information

Campylobacteriosis, cryptosporidiosis, and giardiasis are gastrointestinal diseases caused by infection with the *Campylobacter* bacteria, *Cryptosporidium* parasite, and *Giardia* parasite, respectively. Recreational water bodies (ie. lakes, rivers and seas) are common transmission routes for giardiasis and cryptosporidiosis, while most campylobacteriosis cases are contracted through food-borne infection - particularly raw chicken.

Notifications of these diseases submitted by public health services should also include risk factor information. This information includes details of possible sources from which the individual could have contracted the disease – but not the confirmed source. The percentage of notifications that had completed risk factor information (the 'completion rate') varies greatly across New Zealand. To account for the data quality issues this causes, EHINZ uses a 70% completion rate as an acceptable threshold that should be met or exceeded to ensure sufficient data quality for use in our analyses.

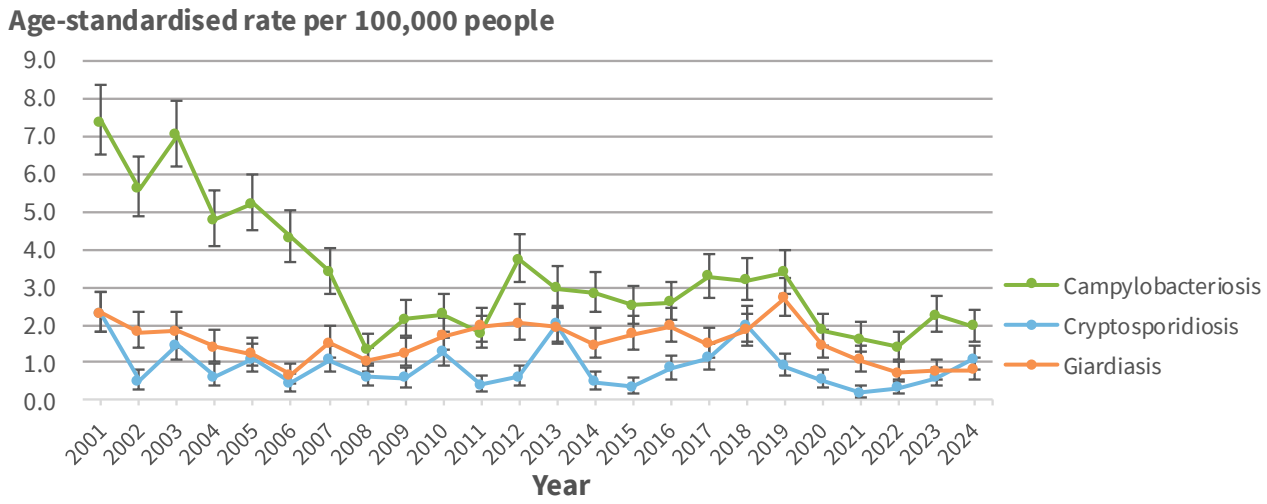
Declining rates of disease do not tell the whole story

In 2024, there were 89 notifications of campylobacteriosis, 49 notifications of cryptosporidiosis, and 37 notifications of giardiasis where contact with recreational water was recorded as a risk factor.

Rates of campylobacteriosis involving recreational water initially declined from 2001 to 2008 and stayed relatively low through the 2010s and beyond (Figure 1). This reflects the introduction of new food safety

standards for poultry. Meanwhile, notification rates of cryptosporidiosis and giardiasis mainly remained unchanged. The COVID-19 pandemic appears to have had a dampening effect on notification rates that has not been reversed in subsequent years.

Figure 1: Notification rates of potentially waterborne diseases with recreational water as a risk factor, 2001–24



Source: PHF Science 2026

Notifications involving recreational water are rare

In 2024, notifications of gastrointestinal infection in which contact with recreational water was listed as a risk factor accounted for less than 5% of all notifications of the three diseases reported here (Table 1). However, only one-third of notifications overall (32.0%) provided any risk factor information in the first place.

If the cases where no risk factor information was recorded are allocated using the same proportions as in the 'yes/no' columns in the table below, there would be an additional 232 cases of campylobacteriosis, 65 of cryptosporidiosis and 72 of giardiasis with a potential connection to recreational water. Though these are still low numbers in the context of the total number of gastrointestinal infections recorded, they indicate that substantially more cases with potential links to recreational water may have passed through the health system than were counted.

Table 1: Breakdown of notifications by risk factor status, 2024

Disease	Notifications with recreational water as a risk factor					Risk factor completion		
	Yes	No	Total stated	Unknown/ missing	Total cases	Completion rate (%)*	Percentage with reported recreational water contact (among total stated)	Percentage with reported recreational water contact (among total cases)
Campylobacteriosis	88	1,485	1,573	3,920	5,493	28.6%	5.6%	1.6%
Cryptosporidiosis	48	465	513	632	1,145	44.8%	9.4%	4.2%
Giardiasis	36	234	270	465	735	36.7%	13.3%	4.9%
Total	**172**	**2,184**	**2,356**	**5,017**	**7,373**	**32.0%**	**7.3%**	**2.3%**

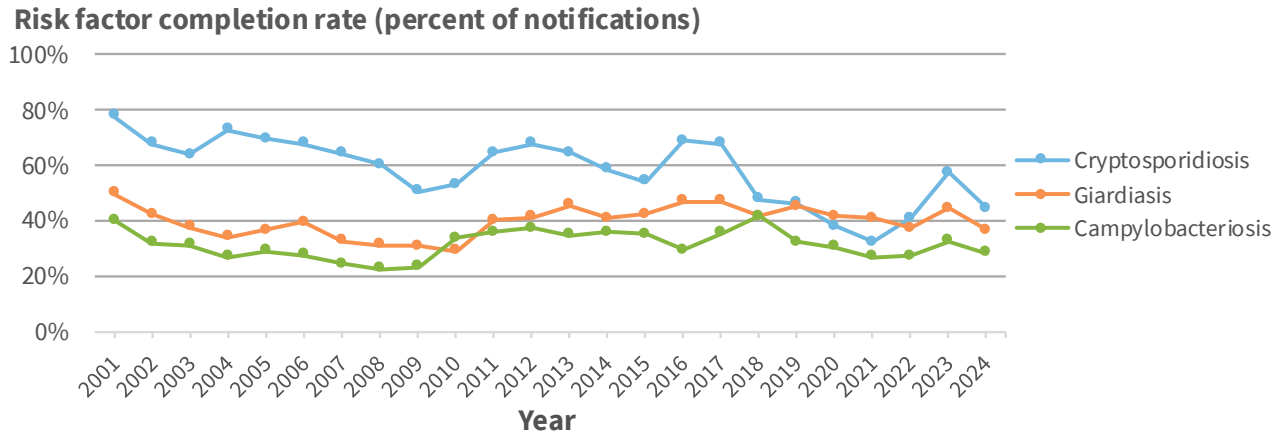
Note: * Completion rate = percentage of notifications with risk factor information stated.
Source: PHF Science 2026

Risk factor completion rates remain low

Risk factor completion rates for all three diseases reported here have always been low, typically less than 50% for campylobacteriosis and giardiasis, while cryptosporidiosis, once substantially higher, has now dropped to an equally low level. (Figure 2).

The COVID-19 pandemic appears to have had little effect on completion rates, as 2020 rates were not much different from the previous year and were already in slow decline.

Figure 2: Recreational water risk factor completion rates for potentially waterborne disease, 2001–24



Note: Completion rate = percentage of notifications with risk factor information provided.
Source: PHF Science 2026

ARPHS continues to fall short in following up on notifiable diseases

In 2020-24, most districts recorded insufficient risk factor information to display a reliable rate. This requires a completion rate of at least 70% of notifications submitted with risk factor information stated.

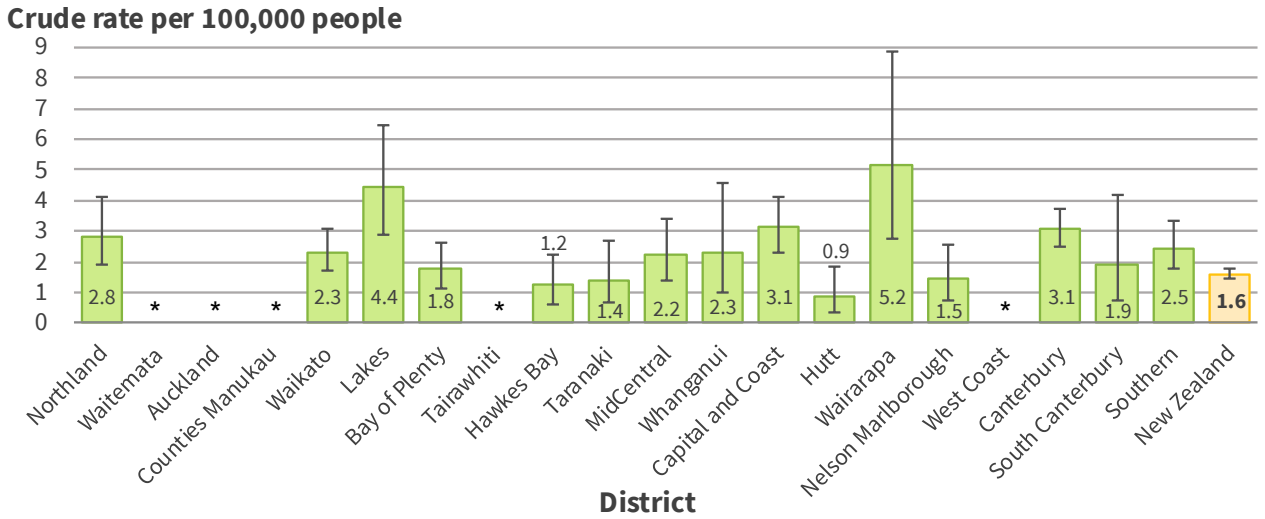
Though data is displayed at the district level, public health services are responsible for reporting risk factor information to PHF Science. The three districts covered by the Auckland Regional Public Health Service (ARPHS) – Waitematā, Auckland, and Counties Manukau - all had much less risk factor information in their notifications than any other district, as will be shown in the subsequent figures and tables.

There has been no change in the lack of risk factor information over a number of years.

Campylobacteriosis notification and completion rates

Crude notification rates for campylobacteriosis where recreational water contact was reported were fairly consistent across the country. Lakes and Wairarapa districts had high rates, although the wide confidence intervals indicate potential large variability in the rate due to the small number of cases.

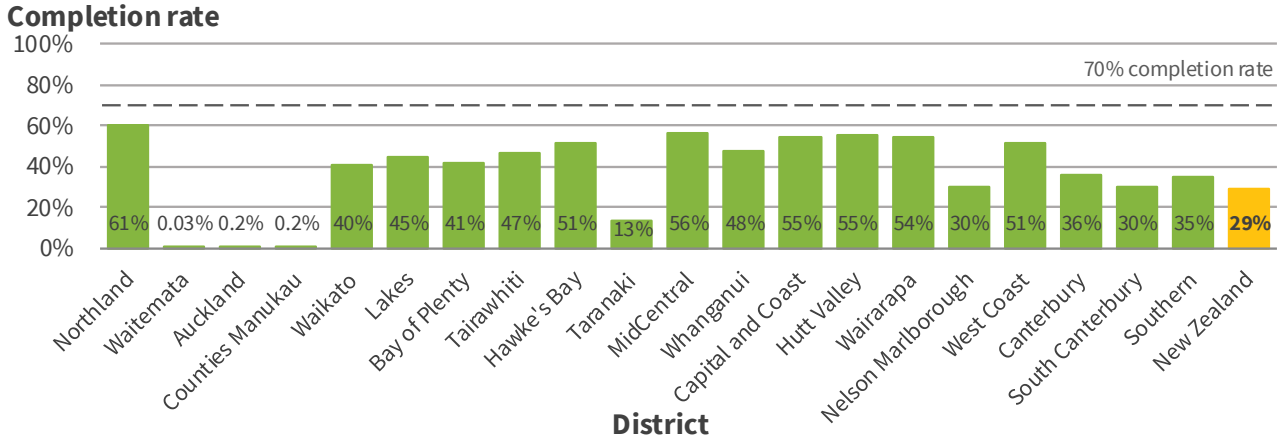
Figure 3: Notification rates of campylobacteriosis with recreational water as a risk factor, by district, 2020-24



Note: * - The rate for these districts is suppressed due to a lack of notifications that declared recreational water contact as a risk factor (<5 over the five-year period). Due to varying risk factor completion rates, readers should not compare district rates. Bars with a light fill indicate districts where completion rates were lower than 70%.
Source: PHF Science 2026

No health district had sufficient risk factor information to reliably calculate the disease notification rate when contact with recreational water was a risk factor. The Northland district came closest, with 61% of all notifications containing risk factor information (Figure 4). The completion rates in the three ARPHS districts' are all less than 0.2%

Figure 4: Risk factor completion rates for notifications of campylobacteriosis, 2020-24

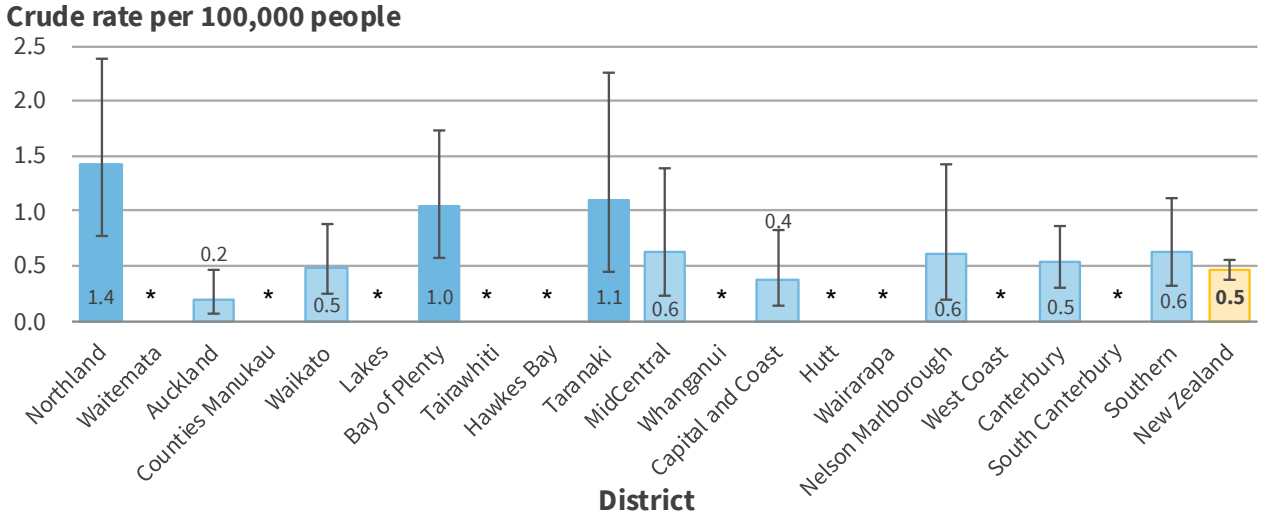


Source: PHF Science 2026

Cryptosporidiosis notification and completion rates

Small numbers of cryptosporidiosis notifications with risk factor information in 2020–24 led to suppressed rates for most districts. Of those where rates could be calculated, there was no clear pattern.

Figure 5: Notification rates of cryptosporidiosis with recreational water as a risk factor, by district, 2020-24

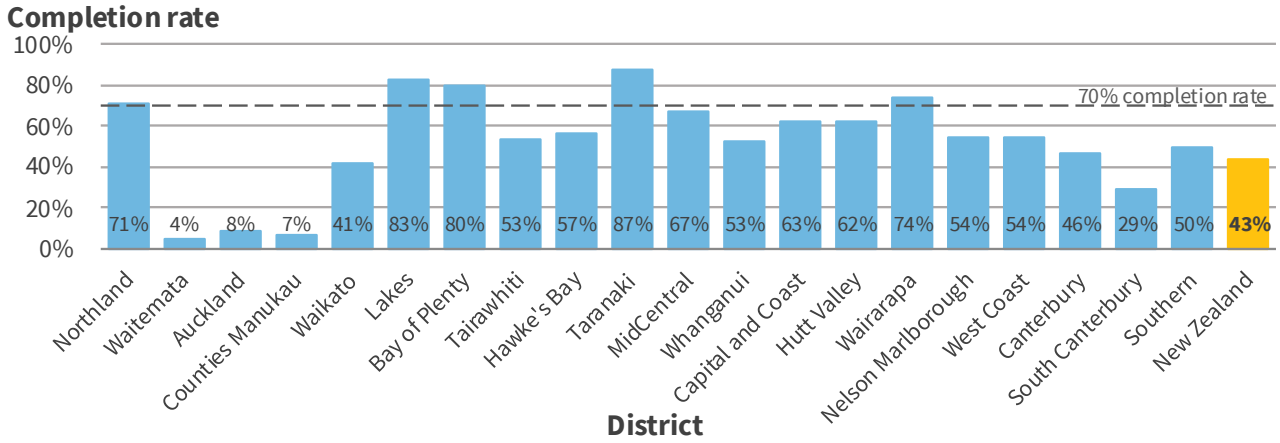


Note: * - The rate for these districts is suppressed due to a lack of notifications that declared recreational water contact as a risk factor (<5 over the five-year period). Due to varying risk factor completion rates, readers should not compare district rates. Bars with a light fill indicate districts where completion rates were lower than 70%

Source: PHF Science 2026

Risk factor completion rates for cryptosporidiosis notifications were marginally better than for campylobacteriosis, with 5 out of 20 DHBs exceeding a completion rate of 70% between 2020–24 (Figure 6). The Taranaki district had the highest completion rate, at 87%. As above, the districts in the Auckland region (ARPHS) once again had the lowest completion rates.

Figure 6: Risk factor completion rates for notifications of cryptosporidiosis, 2020-24

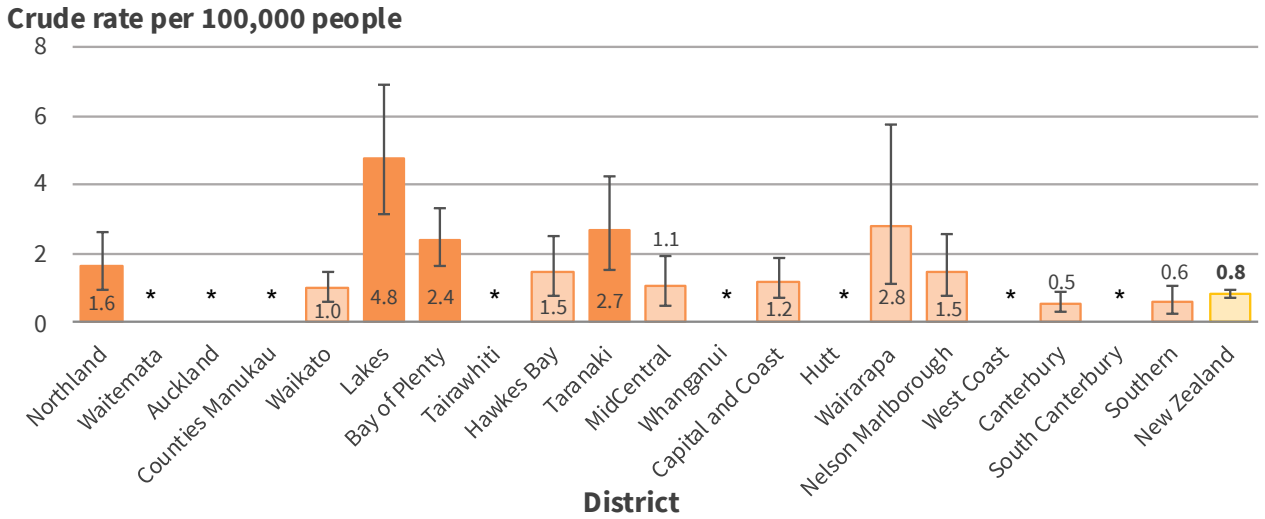


Source: PHF Science 2026

Giardiasis notification and completion rates

The Lakes District had a high giardiasis notification rate, with recreational water as a risk factor (Figure 7), together with an acceptable risk factor completion rate (Figure 8).

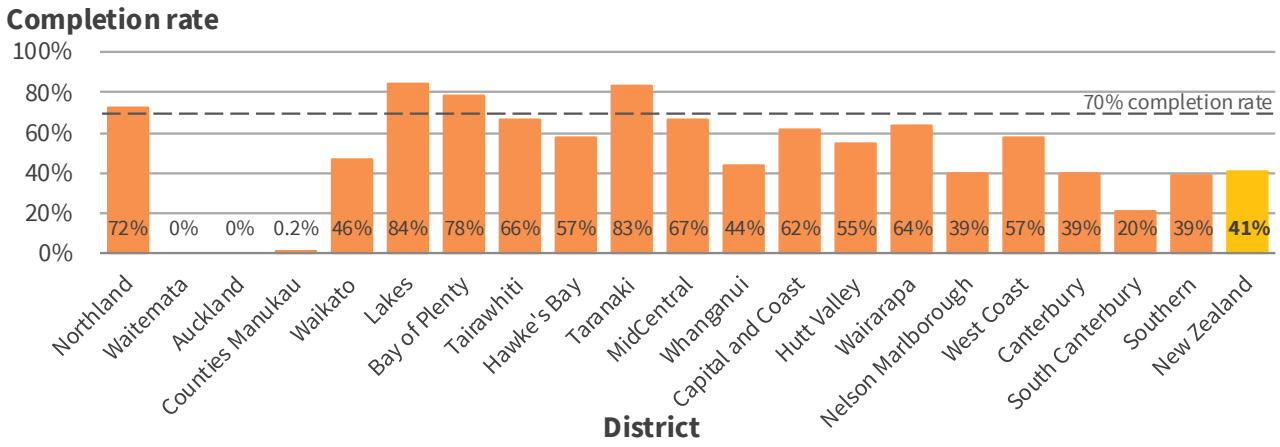
Figure 7: Notification rates of giardiasis with recreational water as a risk factor, by district, 2020-24



Note: * - The rate for these districts is suppressed due to a lack of notifications that declared recreational water contacts as a risk factor (<5 over the five-year period). Due to varying risk factor completion rates, readers should not compare district rates. Bars with a light fill indicate districts where completion rates were lower than 70%.
Source: PHF Science 2026

Risk factor completion rates for giardiasis were adequate in only four out of 20 districts, with the highest rate (84%) occurring in Lakes district and 83% in Taranaki (Figure 8). Once again, the Waitematā, Auckland, and Counties Manukau districts provided far less risk factor information than others, leading to suppressed disease rates in those districts.

Figure 8: Risk factor completion rates for notifications of giardiasis, 2020-24



Source: PHF Science 2026

Data for this indicator

This indicator is an analysis of the most recent data available from the EpiSurv notifications surveillance database, provided to EHINZ by the Public Health and Forensic Science (PHF Science – formerly ESR) in March 2026. The Institute for Environmental Science and Research (ESR) changed its name to the New Zealand Institute for Public Health and Forensic Science (PHF Science) on July 1 2025.

Notifications exclude cases where the person was overseas during the incubation period. Notifications only cover those who visited a GP or hospital for treatment and are therefore likely to underestimate the true rate of disease in the population.

Public health services are responsible for reporting risk factor information for each case, including whether the affected person was in contact with 'recreational water' (i.e. a river, lake or sea) during the incubation period. Multiple risk factors can coexist in a single case, and risk factor information is not always collected for each case. Given that many notification rates are based on incomplete information (low completion rates), they should be treated with caution and, in most cases, as underestimates.

All 95% confidence intervals have been presented as error bars on graphs. However, confidence intervals do not account for the completion rates of risk factor information for cases in a given year or district. Notification rates and confidence intervals also do not account for under-ascertainment; that is, those cases in the community who did not visit a healthcare provider for treatment and, therefore, did not get included in the notification statistics. Therefore, the notification rates and confidence intervals should also be interpreted with caution.

For additional information, see the Metadata sheet.

References

ESR. 2017. *Notifiable Diseases in New Zealand: Annual Report 2016*. Porirua: Institute of Environmental Science and Research. Porirua: Institute of Environmental Science and Research Limited

PHF Science. 2026. *Notifiable diseases EpiSurv data extraction*. Porirua: Public Health and Forensic Science (Personal communication with PHF Science Senior Analysts).

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Citation

Environmental Health Intelligence. 2026. *Notifications of waterborne disease with recreational water as a risk factor*. [Surveillance Report]. Wellington: Environmental Health Intelligence NZ, Massey University.

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