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Related indicators

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Notifications of potentially water-borne diseases

This factsheet presents information on how New Zealander's health is affected by three potentially waterborne diseases (PWD): campylobacteriosis, giardiasis and cryptosporidiosis. For more information about these diseases, please visit our website.

Low recorded notification rates of three common potentially waterborne diseases (PWD) in 2020 may be due to reduced access to healthcare caused by the coronavirus pandemic.

Children aged under four years experienced much higher rates for all waterborne diseases covered in this factsheet

The age-standardised rate of campylobacteriosis notifications was 101.5 per 100,000 people in 2020, the lowest rate since the start of records in 2001.

The notification rate for cryptosporidiosis was 17.3 per 100,000 people, one of the lowest reported rates since 2001.

There was a sharp drop in the notification rate for giardiasis from 2019 (34.3 per 100,000) to 2020 (22.5 per 100,000 people. The sudden significant change is likely to reflect the impact of Covid-19 rather than a difference in the actual rate of disease.

COVID-19 and notification rates

The notifications presented here only cover those who sought medical treatment. Therefore any difference in notification rates between 2019 and 2020 may be partly due to more people being unable or unwilling to access healthcare during periods of heightened COVID-19 restrictions. It is also possible that COVID-19 restrictions will have caused a genuine reduction in cases, in particular those connected to recreational activity. The reduced access to healthcare coupled with the already imperfect collection of risk factor information (see the factsheets relating notifications of waterborne disease with untreated water and recreational water contact as risk factors) are likely to disguise the extent of this effect.

For this reason, readers should be aware that rates are presented 'as is' and use caution when interpreting the graphs shown below.

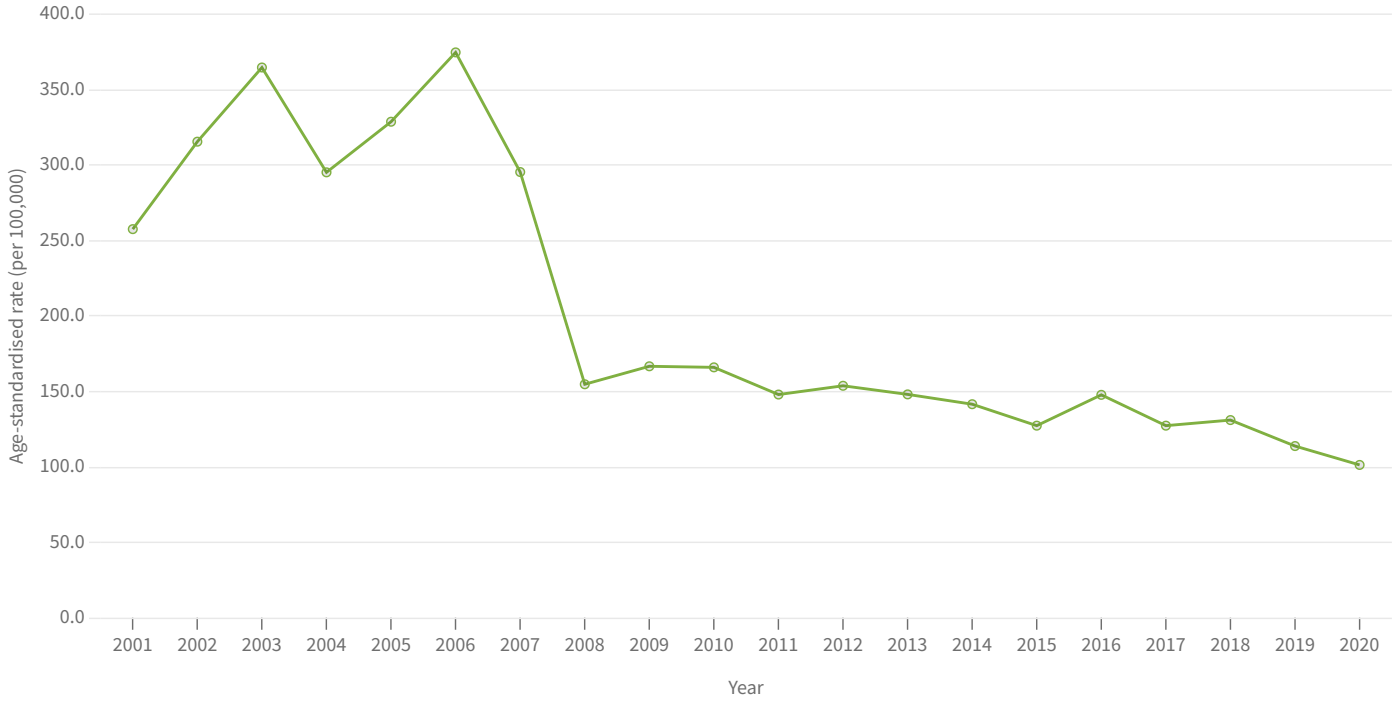
Potentially waterborne disease notification rates

The campylobacteriosis notification rate in 2020 was 101.5 per 100,000 people (5,226 notifications), the lowest since reports began in 2001 (Figure 1) and continuing a declining trend from 2009 onwards.

The minor elevation in the rate for 2016 is due to a campylobacteriosis outbreak in Havelock North.

The large decrease in the campylobacteriosis rate from 2008 onward has been attributed to the introduction of food safety regulations for poultry production in 2007 and 2008 (Duncan, 2014). Consequently, the decline represents a drop in the number of food-related cases. It is unlikely to represent a change in the pattern of cases contracted through contact with contaminated water.

Figure 1 Campylobacteriosis notification rate, 2001–2020



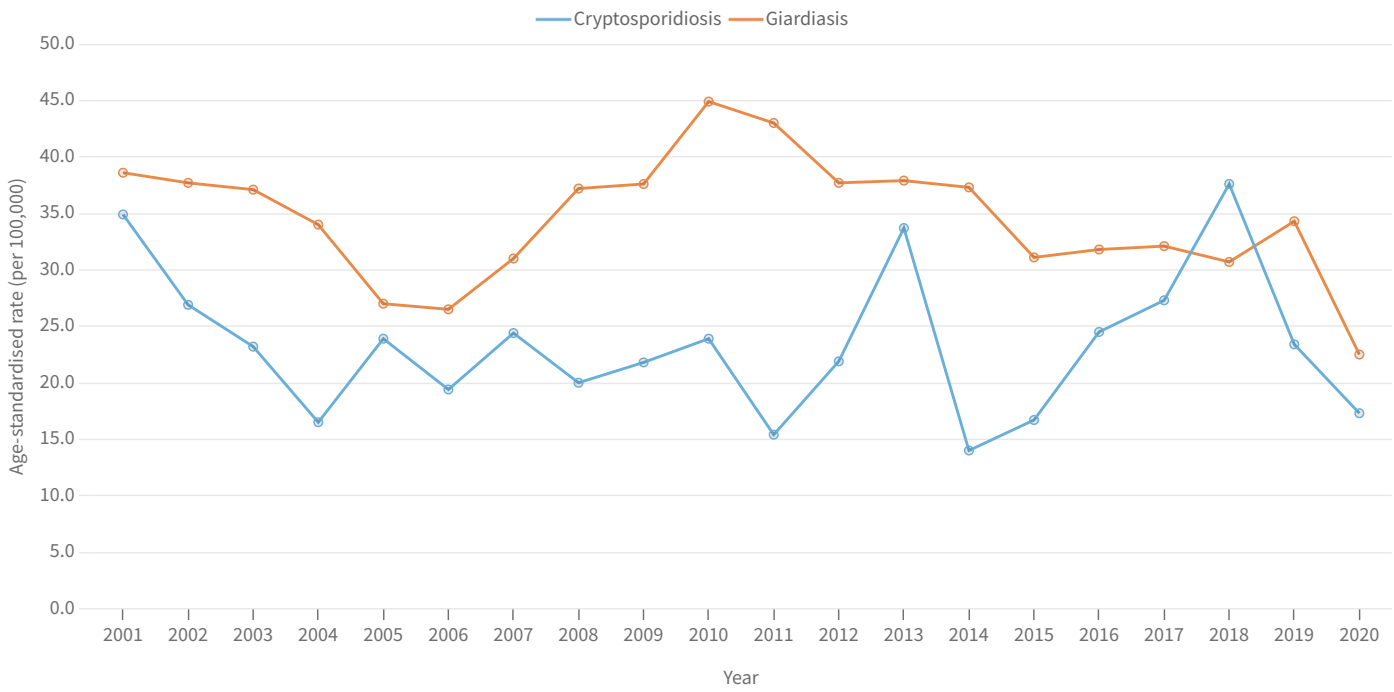
Note: 95% confidence intervals have been presented as error bars.

Source: ESR 2021

In 2020, the age-standardised notification rate for cryptosporidiosis was 17.3 per 100,000 people (728 notifications). The notification rate for this disease has been fairly volatile compared to the other two reported here. As a result, the rate in 2020 is roughly half that of just two years previously - 37.6 notifications per 100,000 people in 2018, the highest rate in the last 20 years of data (Figure 2).

There was a notable drop in the rate of giardiasis between 2019 and 2020 after a period of no real change. The age-standardised rate fell from 34.3 to 22.5 per 100,000 people, which is the largest year-to-year difference on record. The number of cases underpinning the rate fell from 1,570 to 1,080. The magnitude of the change suggests it may be partly due to reductions in access to healthcare (and cases going unreported as a result) during periods of elevated COVID-19 restrictions during the year.

Figure 2 Cryptosporidiosis and giardiasis notification rates, 2001–2020



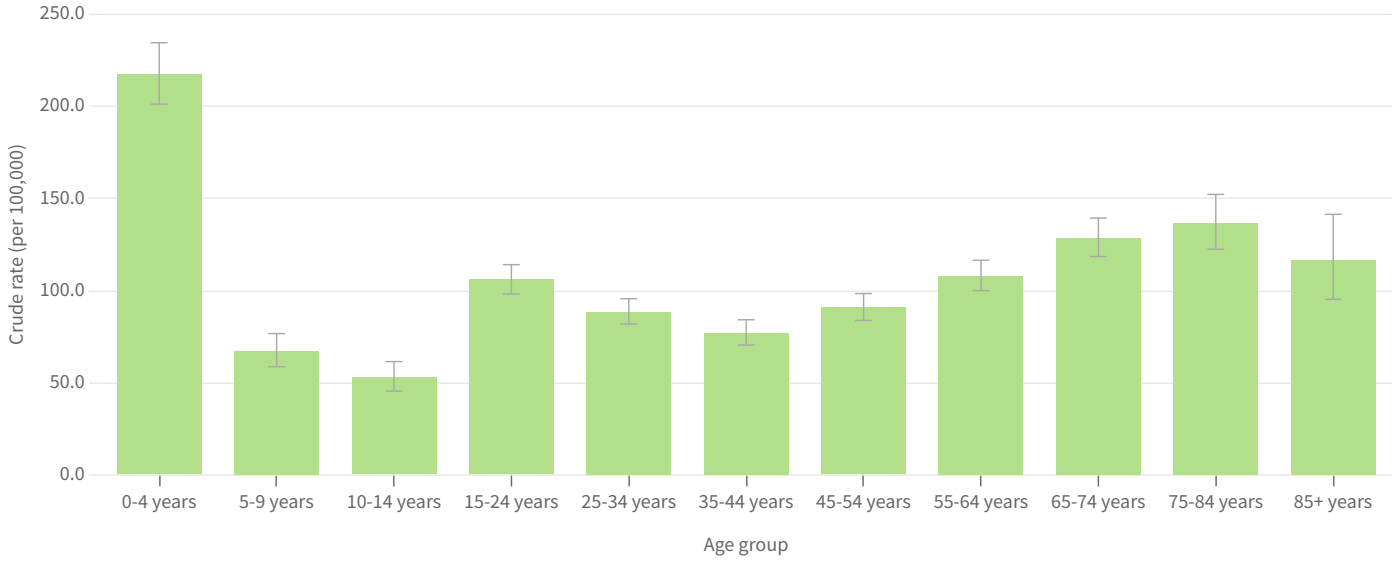
Note: 95% confidence intervals have been presented as error bars.

Source: ESR 2021

Young children have the highest notified rates of all waterborne diseases

Continuing the pattern of previous years, in 2020, the highest notification rates for campylobacteriosis, giardiasis and cryptosporidiosis occurred in children aged 0–4 years (Figures 3a-c). Young children often have higher levels of risk exposure for PWD through being less disciplined in managing their hand and food hygiene practices (e.g. handwashing) and by having less developed immune systems (Sinclair, Jones & Gerba 2009).

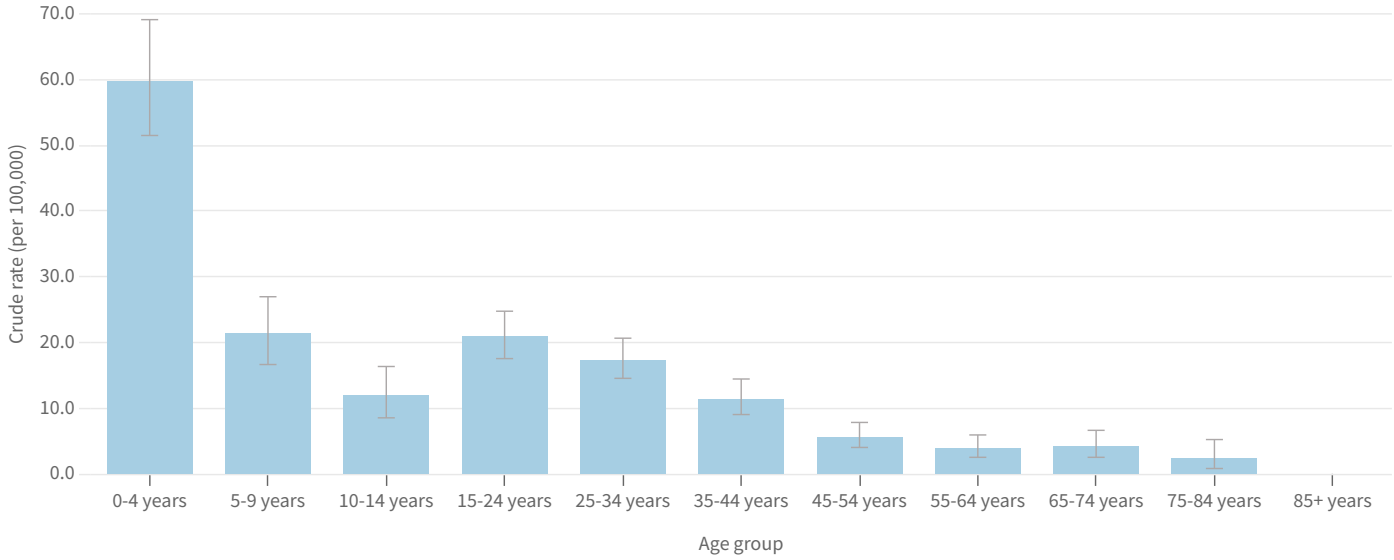
Figure 3a Notification rates for campylobacteriosis, by age group, 2020



Note: 95% confidence intervals have been presented as error bars.

Source: ESR 2021

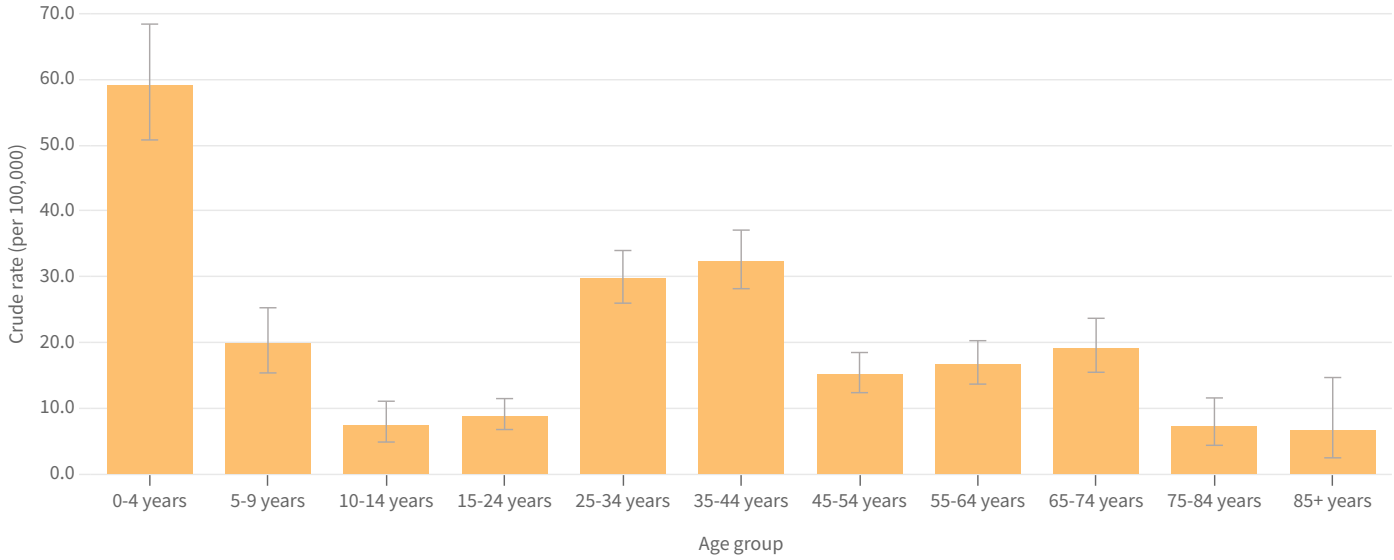
Figure 3b Notification rates for cryptosporidiosis, by age group, 2020



Note: 95% confidence intervals have been presented as error bars. The rate for the 85+ years age group is suppressed due to a low (<5) number of cases.

Source: ESR 2021

Figure 3c Notification rates for giardiasis, by age group, 2020



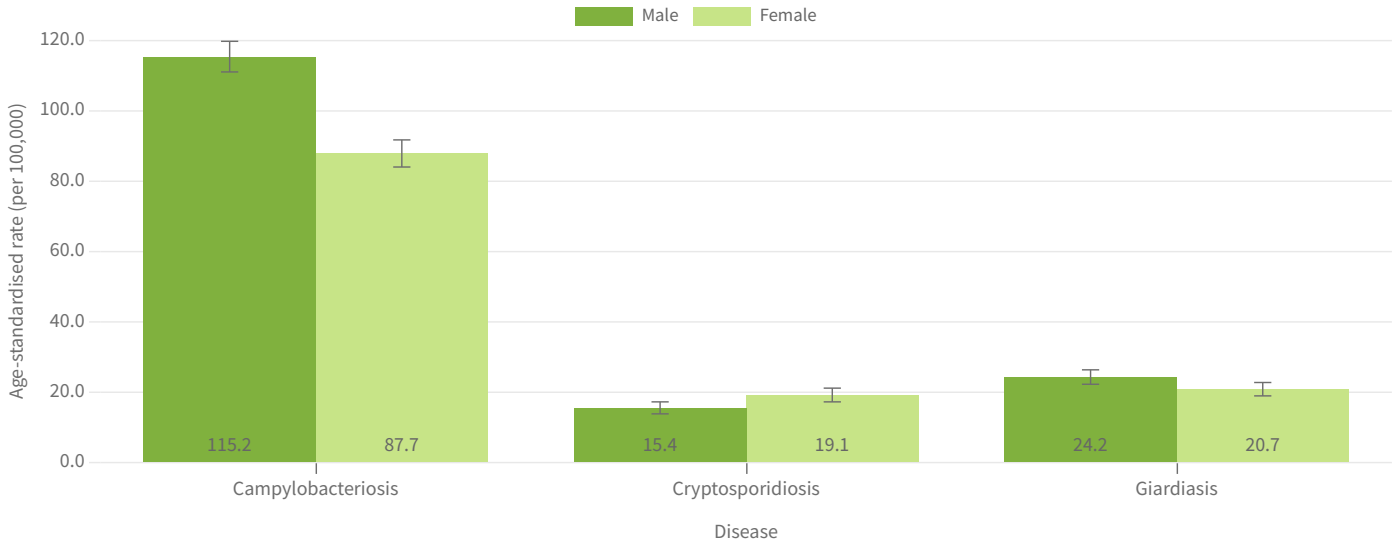
Note: 95% confidence intervals have been presented as error bars.

Source: ESR 2021

Rates of waterborne disease by sex

In 2020, age-standardised notification rates for campylobacteriosis and giardiasis were higher for males than females. As for cryptosporidiosis, females had a slightly higher rate than males (Figure 4).

Figure 4 Notification rates for campylobacteriosis, cryptosporidiosis and giardiasis, by sex, 2020



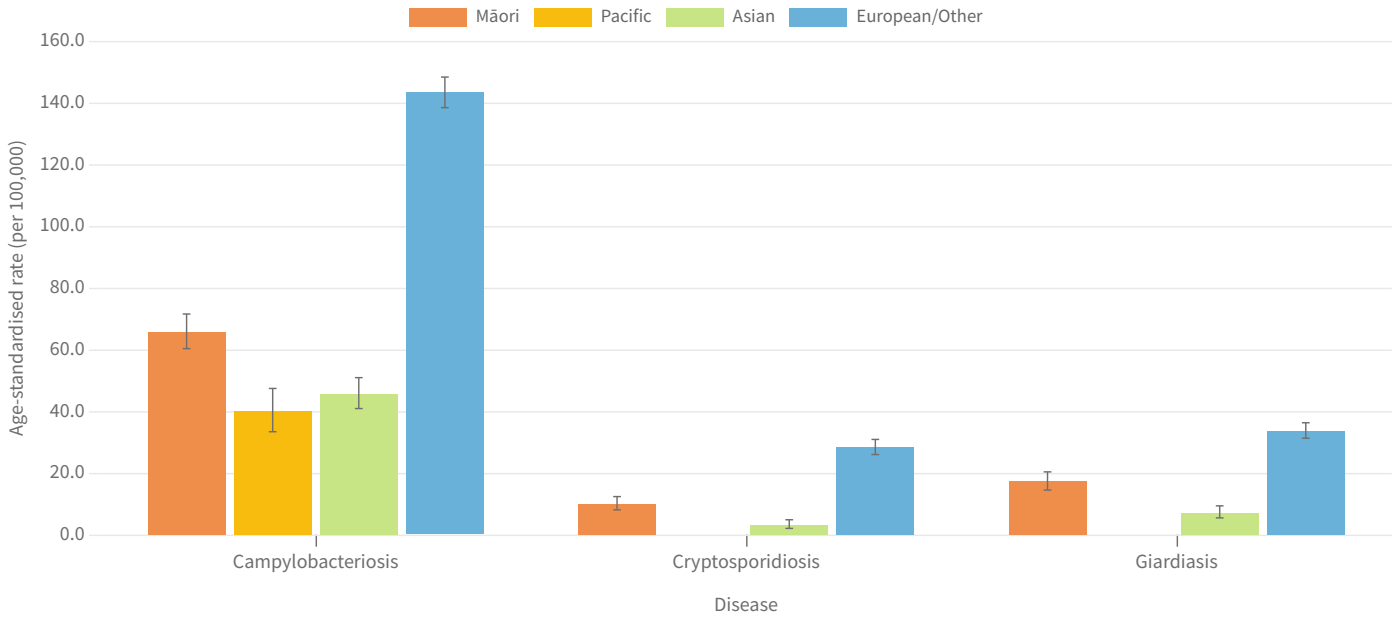
Note: 95% confidence intervals have been presented as error bars. The rate is suppressed due to an unreliable estimate with small numbers.

Source: ESR 2021

People of European/Other ethnicity have the highest notification rates

People of European/Other ethnicity had the highest age-standardised notification rate for all three potentially waterborne diseases in 2020 (Figure 5).

Figure 5 Notification rates of campylobacteriosis, cryptosporidiosis and giardiasis, by ethnic group, 2020



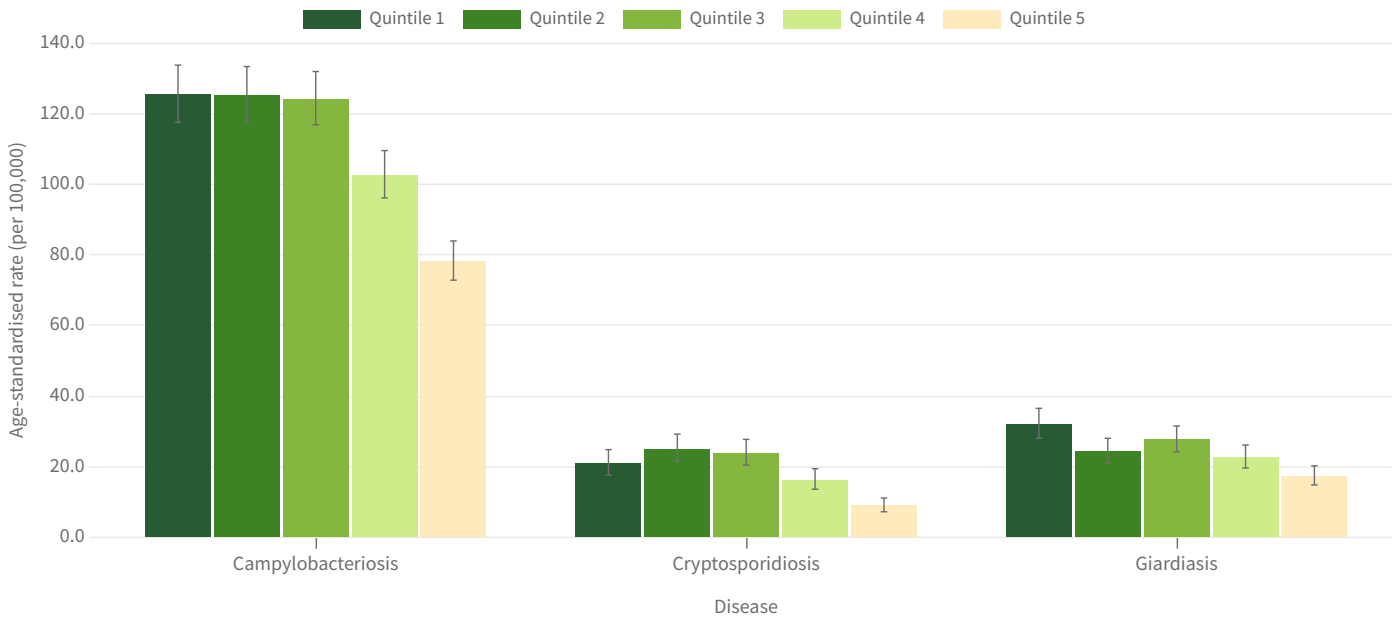
Note: 95% confidence intervals have been presented as error bars. The Pacific rates for cryptosporidiosis & giardiasis are suppressed as they are unreliable estimates based on small (<20) numbers.

Source: ESR 2021

Less deprived areas had higher notification rates

In 2020, less deprived areas had higher notification rates of PWD compared to the more deprived areas (Figure 6). It may be due to People living in more deprived areas finding it more challenging to access healthcare than people in less deprived areas, resulting in greater under-reporting of cases among the former group.

Figure 6 Notification rates of campylobacteriosis, cryptosporidiosis and giardiasis by NZDep2018 quintile, 2020



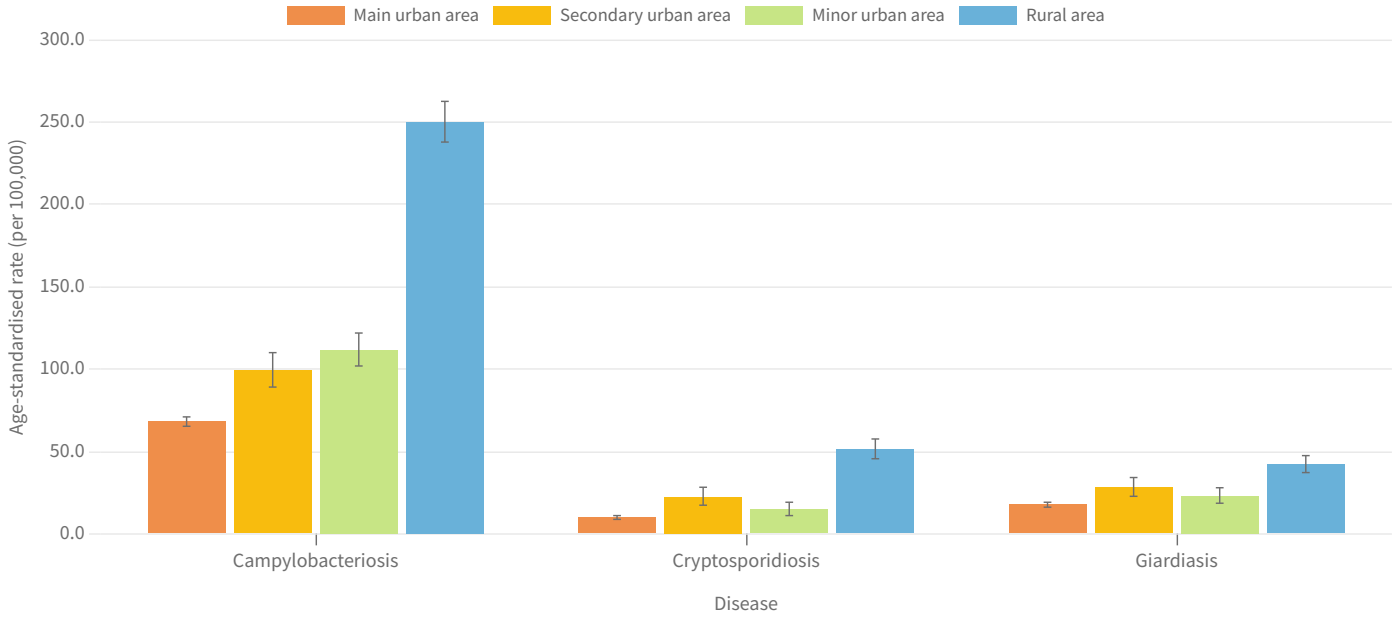
Note: 95% confidence intervals have been presented as error bars.

Source: ESR 2021

People living in rural areas have higher notification rates of PWD

For all three diseases, people living in rural areas continued to have higher notification rates than people living in main urban areas during 2020 (Figure 7). In particular, the cryptosporidiosis notification rate was roughly five times as high in rural areas than in main urban areas. Also of note was that campylobacteriosis notification rates in rural areas were four times higher than in main urban areas.

Figure 7 Notification rates of campylobacteriosis, cryptosporidiosis and giardiasis by IUR classification, 2020



Source: ESR 2021

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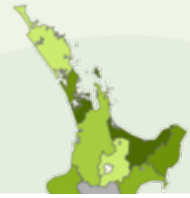
Interactive regional dashboard



Data for this indicator

This indicator examines the most recent data concerning EpiSurv notifications from the Institute for Environmental Science and Research (ESR) provided to EHINZ in January 2022.

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 likely to underestimate the actual rate of disease in the population. Risk factor data for cases that reported contact with untreated drinking water or recreational water are available in separate factsheets. 'Crude rates' presented in this factsheet do not consider varying age distributions when comparing between populations, whilst 'Age-standardised' rates take varying age distributions into account when comparing between population groups.

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.

References

Duncan G. 2014. Determining the health benefits of poultry industry compliance measures: the case of campylobacteriosis regulation in New Zealand. *New Zealand Medical Journal* 127(1391): 22–37.

ESR. 2021. Notifiable diseases EpiSurv data extraction. Porirua: Institute of Environmental Science and Research Limited. (personal communication with ESR Senior Analysts)

Sinclair R, Jones E, Gerba C. 2009. Viruses in recreational water-borne disease outbreaks: a review. *Journal of Applied Microbiology* 107(6): 1769–1780.

Other related topics include:

Faecal indicator bacteria at recreational bathing sites

Waterborne diseases related to drinking water

Waterborne diseases related to recreational water

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Further information

For descriptive information about the data Metadata Sheet

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