Information topic	Details
Indicator name	**Notifications of potentially waterborne diseases**
Domain and topic	Water: Waterborne diseases
Indicator definition and units	Annual number of notifications of campylobacteriosis, cryptosporidiosis and giardiasis, excluding cases that were overseas during the incubation period
Data source	• Institute of Environmental Science and Research Ltd. (ESR). National Database of notifiable diseases (EpiSurv). • Population estimates. Statistics New Zealand
Numerator	Annual number of notifications of campylobacteriosis, cryptosporidiosis and giardiasis (excluding number of notifications with overseas travel history during the incubation period)
Denominator	Population estimates by year, age group, prioritised ethnicity and gender
Methodology	**Data collection** Campylobacteriosis, cryptosporidiosis and giardiasis are notifiable diseases in New Zealand. All cases diagnosed by doctors and/or laboratories are required to be notified to the medical officer of health in the region, who notifies the case to the national data collection (EpiSurv) administered by ESR, or directly to EpiSurv for further investigation. **Confidence interval** 95% confidence intervals were calculated based on the methodology outlined in APHO (2008). Confidence intervals are presented as error bars on graphs. **Interpreting graphs (including DHB graphs)** Crude rates are suppressed for counts less than 5 or populations less than 30, due to unreliability of the estimate with small numbers. Age-standardised rates are suppressed for overall counts less than 20, or if any age-band of the calculation has a population less than 30, due to unreliability of the estimate with small numbers. When comparing groups of varying population sizes, differences that involve small groups may not be statistically significantly different, compared with similar differences for larger groups. This is due to a higher variability associated with the rate of the small group. For a more detailed explanation of this issue, see Appendix 2 – EHINZ Analytical Toolkit & Glossary.

	For DHB graphs, tests for statistical significance with the national rate have used adjustments for multiple comparisons. All comparisons made are conservative (ie, the p value is slightly overstated) because the New Zealand estimate contains the DHBs, so the New Zealand and every DHB estimate are positively correlated. This means that in some instances, we might be slightly less likely to find a significant difference that exists.
Time period and time scale	Annual, from 2001 onwards
Population coverage	National
Spatial Coverage	National, by DHB and by IUR classification
Measures of frequency	Age-adjusted rate of campylobacteriosis, cryptosporidiosis and giardiasis notifications per 100,000 population
Limitations of indicator	Not all notifiable diseases that have a possible contamination route through water were analysed for this indicator. For instance, salmonellosis, typhoid/paratyphoid fever, hepatitis A, yersiniosis, shigellosis, gastroenteritis are not considered.
Limitations of data source	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. Most unnotified cases will be undiagnosed (i.e. the person who was ill neither saw a doctor nor visited a hospital, or the diagnostic test was not performed).
Related indicators	• Notifications of potentially waterborne diseases with untreated water as a risk factor • Notifications of potentially waterborne disease with recreational water contact as a risk factor • Faecal indicator bacteria at recreational bathing sites • Access to safe drinking water
For more information	ESR. Annual Surveillance Summary. Available from https://surv.esr.cri.nz/surveillance/annual_surveillance.php
References	Eayres D. (2008). Technical Briefing 3: Commonly used public health statistics and their confidence intervals. York: Association of Public Health Observatories