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NOTIFICATIONS OF WATER-BORNE DISEASE CASES (CAMPYLOBACTERIOSIS, CRYPTOSPORIDIOSIS, GIARDIASIS)

Campylobacteriosis is caused by the microorganism *Campylobacter* (most commonly the species *Campylobacter jejuni* and *C. coli*). When ingested by humans, the bacterium colonises the gut and damages the tissue in the intestine. The main transmission routes for *Campylobacter* are via food (particularly raw chicken), via water contaminated with excreta or via accidental ingestion of animal excreta. The incubation period for campylobacteriosis is one to ten days from the time of exposure. Symptoms include muscle pain, fever, diarrhoea, abdominal pain and nausea, and generally last one to seven days. Although anyone can become infected, younger children and young adults have higher rates or more severe disease. In a small number of cases, longer-lasting health effects include arthritis and Guillain-Barre syndrome, or even death (Heymann 2004).

Cryptosporidiosis is caused by the organism *Cryptosporidium parvum*, a protozoan parasite that also affects the intestines. The main transmission routes for *Cryptosporidium parvum* include contaminated water, person-to-person transmission, contact with animals, and ingestion of contaminated food (especially raw milk, and raw fruit and vegetables). The incubation period for cryptosporidiosis is three to eleven days after exposure, and symptoms include diarrhoea, vomiting and cramping, which generally last two to four days. The disease is usually self-limiting, but more severe effects can occur in immune-compromised individuals, which can lead to death in a small number of cases. Cryptosporidiosis can affect anyone, but young children and immune-compromised individuals are at increased risk.

Giardiasis is caused by the organism *Giardia intestinalis*, a protozoan parasite that causes gastrointestinal illness in humans. The main transmission routes for *Giardia intestinalis* are water that has been contaminated with faecal matter, food (particularly agricultural products) and person-to-person transmission. The incubation period for giardiasis is one to three weeks after exposure. The main symptoms are diarrhoea and cramps, which may last four to six weeks. Anyone can become infected; however, younger children are more susceptible, and the disease may be more severe among immune-compromised individuals. Giardiasis may cause lactose intolerance among some people and, for those who are immuno-compromised, it may cause death.

The three diseases are notifiable 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.

The table shows the number and rates of cases where exposure to fresh and marine recreational water, including rivers, lakes and the ocean, during the incubation period was a risk factor. Exposure to a swimming pool or spa pool was not considered a risk factor and people who were overseas during the incubation period were excluded. It should be noted that contact with recreational water was not confirmed as the cause of disease.

Table 1: NOTIFICATIONS OF CONFIRMED CAMPYLOBACTERIOSIS, CRYPTOSPORIDIOSIS & GIARDIASIS CASES, WITH RECREATIONAL WATER CONTACT AS A RISK FACTOR, IN NEW ZEALAND, 2001-2010, COUNTS & AGE STANDARDISED RATES PER 100,000

Year	Campylobacteriosis		Cryptosporidiosis		Giardiasis	
	Number	Age-standardised rate per 100,000 (95% confidence interval)	Number	Age-standardised rate per 100,000 (95% confidence interval)	Number	Age-standardised rate per 100,000 (95% confidence interval)
2001	259	7.1 (6.3–8.0)	70	2.0 (1.6–2.5)	83	2.2 (1.8–2.7)
2002	194	5.3 (4.6–6.1)	17	0.5 (0.3–0.8)	62	1.8 (1.4–2.3)
2003	280	7.5 (6.6–8.4)	53	1.5 (1.1–2.0)	67	1.8 (1.4–2.3)
2004	157	4.3 (3.6–5.0)	19	0.6 (0.3–0.9)	47	1.3 (0.9–1.7)
2005	203	5.5 (4.8–6.3)	38	1.1 (0.8–1.5)	49	1.3 (1.0–1.7)
2006	154	4.2 (3.6–4.9)	13	0.4 (0.2–0.7)	21	0.6 (0.4–0.9)
2007	125	3.4 (2.8–4.1)	32	0.9 (0.6–1.3)	58	1.6 (1.2–2.0)
2008	52	1.4 (1.0 – 1.8)	26	0.7 (0.5–1.0)	52	1.4 (1.0–1.8)
2009	84	1.3 (1.0 – 1.8)	18	0.5 (0.3– 0.8)	46	1.3 (0.9–1.6)
2010	99	1.7 (1.2 – 2.1)	51	1.4 (1.0–1.8)	61	1.7 (1.2–2.1)

Source: Environmental Science and Research (ESR) 2011.
Note: Case numbers exclude those that were overseas during the incubation period.

WATER-BORNE DISEASE NOTIFICATIONS WITH RECREATIONAL WATER CONTACT AS A RISK FACTOR

Excluding those that were overseas during the incubation period, approximately 2,490 cases of campylobacteriosis, cryptosporidiosis and giardiasis with recreational water contact as a risk factor were notified in New Zealand from 2001 to 2010 (Table 1).

Campylobacteriosis accounted for the majority of these cases, and the age-standardised rates remained relatively constant from 2001 and 2007. Notifications of campylobacteriosis in 2008 were 50% lower than in 2007 but have since begun to increase.

References
•Heymann DL (ed). 2004. *Control of Communicable Diseases Manual* (18th edition). Washington, DC: American Public Health Association.
•Environmental Science and Research (ESR). 2011. Direct communication with statistics department.