



Environmental Health Indicators for New Zealand

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.

Table 1: NOTIFICATIONS OF CONFIRMED CAMPYLOBACTERIOSIS, CRYPTOSPORIDIOSIS & GIARDIASIS CASES, IN NEW ZEALAND, 2001-2010, NOTIFICATIONS & 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	9835	250.1 (245.2–255.1)	1174	33.6 (31.7–35.5)	1439	37.3 (35.4–39.3)
2002	12,113	307.8 (302.3–313.3)	916	26.0 (24.3–27.7)	1412	36.8 (34.9–38.7)
2003	14,452	363.1 (357.2–369.0)	799	23.0 (21.4–24.6)	1430	36.8 (34.9–38.7)
2004	11,853	295.4 (290.0–300.7)	569	16.6 (15.3–18.0)	1306	33.4 (31.6–35.3)
2005	13,676	337.8 (332.1–343.5)	851	24.4 (22.8–26.1)	1096	28.0 (26.4–29.7)
2006	15,638	388.2 (382.1–394.4)	697	20.0 (18.5–21.5)	1048	27.0 (25.4–28.7)
2007	12,099	297.6 (292.3–303.0)	868	25.2 (23.5–26.9)	1228	31.6 (29.9–33.4)
2008	6505	158.2 (154.1–162.3)	725	19.9 (18.4–21.4)	1488	37.6 (35.6–39.6)
2009	6999	172.6 (168.3–176.86)	810	21.9 (20.3–23.5)	1514	38.6 (36.5–40.6)
2010	7152	179.7 (169.4–177.9)	898	24.1 (22.4–25.8)	1820	46.9 (44.7–49.1)

Source: EpiSurv (ESR)

Note: Case numbers exclude those that were overseas during the incubation period.

WATER-BORNE DISEASE NOTIFICATIONS

Excluding those cases that were overseas during the incubation period, approximately 132,900 cases of campylobacteriosis, cryptosporidiosis and giardiasis 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, 2009 and 2010 were around 50% lower than in 2007. Notifications and age-standardised rates of cryptosporidiosis increased in 2009 and 2010 following a decline in notifications in 2008. Giardiasis notifications have increased every year since 2007, reaching a peak of 1820 cases in 2010.

References

- *Heymann DL (ed). 2004. *Control of Communicable Diseases Manual* (19th edition). Washington, DC: American Public Health Association.
- *Environmental Science and Research (ESR). 2011. Direct communication with statistics department.