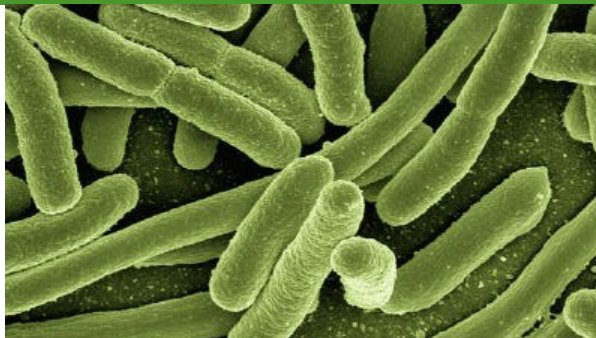


Notifications of water-borne diseases (campylobacteriosis, cryptosporidiosis and giardiasis)

HIGHLIGHTS:

- **Campylobacteriosis, cryptosporidiosis and giardiasis can be transmitted from water and causes health effects**
- **Over 8000 people were notified with campylobacteriosis, cryptosporidiosis or giardiasis in 2014**
- **Young children were most affected**
- **Campylobacteriosis had the highest number of notifications**



Campylobacteriosis, cryptosporidiosis and giardiasis can be transmitted from water and causes health effects

Water-borne diseases are transmitted via water, either through drinking-water or through recreational use (i.e., ingestion whilst swimming). This section focuses on levels of the following three notifiable gastrointestinal diseases which can be contracted through contaminated water:

- Campylobacteriosis
- Cryptosporidiosis
- Giardiasis.

Campylobacteriosis, cryptosporidiosis and giardiasis are passed on in the faeces of infected animals and humans. People become infected when they swallow the bacteria (campylobacter) or parasite (cryptosporidium and giardia). This may be from contaminated water (including drinking and recreational water) and food, or from contact with infected animals or humans. (Health Ed, 2012, 2013a, 2013b)

People who are infected may present symptoms including diarrhoea, stomach cramps and abdominal pain and influenza-like symptoms (e.g., headache, fever, and fatigue). Although anyone can become infected, younger children or immune-compromised individuals are more likely to be infected or have more severe disease. (Health Ed, 2012, 2013a, 2013b).

In order to report cases infected in New Zealand, notification with overseas travel history during incubation period (the period between exposure to an infection and the appearance of the first symptom) was excluded from the analysis.

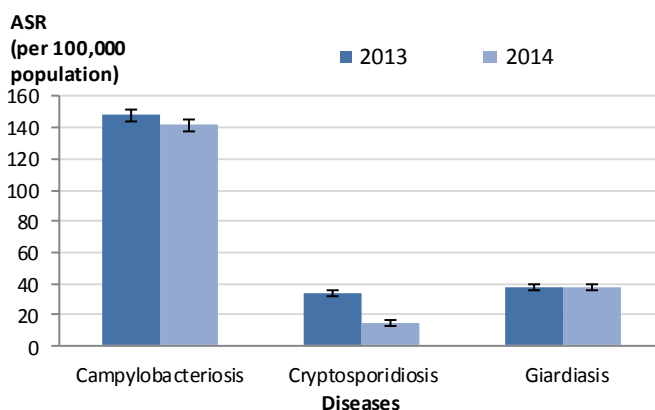
Over 8000 people were notified with campylobacteriosis, cryptosporidiosis or giardiasis in 2014

In 2014, the number of notifications for those three water-borne diseases were (rates were adjusted for age):

- Campylobacteriosis: 6552 notifications (142 per 100,000 population)
- Cryptosporidiosis: 542 notifications (14 per 100,000 population)
- Giardiasis: 1541 notifications (37 per 100,000 population).

Compared to 2013, the rate of campylobacteriosis and cryptosporidiosis has dropped in 2014 (Figure 1).

Figure 1: water-borne diseases notifications, age-standardised rate (ASR) per 100,000 population, 2013-2014



Source: EpiSurv (ESR) (2015)
 * 95% confidence interval are shown.
 * Cases who were overseas during the incubation period were excluded

Young children were most affected

Children under five years old were most affected by campylobacteriosis, cryptosporidiosis and giardiasis. For Campylobacteriosis, male were more commonly notified than females in all age group in 2014. (Figure 2, 3, 4).

There were no obvious difference in rate between female and male for cryptosporidiosis and giardiasis in 2014 (Figure 3,4).

Figure 2: Campylobacteriosis notifications, age-specific rate per 100,000 population, 2014

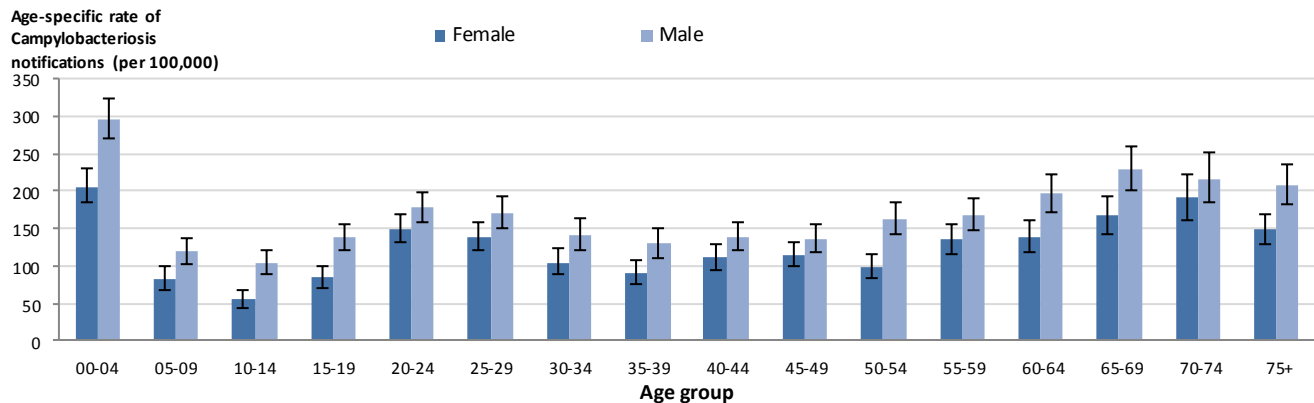


Figure 3: Cryptosporidiosis notifications, age-specific rate per 100,000 population, 2014

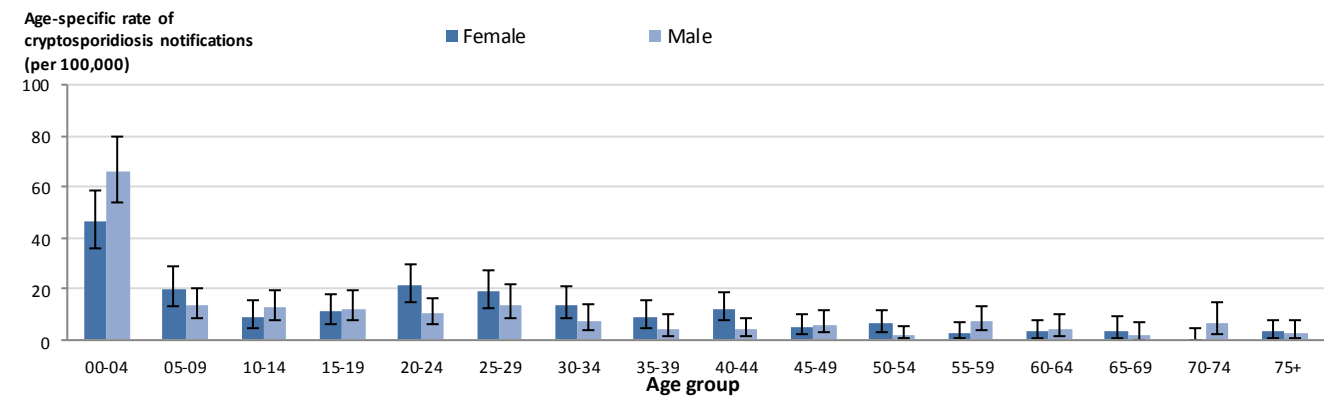
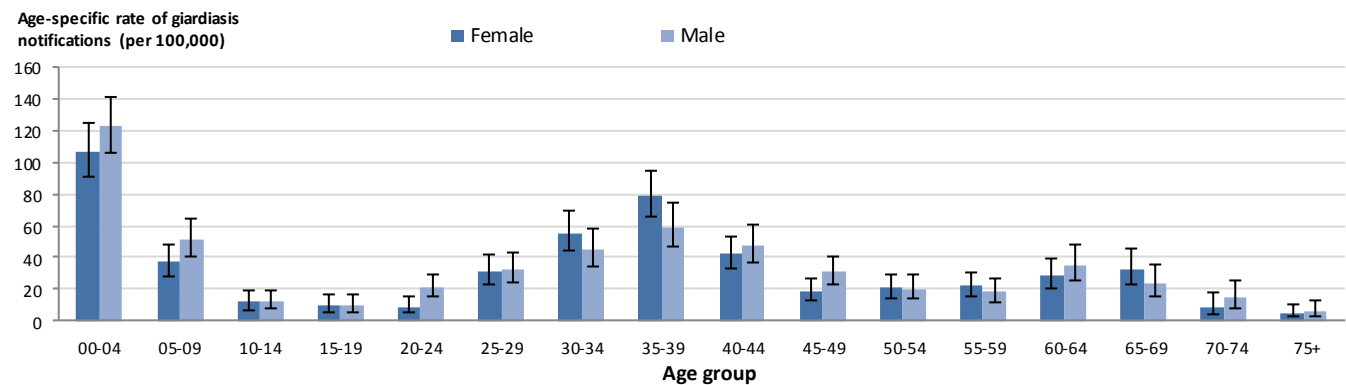


Figure 4: Giardiasis notifications, age-specific rate per 100,000 population, 2014



Source for figure 2, 3, 4: EpiSurv (ESR) (2015)

* 95% confidence interval are shown.

* Cases who were overseas during the incubation period were excluded.

* Rates were not calculated for counts smaller than five.

Campylobacteriosis had the highest age-standardised rate

Approximately 111,428 cases of campylobacteriosis, cryptosporidiosis and giardiasis were notified in New Zealand from 2005-2014.

Campylobacteriosis accounted for the majority of these water-borne diseases cases. The age-standardised rate (ASR) for campylobacteriosis ranged between 142 and 375 per 100,000 population from 2005 to 2014. The ASR almost halved from 2007 to 2008. Since 2008, the rate of campylobacteriosis remained relatively stable.

The ASR of cryptosporidiosis ranged between 14 and 34 per 100,000 population from 2005 to 2014. The rate increased to a peak in 2013 and dropped to 14 per 100,000 population in 2014, the lowest rate between 2005 and 2014.

From 2005 to 2014, the rate of giardiasis ranged between 27 and 45 per 100,000 population.

Table 1: Number of water-borne disease notifications, 2005-2014

Year	Campylobacteriosis	Cryptosporidiosis	Giardiasis
2005	13557	843	1070
2006	15568	694	1056
2007	12495	880	1261
2008	6517	726	1489
2009	7022	813	1523
2010	7161	901	1822
2011	6471	578	1761
2012	6801	817	1544
2013	6625	1263	1535
2014	6552	542	1541
Total	88769	8057	14602

Figure 5: Campylobacteriosis notifications, age-standardised rate (ASR) per 100,000 population, 2005-2014

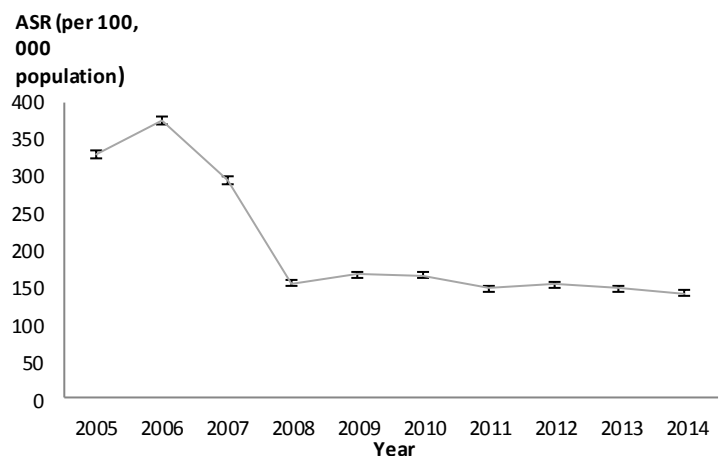


Figure 6: Cryptosporidiosis notifications, age-standardised rate (ASR) per 100,000 population, 2005-2014

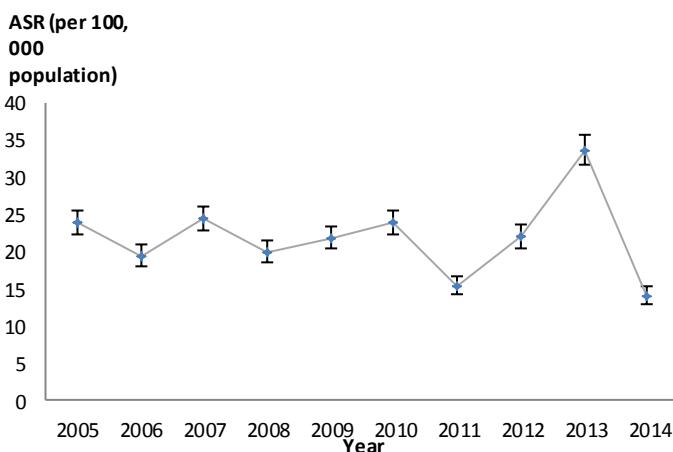
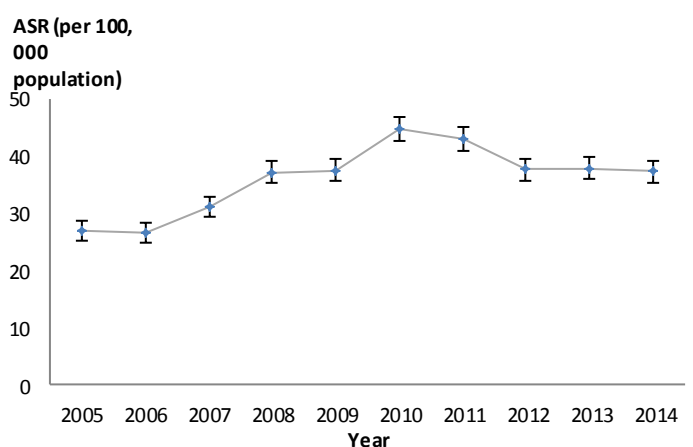


Figure 7: Giardiasis notifications, age-standardised rate (ASR) per 100,000 population, 2005-2014



Source for Table 1 and Figure 5,6,7: EpiSurv (ESR) (2015)

* 95% confidence interval are shown in Figure 5, 6, 7.

* Cases who were overseas during the incubation period were excluded.

References

- HealthEd. (2012). Campylobacter. Retrieved 20/07, 2016, from <https://www.healthed.govt.nz/resource/campylobacter>
- HealthEd. (2013a). Cryptosporidium. Retrieved 20/07, 2016, from <https://www.healthed.govt.nz/resource/cryptosporidium>
- HealthEd. (2013b). Giardia. Retrieved 20/07, 2016, from <https://www.healthed.govt.nz/resource/giardia>

For more information, please contact Fei Xu on f.xu@massey.ac.nz