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MASSEY UNIVERSITY TE KUNENGA KI PŪREHUROA UNIVERSITY OF NEW ZEALAND

Notifications of water-borne diseases (campylobacteriosis, cryptosporidiosis and giardiasis) with untreated drinking-water as a risk factor

HIGHLIGHTS:

- **Campylobacteriosis, cryptosporidiosis and giardiasis can be transmitted from untreated drinking-water and causes health affects**
- **Over 800 people were notified with campylobacteriosis, cryptosporidiosis or giardiasis with untreated drinking-water as a risk factor 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.

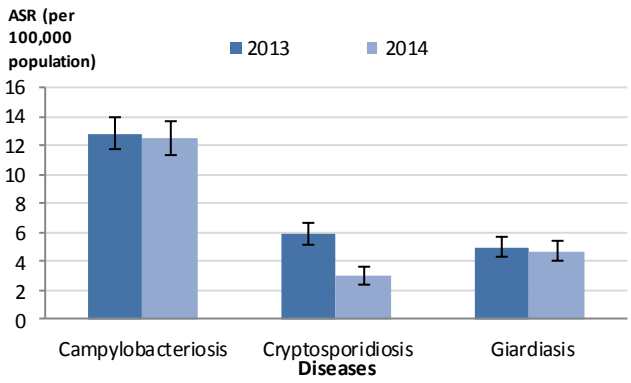
Around 830 people were notified with water-borne diseases with untreated drinking-water as a risk factor in 2014

In 2014, the number of notifications for campylobacteriosis, cryptosporidiosis and giardiasis with untreated drinking-water as a risk factor were (rates were adjusted for age):

- Campylobacteriosis: 524 notifications (12.4 per 100,000 population)
- Cryptosporidiosis: 113 notifications (3.0 per 100,000 population)
- Giardiasis: 193 notifications (4.6 per 100,000 population).

Compared to 2013, the rate of all three diseases has dropped in 2014 (Figure 1).

Figure 1: water-borne diseases notifications with untreated drinking-water as a risk factor, 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

In 2014, for notifications of campylobacteriosis, cryptosporidiosis and giardiasis with untreated drinking-water as a risk factor, children under five years old were most affected (Figure 2, 3, 4).

Figure 2: Campylobateriosis notifications with untreated drinking-water as a risk factor, age-specific rate per 100,000 population, 2014

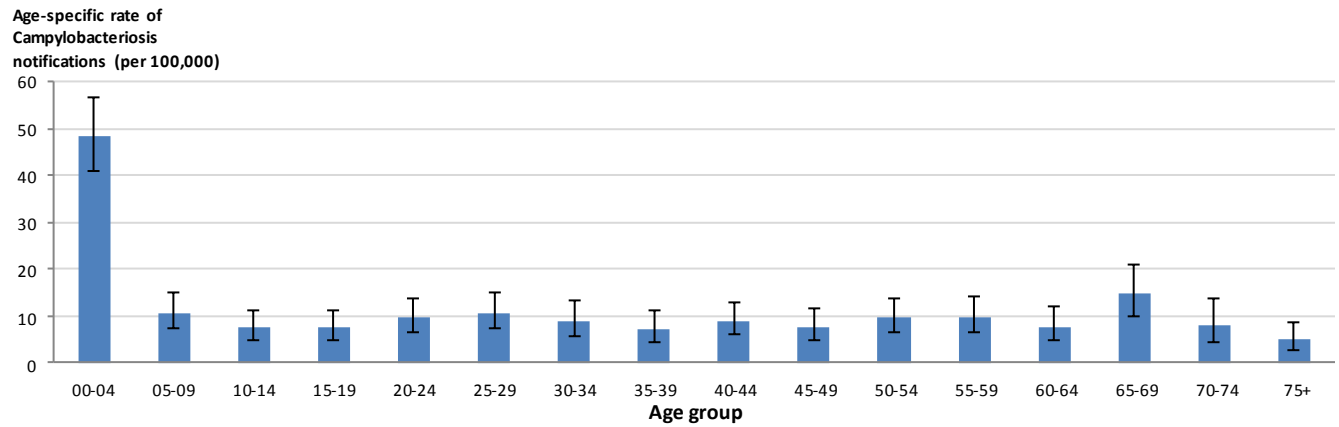


Figure 3: Cryptosporidiosis notifications with untreated drinking-water as a risk factor, age-specific rate per 100,000 population, 2014

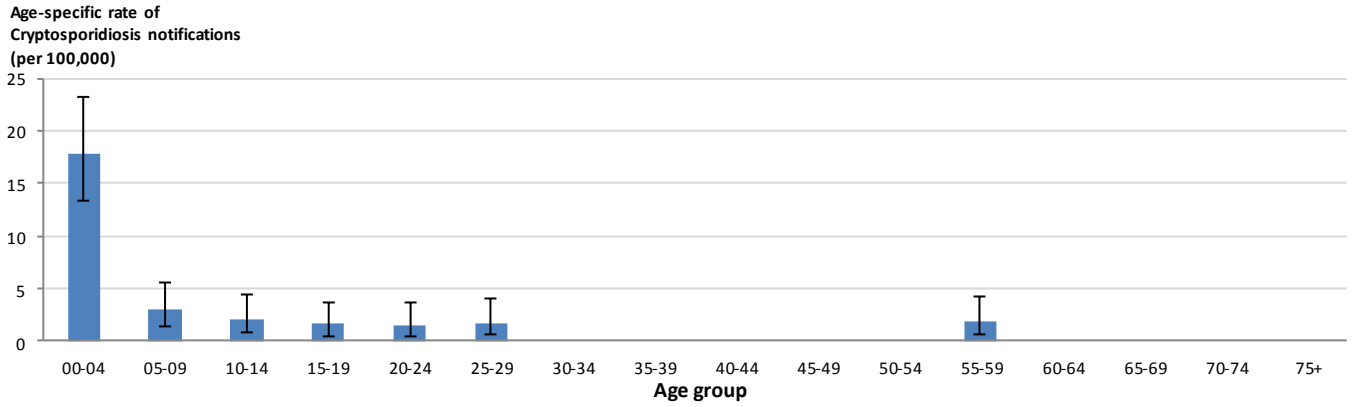
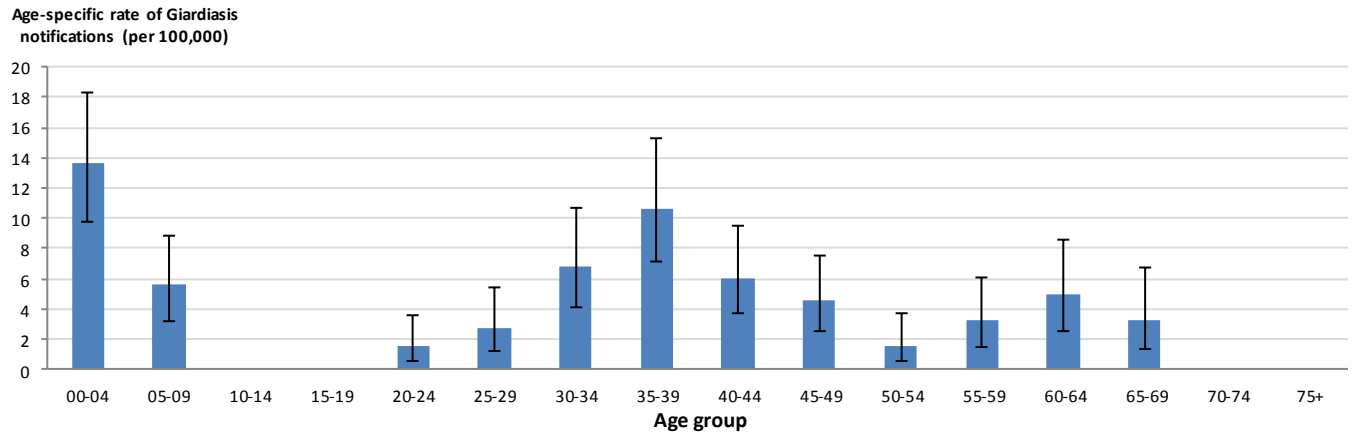


Figure 4: Giardiasis notifications with untreated drinking-water as a risk factor, age-specific rate per 100,000 population, 2014



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 number of notifications

Approximately 8505 cases of campylobacteriosis, cryptosporidiosis and giardiasis, with untreated drinking-water as a risk factor, were notified in New Zealand from 2005-2014.

Campylobacteriosis accounted for the majority of these cases. The age-standardised rate (ASR) for campylobacteriosis has reduced to 9.7 per 100,000 population in 2008 before it increased again. The ASR ranged from 9.7 to 16.7 per 100,000 population from 2005 to 2014.

From 2005 to 2014, the rate for cryptosporidiosis ranged from 2.8 to 6.0 per 100,000 population. While for giardiasis, the rate ranged from 3.2 to 5.3 per 100,000 population.

Table 1: Number of water-borne disease notifications with untreated drinking-water as a risk factor, 2005-2014

Year	Campylobacteriosis	Cryptosporidiosis	Giardiasis
2005	612	175	131
2006	657	156	132
2007	538	181	129
2008	381	190	160
2009	414	106	149
2010	478	153	160
2011	478	160	214
2012	560	222	184
2013	543	217	202
2014	524	113	193
Total	5185	1673	1654

Figure 5: Campylobacteriosis notifications with untreated drinking-water as a risk factor, age-standardised rate (ASR) per 100,000 population, 2005-2014

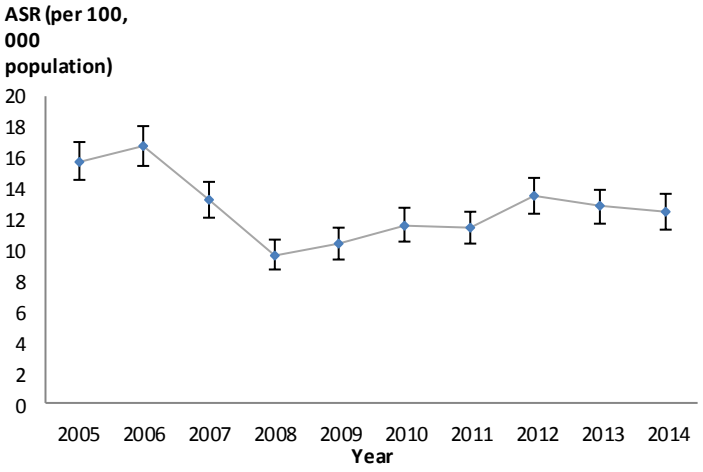


Figure 6: Cryptosporidiosis notifications with untreated drinking-water as a risk factor, age-standardised rate (ASR) per 100,000 population, 2005-2014

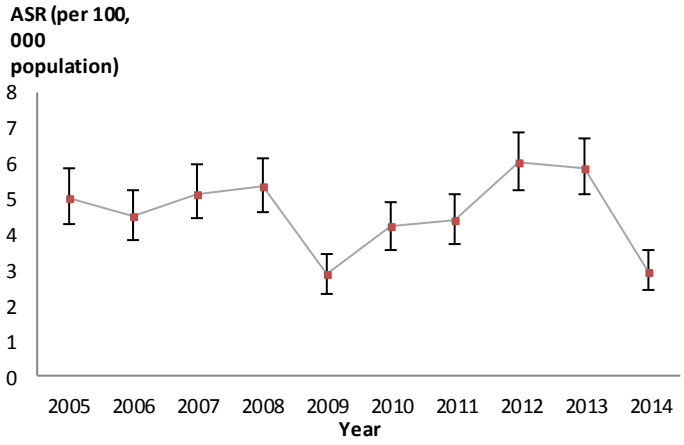
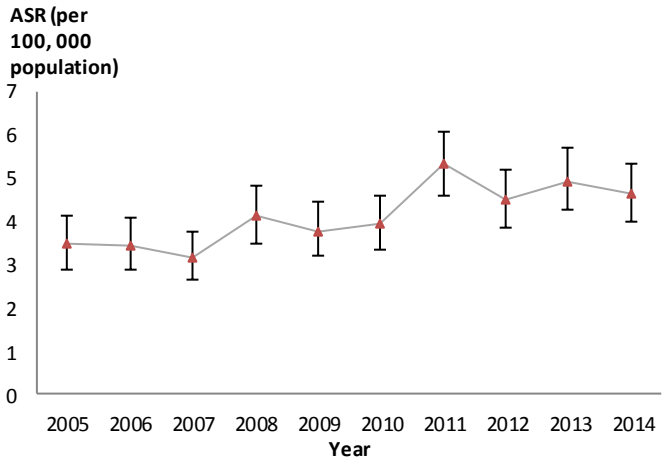


Figure 7: Giardiasis notifications with untreated drinking-water as a risk factor, age-standardised rate (ASR) per 100,000 population, 2005-2014



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

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