3.2 Cryptosporidiosis

Summary

Number of cases, 2010: 294
Number of cases, 2009: 445
Crude incidence rate, 2010: 6.9/100,000

Cryptosporidium is a protozoal parasite that causes a diarrhoeal illness in humans known as cryptosporidiosis. It is transmitted by the faecal-oral route, with both animals and humans serving as potential reservoirs. Human cryptosporidiosis became a notifiable disease in Ireland in 2004, and the case definition in use is published in the HPSC case definition booklet.

In 2010, 294 cases of cryptosporidiosis were notified in Ireland, a crude incidence rate (CIR) of 6.9 per 100,000 population, with 34% of notified cases reported as hospitalised for their illness. This was a 34% decrease on the number of cases notified in 2009 (Figure 1). In 2008 (the most recent year for which data are available), the ECDC reported an incidence rate overall of 2.44 per 100,000 population in the European Union, with Ireland reporting the highest rate among those countries reporting on this disease at the time. The second highest incidence rate among EU Member States was reported by the United Kingdom at 8.1 per 100,000.

Consistent with previous years, the highest reported incidence was in children under 5 years, with around 60 cases per 100,000 population in this age group (Figure 2). While there is likely to be a bias towards testing of diarrhoeal stool specimens from children (as opposed to adults) for *Cryptosporidium,* it is also possible that this distribution reflects to some extent a true difference in risk between adults and children, and may also reflect in part some immunity among a proportion of the adult population.

The crude incidence (CIR) rates by HSE area for 2010 are reported in Figure 3. As in previous years, there was a strong urban-rural divide, with the HSE-E having a much lower reported incidence rate (1.2 per 100,000) than most other HSE areas. The HSE- W reported the highest crude incidence rate (16.66 per 100,000) –over twice the national rate. Compared to 2009, six areas reported decreased rates: in the HSE-W and the HSE-M, these decreases were statistically significant.

The highest number of cases was recorded in spring, albeit at lower levels than in previous years (Figure 4). Notably although only 17 (6%) notifications across the full year were specifically reported as being associated with foreign travel, seven of these were reported during the month of August (Figure 5).

Speciation of *Cryptosporidium* specimens can provide valuable information on the epidemiology of this disease. *C. hominis* is a species primarily linked with humans, whereas both humans and animals,

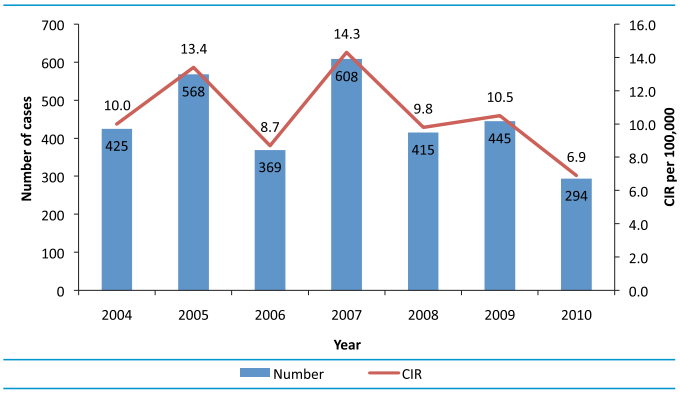

Figure 1. Annual number and crude incidence rate cryptosporidiosis, Ireland 2004-2010.

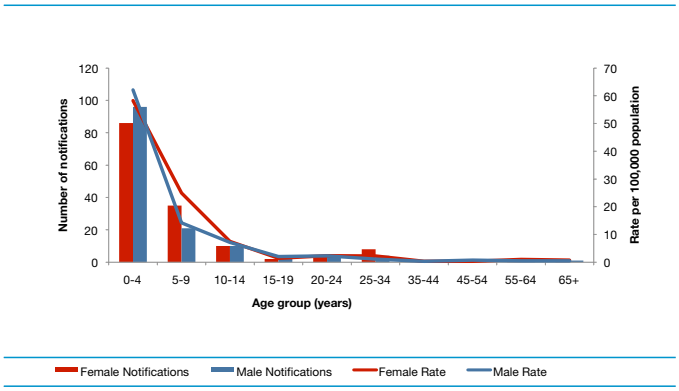

Figure 2. Age-specific incidence rate cryptosporidiosis, Ireland 2010

in particular calves and lambs, can be sources of *C parvum* infections. Species that are less commonly reported in humans have been associated with other animal reservoirs. In 2010, less than 5% of positive human *Cryptosporidium* specimens were referred for speciation to the UK *Cryptosporidium* Reference Unit in Swansea by a small number of hospital laboratories. This is a decrease on the proportion of cases for which specimens were typed in 2009 (17%) and 2008 (35%), and may reflect the enhanced use of this service when outbreaks are occurring. As in 2008 and 2009, *C. parvum* was the most common species reported (12/14 cases). There was one case each of *C. hominis* and *C. meleagridis*.

There were no general outbreaks of cryptosporidiosis this year. Over the last couple of years, there has been a decrease in the number of general outbreaks reported, with one general outbreak in 2009, four in 2008 and six in 2007.

All eight outbreaks of cryptosporidiosis reported in 2010 were family outbreaks: all were small outbreaks, and between them accounted for only 15 cases. Table 1 lists the reported transmission routes and locations for these outbreaks. Six were suspected to be due to person-to-person transmission, one was suspected to be due to animal contact and one travel-associated outbreak was suspected to be waterborne. The overwhelming majority of cases in 2010 were reported as sporadic cases.

The seasonal distribution of cases in Ireland suggests an important role for animal sources in human cryptosporidiosis: historically in the United Kingdom, spring peaks in incidence have been associated with transmission from sources such as calves and lambs. The species distribution reported here is consistent with this. The higher disease incidence in more rural versus more urban HSE-areas suggests that animal contact or waterborne routes of transmission may play a stronger role overall in transmission in Ireland than person-to-person spread, food or travel, as the latter would be expected to have a more even geographical distribution.

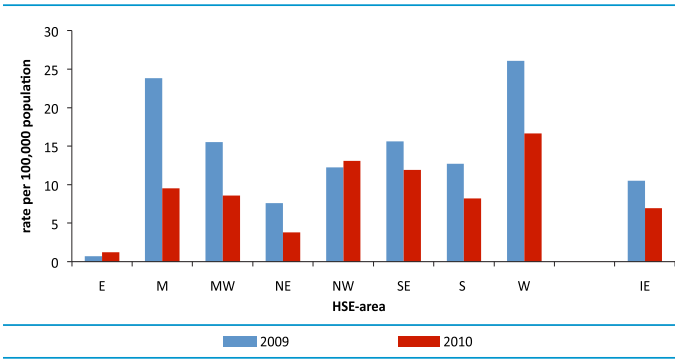

Figure 3. Regional crude incidence rates cryptosporidiosis, Ireland 2010 relative to 2009

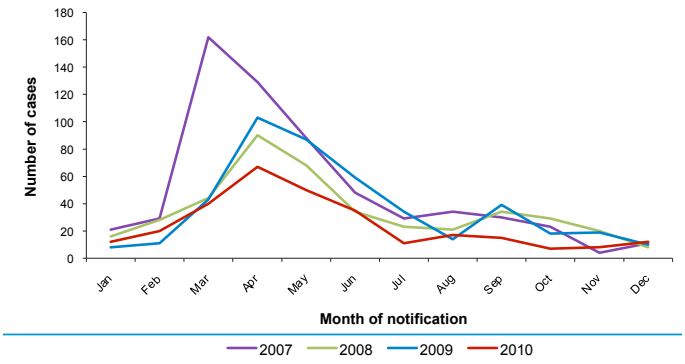

Figure 4. Seasonal distribution of cryptosporidiosis cases 2007-2010

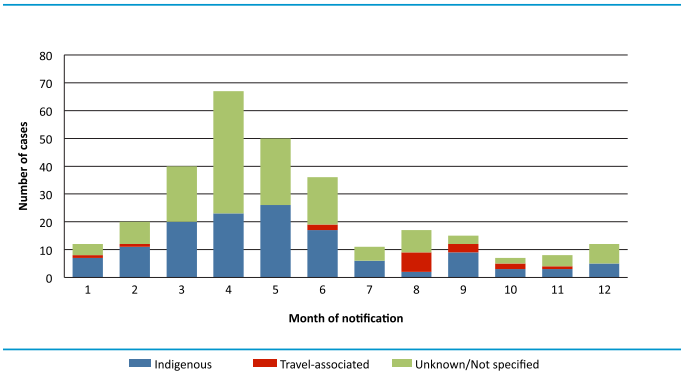

Figure 5. Seasonal distribution cryptosporidiosis cases by travel status, Ireland 2010

Table 1. Cryptosporidiosis outbreaks Ireland 2010

Month	HSE-area	Outbreak type	Transmission mode	Location	No. ill
Mar	S	Family	Person-to-person	Private house	2
Mar	SE	Family	Person-to-person	Private house	2
Apr	S	Family	Person-to-person	Extended family	2
May	NW	Family	Person-to-person	Private house	2
Jun	S	Family	Animal contact	Private house	2
Jun	NW	Family	Person-to-person	Private house	2
Oct	M	Family	Waterborne	Travel related	1
Oct	NE	Family	Person-to-person	Private house	2