



Public Health
England

Protecting and improving the nation's health

Travel-associated *Cryptosporidium* infection in England, Wales and Northern Ireland: 2014

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

Public Health England

Wellington House

133-155 Waterloo Road

London SE1 8UG

Tel: 020 7654 8000

www.gov.uk/phe

Twitter: [@PHE_uk](https://twitter.com/PHE_uk)

Facebook: www.facebook.com/PublicHealthEngland

Prepared by Travel and Migrant Health.

For queries relating to this document, please contact: tmhs@phe.gov.uk

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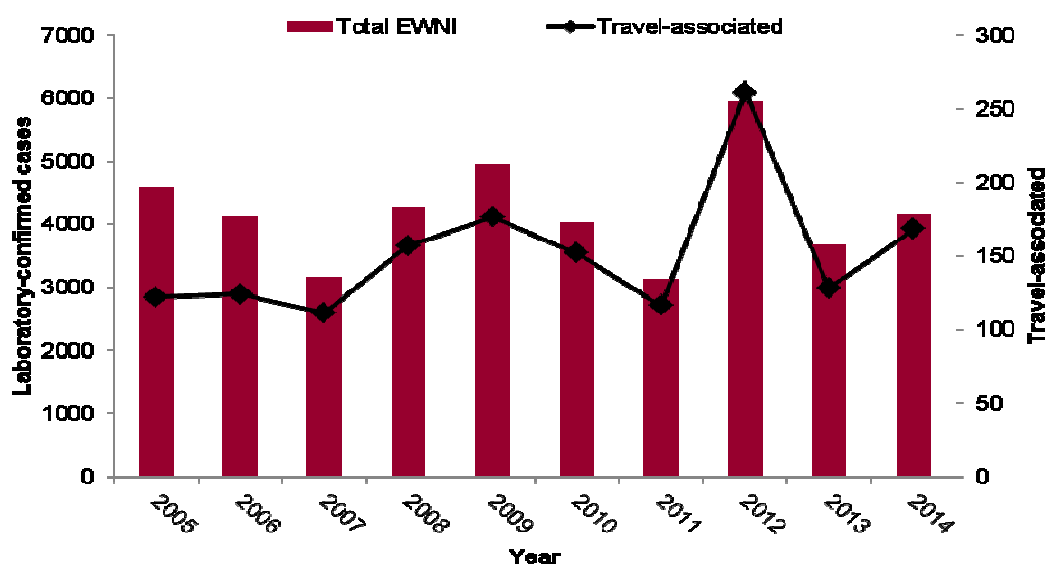
General trend

In 2014, there were 4,166 *Cryptosporidium* infections reported in EWNI, of which 168 (4%) were associated with foreign travel [Figure 1]. Cases of *Cryptosporidium* infection have increased on average by 4.6% each year between 2005 and 2014, mainly as a result of large increases in cases (including travel-associated cases) reported in 2009 and 2012. Travel history reporting for *Cryptosporidium* spp is incomplete through routine laboratory reporting (see * note in [Data sources section](#)), although the proportion of reported travel-associated infections has remained consistently between 3% and 4% since 2005 [Table 1].

Table 1. Laboratory confirmed cases of *Cryptosporidium* spp, England, Wales and Northern Ireland: 2005 to 2014.

Year	England and Wales	Northern Ireland	Total for EWNI	Of which travel-associated (%)
2005	4,540	164	4,593	122 (3%)
2006	3,982	134	4,116	124 (3%)
2007	3,073	85	3,158	111 (4%)
2008	4,162	119	4,281	157 (4%)
2009	4,831	118	4,949	176 (4%)
2010	3,901	119	4,020	152 (4%)
2011	2,990	140	3,130	116 (4%)
2012	5,765	177	5,942	261 (4%)
2013	3,520	161	3,681	128 (3%)
2014	4,023	143	4,166	168 (4%)

Figure 1. Laboratory-confirmed cases of *Cryptosporidium* spp, England, Wales and Northern Ireland: 2005 to 2014.

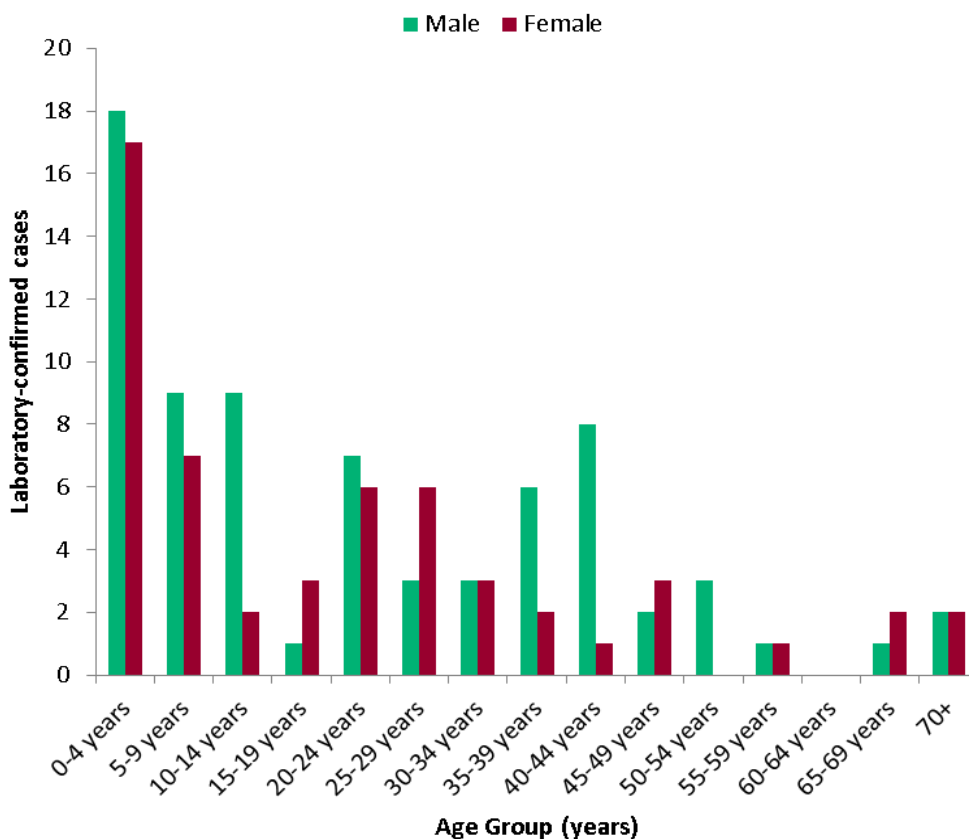


Travel-associated cases

Age and sex

In 2014, 167 travel-associated cases of *Cryptosporidium* infection in EWNI (99% of the total) had known information about age and sex, of these 54% (n=90) were male. The median age for all cases was 17 years (range 0 to 77 years). *Cryptosporidium* is typically more often reported in younger age groups; in 2014, 40% (n=67) of cases were aged 0 to 9 years compared to 22% in 2013 [Figure 2].

Figure 2. Travel-associated laboratory-confirmed cases of *Cryptosporidium* spp. by age and sex, England, Wales and Northern Ireland: 2014 (N=167).



Geographical distribution

Geographical areas were assigned based on patient postcode; where patient postcode was missing the sending laboratory postcode was used. Wales reported the highest proportion (23%) of travel-associated cases of *Cryptosporidium* infection in 2014. The largest increase in cases reported in 2014 compared to 2013 was seen in the North East and the North West (171% each) and the largest decrease was seen in the South East (52%), although the numbers are small so should be interpreted with caution [Table 2].

Table 2. Travel-associated laboratory-confirmed cases of *Cryptosporidium* spp. by geographical distribution, England, Wales and Northern Ireland: 2013 and 2014.

Geographical area	2014	2013	% change between 2013 and 2014
Wales	39	3	-*
South West	28	24	17%
North East	19	7	171%
North West	19	7	171%
Yorkshire and Humber	19	23	-17%
South East	14	29	-52%
Northern Ireland	9	12	-25%
East of England	8	7	14%
London	6	7	-14%
East Midlands	5	5	0%
West Midlands	2	4	-50%
Grand total	168	128	31%

Travel history

Cryptosporidium spp. are common worldwide; countries of travel for travel-associated infections reflect travel patterns of UK residents [1]. Table 3 lists the top 10 most reported countries of travel for cases of *Cryptosporidium* infection in 2014 compared to 2013. Overall, cases of travel-associated *Cryptosporidium* infection increased by 18% in 2014 compared to 2013. There was a three-fold increase in cases that were reported associated with travel to Spain and a two-fold increase in cases associated with travel to Turkey compared to the previous year [Table 3]. This trend was also seen in cases reported by the *Cryptosporidium* Reference Unit [Table 4].

Table 3. Top 10 countries of travel for travel-associated cases of *Cryptosporidium* infection, England, Wales and Northern Ireland: 2013 and 2014.

Country/region of travel†	2014	2013	% change between 2013 and 2014
Spain	36	10	260%
France	12	25	-52%
Tunisia	12	2	500%
Turkey	10	5	100%
Egypt	8	5	60%
India	8	10	-20%
Pakistan	7	7	0%
USA	5	2	150%
Albania	3	-	-
Iraq	3	-	-
Other countries	30	40	-25%
Country not stated	37	39	-5%

N= number of countries.

†Totals may not match those stated in Table 1, where two or more countries of travel were stated for a case, each listed country was counted individually.

Reference laboratory data

The *Cryptosporidium* Reference Unit (CRU) based at the Public Health Wales Microbiology laboratory in Swansea, conducts genotyping for epidemiological purposes of *Cryptosporidium* spp. in England and Wales. In 2014, the CRU reported a total of 2,691 cases of cryptosporidiosis from sentinel sites in England and Wales. Of these, 347 (12.9%) were associated with foreign travel, a 24% increase compared to 2013. This largely appears to be as a result of an increase in cases associated with travel to popular holidays destinations such as Spain, Turkey and Egypt (also reflected in the routine data above). More travel-associated cases are identified through sentinel surveillance than through routine laboratory reports. This is because travel history is specifically requested on the submission form for reference typing and is more likely to be included. *Cryptosporidium parvum* and *C. hominis* are the most common species causing human cryptosporidiosis in England and Wales. In 2014, 208/1,149 (18.1%) *C. hominis* cases reported foreign travel, compared to 118/1,427 (8.3%) *C. parvum* cases. Table 4 shows the typing and countries of travel for *Cryptosporidium* spp. reported by the CRU.

Table 4. Regions and countries of travel for travel-associated *Cryptosporidium* spp. reported by CRU, England and Wales: 2013 and 2014.

World region	Country of travel	2014	2013
Europe	Spain and islands	48 (33 CH, 13 CP, 1 CH and CP, 1 CM)	30 (20 CH, 9 CP, 1 CM)
	Turkey	26 (20 CH, 6 CP)	12 (8 CH, 3 CP, 1 CC)
	France	14 (11 CP, 2 CH, 1 CM)	12 (10 CP, 2 CH)
	Greece	5 (3 CH, 2 CP)	5 (3 CH, 2 CP)
	Portugal	13 (13 CP)	7 (6 CP, 1 CH)
	Other	27 (20 CP, 6 CH, 1 CC)	16 (11 CH, 5 CP)
	Total	133	82
Indian sub-continent	India	35 (29 CH, 4 CP, 1 CM, 1CP and CH)	25 (10 CH, 7 CM, 6 CP, 2 not typable)
	Pakistan	27 (19 CH, 7 CP, 1 not typable)	31 (24 CH, 7 CP)
	Bangladesh	2 (1 CH, 1 CP)	1 (1 CH)
	Sri Lanka	1 (CH)	2 (1 CH, 1 CV)
	Nepal	2 (2 CM)	3 (2 CH, 1 not typable)
	Total	67	62
North Africa and the Middle East	Egypt	24 (18 CH, 5 CP, 1 CC)	16 (13 CH, 3 CP)
	Tunisia	11 (6 CH, 4 CP, 1 not typable)	6 (5 CH, 1 CP)
	Other	18 (12 CH, 5 CP, 1 CP and CH)	14 (8 CH, 5 CP, 1 CM)
	Total	53	36
Sub-Saharan and southern Africa	Ghana	5 (4 CH, 1 CP)	3 (2 CH, 1 CP)
	South Africa	4 (3 CH, 1 CP)	3 (2 CH, 1 CP)
	Other	19 (14 CH, 5 CP)	28 (16 CH, 9 CP, 2 CM, 1 CC)
	Total	28	34
Central and South America	Mexico	7 (5 CH, 2 CP)	2 (1 CH, 1 CP)
	Other	6 (4 CH, 1 CP, 1CM)	3 (1 CP, 1 CM, 1 CF)
	Total	13	5
Caribbean	Cuba	-	1 (CH)
	Dominica	3 (all CP)	2 (1 CH, 1 CP)
	Other	-	1 (CH)
	Total	3	4
Other countries		30 (14 CH, 9 CP, 3 CM, 1 CU, 3 not typable)	21 (16 CH, 3 CP, 2 CM)
Country not stated		20 (14 CH, 5 CP, 1 CH and CP)	35 (18 CP, 12 CH, 2 CM, 2 CC, 1 CH and CP)
Total		347	279

Abbreviations for table 4

- CC: *Cryptosporidium canis*
- CF: *Cryptosporidium felis*
- CH: *Cryptosporidium hominis*
- CM: *Cryptosporidium meleagridis*
- CP: *Cryptosporidium parvum*
- CV: *Cryptosporidium viatorum*

Data sources

- data for the total reports of *Cryptosporidium* in England and Wales 2005 to 2014 were provided by the PHE Gastrointestinal Infections Department
- data for the total reports of *Cryptosporidium* in Northern Ireland are from the [Health and Social Care Public Health Agency \(HSC PHA\) website](#)
- travel-associated infections for England (2005 to 2014) and Wales (2005 to 2012) comprise laboratory reports sent to the PHE Centre for Infectious Disease Surveillance and Control, Colindale, through the Co-Surv system and were extracted from the Second Generation Surveillance System (SGSS) using sample specimen date
- travel-associated infections for Wales 2013 and 2014 were supplied by Public Health Wales extracted from the information bureau for infectious disease (IBID). There was a change in electronic reporting in Wales between 2013 and 2014
- travel-associated infections data for Northern Ireland were provided by HSC PHA and comprise laboratory reports extracted from Co-Surv using sample specimen date

*Note

Enhanced surveillance is not conducted for *Cryptosporidium* infections; travel history information is collected from laboratory reports where it is available. Dates of travel and onset are not usually given and therefore incubation period is not considered when assigning travel history. Travel history on laboratory request forms is underreported for *Cryptosporidium* infections (around 3% have information). However, the data collected by the CRU is more complete as travel history is specifically requested for all samples referred for typing. Furthermore, recent changes in the data reporting systems have resulted in some travel information being lost from the reports. So the trends presented in this report should be interpreted with caution. In particular, Wales and Northern Ireland may be underrepresented in this report.

References

1. Office for National Statistics. Travel trends: 2015. ONS: 2016. Available online: www.ons.gov.uk/peoplepopulationandcommunity/leisureandtourism/articles/traveltrends/2015