

# **SURVEILLANCE OF INFECTIOUS INTESTINAL (IID), ZONOTIC AND VECTORBORNE DISEASE, AND OUTBREAKS of INFECTIOUS DISEASE IN IRELAND**



Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive



**A quarterly report by the Health Protection Surveillance Centre in collaboration with the Departments of Public Health**

**Quarter 4 –2013**

**February 2014**

This is the fourth quarterly report for 2013 produced by the Gastroenteric Unit of the Health Protection Surveillance Centre.

The production of this quarterly report would not be possible without the valuable input and commitment from the Directors of Public Health, Specialists in Public Health Medicine, Surveillance Scientists, Clinical Microbiologists, General Practitioners, Hospital Clinicians, Infection Control, Environmental Health and laboratory personnel, and other professionals who provide the data for the HPSC's surveillance systems.

*Note: Data are collected and analysed using the Computerised Infectious Disease Reporting (CIDR) system. The data in this report are provisional and will not be regarded as final until all returns are received and data have been validated.*

## OUTBREAK SURVEILLANCE

**Table 1. General Outbreaks of Infectious Intestinal Disease (IID) in Quarter 4, 2013**

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	NE	Community outbreak	-	-	17/09/2013	Unknown	Salmonellosis
Oct	MW	Hospital	6	6	-	P - P	Norovirus
Oct	MW	Comm. Hosp/Long-stay unit	8	6	26/09/2013	Not specified	Norovirus
Oct	S	Comm. Hosp/Long-stay unit	10	0	04/09/2013	P-P & AB	AIG
Oct	E	Nursing home	19	1	15/10/2013	P - P	AIG
Oct	HPSC	Community outbreak	3	0	14/09/2013	Unknown	Salmonellosis
Oct	W	Community outbreak	13	1	05/10/2013	WB	Cryptosporidiosis
Oct	SE	Nursing home	18	0	18/10/2013	P - P	AIG
Oct	M	Creche	4	1	16/10/2013	WB	VTEC
Nov	NW	Not Specified	10	-	01/11/2013	P - P	AIG
Nov	MW	Creche	-	-	02/10/2013	P - P	VTEC
Nov	E	Hospital	287	185	04/11/2013	P - P	Norovirus
Nov	HPSC	Community outbreak	9	2	06/10/2013	Unknown	Salmonellosis
Nov	W	Creche	4	1	30/10/2013	P - P	Cryptosporidiosis
Nov	E	Nursing home	5	-	11/11/2013	Unknown	AIG
Nov	E	Creche	2	2	15/10/2013	Unknown	VTEC
Nov	E	Nursing home	15	-	14/11/2013	P - P	AIG
Nov	W	Hospital	7	7	09/10/2013	P - P	<i>Clostridium difficile</i>
Nov	SE	Hospital	78	-	09/11/2013	P - P	Norovirus
Nov	M	Hospital	4	-	19/11/2013	Unknown	AIG
Nov	E	Nursing home	3	-	20/11/2013	Unknown	AIG
Nov	NW	Nursing home	50	0	19/11/2013	P - P	Norovirus
Nov	E	Hospital	8	7	21/11/2013	P - P	Norovirus
Dec	SE	Residential institution	3	-	26/11/2013	P - P	AIG
Dec	M	Hospital	4	-	-	P-P & AB	AIG
Dec	SE	Residential institution	12	-	30/11/2013	P - P	Norovirus
Dec	E	Other	2	0	25/10/2013	WB	Cryptosporidiosis
Dec	SE	Residential institution	23	-	09/12/2013	P - P	AIG
Dec	E	Nursing home	17	-	11/12/2013	P - P	Norovirus
Dec	S	Nursing home	15	0	-	P - P	Norovirus
Dec	S	Comm. Hosp/Long-stay unit	5	0	13/12/2013	P - P	Norovirus
Dec	M	Community outbreak	4	3	30/09/2013	Unknown	Salmonellosis
Dec	SE	Community outbreak	103	0	14/12/2013	Unknown	Norovirus
Dec	M	Nursing home	3	0	-	Unknown	Norovirus
Dec	HPSC	Community outbreak	14	6	-	Unknown	VTEC
Dec	NW	Comm. Hosp/Long-stay unit	3	0	21/12/2013	P-P & AB	AIG
Dec	SE	Hospital	26	-	12/12/2013	P - P	Norovirus
Dec	E	Hospital	21	20	02/12/2013	P - P	Norovirus
Dec	M	Residential institution	6	2	-	Unknown	Norovirus

P-P denotes Person-to-Person transmission, FB denotes foodborne, WB denotes waterborne; AB denotes airborne; AIG denotes Acute Infectious Gastroenteritis (unspecified); VTEC denotes infection with Verotoxigenic *E. coli*; NK=unknown

\* Total numbers ill does not include asymptomatic cases

**Table 2. Family Outbreaks of Infectious Intestinal Disease (IID) in Quarter 4, 2013**

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	E	Private house	2	2	11/09/2013	FB	Salmonellosis
Oct	M	Private house	1	0	22/09/2013	FB	VTEC
Oct	NW	Private house	1	0	29/08/2013	P - P	VTEC
Oct	W	Private house	2	0	17/09/2013	Unknown	Salmonellosis
Oct	SE	Private house	2	1	16/09/2013	Unknown	Cryptosporidiosis
Oct	S	Private house	2	1	21/09/2013	P - P	Cryptosporidiosis
Oct	S	Private house	2	0	-	P - P	VTEC
Oct	E	Private house	2	0	19/09/2013	WB & Animal	Giardiasis
Oct	NW	Private house	2	0	07/10/2013	FB	Salmonellosis
Oct	NW	Private house	2	1	08/10/2013	FB	Salmonellosis
Oct	M	Private house	2	-	15/10/2013	Unknown	VTEC
Oct	W	Private house	2	-	11/10/2013	P - P	VTEC
Nov	M	Private house	1	-	24/10/2013	Unknown	VTEC
Nov	SE	Private house	1	1	27/10/2013	Unknown	VTEC
Nov	SE	Private house	2	1	30/10/2013	Unknown	VTEC
Nov	W	Private house	2	-	-	P - P	Campylobacteriosis
Nov	SE	Private house	3	1	20/10/2013	P - P	VTEC
Nov	S	Private house	2	0	31/10/2013	P - P	Cryptosporidiosis
Nov	M	Private house	1	-	09/11/2013	Unknown	VTEC
Dec	M	Private house	3	0	14/11/2013	Unknown	Cryptosporidiosis
Dec	SE	Private house	2	-	03/11/2013	P - P	VTEC
Dec	NW	Private house	2	2	11/11/2013	P - P	Cryptosporidiosis
Dec	NE	Private house	2	0	07/11/2013	P - P	VTEC
Dec	NE	Private house	2	0	23/11/2013	Unknown	Yersiniosis
Dec	M	Private house	1	1	03/12/2013	Unknown	VTEC
Dec	SE	Private house	1	-	-	P - P	VTEC
Dec	M	Private house	-	-	-	Unknown	VTEC

P-P denotes Person-to-Person transmission, FB denotes foodborne, WB denotes waterborne; AB denotes airborne; AIG denotes Acute Infectious Gastroenteritis; VTEC denotes infection with Verotoxigenic *E. coli* NK denotes unknown

\* Total numbers ill does not include asymptomatic cases

**Table 3. Non-IID Outbreaks in Quarter 4, 2013**

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Oct	NW	Family	Private house	2	2	-	Not specified	Enterovirus
Oct	NE	General	Nursing home	7	-	23/07/2013	Other	ESBL E coli
Oct	S	Family	Private house	3	2	21/08/2013	AB	Pertussis
Oct	S	Family	Other	3	2	02/06/2013	AB	Tuberculosis
Oct	E	General	School		-	06/10/2013	P - P	Mumps
Oct	W	Family	Extended family	3	-	-	P - P	Tuberculosis
Oct	SE	General	School	20	1	14/09/2013	P - P	Measles
Oct	SE	Family	Private house	6	0	03/05/2013	P-P & AB	Pertussis
Oct	E	General	Community outbreak	2	1	24/09/2013	P - P	Suspected mumps
Nov	SE	General	Residential institution	5	-	-	P - P	Suspected scabies
Nov	HPSC	General	Travel related	2	0	06/10/2013	FB	Hepatitis A
Nov	SE	Family	Private house	2	0	22/08/2013	P-P & AB	Pertussis
Nov	W	General	Nursing home	6	0	18/11/2013	P - P	Acute respiratory illness

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Nov	S	General	Other	3	-	04/04/2013	Not specified	Tuberculosis
Dec	W	General	Creche	2	1	24/11/2013	P - P	Enterovirus
Dec	NW	General	Creche	8	0	03/12/2013	P - P	Varicella
Dec	W	Family	Extended family	2	2	10/12/2013	P - P	Enterovirus
Dec	S	General	Residential institution	5	0	27/11/2013	AB	Respiratory illness
Dec	E	General	Hospital	2	4	-	Not specified	<i>Staphylococcus epidermidis</i>

P-P denotes Person-to-Person transmission, WB denotes waterborne; AB denotes airborne; IDU denotes Injecting Drug Use; NK denotes unknown; CRE denotes Carbapenem-resistant Enterobacteriaceae

\* Total numbers ill does not include asymptomatic cases

Since July 2001, outbreaks have been reported to HPSC. Preliminary information is provided by a public health professional when the outbreak is first notified. Further information is provided by the lead investigator once more complete data are available. The data requested includes information on the source of reporting of the outbreak, the extent of the outbreak, mode of transmission, location, pathogen involved, laboratory investigation, morbidity and mortality data, suspect vehicle and factors contributing to the outbreak. The data provided is crucial in providing information on the reasons why the outbreak occurred, the factors that lead to the spread of disease and the lessons that can be learnt to prevent further such outbreaks.

Since the 1<sup>st</sup> January 2004, with the amendment to the Infectious Diseases Regulations (2003), there is a statutory requirement for medical practitioners and clinical directors of a diagnostic laboratory to notify to the medical officer of health 'any unusual clusters or changing patterns of any illness, and individual cases thereof, that may be of public health concern'.

Tables 1 and 2 present a line listing of all general and family outbreaks of IID reported to HPSC in the fourth quarter of 2013. There were 39 general and 27 family IID outbreaks reported during this period, resulting in at least 871 people being ill.

Norovirus (n=15) was responsible for the most general outbreaks of IID (38% of all general outbreaks), followed by Acute infectious gastroenteritis (n=12).

The most common causes of family outbreaks of IID was VTEC (n=15) [55%]. The other diseases responsible for family outbreaks were campylobacteriosis, cryptosporidiosis, giardiasis, salmonellosis and yersiniosis.(Table 2).

Twenty-three general IID outbreaks were transmitted person-to-person/person-to-person and airborne (59%). Twenty-six general outbreaks

(67%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

There were nineteen non-IID outbreaks reported during quarter 4 - see table 3.

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q4 2013.

**Table 4. Number of Infectious Disease Outbreaks by HSE Area, Q4 2013**

HSE Area	No. of outbreaks	Rate per 100,000 population
<b>E</b>	15	1.0
<b>M</b>	13	5.0
<b>MW</b>	3	0.5
<b>NE</b>	4	1.0
<b>NW</b>	9	3.5
<b>SE</b>	17	3.4
<b>S</b>	10	1.5
<b>W</b>	10	2.2
<b>Total</b>	<b>81</b>	<b>1.8</b>

## NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZONOTIC AND VECTORBORNE DISEASE

The number of notifications of infectious intestinal, zoonotic and vectorborne disease by HSE-Area for the fourth quarter of 2013 is shown in Table 5.

**Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 4, 2013 by HSE-Area**

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
<i>Bacillus cereus</i> foodborne infection/intoxication	0	0	0	0	0	0	0	0	0
Botulism	0	0	0	0	0	0	0	0	0
<i>Campylobacter</i> infection	191	46	50	37	25	69	75	46	539
Cholera	0	0	0	0	0	0	0	0	0
<i>Clostridium perfringens</i> (type A) food-borne disease	0	0	0	0	0	0	0	0	0
Cryptosporidiosis	2	10	10	2	8	5	15	17	69
Giardiasis	5	0	0	4	0	1	0	2	12
Listeriosis	0	1	0	0	0	1	0	0	2
Noroviral infection	65	2	19	15	4	20	14	12	151
Paratyphoid	0	0	0	0	0	0	0	0	0
Rotavirus infection <sup>a</sup>	7	2	7	4	7	14	19	4	64
Salmonellosis	18	7	13	14	6	5	12	7	82
Shigellosis	9	0	4	0	0	0	0	1	14
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	1	0	0	1	0	0	1	0	3
Verotoxigenic <i>Escherichia coli</i> infection <sup>b</sup>	22	23	40	9	2	38	30	10	173
Yersiniosis	0	0	0	2	0	0	0	0	2
<b>Zoonotic Disease</b>									
Anthrax	0	0	0	0	0	0	0	0	0
Brucellosis	0	0	0	0	0	0	0	0	0
Echinococcosis	0	0	0	0	0	0	0	0	0
Leptospirosis	3	0	1	0	0	1	1	1	7
Plague	0	0	0	0	0	0	0	0	0
Q Fever	0	0	0	0	0	0	0	0	0
Rabies	0	0	0	0	0	0	0	0	0
Toxoplasmosis	3	2	0	1	0	0	0	2	8
Trichinosis	0	0	0	0	0	0	0	0	0
<b>Vectorborne Disease</b>									
Chikungunya disease <sup>c</sup>	0	0	0	0	0	0	0	0	0
Dengue <sup>c</sup>	4	1	1	0	0	0	0	1	7
Lyme disease (neuroborreliosis) <sup>c</sup>	1	0	0	0	3	2	4	1	11
Malaria	12	2	0	0	0	2	0	3	19
Typhus	0	0	0	0	0	0	0	0	0
West Nile fever <sup>c</sup>	1	0	0	0	0	0	0	0	1

<sup>a</sup>Notifiable under the category Acute Infectious Gastroenteritis 2004-2011

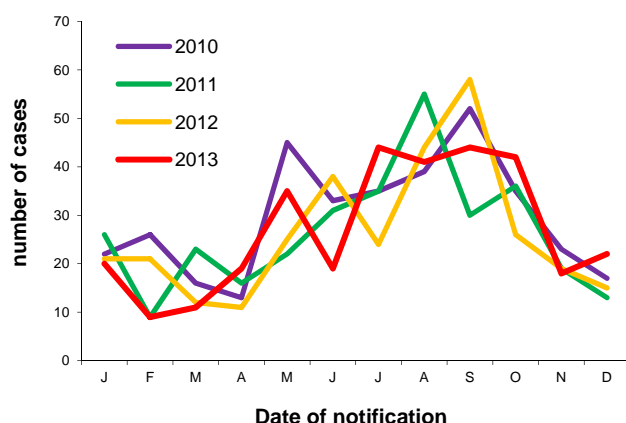
<sup>b</sup>Notifiable under the category Enterohaemorrhagic *E. coli* 2004-2011

<sup>c</sup>Added to the list of notifiable diseases in 2012 under Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011)

Human salmonellosis (*S. enterica*) is a notifiable disease. The National Salmonella, Shigella and Listeria Reference Laboratory (NSSLRL) in Ireland was established in 2000 in the Dept. of Medical Microbiology, University College Hospital, Galway. This laboratory accepts *S. enterica* isolates from all clinical and food laboratories in Ireland for serotyping, phage typing and antimicrobial sensitivity testing. Table 6 shows the number of salmonellosis notifications by HSE-Area and month for the fourth quarter of 2013. Comparison of trends with previous years is shown in Figure 1.

**Table 6. Salmonellosis Notifications by HSE-Area and Month, Q4 2013**

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	9	3	5	9	3	3	5	5	42
Nov	3	1	4	2	3	0	4	1	18
Dec	6	3	4	3	0	2	3	1	22
Total	18	7	13	14	6	5	12	7	82



**Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2010 to end quarter 4 2013**

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSSLRL in the fourth quarter of 2013 by HSE area (n=82). The commonest human serotypes isolated were *S. Typhimurium*\* (n=23, 28%) and *S. Dublin* and *Enteritidis* (each n=10, 12%).

Table 8 shows the serotype distribution of confirmed *Salmonella* notifications by travel status this quarter among salmonellosis notifications on CIDR. 23.2% (n=19) were travel-associated, 59.8% (n=49) were indigenous and for 14 cases, the country of infection was unknown/not specified.

**Table 7. Serotypes of *S. enterica* Referred to NSSLRL in Quarter 4, 2013** (Data are provided courtesy of Prof. Martin Cormican and staff, NSSLRL).

Serotype	E	M	MW	NE	NW	SE	S	W	Total
4,[5],12:i:-	1	0	3	2	1	0	3	1	11
Agama	2	3	0	0	0	0	0	0	5
Agona	1	0	0	0	0	0	0	0	1
Bonn	0	1	0	0	0	0	0	0	1
Braenderup	0	0	0	0	0	0	0	1	1
Coeln	0	0	1	0	0	0	0	0	1
Dublin	1	0	0	2	1	3	3	0	10
Enteritidis	2	1	2	2	1	0	1	1	10
Gaminara	0	0	1	0	0	0	0	0	1
Give	1	0	0	0	0	0	0	0	1
Hadar	1	0	0	0	0	0	0	0	1
II 42:z:5	0	0	0	0	0	0	1	0	1
IIIa 44:z4,z23,z32:-	0	0	1	0	0	0	0	0	1
Infantis	3	0	0	3	0	0	1	0	7
Kottbus	0	0	1	0	0	0	0	1	2
Napoli	1	0	1	0	0	0	0	0	2
Newport	2	0	1	0	0	0	0	0	3
Paratyphi A	0	0	0	0	0	1	0	0	1
Paratyphi B	1	0	0	0	0	0	0	0	1
Schwarzengrund	1	0	0	0	0	0	0	0	1
Stanley	0	0	0	0	0	0	0	1	1
Thompson	1	0	0	0	0	0	0	0	1
Typhi	1	0	0	0	0	0	1	0	2
Typhimurium	2	1	1	1	1	1	3	2	12
Unnamed	0	0	0	0	2	0	1	0	3
Virchow	0	0	1	0	0	0	0	0	1
Total	21	6	13	10	6	5	14	7	82

**Table 8. Confirmed *Salmonella* notifications by Serotype and Travel Status, Q4 2013 [n(%)]**

Serotype	Indigenous	Travel-associated	Unk/not specified	Total
<i>S. Enteritidis</i>	3 (6%)	5 (26%)	2 (14%)	10 (12%)
<i>S. Typhimurium</i>	13 (27%)	3 (16%)	6 (43%)	22 (27%)
Other	32 (65%)	10 (53%)	5 (36%)	47 (57%)
<i>Salmonella</i> spp	1 (2%)	1 (5%)	1 (7%)	3 (4%)
Total	49 (100%)	19 (100%)	14 (100%)	82 (100%)

Note: Data source CIDR. Travel status is inferred from *Country of Infection* variable on CIDR. Note excludes probable notifications

### ***S. Typhi* and *S. Paratyphi***

There were no cases of paratyphoid reported on CIDR in Q4 2013. There were three cases of typhoid notified this quarter, associated with travel to Pakistan (n=2) and India (n=1) (table 5).

### **Outbreaks of Salmonellosis**

There were four general and four family outbreaks of salmonellosis notified in Q4 2013 (tables 1 & 2).

\*includes 11 cases of monophasic *S. Typhimurium* 4,5,12:i:-



## VEROTOXIGENIC *E. COLI* (VTEC)

Verotoxigenic *E. coli* (VTEC) became a notifiable disease on January 1<sup>st</sup> 2012. Previously, VTEC were notified under the category of Enterohaemorrhagic *E. coli* between 2004 and 2011.

One-hundred and seventy three cases of VTEC were notified this quarter, the regional distribution of which is shown in Table 9. This compares with 86 VTEC cases notified in Q4 2012 and 118 in Q4 2011 (figure 2).

Table 9 shows the number of VTEC cases reported by case classification and HSE-area and Table 10 shows the number of VTEC cases by serogroup and month, Q4 2013.

**Table 9. Number VTEC notified by case classification and HSE-area, Q4 2013**

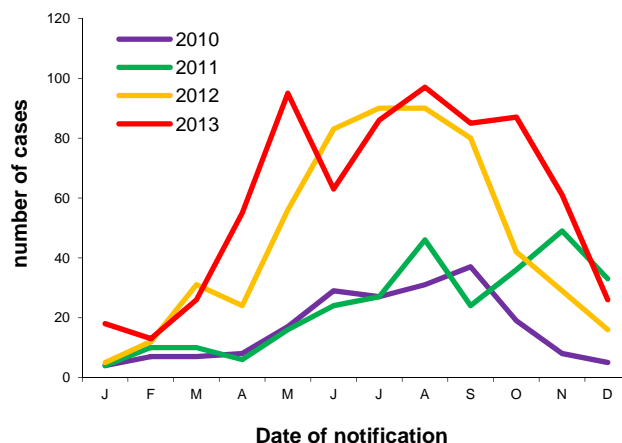
Case classification	E	M	MW	NE	NW	SE	S	W	Total
Conf	19	14	30	7	0	35	29	10	144
Prob	3	9	9	2	2	3	1	0	29
Poss	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>22</b>	<b>23</b>	<b>39</b>	<b>9</b>	<b>2</b>	<b>38</b>	<b>30</b>	<b>10</b>	<b>173</b>

**Table 10. VTEC notified by serogroup and month, Q4 2013**

Month	O157	O26	Other	None*	Total
Oct	40	22	23	1	86
Nov	16	25	20	0	61
Dec	8	4	14	0	26
<b>Total</b>	<b>64</b>	<b>51</b>	<b>57</b>	<b>1</b>	<b>173</b>

\*reported on the basis of epi-link

Ten VTEC cases notified during this quarter were reported as having developed HUS. Four were infected with *E. coli* O157, three with *E. coli* O26, and three with other VTEC strains.



**Figure 2. Seasonal distribution of VTEC cases notified 2010 to end quarter 4 2013**

The HSE-DML Public Health Laboratory at Cherry Orchard Hospital, Dublin provides a national *E. coli* O157 and non-O157 diagnostic service for clinical samples, including *E. coli* serotyping, verotoxin detection and VTEC molecular typing. Table 11 shows the *vt* types of VTEC cases notified in Q4 2013.

**Table 11. Verotoxin typing profiles of *E. coli* referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q4 2013** (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	vt1	vt2	vt1+vt2	Not reported	Total
O157	0	51	13	0	64
O26	24	1	26	0	51
Other	15	26	13	3	57
<b>Total</b>	<b>39</b>	<b>78</b>	<b>52</b>	<b>3</b>	<b>172</b>

Note: One event reported on basis of epi-link not included.

### Outbreaks of VTEC infection

During this quarter, there were four general outbreaks and fifteen family outbreaks of VTEC infection reported (see tables 1 & 2).

## CAMPYLOBACTER

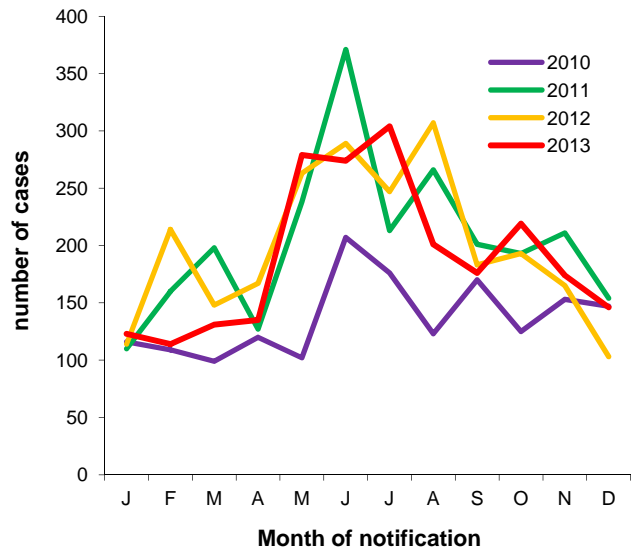
Human campylobacteriosis became a notifiable disease on January 1<sup>st</sup> 2004. Prior to this, human campylobacter infection was notified under the category of 'Food Poisoning (bacterial other than Salmonella)'. The notifications for the fourth quarter of 2013 are shown in Table 12. There were 539 notifications this quarter, compared to 460 in the same period last year and 552 in Q4 2011 (Figure 3).

**Table 12. *Campylobacter* notifications by HSE-Area and month, Q4 2013**

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	91	16	17	21	8	24	29	13	219
Nov	44	20	17	9	10	29	29	16	174
Dec	56	10	16	7	7	16	17	17	146
Total	191	46	50	37	25	69	75	46	539

### Outbreaks of *Campylobacter* infection

There was one family outbreak of campylobacteriosis reported in Q4 2013 (Tables 1 and 2).



**Figure 3. Seasonal distribution of *Campylobacter* notifications 2010 to end quarter 4 2013**

## CRYPTOSPORIDIUM

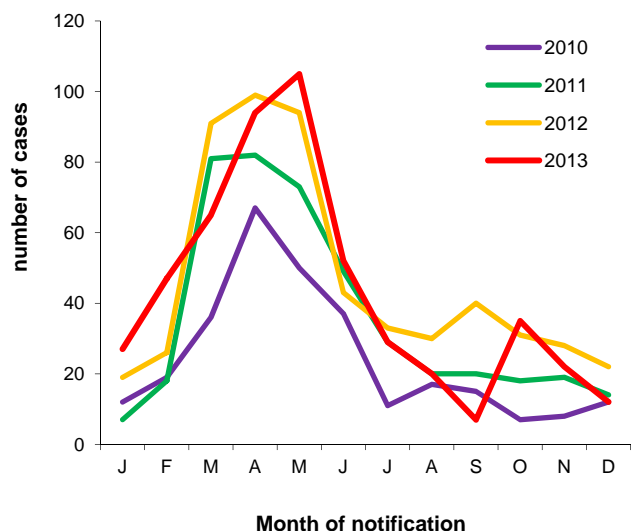
Human cryptosporidiosis became a notifiable disease on January 1<sup>st</sup> 2004. Prior to this, cryptosporidiosis was notifiable in Ireland only in young children under the category 'Gastroenteritis in Children Under 2'. In Q4 2013, 69 cases of cryptosporidiosis were notified (table 13), compared to 81 in the same period in 2012 and 51 in Q4 2011 (figure 4).

**Table 13. Cryptosporidiosis notifications by HSE-Area and month, Q4 2013**

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	0	5	3	1	4	5	6	11	35
Nov	1	4	3	1	1	0	6	6	22
Dec	1	1	4	0	3	0	3	0	12
Total	2	10	10	2	8	5	15	17	69

### Outbreaks of cryptosporidiosis

There were five family and three general outbreaks of cryptosporidiosis reported in quarter 4 2013 (tables 1 and 2).



**Figure 4. Seasonal distribution of cryptosporidiosis notifications 2010 to end quarter 4 2013**



## NOROVIRUS

Human noroviral infection became a notifiable disease on January 1<sup>st</sup> 2004. There were 151 cases notified in the fourth quarter of 2013 (table 14). These data are certainly an under-ascertainment of the true burden of disease due to this pathogen.

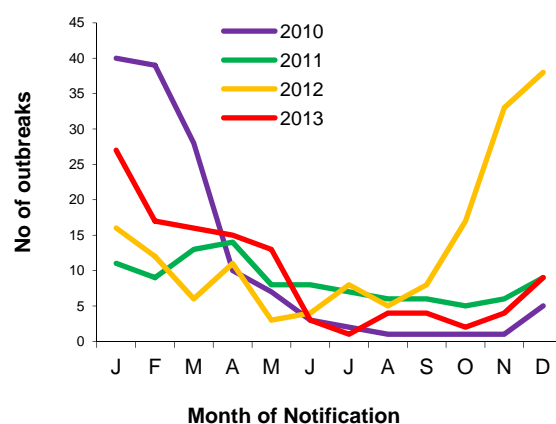
**Table 14. Norovirus notifications by HSE-Area and month, Q4 2013**

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	10	1	12	5	0	0	8	2	38
Nov	23	0	3	4	4	4	4	6	48
Dec	32	1	4	6	0	16	2	4	65
Total	65	2	19	15	4	20	14	12	151

### Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the fourth quarter of 2013, there were 15 outbreaks confirmed as being caused by this virus, involving at least 645 people

becoming ill, as outlined in tables 1 & 2. The seasonal trend is outlined in figure 5.



**Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2010 to end quarter 4 2013**

## SHIGELLA

On January 1<sup>st</sup> 2004, infection with *Shigella* spp. became notifiable as 'Shigellosis'. Prior to this, it was notifiable as 'Bacillary Dysentery'.

During Q4 2013, fourteen cases of shigellosis were notified (table 5). This compares with twelve cases notified in Q4 2012 and twelve in Q4 2011.

Four cases were travel related (associated with travel to Pakistan, India, Bangladesh and Germany), Ireland was reported as country of infection for seven cases and country of infection was reported as unknown/not specified for the remaining three cases.

### Outbreaks of shigellosis

There were no outbreaks of shigellosis notified in Q4 2013 (table 2).

**Table 15: Species and serotype distribution of Q4 2013 human *Shigella* isolates** (Shigella typing services are provided courtesy of Prof. Martin Cormican and staff at the National Salmonella Shigella and Listeria Reference Laboratory).

Serotype	Number of isolates
<i>Shigella boydii</i>	2
<i>Shigella flexneri</i> 1b	1
<i>Shigella flexneri</i> 2a	1
<i>Shigella flexneri</i> 2b	1
<i>Shigella flexneri</i> X variant	2
<i>Shigella sonnei</i>	7
Total	13

## GIARDIA

Human giardiasis became a notifiable disease on January 1<sup>st</sup> 2004. Prior to this, giardiasis was notifiable in Ireland only in young children under the category 'gastroenteritis in children under 2 years'.

During Quarter 4 2013, twelve cases of giardiasis were notified (table 5); this compares with 16 cases notified in Q4 2012 and 10 in Q4 2011.

One case was reported to have acquired their illness abroad. Country of infection was reported as Ireland for two cases and 'not specified' or 'unknown' for the remaining nine cases.

### Outbreaks of giardiasis

There was one family outbreak of giardiasis notified in Q4 2013 (table 2).

## LISTERIA

Human listeriosis became a notifiable disease on January 1<sup>st</sup> 2004. Prior to this, listeriosis was notified under the category of 'Food Poisoning (bacterial other than Salmonella)' or 'Bacterial Meningitis' as appropriate.

There were two cases (one adult and one neonatal) of listeriosis notified in Q4 2013, compared to three cases in quarter 4 2012 and one in quarter 4 2011.

One isolate was referred for typing to NSSLRL this quarter (Table 16).

**Table 16: Serotypes of Q4 2013 human *Listeria* isolates referred to the NSSLRL** (Typing services are provided by Prof. Martin Cormican and staff at the National Salmonella Shigella and Listeria Reference Laboratory).

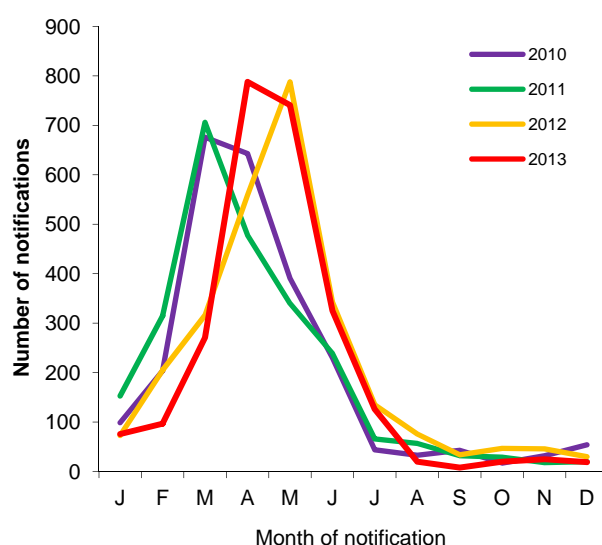
Serotype	Number of isolates
4b	1

## ROTAVIRUS INFECTION

Since 2004, rotavirus, although not specifically listed, was a notifiable disease in Ireland under the Acute Infectious Gastroenteritis (AIG) disease category. Prior to 2004, rotavirus cases were notified in the former notification category of "Gastroenteritis in children under two years". In April 2008 the case definition of AIG was amended specifying rotavirus. Rotavirus became notifiable as a disease in its own right under the Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011). Rotavirus notifications for the fourth quarter of 2013 are shown in Table 17.

**Table 17. Rotavirus infection by HSE-Area and month, Q4 2013**

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	3	1	0	1	3	5	6	1	20
Nov	3	0	2	1	2	7	7	3	25
Dec	1	1	5	2	2	2	6	0	19
Total	7	2	7	4	7	14	19	4	64



**Figure 6. Seasonal distribution of rotavirus notifications, 2010 to end quarter 4 2013**

### Outbreaks of rotavirus

There were no outbreaks of rotavirus notified this quarter (Tables 1&2).

## FOODBORNE INTOXICATIONS

*Bacillus cereus* foodborne infection/intoxication, botulism, *Clostridium perfringens* (type A) foodborne disease and staphylococcal food poisoning became notifiable diseases on January 1<sup>st</sup> 2004. Prior to this, these diseases were notified under the

category of 'Food Poisoning (bacterial other than Salmonella)'.

There were no cases of foodborne intoxication notified this quarter.

## NON-IID ZONOTIC DISEASES

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Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q fever, toxoplasmosis, trichinosis and rabies. The Q4 2013 notifications of these zoonotic diseases are reported by HSE-Area in table 5.

Eight cases of toxoplasmosis were notified in this quarter. This compares with eighteen cases notified in the same period in 2012 and nine cases in Q4 2011.

There were seven cases of leptospirosis notified in Q4 2013; this compares with five in Q4 2012 and

four in Q4 2011. Four cases acquired their illness through occupational exposure, one through leisure activity, one case had accidental river water exposure and source of infection for the remaining case was unknown.

There were no cases of Q fever notified in Q4 2013; this compares with four in Q4 2012 and three in Q4 2011.

There were no cases of echinococcosis and trichinosis notified this quarter.

## MALARIA

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Malaria is a notifiable disease for many years. The Q4 2013 notifications are reported in table 5 by HSE-Area.

Nineteen cases of malaria were notified in Q4 2013. This compares with fourteen cases reported in Q4 2012 and fifteen in Q4 2011.

Eighteen cases were reported as *P. falciparum*, while the organism was not specified for one remaining case.

Eleven cases were exposed in Africa and the country of infection is unknown/not specified for the remaining eight cases.

The reason for travel for ten cases was reported as 'visiting family in country of origin'. The reason for travel was not specified/unknown for the remaining nine cases.

## OTHER NOTIFIABLE VECTORBORNE DISEASES

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Under Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011) (Sept 2011), Chikungunya disease, Dengue, Lyme disease (neuroborreliosis) and West Nile fever were made notifiable. The Q4 2013 notifications are reported in Table 5 by HSE-Area.

There were eleven cases of Lyme disease (neuroborreliosis) and seven cases of Dengue fever reported in Q4 2013.

There were no notifications of Chikungunya disease and one case West Nile fever this quarter.

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