

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



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

Quarter 4–2015

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This is the fourth quarterly report for 2015 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, 2015

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease/Pathogen
Oct	S	Nursing home	6	0	05/09/2015	P-P	AIG
Oct	E	Nursing home	7	0	12/09/2015	P-P	Noroviral infection
Oct	W	Hospital	8	8	30/09/2015	P-P	<i>Clostridium difficile</i>
Oct	W	Workplace	-	-	30/09/2015	P-P	Shigellosis
Oct	W	Community outbreak	2	2	19/09/2015	Unknown	Salmonellosis
Oct	S	Comm. Hosp/Long-stay unit	6	-	12/10/2015	P-P & AB	Noroviral infection
Oct	E	Nursing home	34	-	10/10/2015	P-P	Noroviral infection
Oct	E	Community outbreak	10	-	16/09/2015	P-P	Shigellosis
Oct	S	Hotel	9	0	-	Unknown	AIG
Oct	NE	Hospital	16	-	-	P-P	Noroviral infection
Oct	NE	Nursing home	2	-	-	P-P	AIG
Nov	MW	Childcare facility	-	-	15/09/2015	P-P	VTEC
Nov	W	Restaurant / Cafe	40	0	30/10/2015	P-P	Noroviral infection
Nov	E	Nursing home	15		27/10/2015	P-P	Noroviral infection
Nov	S	Comm. Hosp/Long-stay unit	5	0	05/11/2015	Unknown	AIG
Nov	W	Comm. Hosp/Long-stay unit	7	0	06/11/2015	P-P	AIG
Nov	E	Residential institution	3	1	08/11/2015	Unknown	<i>Campylobacter</i> infection
Nov	SE	Comm. Hosp/Long-stay unit	6		13/11/2015	P-P	Suspected norovirus
Nov	S	Childcare facility	4	0	01/11/2015	P-P & WB	VTEC
Nov	W	Hotel	4	0	01/11/2015	WB	Cryptosporidiosis
Nov	SE	Comm. Hosp/Long-stay unit	45		21/11/2015	P-P	Noroviral infection
Dec	MW	Residential institution	12	1	20/11/2015	P-P	Noroviral infection
Dec	E	Comm. Hosp/Long-stay unit	35	0	22/11/2015	Unknown	Noroviral infection
Dec	S	Comm. Hosp/Long-stay unit	16	0	01/12/2015	P-P & AB	Noroviral infection
Dec	E	Nursing home	13	0	05/12/2015	Unknown	AIG
Dec	SE	Hospital	10	-	03/04/2015	P-P	Noroviral infection
Dec	E	Residential institution	7	0	10/12/2015	P-P	AIG
Dec	E	Childcare facility	14	-	-	P-P	AIG
Dec	HPSC	Community outbreak	5	1	28/10/2015	Unknown	VTEC
Dec	NE	Hospital	5	5	03/12/2015	P-P	<i>Clostridium difficile</i>
Dec	E	Nursing home	53	0	17/12/2015	P-P	Noroviral infection
Dec	E	Hospital	98	-	12/12/2015	P-P	Noroviral infection
Dec	SE	Nursing home	10	-	19/12/2015	P-P	Noroviral infection
Dec	SE	Nursing home	31	-	20/12/2015	P-P	Noroviral infection
Dec	E	Nursing home	35	-	24/12/2015	P-P	Noroviral infection

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, 2015

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	MW	Private house	1	1	18/09/2015	P-P & WB	VTEC
Oct	S	Private house	2	0	02/09/2015	P-P	VTEC
Oct	SE	Extended family	3	1	06/10/2015	Unknown	VTEC
Oct	E	Private house	4	0	26/09/2015	P-P	VTEC
Oct	M	Private house	1	-	08/10/2015	Unknown	VTEC
Oct	S	Private house	2	-	01/09/2015	WB	Giardiasis
Oct	NE	Extended family	-	-	04/10/2015	Animal contact	VTEC
Oct	S	Private house	2	0	28/09/2015	P-P & WB	VTEC
Oct	W	Private house	1	0	-	Unknown	VTEC
Nov	W	Private house	2	0	17/09/2015	P-P	<i>Campylobacter</i> infection
Nov	W	Extended family	1	1	-	P-P	VTEC
Nov	E	Private house	2	-	26/07/2015	P-P & WB	Giardiasis
Nov	NW	Private house	2	0	03/11/2015	Unknown	VTEC
Nov	S	Private house	5	0	10/11/2015	P-P & WB	Giardiasis
Nov	MW	Private house	-	-	12/10/2015	Animal contact	VTEC
Nov	M	Private house	2	0	05/11/2015	Unknown	VTEC
Dec	W	Private house	2	0	-	P-P	Giardiasis
Dec	E	Travel related	3	-	12/11/2015	Not Specified	Typhoid

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, 2015

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism/Disease
Oct	M	Family	Private house	3	1	22/09/2015	P-P	Pertussis
Oct	S	General	School	3	0	11/09/2015	P-P & AB	Mumps
Oct	SE	Family	Private house	2	2	29/09/2015	P-P	Pertussis
Nov	W	Family	Private house	3	0	21/11/2014	P-P	Tuberculosis
Nov	E	General	School	3	0	30/10/2015	P-P	Suspected mumps
Nov	NW	General	Comm. Hosp/Long-stay unit	8	-	26/10/2015	P-P	Acute respiratory infection
Nov	E	General	School	4	-	-	P-P	Suspected mumps
Nov	S	General	Nursing home	12	0	13/11/2015	P-P	Acute respiratory infection
Nov	S	Family	Extended family	3	1	01/08/2015	P-P & AB	Tuberculosis
Nov	SE	General	Comm. Hosp/Long-stay unit	4	-	22/11/2015	P-P & AB	Acute respiratory infection
Nov	S	General	School	115	2	20/11/2015	Unknown	Influenza
Nov	NW	Family	Private house	-	-	-	P-P	RSV
Dec	E	General	Nursing home	4	-	30/11/2015	Unknown	RSV
Dec	S	General	Other	54	0	01/11/2015	Environmental / Fomite	Flu-like symptoms with rash

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism/Disease
Dec	NW	General	Comm. Hosp/Long-stay unit	6	0	22/11/2015	AB	Acute respiratory infection
Dec	NE	General	School	2	-	09/11/2015	P-P & AB	Mumps
Dec	SE	Family	Private house	2	0	16/11/2015	P-P	Mumps
Dec	NE	General	School	2	-	-	P-P	Scarlet Fever
Dec	S	General	School	8	0	02/11/2015	P-P & AB	Mumps
Dec	SE	General	Other	4	0	15/11/2015	P-P	Impetigo
Dec	NE	General	Residential institution	16	1	09/12/2015	P-P	RSV
Dec	MW	General	School	-	-	03/11/2015	P-P	Mumps

P-P denotes Person-to-Person transmission, WB denotes waterborne; AB denotes airborne; IDU denotes Injecting Drug Use; NK denotes unknown; CRE denotes Carbapenemresistant 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 are 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 1st 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 2015. There were 35 general and 18 family IID outbreaks reported during this period, resulting in at least 608 people being ill.

Norovirus/suspected norovirus (n=17) was responsible for the most general outbreaks of IID (48%), followed by acute infectious gastroenteritis (n=8).

The most common cause of family outbreaks of IID was VTEC (n=12) [67%]. The other diseases responsible for family outbreaks were campylobacteriosis, giardiasis and typhoid. (Table 2).

Twenty-six general IID outbreaks were transmitted person-to-person (74%). Twenty-five general outbreaks (71%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

There were twenty-two non-IID outbreaks reported during Q4 2015 (Table 3).

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q4 2015.

Table 4. Number of Infectious Disease Outbreaks by HSE Area, Q4 2015

HSE Area	No. of outbreaks	Rate per 100,000 population
E	18	1.1
M	3	1.1
MW	5	1.3
NE	7	1.6
NW	4	1.5
SE	10	2.0
S	16	2.4
W	11	2.5
Total	74	1.6

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 2015 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 4, 2015 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	154	49	42	32	21	72	58	49	477
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	19	4	5	4	0	16	10	14	72
Giardiasis	18	0	1	1	0	14	10	8	52
Listeriosis	0	0	0	4	0	0	1	0	5
Noroviral infection	126	2	7	19	0	13	14	10	191
Paratyphoid	0	0	0	0	0	0	0	0	0
Rotavirus infection ^{a1}	26	4	4	7	4	17	13	15	90
Salmonellosis	40	2	6	6	0	5	14	10	83
Shigellosis	29	0	2	3	1	1	1	4	41
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	0	0	0	0	0	0	0	0	5
Verotoxigenic <i>Escherichia coli</i> infection ^b	22	16	25	13	4	25	28	25	158
Yersiniosis	2	0	0	0	0	0	0	1	3
Zoonotic Disease									
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	1	0	1	1	0	1	0	2	6
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	2	0	0	0	0	1	2	1	6
Trichinosis	0	0	0	0	0	0	0	0	0
Vectorborne Disease									
Chikungunya disease	0	0	0	0	0	0	0	0	0
Dengue	1	0	0	0	0	0	0	0	1
Lyme disease (neuroborreliosis)	0	1	1	0	0	0	1	3	6
Malaria	10	0	0	0	0	2	4	2	18
Typhus	0	0	0	0	0	0	0	0	0
West Nile fever ^c	0	0	0	0	0	0	0	0	0

¹ Since March 2013, norovirus and rotavirus notifications from HSE-East are based on laboratory testing results rather than patient episodes. Notifications from HSE-E may also refer to area of laboratory testing rather than area of patient residence.

SALMONELLA ENTERICA

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 2015. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q4 2015

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	11	0	3	3	0	2	7	5	31
Nov	18	2	1	1	0	2	5	3	32
Dec	11	0	2	2	0	1	2	2	20
Total	40	2	6	6	0	5	14	10	83

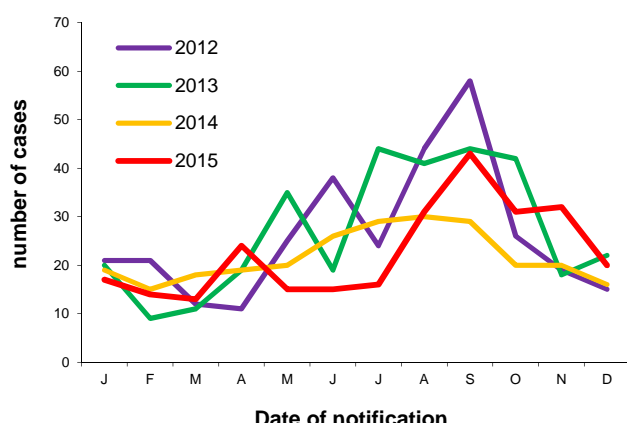


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2012 to end quarter 4 2015

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSSLRL in the fourth quarter of 2015 by HSE area (n=75). The commonest human serotypes reported were *S. Enteritidis* (n=21, 28%). *S. Typhimurium*[†] (n=19, 25%).

Table 8 shows the serotype distribution of confirmed *Salmonella* notifications by travel status this quarter among salmonellosis notifications on CIDR. 31% (n=26) were travel-associated, 35% (n=29) were indigenous and for 28 cases, the country of infection was unknown/not specified.

Table 7. Serotypes of human *S. enterica* isolates referred to NSSLRL in Quarter 4, 2015

Serotype	E	M	MW	NE	NW	SE	S	W	Total
4,[5],12:i:-	2	0	2	1	0	1	3	1	10
Agona	2	0	0	0	0	0	0	0	2
Anatum	0	0	0	0	0	0	1	0	1
Bareilly	2	0	0	0	0	0	0	0	2
Brandenburg	2	0	0	0	0	0	0	0	2
Chester	1	0	0	0	0	0	0	0	1
Eastbourne	0	0	0	0	0	0	1	0	1
Enteritidis	9	2	1	1	0	1	3	4	21
Infantis	1	0	0	1	0	0	1	0	3
Java	1	0	0	0	0	0	0	0	1
Kedougou	0	0	0	1	0	0	0	0	1
Kingabwa	1	0	0	0	0	0	0	0	1
Kottbus	0	0	0	0	0	1	0	0	1
Mbandaka	1	0	0	0	0	0	0	0	1
Muenchen	1	0	0	0	0	0	0	0	1
Newport	1	0	0	0	0	0	0	0	1
Poona	2	0	0	0	0	0	0	0	2
Saintpaul	0	0	0	0	0	1	1	0	2
Stanley	1	0	0	0	0	1	0	0	2
Thompson	1	0	0	0	0	0	0	0	1
Typhi	2	0	0	1	0	0	1	0	4
Typhimurium	3	1	0	1	0	1	2	1	9
Unnamed	2	0	0	0	0	0	0	0	2
Virchow	0	0	1	0	0	0	0	2	3
Grand Total	35	3	4	6	0	6	13	8	75

Data Source: NSSLRL

Table 8. Confirmed *Salmonella* notifications by Serotype and Travel Status, Q4 2015 [n(%)]

Serotype	Indigenous	Travel-associated	Unk/not specified	Total
S. Enteritidis	3 (11%)	11 (42%)	9 (32%)	23 (28%)
S. Typhimurium*	14 (48%)	1 (4%)	7 (25%)	22 (27%)
Other	12 (41%)	14 (54%)	9 (32%)	35 (42%)
Salmonella spp	0 (0%)	0 (0%)	3 (11%)	3 (3%)
Total	29 (100%)	26 (100%)	28 (100%)	83 (100%)

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

* Includes monophasic *S. Typhimurium* 4,5,12:i:-

Outbreaks of Salmonellosis

There was one general outbreak of salmonellosis notified in Q4 2015 (Table 1).

Outbreaks of *S. Typhi* and *S. Paratyphi*

There was one family outbreak of typhoid in Q4 2015, associated with travel to India (Table 2).

[†]includes 10 cases of monophasic *S. Typhimurium* 4,5,12:i:-

S. Typhi and S. Paratyphi

There were five cases of typhoid reported to CIDR in Q4 2015 – two were associated with travel to

Pakistan, one to Bangladesh and one to India. The country of infection was not specified for the remaining case. There were no cases of paratyphoid notified this quarter. One outbreak of typhoid.

VEROTOXIGENIC E. COLI (VTEC)

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

One hundred and fifty-eight cases of VTEC were notified this quarter, the regional distribution of which is shown in Table 9. This compares with 197 VTEC cases notified in Q4 2014 and 169 in Q4 2013 (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 2015.

Table 9. Number VTEC notified by case classification and HSE-area, Q4 2015

Case classification	E	M	MW	NE	NW	SE	S	W	Total
Conf	22	13	18	13	4	23	27	22	142
Prob	0	3	7	0	0	2	1	3	16
Poss	0	0	0	0	0	0	0	0	0
Total	22	16	25	13	4	25	28	25	158

Table 10. VTEC notified by serogroup and month, Q4 2015

Month	O157	O26	Other	Total
Oct	16	20	36	72
Nov	15	11	22	48
Dec	8	4	26	38
Total	39	35	84	158

Six VTEC cases notified this quarter were reported as having developed HUS. 3 VTEC O157, 1 O103 and two ungroupable/pending.

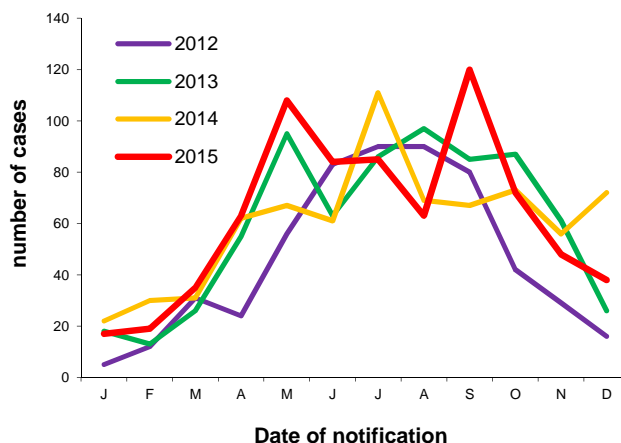


Figure 2. Seasonal distribution of VTEC cases notified 2012 to end quarter 4 2015

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 2015.

Table 11. Verotoxin typing profiles of E. coli referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q4 2015

Serogroup	vt1	vt2	vt1+vt2	Not spec.	Total
O157	0	30	7	2	39
O26	15	1	18	1	35
Other	24	30	11	19	84
Total	39	61	36	22	158

Data Source: PHL Cherry Orchard

Outbreaks of VTEC infection

During this quarter, three general and twelve family outbreaks of VTEC infection were reported (Tables 1 & 2).

CAMPYLOBACTER

Human campylobacteriosis became a notifiable disease on January 1st 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 2015 are shown in Table 12. There were 477 cases of campylobacteriosis notified in Q4 2015 compared to 553 in the same period in 2014 and 539 in Q4 2013 (Figure 3).

Table 12. *Campylobacter* notifications by HSE-Area and month, Q4 2015

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	47	16	13	5	7	26	14	20	148
Nov	50	19	14	11	6	23	24	14	161
Dec	57	14	15	16	8	23	20	15	168
Total	154	49	42	32	21	72	58	49	477

Outbreaks of *Campylobacter* infection

There was one general outbreak and one family outbreak of campylobacteriosis reported in Q4 2015 (Tables 1 and 2).

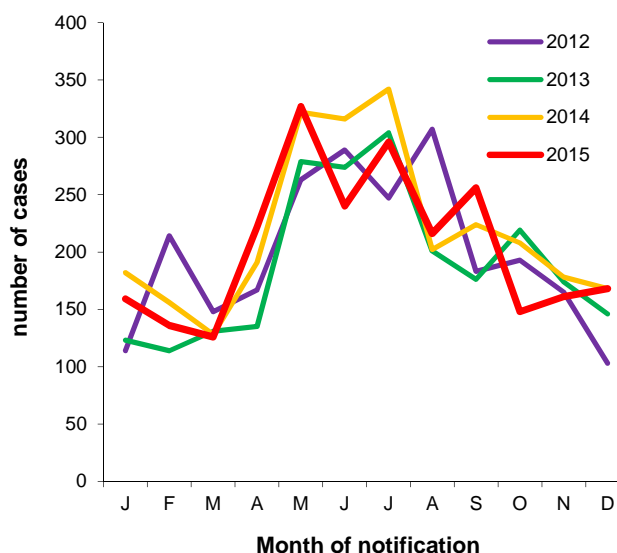


Figure 3. Seasonal distribution of *Campylobacter* notifications 2012 to end quarter 4 2015

CRYPTOSPORIDIUM

Human cryptosporidiosis became a notifiable disease on January 1st 2004. Prior to this, cryptosporidiosis was notifiable in Ireland only in young children under the category ‘Gastroenteritis in Children Under 2’. In Q4 2015, 72 cases of cryptosporidiosis were notified (Table 13), compared to 32 in the same period in 2014 and 69 in Q4 2013 (Figure 4).

Table 13. *Cryptosporidiosis* notifications by HSE-Area and month, Q4 2015

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	4	3	3	3	0	5	6	3	27
Nov	9	1	2	0	0	5	4	4	25
Dec	6	0	0	1	0	6	0	7	20
Toatl	19	4	5	4	0	16	10	14	72

Outbreaks of cryptosporidiosis

There was one general outbreak of cryptosporidiosis reported in quarter 4 2015. (Table 1).

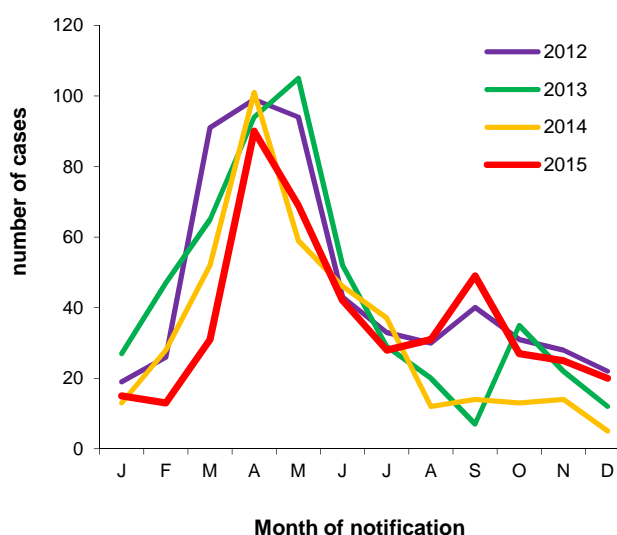


Figure 4. Seasonal distribution of *Cryptosporidium* notifications 2012 to end quarter 4 2015

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. Since March 2013, noravirus notifications from HSE-East are based on laboratory testing results rather than patient episodes. Notifications from HSE-E may also refer to area of laboratory testing rather than area of patient residence.

There were 191 cases notified in the fourth quarter of 2015 (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 2015

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	46	2	3	2	0	2	4	2	61
Nov	31	0	1	15	0	5	4	6	62
Dec	49	0	3	2	0	6	6	2	68
Total	126	2	7	19	0	13	14	10	191

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute

gastroenteritis in Ireland. In the fourth quarter of 2015, there were sixteen outbreaks confirmed as being caused by this virus, involving at least 463 people becoming ill, as outlined in tables 1 & 2. The seasonal trend is outlined in figure 5.

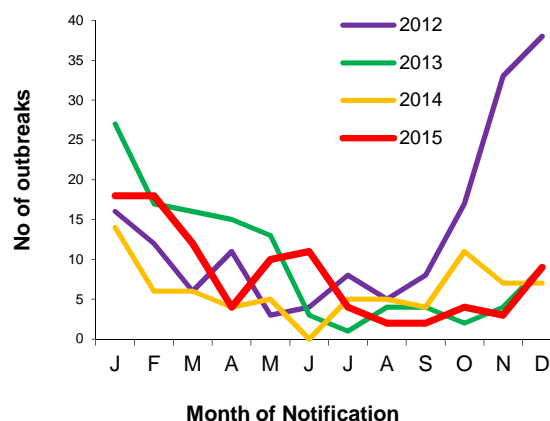


Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2012 to end quarter 4 2015

SHIGELLA

On January 1st 2004, infection with *Shigella* spp. became notifiable as ‘Shigellosis’. Prior to this, it was notifiable as ‘Bacillary Dysentery’.

During Q4 2015, forty-one cases of shigellosis were notified (Table 5). This compares with twenty-three cases notified in Q4 2014 and fourteen in Q4 2013.

Fifteen cases were travel related and the county of infection was reported as Ireland for a further thirteen cases. The country of infection was reported as unknown/not specified for the remaining thirteen cases.

Table 15: Species and serotype distribution of Q4 2015 human *Shigella* isolates referred to the NSSLRL.

Serotype	Number of isolates
<i>Shigella dysenteriae</i>	1
<i>Shigella flexneri</i>	1
<i>Shigella flexneri</i> 1b	2
<i>Shigella flexneri</i> 2a	5
<i>Shigella flexneri</i> 2b	1
<i>Shigella flexneri</i> 3a	1
<i>Shigella flexneri</i> X variant	2
<i>Shigella sonnei</i>	16

Data Source: NSSLRL

Outbreaks of shigellosis

There were two general outbreaks of shigellosis notified in Q4 2015 (Table 1).

GIARDIA

Human giardiasis became a notifiable disease on January 1st 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 2015, fifty-two cases of giardiasis were notified (Table 5); this compares with 17 cases notified in Q4 2014 and 12 in Q4 2013.

Nine cases were reported to have acquired their illness abroad. Country of infection was reported as Ireland for seventeen cases and ‘not specified’ or ‘unknown’ for the remaining twenty-six cases.

Outbreaks of giardiasis

There were four family outbreaks of giardiasis notified in Q4 2015 (Table 2).

LISTERIA

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

There were four adult and one neonatal cases of listeriosis notified in Q4 2015, compared to two cases in quarter 4 2014 and two in quarter 4 2013.

Two isolates were referred for typing to NSSLRL this quarter (Table 16).

Table 16: Serotypes of Q4 2015 human *Listeria* isolates referred to the NSSLRL

Serotype	Number of isolates
4b	2

Data Source: NSSLRL

ROTAVIRUS INFECTION

Prior to 2004, rotavirus cases were notified under the “Gastroenteritis in children under two years” disease category. From 2004 to 2010, rotavirus was notifiable in all age groups under the “Acute Infectious Gastroenteritis” (AIG) disease category, until it became notifiable as a disease in its own right under the Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011). Since March 2013, rotavirus notifications from HSE-East are based on laboratory testing results rather than patient episodes. Notifications from HSE-E may also refer to area of laboratory testing rather than area of patient residence.

Rotavirus notifications for the fourth quarter of 2015 are shown in Table 17 and Figure 6.

Table 17. Rotavirus infection by HSE-Area and month, Q4 2015

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	11	0	4	2	1	4	7	4	33
Nov	3	3	0	3	1	6	5	4	25
Dec	12	1	0	2	2	7	1	7	32
Total	26	4	4	7	4	17	13	15	90

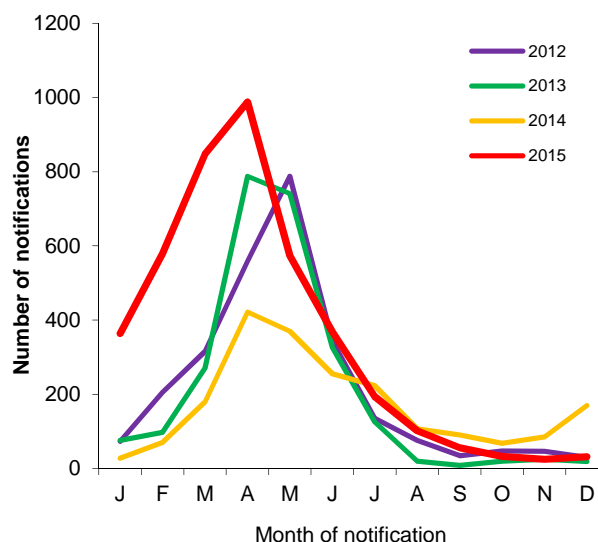


Figure 6. Seasonal distribution of rotavirus notifications, 2012 to end quarter 4 2015

Outbreaks of rotavirus

There were no outbreaks of rotavirus notified this quarter.

FOODBORNE INTOXICATIONS

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

category of 'Food Poisoning (bacterial other than Salmonella)'.
There were no cases of foodborne infection/intoxication notified this quarter.

There were no cases of foodborne infection/intoxication notified this quarter.

NON-IID ZONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q fever, toxoplasmosis, trichinosis and rabies. The Q4 2015 notifications of these zoonotic diseases are reported by HSE-Area in Table 5.

Six cases of toxoplasmosis were notified in this quarter. This compares with two cases notified in the same period in 2014 and eight cases in Q4 2013.

There were six cases of leptospirosis notified in Q4 2015; this compares with eight in Q4 2014 and seven in Q4 2013. Two cases this quarter were reported to have had occupation exposure, one cited accidental exposure and the possible source of infection was unknown/not specified for the remaining three cases.

There were no cases of brucellosis, echinococcosis, trichinosis or Q Fever notified this quarter.

MALARIA

Malaria has been a notifiable disease for many years. The Q4 2015 notifications are reported in Table 5 by HSE-Area.

Eighteen cases of malaria were notified in Q4 2015. This compares with nineteen cases reported in Q4 2014 and nineteen in Q4 2013.

Fifteen cases were reported as *P. falciparum*, two as *P. ovale*. The organism was not specified for the remaining case.

Four cases were exposed in Sub-Saharan Africa and the country of infection is unknown/not specified for the remaining fourteen cases.

The reason for travel for five cases was reported as 'visiting family in country of origin', one case cited business travel and the reason for travel was not specified/unknown for the remaining thirteen cases.

OTHER NOTIFIABLE VECTORBORNE DISEASES

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 2015 notifications are reported in Table 5 by HSE-Area.

There were six cases of Lyme disease (neuroborreliosis) reported in Q4 2015. There was one case of Dengue fever reported, associated with travel to South East Asia.

There were no notifications of Chikungunya disease or West Nile fever this quarter.

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