

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 –2014

February 2015

This is the fourth quarterly report for 2014 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, 2014

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	SE	Residential institution	13	0	25/09/2014	P-P	AIG
Oct	E	Other	3	3	26/08/2014	P-P	Clostridium difficile
Oct	S	Coach tour	14	0	04/10/2014	Not Sp	AIG
Oct	SE	Nursing home	5	-	08/10/2014	P-P	AIG
Oct	SE	Residential institution	18	-	04/10/2014	P-P	Norovirus
Oct	NW	Comm. Hosp/Long-stay unit	13	0	07/10/2014	P-P	Norovirus
Oct	S	Hotel	13	0	08/10/2014	Unknown	AIG
Oct	S	Other	-	-	16/09/2014	Not Specified	Cryptosporidiosis
Oct	E	Nursing home	6	-	29/09/2014	P-P	AIG
Oct	M	Hospital	7	-	-	P-P & AB	Norovirus
Oct	W	Hotel	5	0	16/10/2014	Unknown	AIG
Oct	E	Nursing home	6	0	16/10/2014	P-P	Norovirus
Oct	W	Hospital	4	4	-	P-P	Norovirus
Oct	W	Hospital	3	3	-	P-P	Clostridium difficile
Oct	SE	Comm. Hosp/Long-stay unit	10	-	23/10/2014	P-P	Norovirus
Oct	E	Restaurant / Cafe	8	0	22/10/2014	FB	AIG
Oct	E	Nursing home	10	0	26/10/2014	P-P	AIG
Oct	E	Nursing home	19	0	17/10/2014	P-P	Norovirus
Oct	MW	Nursing home	9	-	-	P-P	Norovirus
Oct	E	Nursing home	3	1	09/09/2014	P-P	Clostridium difficile
Oct	E	Nursing home	15	0	12/10/2014	P-P	Norovirus
Oct	M	Nursing home	57	2	24/10/2014	Unknown	Norovirus
Oct	E	Hospital	11	-	25/10/2014	P-P	Norovirus
Nov	S	Nursing home	10	0	03/11/2014	P-P	AIG
Nov	E	Nursing home	17	0	03/11/2014	P-P	Norovirus
Nov	M	Nursing home	5	-	-	Unknown	Norovirus
Nov	E	Hospital	7	-	28/10/2014	P-P	Norovirus
Nov	M	Nursing home	15	-	01/11/2014	Unknown	Norovirus
Nov	E	Hospital	5	-	05/11/2014	P-P & AB	AIG
Nov	E	Restaurant / Cafe	4	0	09/11/2014	FB	AIG
Nov	MW	Comm. Hosp/Long-stay unit	8	-	-	P-P	Norovirus
Nov	W	Comm. Hosp/Long-stay unit	4	-	11/11/2014	P-P	AIG
Nov	S	Childcare facility	6	-	30/09/2014	Not Specified	VTEC
Nov	S	Childcare facility	4	-	14/10/2014	P-P	VTEC
Nov	E	Nursing home	11	0	15/11/2014	P-P	AIG
Nov	M	Hospital	2	-	17/11/2014	P-P & AB	Norovirus
Nov	NW	Residential institution	5	0	15/11/2014	P-P	AIG
Nov	SE	Hotel	15	0	09/11/2014	P-P	Norovirus
Nov	E	Childcare facility	6	0	12/11/2014	P-P	AIG
Nov	NW	Unknown	3	-	25/10/2014	Unknown	Salmonellosis
Nov	S	Other	2	-	24/10/2014	WB	VTEC
Nov	NE	Nursing home	2	-	17/11/2014	P-P & AB	AIG
Nov	E	Nursing home	19	0	16/11/2014	P-P	Sapovirus
Dec	W	Childcare facility	13	0	13/11/2014	P-P	VTEC
Dec	E	Nursing home	8	0	23/11/2014	P-P	AIG

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Dec	S	Comm. Hosp/Long-stay unit	6	0	02/12/2014	Unknown	AIG
Dec	S	Hospital	5	5	03/12/2014	Unknown	Norovirus
Dec	SE	Hospital	30	-	29/11/2014	P-P	Norovirus
Dec	SE	Hospital	4	0	02/12/2014	P-P	AIG
Dec	E	Hospital	32	-	03/12/2014	P-P	Norovirus
Dec	NW	Hospital	6	-	27/11/2014	P-P	Norovirus
Dec	M	Comm. Hosp/Long-stay unit	18	0	12/12/2014	P-P & AB	Norovirus
Dec	M	Nursing home	5	0	08/11/2014	Unknown	Norovirus
Dec	M	Hospital	2	-	-	P-P & AB	Norovirus
Dec	SE	Comm. Hosp/Long-stay unit	21	-	29/12/2014	P-P & AB	AIG

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, 2014

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	W	Private house	2	-	-	P-P	Shigellosis
Oct	W	Travel related	2	0	12/09/2014	P-P	Giardiasis
Oct	W	Private house	1	0	19/09/2014	P-P	VTEC
Oct	E	Private house	3	0	08/10/2014	Unknown	VTEC
Oct	S	Private house	2	-	06/09/2014	P-P	VTEC
Oct	W	Private house	2	0	01/10/2014	Unknown	Cryptosporidiosis
Oct	W	Private house	1	0	27/09/2014	Unknown	VTEC
Oct	W	Private house	2	0	30/09/2014	P-P	VTEC
Oct	SE	Private house	2	1	29/09/2014	Unknown	VTEC
Oct	S	Private house	2	-	21/08/2014	P-P	VTEC
Oct	MW	Private house	-	-	01/09/2014	P-P	VTEC
Oct	M	Private house	1	0	12/10/2014	Unknown	VTEC
Oct	M	Private house	3	-	-	Unknown	Campylobacter
Oct	M	Private house	1	1	28/10/2014	Unknown	VTEC
Nov	MW	Private house	2	-	07/09/2014	P-P	Salmonellosis
Nov	W	Private house	4	0	26/10/2014	P-P	Shigellosis
Nov	M	Private house	2	0	02/11/2014	Animal contact	Cryptosporidiosis
Nov	S	Private house	2	-	12/10/2014	P-P	VTEC
Nov	S	Private house	2	-	26/09/2014	P-P	VTEC
Nov	M	Private house	1	0	09/10/2014	WB	VTEC
Nov	M	Private house	1	0	03/11/2014	WB	VTEC
Nov	S	Private house	3	-	30/08/2014	P-P	VTEC
Nov	SE	Private house	1	1	01/11/2014	P-P & WB	VTEC
Dec	S	Private house	3	1	09/11/2014	P-P	VTEC
Dec	SE	Private house	2	1	11/11/2014	P-P	VTEC
Dec	E	Private house	-	-	17/11/2014	Unknown	Shigellosis
Dec	W	Private house	2	-	-	P-P	Campylobacter
Dec	NE	Private house	1	-	18/11/2014	P-P	VTEC
Dec	M	Private house	3	0	05/12/2014	Unknown	VTEC
Dec	NE	Private house	1	1	29/11/2014	P-P	VTEC

Dec	SE	Private house	2	1	25/01/2014	Unknown	VTEC
Dec	M	Private house	-	-	26/12/2014	Unknown	VTEC
Dec	W	Private house	-	-	22/12/2014	P-P	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-ILD Outbreaks in Quarter 4, 2014

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Oct	W	General	Nursing home	6	1	-	P-P	Acute respiratory infection
Oct	SE	General	Childcare facility	14	-	26/09/2014	P-P	Suspected Hand Foot & Mouth Disease
Oct	S	Family	Extended family	3	-	01/04/2014	P-P & AB	Tuberculosis
Oct	E	General	University/College	9	0	05/10/2014	Unknown	Mumps
Oct	E	General	University/College	2	0	22/10/2014	Unknown	Possible Mumps
Oct	E	General	University/College	4	0	03/10/2014	Unknown	Mumps
Nov	E	General	Comm. Hosp/Long-stay unit	9	1	28/09/2014	P-P	Acute respiratory infection
Nov	NW	General	University/College	15	0	19/09/2014	P-P	Mumps
Nov	S	General	University/College	15	-	01/10/2014	P-P & AB	Mumps
Nov	S	General	University/College	5	-	01/10/2014	P-P & AB	Mumps
Nov	NE	Family	Private house	2	-	01/07/2014	P-P & AB	Tuberculosis
Dec	W	General	Private house	3	1	10/11/2014	P-P	Mumps
Dec	E	General	School	5	0	04/12/2014	P-P	Suspected impetigo
Dec	E	Family	Private house	3	-	26/06/2014	P-P & AB	Tuberculosis
Dec	E	General	University/College	7	-	23/10/2014	P-P	Mumps
Dec	W	General	Comm. Hosp/Long-stay unit	14	0	05/12/2014	P-P	Acute respiratory infection
Dec	SE	General	University/College	27	-	29/11/2014	P-P	Mumps
Dec	NE	General	Nursing home	32	-	12/12/2014	P-P & AB	Influenza
Dec	NE	General	Nursing home	8	-	-	P-P	<i>E. coli</i> ESBL
Dec	E	General	Community outbreak	35	1	29/04/2014	P-P	Lymphogranuloma venereum
Dec	S	General	Community outbreak	-	-	01/08/2014	AB	Tuberculosis

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 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 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 2014. There were 55 general and 33 family IID outbreaks reported during this period, resulting in at least 608 people being ill.

Norovirus (n=25) and acute infectious gastroenteritis (n=20) and were responsible for the majority of general outbreaks of IID (82%).

The most common causes of family outbreaks of IID was VTEC (n=24) [73%]. The other diseases responsible for family outbreaks were campylobacter, cryptosporidiosis, giardiasis, shigellosis and salmonellosis (Table 2).

Forty general IID outbreaks were transmitted person-to-person/person-to-person and airborne (73%). Forty-one general outbreaks (74%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

There were twenty-one non-IID outbreaks reported during quarter 4 of 2014 - see table 3.

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q4 2014.

Table 4. Number of Infectious Disease Outbreaks by HSE Area, Q4 2014

HSE Area	No. of outbreaks	Rate per 100,000 population
E	28	1.7
M	16	5.7
MW	4	1.1
NE	6	1.4
NW	5	2.0
SE	14	3.0
S	19	3.0
W	17	4.0
Total	109	2.4

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 2014 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 4, 2014 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	166	46	46	49	29	77	79	62	554
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	6	4	1	4	1	2	8	6	32
Giardiasis	8	2	1	0	0	0	3	3	17
Listeriosis	0	0	0	0	0	0	1	1	2
Noroviral infection	175	29	28	26	8	9	14	20	309
Paratyphoid	0	0	0	0	0	0	0	0	0
Rotavirus infection ^a	52	27	16	18	52	90	36	32	323
Salmonellosis	12	2	5	8	9	6	8	6	56
Shigellosis	13	1	3	0	0	0	1	5	23
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	1	0	0	0	0	0	0	0	1
Verotoxigenic <i>Escherichia coli</i> infection ^b	24	18	24	10	3	30	47	45	201
Yersiniosis	0	0	0	0	0	0	0	0	0
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	2	0	1	3	1	0	1	0	8
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	0	0	1	0	0	1	0	0	2
Trichinosis	0	0	0	0	0	0	0	0	0
Vectorborne Disease									
Chikungunya disease ^c	1	0	0	0	0	0	0	0	1
Dengue ^c	1	0	0	0	0	2	0	0	3
Lyme disease (neuroborreliosis) ^c	0	0	1	0	0	1	0	0	2
Malaria	6	0	0	5	1	1	3	3	19
Typhus	0	0	0	0	0	0	0	0	0
West Nile fever ^c	0	0	0	0	0	0	0	0	0

^aNotifiable under the category Acute Infectious Gastroenteritis 2004-2011

^bNotifiable under the category Enterohaemorrhagic *E. coli* 2004-2011

^cAdded to the list of notifiable diseases in 2012 under Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011)

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 2014. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q4 2014

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	2	0	1	4	4	2	4	3	20
Nov	7	0	3	1	3	2	3	1	20
Dec	3	2	1	3	2	2	1	2	16
Total	12	2	5	8	9	6	8	6	56

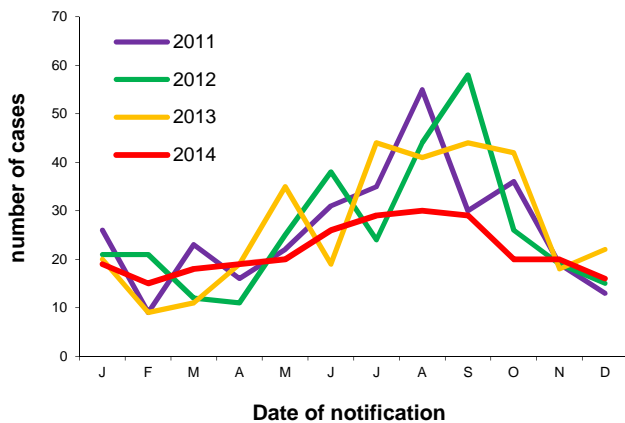


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2011 to end quarter 4 2014

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSSLRL in the fourth quarter of 2014 by HSE area (n=51). The commonest human serotypes isolated were *S. Typhimurium** (n=22, 43%) and *S. Enteritidis* (n= 11, 22%).

Table 8 shows the serotype distribution of confirmed *Salmonella* notifications by travel status this quarter among salmonellosis notifications on CIDR. 36% (n=20) were travel-associated, 38% (n=21) were indigenous and for 15 cases, the country of infection was unknown/not specified.

Outbreaks of Salmonellosis

There was one general and one family outbreak of salmonellosis notified in Q4 2014 (Tables 1 & 2).

Table 7. Serotypes of *S. enterica* Referred to NSSLRL in Quarter 4, 2014 (Data are provided courtesy of Prof. Martin Cormican, Dr. Niall de Lappe and Ms. Jean O'Connor, NSSLRL).

Serotype	E	M	MW	NE	NW	SE	S	W	Total
4,[5],12:i:-	0	0	0	2	3	1	2	1	9
Agama	0	0	1	0	0	0	0	0	1
Bredeney	0	0	0	0	1	1	0	0	2
Enteritidis	3	1	1	1	1	1	3	0	11
Ibadan	0	0	0	1	0	0	0	0	1
Infantis	1	0	0	0	0	0	0	0	1
Kentucky	1	0	0	0	0	0	0	0	1
Kisangani	1	0	0	0	0	0	0	0	1
London	0	0	0	0	0	0	0	1	1
Mississippi	0	0	0	0	0	0	1	0	1
Newport	0	0	0	0	0	0	1	0	1
Okatie	1	0	0	0	0	0	0	0	1
Orion	1	0	0	0	0	0	0	0	1
Pomona	1	0	0	0	0	0	0	0	1
Senftenberg	0	0	0	0	0	0	0	1	1
Stanley	0	1	0	0	0	0	0	0	1
Typhi	1	0	0	0	0	0	0	0	1
Typhimurium	4	0	3	2	2	0	0	2	13
Unnamed	0	0	0	0	0	1	0	0	1
Virchow	0	0	0	0	0	0	1	0	1
Total	14	2	5	6	7	4	8	5	51

Table 8. Confirmed Salmonella notifications by Serotype and Travel Status, Q4 2014 [n(%)]

Serotype	Indigenous	Travel-associated	Unk/not specified	Total
S. Enteritidis	1 (5%)	8 (40%)	2 (13%)	11 (20%)
S. Typhimurium	13 (62%)	4 (20%)	5 (34%)	22 (39%)
Other	7 (33%)	6 (30%)	6 (40%)	19 (34%)
Salmonella spp	0 (0%)	2 (10%)	2 (13%)	4 (7%)
Total	21 (100%)	20 (100%)	15 (100%)	56 (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 2014. There was one case of typhoid notified this quarter, however the county of infection is unknown (Table 5).

* includes 9 cases of monophasic *S. Typhimurium* 4,5,12:i:-

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.

Two hundred and one cases of VTEC were notified this quarter, the regional distribution of which is shown in Table 9. This compares with 169 VTEC cases notified in Q4 2013 and 86 in Q4 2012 (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 2014.

Table 9. Number VTEC notified by case classification and HSE-area, Q4 2014

Case classification	E	M	MW	NE	NW	SE	S	W	Total
Conf	24	17	14	9	3	27	40	31	165
Prob	0	1	9	1	0	3	7	14	35
Poss	0	0	1	0	0	0	0	0	1
Total	24	18	24	10	3	30	47	45	201

Table 10. VTEC notified by serogroup and month, Q4 2014

Month	O157	O26	Other	Total
Oct	30	20	23	73
Nov	20	11	25	56
Dec	32	15	25	72
Total	82	46	73	201

Six VTEC cases notified this quarter was reported as having developed HUS. Three were infected with *E. coli* O157, one with *E. coli* O26 and two were clinical HUS w/o laboratory or epidemiological criteria.

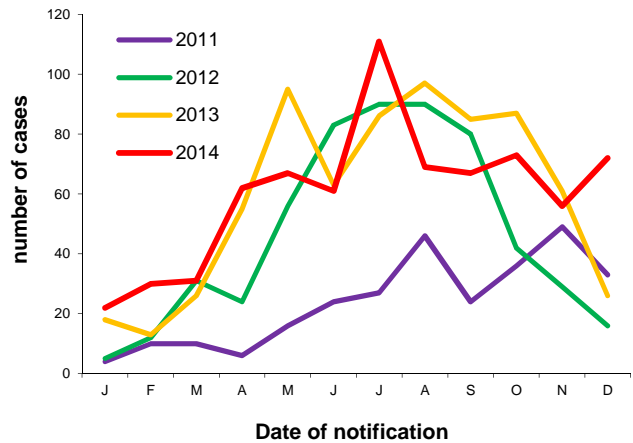


Figure 2. Seasonal distribution of VTEC cases notified 2011 to end quarter 4 2014

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 2014.

Table 11. Verotoxin typing profiles of *E. coli* referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q4 2014 (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	<i>vt1</i>	<i>vt2</i>	<i>vt1+vt2</i>	Not spec.	Total
O157	0	63	9	10	82
O26	16	0	30	0	46
Other	25	28	11	9	73
Total	41	91	50	19	201

Outbreaks of VTEC infection

During this quarter, there were four general and twenty-four family outbreaks of VTEC infection reported (see Table 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 2014 are shown in Table 12. There were 554 notifications this quarter, compared to 539 in the same period last year and 460 in Q4 2012 (Figure 3).

Table 12. *Campylobacter* notifications by HSE-Area and month, Q4 2014

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	66	22	14	18	5	31	33	19	208
Nov	49	16	17	18	10	29	21	18	178
Dec	51	8	15	13	14	17	25	25	168
Total	166	46	46	49	29	77	79	62	554

Outbreaks of *Campylobacter* infection

There were two family outbreaks of campylobacteriosis reported in Q4 2014 (Tables 1 and 2).

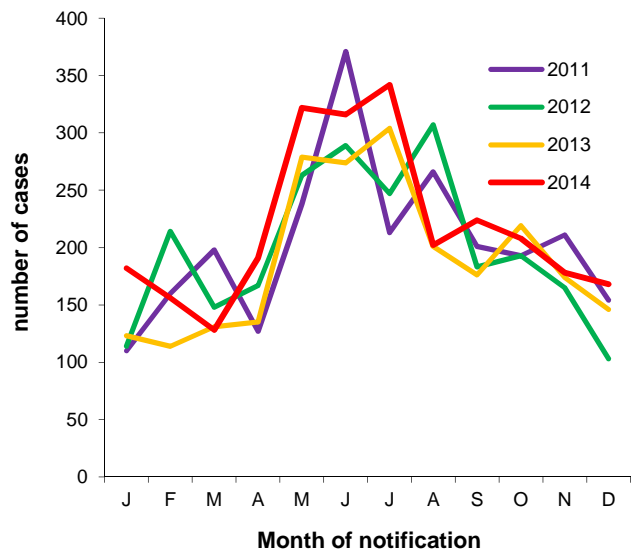


Figure 3. Seasonal distribution of *Campylobacter* notifications 2011 to end quarter 4 2014

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 2014, 32 cases of cryptosporidiosis were notified (Table 13), compared to 69 in the same period in 2013 and 81 in Q4 2012 (Figure 4).

Table 13. *Cryptosporidiosis* notifications by HSE-Area and month, Q4 2014

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	1	1	0	1	0	0	6	4	13
Nov	5	2	1	1	0	2	1	2	14
Dec	0	1	0	2	1	0	1	0	5
Total	6	4	1	4	1	2	8	6	32

Outbreaks of cryptosporidiosis

There was one general and two family outbreaks of cryptosporidiosis reported in quarter 4 2014 (Tables 1 and 2).

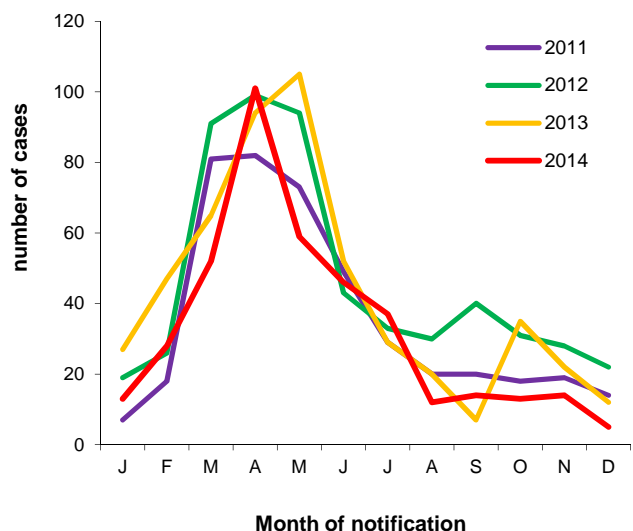


Figure 4. Seasonal distribution of *Cryptosporidium* notifications 2011 to end quarter 4 2014

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 173 cases notified in the third quarter of 2014 (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 2014

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	61	4	13	7	6	6	1	7	105
Nov	58	19	14	5	1	2	5	5	109
Dec	56	6	1	14	1	1	8	8	95
Total	175	29	28	26	8	9	14	20	309

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the fourth quarter of 2014, there were 25 outbreaks confirmed as being caused by this virus, involving at least 336 people

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

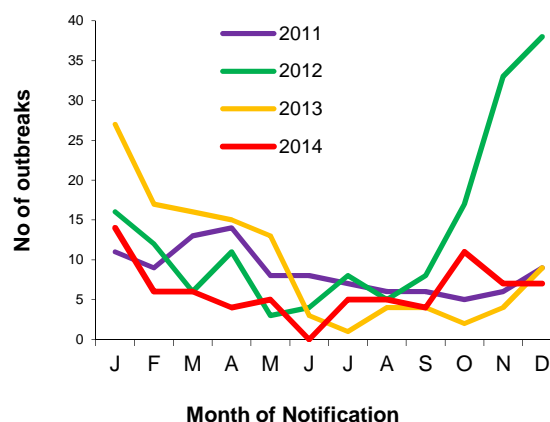


Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2011 to end quarter 4 2014

SHIGELLA

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

During Q4 2014, twenty-three cases of shigellosis were notified (table 5). This compares with fourteen cases notified in Q4 2013 and twelve in Q4 2012.

Eight cases were travel related, Ireland was reported as country of infection for two cases and country of infection was reported as unknown/not specified for the remaining thirteen cases.

Outbreaks of shigellosis

There were three family outbreak of shigellosis notified in Q4 2014 (table 2).

Table 15: Species and serotype distribution of Q4 2014 human *Shigella* isolates (Shigella typing services are provided courtesy of Prof. Martin Cormican, Dr. Niall de Lappe and Ms. Jean O'Connor at the National Salmonella Shigella and Listeria Reference Laboratory).

Serotype	Number of isolates
<i>Shigella flexneri</i> 2a	3
<i>Shigella flexneri</i> 3a	1
<i>Shigella flexneri</i> X variant	3
<i>Shigella sonnei</i>	8
Total	15

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 2014, seventeen cases of giardiasis were notified (table 5); this compares with 12 cases notified in Q4 2013 and 16 in Q4 2012.

Four cases were reported to have acquired their illness abroad. Country of infection was reported as Ireland for three cases and 'not specified' or 'unknown' for the remaining ten cases.

Outbreaks of giardiasis

There was one family outbreak of giardiasis notified in Q4 2014, related to foreign travel (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 two adult cases of listeriosis notified in Q4 2014, compared to two cases in quarter 4 2013 and three in quarter 4 2012. No isolates were referred for typing to NSSLRL this quarter (Table 16).

Table 16: Serotypes of Q4 2014 human *Listeria* isolates referred to the NSSLRL (Typing services are provided by Prof. Martin Cormican, Dr. Niall de Lappe and Ms. Jean O’Connor at the National Salmonella Shigella and *Listeria* Reference Laboratory).

Serotype	Number of isolates
n/a	n/a

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 2014 are shown in Table 17.

Table 17. Rotavirus infection by HSE-Area and month, Q4 2014

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	14	6	5	0	3	24	8	8	68
Nov	10	1	4	3	21	25	13	8	85
Dec	28	20	7	15	28	41	15	16	170
Total	52	27	16	18	52	90	36	32	323

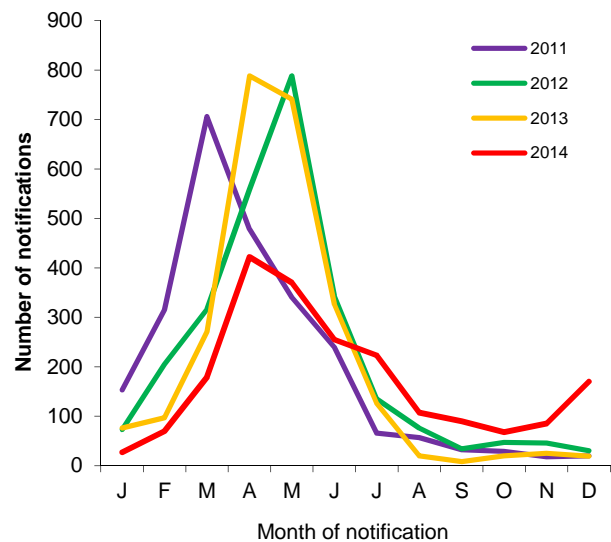


Figure 6. Seasonal distribution of rotavirus notifications, 2011 to end quarter 4 2014

Outbreaks of rotavirus

There were no outbreaks of rotavirus notified this quarter (Table 1).

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 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 2014 notifications of these zoonotic diseases are reported by HSE-Area in Table 5.

Two cases of toxoplasmosis were notified in this quarter. This compares with eight cases notified in the same period in 2013 and eighteen cases in Q4 2012.

There were eight cases of leptospirosis notified in Q4 2014; this compares with seven in Q4 2013 and five in Q4 2012. Three cases in Q4 2014 were reported to have acquired their illness through occupational exposure, while a further two cases are reported to have been exposed during leisure activity. The source of exposure for the remaining three cases is unknown.

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

MALARIA

Malaria is a notifiable disease for many years. The Q4 2014 notifications are reported in table 5 by HSE-Area.

Nineteen cases of malaria were notified in Q4 2014. This compares with nineteen cases reported in Q4 2013 and fourteen in Q4 2012.

Fourteen cases were reported as *P. falciparum* and one as *P. vivax*. The organism was not specified for the remaining four cases.

Eight cases were exposed in Africa and two in the Indian subcontinent. The country of infection is unknown/not specified for the remaining nine cases.

The reason for travel for five cases was reported as 'visiting family in country of origin', two cases reported business/professional travel, two cases were in Irish citizens living abroad and one case was a new entrant to Ireland. The reason for travel was not specified/unknown for the remaining nine 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 2014 notifications are reported in Table 5 by HSE-Area.

There were two cases of Lyme disease (neuroborreliosis) and three cases of Dengue fever

reported in Q4 2014. There was one case of Chikungunya disease reported this quarter, associated with travel to South America.

There were no notifications of West Nile fever this quarter.

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