

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 2–2016

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This is the second quarterly report for 2016 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 Q2, 2016

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Apr	M	Hospital	5	0		Unknown	Norovirus
Apr	NE	Residential institution	4	1		P-P & AB	AIG
Apr	NE	Nursing home	40	0	02/04/2016	P-P & AB	Norovirus
Apr	S	Nursing home	14	0	24/03/2016	P-P	AIG
Apr	NE	Nursing home	4			P-P	Norovirus
Apr	SE	Comm. Hosp/Long-stay unit	3		01/04/2016	P-P	AIG
Apr	NW	Hospital	50		30/03/2016	Not Specified	Norovirus
Apr	S	Nursing home	18	1	28/03/2016	P-P	Norovirus
Apr	S	Restaurant / Cafe	20	0	28/03/2016	P-P & FB	AIG
Apr	NE	Hospital	6	6		P-P	AIG
Apr	E	Hospital	11		01/04/2016	P-P & AB	Norovirus
Apr	SE	Residential institution	4		02/04/2016	P-P	AIG
Apr	NW	Comm. Hosp/Long-stay unit	6		10/04/2016	P-P	Norovirus
Apr	S	Nursing home	14	0	09/04/2016	P-P	Norovirus
Apr	S	Comm. Hosp/Long-stay unit	22	1	07/04/2016	P-P	Norovirus
Apr	SE	Nursing home	28	0	12/04/2016	P-P & AB	Norovirus
Apr	MW	Hospital	5		11/04/2016	P-P	Norovirus
Apr	S	Nursing home	11	0	11/04/2016	P-P	Norovirus
Apr	NW	Comm. Hosp/Long-stay unit			08/04/2016	P-P	AIG
Apr	NW	Residential institution	4		06/04/2016	P-P	AIG
Apr	W	Residential institution	4	0		P-P	Clostridium difficile
Apr	S	Nursing home	30	0	16/04/2016	P-P	Norovirus
Apr	M	Hospital	10			Unknown	Norovirus
Apr	NW	Residential institution	3		18/04/2016	P-P	AIG
Apr	MW	Comm. Hosp/Long-stay unit	10	0	14/04/2016	P-P	Norovirus
Apr	S	Hospital	16		09/04/2016	P-P	Norovirus
Apr	MW	Childcare facility	2	0	01/03/2016	P-P	VTEC
Apr	NW	Nursing home	6		19/04/2016	P-P	Rotavirus
Apr	MW	Comm. Hosp/Long-stay unit	8			P-P	Norovirus
Apr	SE	Comm. Hosp/Long-stay unit	5		11/04/2016	P-P	AIG
Apr	SE	Comm. Hosp/Long-stay unit	13		13/04/2016	P-P	AIG
Apr	NW	Comm. Hosp/Long-stay unit	10		23/04/2016	P-P	Norovirus
Apr	S	Hospital				P-P	Norovirus
Apr	S	Nursing home	13	0	21/04/2016	P-P	Norovirus
Apr	S	Residential institution	9	0	26/04/2016	Unknown	Norovirus
Apr	W	Hospital	39			P-P	Norovirus
Apr	W	Childcare facility	10	0	20/04/2016	P-P	Norovirus
Apr	MW	Nursing home	11	0	24/04/2016	AB	Norovirus
Apr	W	Nursing home	13	0	20/04/2016	P-P	AIG
May	NE	Childcare facility	11		17/04/2016	P-P	Rotavirus
May	S	Comm. Hosp/Long-stay unit	18	0	28/04/2016	P-P	AIG
May	E	Restaurant / Cafe	18	0	01/05/2016	P-P	Norovirus
May	NE	Nursing home	3		06/05/2016	P-P	Norovirus
May	W	Other	8	0	02/05/2016	P-P	AIG
May	E	Nursing home	41	0	11/05/2016	P-P & AB	Norovirus

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
May	M	Nursing home	7	0	27/04/2016	Unknown	Norovirus
May	W	Other	10		13/05/2016	P-P	AIG
May	W	Hospital	4	4		P-P	Norovirus
May	E	Hospital	12	11	11/05/2016	Unknown	Norovirus
May	E	Residential institution	43	0	27/04/2016	Unknown	Norovirus
May	E	Residential institution	51	0	28/04/2016	Unknown	Norovirus
May	E	Community outbreak			22/03/2016	Unknown	Norovirus
May	S	Nursing home	54	0	11/05/2016	P-P & AB	Norovirus
May	W	Childcare facility	2		06/05/2016	P-P	VTEC
May	E	Public house	22	0	14/05/2016	Unknown	Norovirus
May	S	Nursing home	18	0	13/05/2016	P-P	Norovirus
May	SE	Residential institution	7		24/05/2016	P-P	Norovirus
May	S	Coach tour	20		22/05/2016	P-P	AIG
May	S	Nursing home	13	0	25/05/2016	P-P	AIG
Jun	E	School	170	0	24/05/2016	P-P	AIG
Jun	S	Childcare facility	8	1	27/05/2016	P-P	Rotavirus
Jun	W	Hospital	4	4		P-P	AIG
Jun	W	Not Specified	4	0	06/06/2016	P-P	AIG
Jun	SE	Nursing home	28		11/06/2016	P-P	AIG
Jun	MW	Hospital	4		16/06/2016	AB	Norovirus
Jun	E	Hospital	12		27/04/2016	P-P & AB	Norovirus
Jun	W	Nursing home	5	1		P-P	AIG
Jun	E	Comm. Hosp/Long-stay unit	9	0	24/06/2016	P-P	Norovirus
Jun	S	Nursing home	17	0	27/06/2016	P-P	Norovirus
Jun	S	Nursing home	13	0	23/06/2016	P-P	AIG
Jun	S	Restaurant / Cafe	10	5	04/06/2016	FB	VTEC
Jun	NW	Residential institution	2	0	30/06/2016	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 Q2, 2016

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Apr	SE	Private house	1	1	30/03/2016	Unknown	VTEC
Apr	M	Private house	1		01/04/2016	Animal contact	VTEC
Apr	MW	Private house	2	0	26/02/2016	P-P	Salmonellosis
Apr	M	Private house	2		06/04/2016	WB	VTEC
Apr	NW	Private house	2		27/03/2016	Not Specified	Cryptosporidiosis
Apr	SE	Private house	1		11/03/2016	P-P	VTEC
Apr	M	Private house	2		10/04/2016	Unknown	VTEC
Apr	NE	Extended family	5	1	07/04/2016	Unknown	VTEC
Apr	W	Private house	2	0	04/04/2016	P-P	VTEC
Apr	M	Private house			28/03/2016	Unknown	VTEC
Apr	S	Private house	2	0	18/03/2016	P-P	VTEC
Apr	NW	Private house	2		15/04/2016	Not Specified	Cryptosporidiosis

Apr	W	Private house	2	0	09/04/2016	P-P	VTEC
Apr	MW	Childcare facility	4	1	18/04/2016	P-P	VTEC
Apr	NW	Private house	4	1	14/04/2016	Animal contact	VTEC
May	M	Private house	2	1	15/04/2016	Animal contact	Cryptosporidiosis
May	NW	Extended family	5		20/04/2016	Not Specified	Cryptosporidiosis
May	SE	Private house			18/04/2016	P-P	Cryptosporidiosis
May	NW	Private house	2		28/04/2016	Not Specified	AIG (mixed infection)
May	E	Private house	5	0	07/04/2016	Unknown	Giardiasis
May	W	Private house	2	0	29/04/2016	P-P & Animal	Cryptosporidiosis
May	W	Private house	6	1	09/05/2016	FB	Salmonellosis
May	W	Private house	2	0	13/05/2016	P-P & FB	Campylobacter
May	SE	Private house	2	0	30/04/2016	P-P	VTEC
May	MW	Private house			12/05/2016	P-P	VTEC
Jun	E	Pet farm / petting zoo	2	2		Unknown	VTEC
Jun	W	Private house	4	0	04/05/2016	P-P & Animal	Cryptosporidiosis
Jun	NW	Private house	2	2	21/05/2016	Not Specified	Cryptosporidiosis
Jun	W	Private house	2	1	23/05/2016	FB	VTEC
Jun	SE	Private house				Unknown	VTEC
Jun	M	Private house	1	0	19/05/2016	Animal contact	VTEC
Jun	M	Private house	5	0	10/06/2016	WB	VTEC
Jun	M	Private house	1	0	10/05/2016	Unknown	VTEC
Jun	M	Private house	1		15/06/2016	Unknown	VTEC
Jun	M	Private house	3	0	12/06/2016	Unknown	VTEC
Jun	NW	Private house	2		30/05/2016	Unknown	VTEC
Jun	SE	Not Specified			02/06/2016	Not Specified	Cryptosporidiosis
Jun	SE	Private house	4	0	12/06/2016	P-P	VTEC
Jun	M	Private house	1	1	19/06/2016	Unknown	VTEC
Jun	M	Private house	1			Unknown	VTEC
Jun	E	Private house	4	0		Unknown	Giardiasis
Jun	S	Private house	2	1	07/05/2016	P-P	VTEC
Jun	S	Private house	1	0	06/05/2016	P-P	VTEC
Jun	S	Private house	2	0	15/04/2016	Not Specified	Giardiasis
Jun	MW	Private house	1		17/05/2016	P-P	VTEC
Jun	M	Private house	1		25/06/2016	Unknown	VTEC
Jun	M	Not Specified				Unknown	VTEC
Jun	M	Private house	1	0		Unknown	VTEC
Jun	SE	Private house	1	0	28/05/2016	Unknown	VTEC
Jun	M	Private house	1		20/06/2016	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 Q2, 2016

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Apr	S	General	Nursing home	20	2	17/03/2016	P-P & AB	Influenza
Apr	MW	General	Hospital	5	5	30/03/2016	AB	Influenza
Apr	NW	General	Other			03/03/2016	P-P	Mumps
Apr	SE	Family	Private house	2		23/02/2016	P-P	Mumps
Apr	W	General	Comm. Hosp/Long-stay unit	12	4	06/04/2016	P-P	Influenza
Apr	MW	General	Comm. Hosp/Long-stay unit	3		13/04/2016	P-P & AB	Influenza
Apr	S	Family	Extended family	4	3	01/12/2015	P-P & AB	Tuberculosis
Apr	NW	General	Comm. Hosp/Long-stay unit	4		18/04/2016	P-P	Acute respiratory infection
May	SE	General	Comm. Hosp/Long-stay unit	3		01/05/2016	P-P & AB	Suspected ILI
May	W	Family	Private house	2	0	20/02/2016	P-P	Hepatitis A
May	E	General	Nursing home	12	0	28/04/2016	Unknown	Influenza
May	E	General	Hospital	6	4	26/01/2016	Unknown	Influenza
May	E	General	Hospital	14	14	10/02/2016	Unknown	Influenza
May	E	Family	Private house			10/04/2016	Unknown	Hepatitis A
Jun	E	General	Nursing home	12	0	20/05/2016	P-P & AB	Parainfluenza
Jun	NW	Family	Private house	5	0	30/04/2016	P-P	Mumps
Jun	HPSC	General	Community outbreak	32		18/04/2016	P-P & AB	Measles
Jun	MW	General	Hospital	2			Environmental / Fomite	MRSA
Jun	E	General	Childcare facility	5	0	30/05/2016	P-P & AB	Chickenpox
Jun	MW	Family	Private house	2	0	31/05/2016	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 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 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 second quarter of 2016. There were 72 general and 50 family IID outbreaks reported during this period, resulting in at least 1,230 people being ill.

Norovirus (n=41) was responsible for the most general outbreaks of IID (57%), followed by acute infectious gastroenteritis (n=24).

The most common cause of family outbreaks of IID was VTEC (n=34) [68%]. The other diseases responsible for family outbreaks were acute infectious gastroenteritis, campylobacteriosis, cryptosporidiosis, giardiasis and salmonellosis. (Table 2).

Fifty-eight general IID outbreaks were transmitted person-to-person/person-to-person & airborne (80%). Fifty-seven general IID outbreaks (80%)

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

There were twenty non-IID outbreaks reported during Q2 2016 (Table 3). The most common cause of non IID outbreaks was during this period was Influenza (n=7) [35%], all of which were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions.

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q2 2016.

Table 4. Number of Infectious Disease Outbreaks by HSE Area, Q2 2016

HSE Area	No. of outbreaks	Rate per 100,000 population
E	20	1.2
M	19	7.0
MW	14	4.0
NE	7	1.6
NW	18	7.0
SE	17	3.4
S	26	4.0
W	20	4.5
Total	141	3.1

NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZONOTIC AND VECTORBORNE DISEASE

The number of notifications of infectious intestinal, zoonotic and vectorborne disease by HSE-Area for the second quarter of 2016 is shown in Table 5.

Table 5. Infectious intestinal, zoonotic and vectorborne disease notifications Q2, 2016 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	208	63	50	40	34	89	131	90	705
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	24	35	30	25	30	57	38	49	288
Giardiasis	18	0	1	3	2	13	10	11	58
Listeriosis	0	0	0	1	0	0	1	0	2
Noroviral infection	359	20	56	72	45	12	82	24	670
Paratyphoid	~	~	~	~	~	~	~	~	3
Rotavirus infection ^{a1}	462	132	101	112	39	179	203	147	1375
Salmonellosis	25	7	2	4	7	5	11	13	74
Shigellosis	9	0	1	1	1	1	2	3	18
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	~	~	~	~	~	~	~	~	1
Verotoxigenic <i>Escherichia coli</i> infection ^b	24	46	37	18	12	49	44	34	264
Yersiniosis	0	0	1	0	0	0	1	0	2
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	0	0	0	0	0	1	0	0	1
Plague	0	0	0	0	0	0	0	0	0
Q Fever	0	0	1	0	0	1	0	1	3
Rabies	0	0	0	0	0	0	0	0	0
Toxoplasmosis	0	0	0	0	0	0	2	0	2
Trichinosis	0	0	0	0	0	0	0	0	0
Vectorborne Disease									
Chikungunya disease	0	0	0	0	0	0	0	0	0
Dengue	3	1	0	0	0	0	1	1	6
Lyme disease (neuroborreliosis)	0	0	1	0	0	0	1	0	2
Malaria	12	0	0	2	0	1	2	2	19
Typhus	0	0	0	0	0	0	0	0	0
West Nile fever ^c	0	0	0	0	0	0	0	0	0
Zika Virus Infection	~	~	~	~	~	~	~	~	1

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 second quarter of 2016. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis notifications by HSE-Area and month, Q2 2016

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	8	1	1	1	3	1	4	1	20
May	9	2	1	1	3	2	2	7	27
Jun	8	4		2	1	2	5	5	27
Total	25	7	2	4	7	5	11	13	74

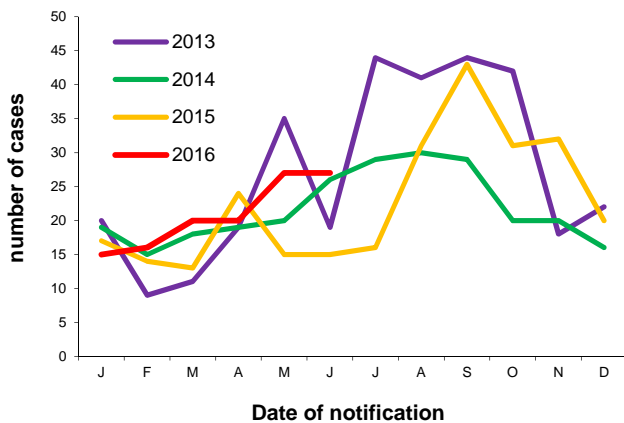


Figure 1. Seasonal distribution of human salmonellosis notifications, 2013 to end Q2 2016

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSSLRL in the second quarter of 2016 by HSE area (n=63). The commonest human serotypes reported were *S. Typhimurium*[†] (n=18, 28%) and *S. Enteritidis* (n=14, 22%).

Table 8 shows the serotype distribution of confirmed *Salmonella* notifications by travel status this quarter among salmonellosis notifications on CIDR. 25% (n=19) were travel-associated, 39% (n=29) were indigenous and for 26 cases, the country of infection was unknown/not specified.

Outbreaks of salmonellosis

There were two family outbreaks of salmonellosis notified in Q2 2016 (Tables 1 & 2).

[†]includes 13 cases of monophasic *S. Typhimurium* 4,5,12:i:-

Table 7. Serotypes of human *S. enterica* isolates referred to NSSLRL, Q2 2016

Serotype	E	M	MW	NE	NW	SE	S	W	Total
4,[5],12:i:-	5	3	1	0	1	0	2	1	13
Agona	1	0	0	0	0	0	0	0	1
Anatum	1	0	0	0	0	0	0	0	1
Braenderup	0	0	0	0	1	0	0	0	1
Brandenburg	0	0	0	1	0	0	0	0	1
Bredeney	0	0	0	0	0	1	0	0	1
Denver	1	0	0	0	0	0	0	0	1
Durham	0	0	0	0	0	0	1	0	1
Enteritidis	3	1	1	1	1	1	0	6	14
Hadar	0	0	0	1	0	1	1	1	4
Infantis	1	0	0	0	0	0	0	0	1
IV 44:z4,z23	0	1	0	0	0	0	0	0	1
Jerusalem	0	1	0	0	0	0	0	0	1
Kentucky	1	0	0	0	0	0	0	0	1
Manhattan	0	0	0	0	1	0	0	0	1
Mbandaka	1	0	0	0	0	0	0	0	1
Newport	1	0	0	0	0	0	0	0	1
Panama	1	0	0	0	0	0	0	1	2
Paratyphi A	~	~	~	~	~	~	~	~	2
Paratyphi B	~	~	~	~	~	~	~	~	1
Potsdam	0	0	0	0	0	0	1	0	1
Saintpaul	0	1	0	0	0	0	0	0	1
Stanley	1	0	0	0	0	0	1	0	2
Typhi	~	~	~	~	~	~	~	~	1
Typhimurium	1	0	0	0	3	0	0	1	5
Unnamed	1	0	0	0	0	0	1	0	2
Virchow	0	0	0	0	0	0	1	0	1
Total	20	8	3	3	7	3	8	11	63

Data Source: NSSLRL

Table 8. Confirmed *Salmonella* notifications by serotype and travel status, Q2 2016 [n(%)]

Serotype	Indigenous	Travel-associated	Unk/not specified	Total
<i>S. Enteritidis</i>	8 (27%)	6 (32%)	1 (5%)	15 (20%)
<i>S. Typhimurium</i> *	7 (25%)	3 (16%)	10 (38%)	20 (27%)
Other	12 (41%)	8 (42%)	11 (42%)	31 (42%)
<i>Salmonella</i> spp	2 (7%)	2 (10%)	4 (15%)	8 (11%)
Total	29 (100%)	19 (100%)	26 (100%)	74 (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:-

S. Typhi and *S. Paratyphi*

There was one case of typhoid reported to CIDR in Q2 2016 – associated with travel to Pakistan. There were three cases of paratyphoid notified this quarter, one each were associated with travel to Pakistan and India; the country of infection was reported as Ireland for the remaining case.

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

There were no outbreaks of typhoid or paratyphoid notified in Q2 2016.

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 sixty-four cases of VTEC were notified this quarter, the regional distribution of which is shown in Table 9. This compares with 249 VTEC cases notified in Q2 2015 and 190 in Q2 2014 (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, Q2 2016.

Table 9. Number VTEC notified by case classification and HSE-area, Q2 2016

Case classification	E	M	MW	NE	NW	SE	S	W	Total
Confirmed	24	40	29	18	12	47	41	32	243
Probable	0	6	8	0	0	2	3	2	21
Possible	0	0	0	0	0	0	0	0	0
Total	24	46	37	18	12	49	44	34	264

Table 10. VTEC notified by serogroup and month, Q2 2016

Month	O157	O26	Other	Total
Apr	11	44	36	91
May	9	24	32	65
Jun	20	47	41	108
Total	40	115	109	264

Nine VTEC cases notified this quarter were reported as having developed HUS – one O157, five O26 and three ungroupable isolates.

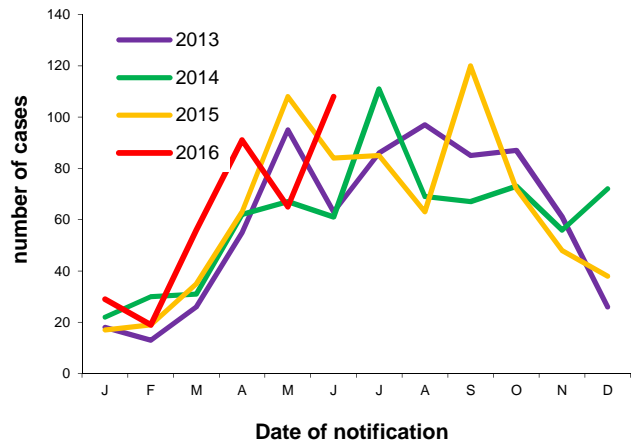


Figure 2. Seasonal distribution of VTEC cases notified 2013 to end Q2 2016

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 Q2 2016.

Table 11. Verotoxin typing profiles of *E. coli* referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q2 2016

Serogroup	vt1	vt2	vt1+vt2	Not spec.	Total
O157	0	29	12	0	41
O26	39	3	74	2	118
Other	39	33	25	6	103
Total	78	65	111	10	262

Data Source: PHL Cherry Orchard

Outbreaks of VTEC infection

During this quarter, three general and thirty-four 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 second quarter of 2016 are shown in Table 12. There were 705 cases of campylobacteriosis notified in Q2 2016 compared to 788 in the same period in 2015 and 829 in Q2 2014 (Figure 3).

Table 12. Campylobacter notifications by HSE-Area and month, Q2 2016

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	45	12	19	10	4	31	33	22	176
May	67	24	15	16	15	22	43	22	224
Jun	96	27	16	14	15	36	55	46	305
Total	208	63	50	40	34	89	131	90	705

Outbreaks of Campylobacter infection

There was one family outbreak of campylobacteriosis reported in Q2 2016 (Tables 1 and 2).

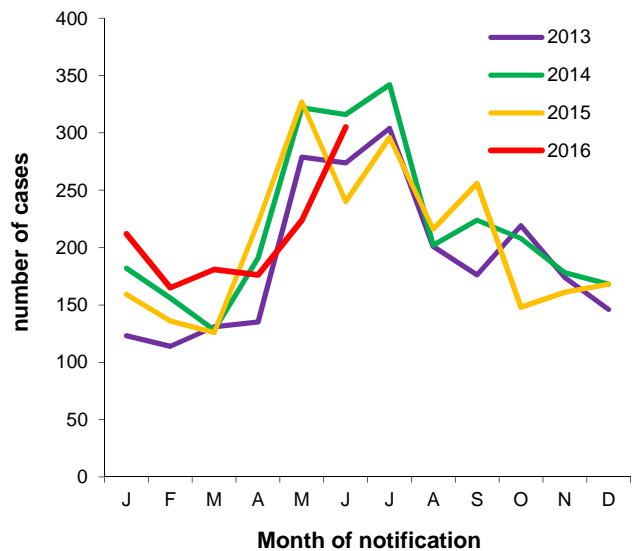


Figure 3. Seasonal distribution of Campylobacter notifications 2013 to end Q2 2016

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 Q2 2016, 288 cases of cryptosporidiosis were notified (Table 13), compared to 201 in the same period in 2015 and 206 in Q2 2014 (Figure 4).

Table 13. Cryptosporidiosis notifications by HSE-Area and month, Q2 2016

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	12	16	20	10	14	36	21	27	156
May	6	13	6	8	12	13	10	14	82
Jun	6	6	4	7	4	8	7	8	50
Total	24	35	30	25	30	57	38	49	288

Outbreaks of cryptosporidiosis

There were nine family outbreaks of cryptosporidiosis reported in quarter 2 2016. (Tables 1 and 2).

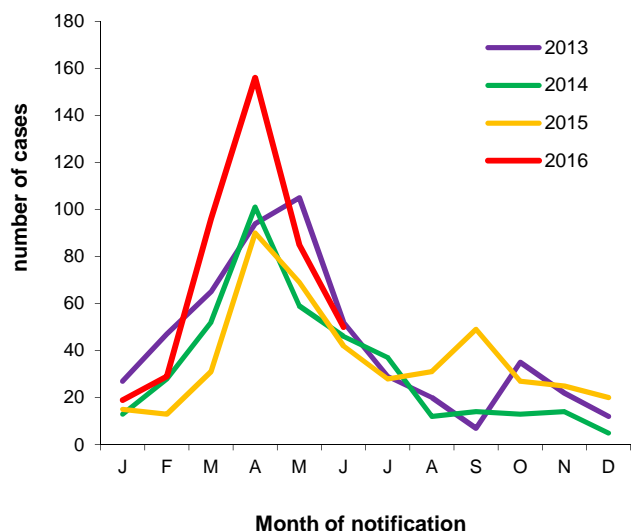


Figure 4. Seasonal distribution of cryptosporidiosis notifications 2013 to end Q2 2016

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. Since March 2013, norovirus 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 670 cases notified in the second quarter of 2016 (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, Q2 2016

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	142	14	29	41	40	6	39	5	316
May	137	5	15	26	5	2	31	16	237
Jun	80	1	12	5	0	4	12	3	117
Total	359	20	56	72	45	12	82	24	670

Norovirus outbreaks

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

gastroenteritis in Ireland. In the second quarter of 2016, there were forty-one outbreaks confirmed as being caused by this virus, involving at least 702 people becoming ill, as outlined in tables 1 & 2. The seasonal trend is outlined in figure 5.

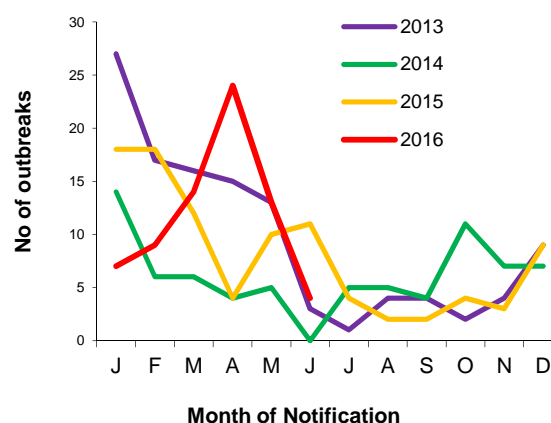


Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2013 to end Q2 2016

SHIGELLA

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

During Q2 2016, eighteen cases of shigellosis were notified (Table 5). This compares with twelve cases notified in Q2 2015 and eight in Q2 2014.

Seven cases were travel related and the country of infection was reported as Ireland for a further six cases. The country of infection was reported as unknown/not specified for the remaining five cases.

Table 15: Species and serotype distribution of Q2 2016 human *Shigella* isolates referred to the NSSLRL

Serotype	Number of isolates
<i>Shigella sonnei</i>	7
<i>Shigella flexneri</i> X variant	1
<i>Shigella flexneri</i> 2a	3
<i>Shigella flexneri</i> 1c	2
<i>Shigella dysenteriae</i>	1
<i>Shigella</i> species	4
Total	18

Data Source: NSSLRL

Outbreaks of shigellosis

There were no outbreaks of shigellosis notified in Q2 2016 (Table 2).

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 2, 2016, fifty-eight cases of giardiasis were notified (Table 5); this compares with 19 cases notified in Q2 2015 and 16 in Q2 2014.

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

Outbreaks of giardiasis

There were three family outbreaks of giardiasis notified in Q2 2016 (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 Q2 2016, compared to seven cases in quarter 2 2015 and four in quarter 2 2014.

Both isolates were referred for typing to NSSLRL (Table 16).

Table 16: Serotypes of Q2 2016 human *Listeria* isolates referred to the NSSLRL

Serotype	Number of isolates
1/2a	1
4b	1
Total	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 second quarter of 2016 are shown in Table 17 and Figure 6.

Table 17. Rotavirus infection by HSE-Area and month, Q2 2016

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	124	15	33	29	9	25	54	14	303
May	188	76	35	60	10	84	73	70	596
Jun	150	41	33	23	20	70	76	63	476
Total	462	132	101	112	39	179	203	147	1375

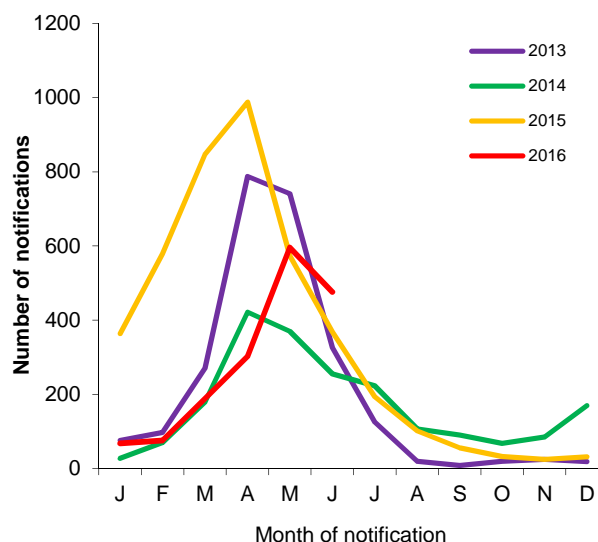


Figure 6. Seasonal distribution of rotavirus notifications, 2013 to end Q2 2016

Outbreaks of rotavirus

There were three general outbreaks of rotavirus notified this quarter (Table 2).

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.

NON-IID ZONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q fever, toxoplasmosis, trichinosis and rabies. The Q2 2016 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 seven cases notified in the same period in 2015 and seven cases in Q2 2014.

There was one case of leptospirosis notified in Q2 2016, associated with occupational animal exposure. This compares with three cases in Q2 2015 and six in Q2 2014.

There were no cases of brucellosis, echinococcosis, trichinosis notified this quarter. There were three cases of Q Fever notified in Q2 2016.

MALARIA

Malaria has been a notifiable disease for many years. The Q2 2016 notifications are reported in Table 5 by HSE-Area.

Nineteen cases of malaria were notified in Q2 2016. This compares with sixteen cases reported in Q2 2015 and fourteen in Q2 2014.

Twelve cases were reported as *P. falciparum*, two as *P. ovale* and one as *P. vivax*. The organism was not known/not specified for the remaining four cases.

Four cases were exposed in Sub-Saharan Africa and one in the Indian sub-continent.

The country of infection is unknown/not specified for the remaining fourteen cases this quarter.

The reason for travel for three cases was reported as 'visiting family in country of origin' and one case was infected while undertaking volunteer work. The reason for travel was not specified/unknown for the remaining fifteen 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 Q2 2016 notifications are reported in Table 5 by HSE-Area.

There were two cases of Lyme disease (neuroborreliosis) reported in Q2 2016.

There were six cases of Dengue fever reported this quarter. Three cases reported travel to SE Asia while country of infection was unknown/not specified for the remaining three cases.

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

Zika virus infection is now a notifiable disease in Ireland under the Infectious Diseases (Amendment) Regulations 2016 (S.I. No. 276 of 2016).

All medical practitioners and laboratories are required to notify cases of Zika virus infection to the Medical Officer of Health.

One case of [Zika virus infection](#) was notified during Q2 2016. The case in question was

associated with travel to affected areas. A full suite of guidance for health care professionals and the general public, including travel advice, is available at www.hpsc.ie

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