

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 –2011

September 2011

This is the second quarterly report for 2011 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 2, 2011

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Apr	M	University/College	15	1	02/03/2011	Animal contact	Cryptosporidiosis
Apr	S	Comm. Hosp/Long-stay unit	10	-	-	Not Specified	Noroviral infection
Apr	SE	Residential institution	43	-	28/03/2011	P-P	AIG
Apr	E	Comm. Hosp/Long-stay unit	19	-	04/04/2011	P-P	Noroviral infection
Apr	E	Comm. Hosp/Long-stay unit	14	9	04/04/2011	P-P	AIG
Apr	E	Residential institution	20	-	-	P-P	Noroviral infection
Apr	SE	Hospital	3	-	06/04/2011	P-P	Noroviral infection
Apr	S	School	2	2	05/04/2011	Animal contact	Cryptosporidiosis
Apr	NE	Residential institution	7	2	-	P-P & AB	Noroviral infection
Apr	E	Hospital	6	6	11/04/2011	P-P	Noroviral infection
Apr	S	Comm. Hosp/Long-stay unit	7	1	-	P-P & AB	Noroviral infection
Apr	S	Hotel	20	-	17/04/2011	P-P & AB	Noroviral infection
Apr	E	Residential institution	3	0	15/03/2011	P-P	Clostridium difficile
Apr	W	Creche	6	0	12/04/2011	P-P and WB	Cryptosporidiosis
Apr	E	Comm. Hosp/Long-stay unit	38	20	22/04/2011	P-P	Noroviral infection
Apr	E	Comm. Hosp/Long-stay unit	6	-	21/04/2011	Unknown	AIG
Apr	M	Hospital	14	-	-	P-P & AB	Noroviral infection
Apr	E	Hotel	16	-	-	Unknown	Noroviral infection
Apr	M	Comm. Hosp/Long-stay unit	5	0	-	P-P & AB	Noroviral infection
Apr	W	Hospital	10	10	27/04/2011	P-P	Noroviral infection
May	E	Comm. Hosp/Long-stay unit	8	-	01/05/2011	P-P	AIG
May	W	Hospital	7	7	-	P-P	Clostridium difficile
May	E	Comm. Hosp/Long-stay unit	44	-	02/05/2011	P-P	AIG
May	MW	Hospital	3	3	01/05/2011	P-P	Noroviral infection
May	W	Residential institution	4	0	05/05/2011	P-P	AIG
May	E	Comm. Hosp/Long-stay unit	7	-	08/05/2011	P-P	AIG
May	NW	Comm. Hosp/Long-stay unit	7	0	06/05/2011	P-P	AIG
May	M	Hospital	6	-	-	P-P & AB	Noroviral infection
May	E	Residential institution	12	0	15/05/2011	Not Specified	AIG
May	M	Residential institution	13	2	-	P-P & AB	Noroviral infection
May	E	Creche	5	-	27/04/2011	Unknown	EHEC & Campylobacter coli
May	E	Comm. Hosp/Long-stay unit	39	-	-	Unknown	Noroviral infection
May	E	Comm. Hosp/Long-stay unit	9	0	-	P-P	Noroviral infection
May	S	Other	7	-	27/04/2011	P-P	AIG
May	E	Hotel	-	-	-	Not Specified	Noroviral infection
May	E	Workplace	30	13	-	P-P	Noroviral infection
May	M	Hospital	4	-	-	P-P & AB	Noroviral infection
May	S	Residential institution	6	0	25/05/2011	P-P	AIG
Jun	E	Comm. Hosp/Long-stay unit	4	-	20/05/2011	P-P	Clostridium difficile
Jun	E	Community outbreak	5	0	-	P-P	Noroviral infection
Jun	NW	Not Specified	2	1	18/05/2011	Not Specified	Rotavirus

Jun	E	Comm. Hosp/Long-stay unit	12	-	01/06/2011	P-P	AIG
Jun	E	Hospital	28	16	10/06/2011	Unknown	AIG
Jun	E	Hospital	6	6	10/06/2011	Unknown	Clostridium difficile
Jun	S	Hotel	7	0	-	P-P & AB	Noroviral infection
Jun	M	Residential institution	11	-	-	P-P & AB	Noroviral infection
Jun	SE	Residential institution	22	0	19/06/2011	P-P & AB	Noroviral infection
Jun	M	Residential institution	14	-	-	P-P & AB	Noroviral infection
Jun	E	Other	8	0	-	Not Specified	Noroviral infection
Jun	M	Residential institution	32	-	-	P-P & AB	Noroviral infection
Jun	M	Hospital	-	-	-	P-P & AB	Noroviral infection
Jun	M	Residential institution	20	-	14/06/2011	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; EHEC denotes infection with Enterohaemorrhagic *E. coli*; NK=unknown

* Total numbers ill does not include asymptomatic cases

Table 2. Family Outbreaks of Infectious Intestinal Disease (IID) in Quarter 2, 2011

Month	HSE region	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Apr	NW	Private house	5	1	26/03/2011	P-P	Cryptosporidiosis
Apr	NE	Private house	-	-	25/03/2011	Not Specified	Cryptosporidiosis
Apr	S	Private house	2	2	-	P-P	Rotavirus
Apr	SE	Private house	2	0	28/03/2011	Not Specified	Cryptosporidiosis
Apr	E	Private house	4	-	-	Not Specified	Noroviral infection
Apr	NW	Private house	-	-	-	P-P	EHEC
Apr	M	Private house	2	0	01/04/2011	Animal contact	Cryptosporidiosis
Apr	W	Private house	4	1	16/04/2011	P-P	Cryptosporidiosis
Apr	W	Private house	2	0	10/04/2011	P-P	Cryptosporidiosis
Apr	W	Private house	3	0	05/04/2011	P-P	Cryptosporidiosis
May	M	Extended family	2	0	19/04/2011	P-P and Animal	Cryptosporidiosis
May	S	Private house	2	1	01/05/2011	Animal contact	Cryptosporidiosis
May	W	Extended family	3	0	06/05/2011	P-P	Cryptosporidiosis
May	NE	Private house	2		04/05/2011	P-P	EHEC
May	NE	Private house	2	0	27/04/2011	P-P	EHEC
May	W	Private house	4	3	04/05/2011	P-P	Salmonellosis
May	W	Private house	2		12/04/2011	P-P	Cryptosporidiosis
May	E	Private house	2	1	15/04/2011	Unknown	EHEC
May	W	Private house	3	0	07/05/2011	P-P	Cryptosporidiosis
Jun	NW	Private house	2	0	27/05/2011	P-P	Campylobacter infection
Jun	NW	Private house	-	-	18/05/2011	P-P	EHEC
Jun	E	Other	2	1	21/05/2011	Unknown	EHEC
Jun	NW	Private house	3	0	-	P-P	EHEC
Jun	SE	Travel related	4	0	02/05/2011	Unknown	Salmonellosis
Jun	W	Private house	3	0	01/06/2011	Unknown	EHEC
Jun	M	Private house	1	1	04/06/2011	Not Specified	EHEC
Jun	NW	Private house	3	0	27/05/2011	P-P	Cryptosporidiosis
Jun	NW	Private house	3	1	13/05/2011	P-P	EHEC

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

* Total numbers ill does not include asymptomatic cases

Table 3. Non-IID Outbreaks in Quarter 2, 2011

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Apr	E	General	Creche	9	-	17/03/2011	P-P	Enterovirus (hand foot and mouth disease)
Apr	NW	General	Community outbreak	-	-	-	Not Specified	Pertussis
Apr	E	Family	Private house	2	1	29/03/2011	P-P	Pertussis
Apr	E	General	Creche	10	0	23/03/2011	P-P	Suspected hand, foot & mouth disease
Apr	SE	General	School	2	0	02/04/2011	P-P	Suspected hand, foot & mouth disease
Apr	E	Family	Private house	3	3	22/01/2011	P-P & AB	Influenza A (H1N1)v
Apr	SE	General	Hospital	10	-	01/01/2011	P-P	Staph aureus infection
Apr	E	General	University/College	2	0	13/04/2011	P-P	Measles
Apr	E	General	Other	9	5	01/08/2010	AB	Tuberculosis
May	E	General	School	3	0	24/03/2011	P-P & AB	Measles
May	E	General	School	4	0	17/03/2011	P-P	Pertussis
May	E	General	Creche	5	0	04/05/2011	P-P	Hand, foot & mouth disease
May	E	Family	Residential institution	2	0	01/04/2011	P-P & AB	Suspected Varicella
May	NE	General	School	5	-	05/05/2011	AB	Measles
May	E	General	Creche	5	-	-	P-P	Hand, foot & mouth disease
May	E	Family	Private house	3	0	-	AB	Pertussis
May	NW	General	School	7	1	17/03/2011	P-P	Pertussis
May	E	General	Creche	10	0	-	P-P	Hand, foot & mouth disease
May	E	General	School	2	-	23/05/2011	Unknown	Scarlet Fever
May	E	General	School	2	-	23/05/2011	P-P	Hand, foot & mouth disease
May	E	General	Hospital	10	10	13/02/2011	Other	Carbapenem resistant Enterobacteriaceae (CRE)
May	E	General	Community outbreak	4	-	10/04/2011	P-P & AB	Measles
May	M	General	Unknown	3	-	-	Unknown	Enterovirus
Jun	E	General	Creche	2	0	20/05/2011	P-P & AB	Measles
Jun	E	Family	Private house	2	0	23/04/2011	P-P & AB	Measles
Jun	NW	Family	Private house	2	0	-	P-P	Viral meningitis
Jun	E	General	Creche	15	-	09/06/2011	P-P	Probable Coxsackie 16 virus
Jun	E	General	School	8	1	31/05/2011	P-P & AB	Measles
Jun	E	General	Community outbreak	3	0	04/05/2011	P-P	Pertussis
Jun	E	General	Extended family	5	0	02/06/2011	P-P & AB	Measles
Jun	E	Family	Private house	3	1	22/05/2011	P-P	Pertussis
Jun	E	Family	Extended family	5	0	27/04/2011	AB	Pertussis
Jun	M	General	Not Specified	4	0	15/06/2011	AB	Measles

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

* 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 second quarter of 2011. There were 52 general and 28 family IID outbreaks reported during this period, resulting in at least 713 people being ill.

Norovirus (n=29) and Acute infectious gastroenteritis (AIG) (n = 14) were responsible for the majority of general outbreaks of IID (83% of all general outbreaks).

The most common causes of family outbreaks of IID were cryptosporidiosis (n=13) [46%] and EHEC (n=10) [36%]. The other diseases responsible for family outbreaks were Campylobacter infection, noroviral infection, rotavirus and salmonellosis (Table 2).

Many general IID outbreaks were transmitted person-to-person (75%). Thirty-nine general outbreaks (75%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

There were thirty-three non-IID outbreaks reported during Quarter 2 - see Table 3.

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q2 2011.

Table 4. Number of Infectious Disease Outbreaks per HSE Region, Q2 2011

HSE Area	No. of outbreaks	Rate per 100,000 population
E	51	3.4
HPSC	-	-
M	16	6.4
MW	1	0.3
NE	5	0.6
NW	12	5.1
SE	7	1.5
S	9	1.5
W	12	3.0
Total	113	2.7

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 2011 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 2, 2011 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
Acute infectious gastroenteritis* (incl. rotavirus & <i>C. difficile</i>)	426	197	77	109	103	204	223	236	1575
<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
Campylobacter infection	237	53	73	69	27	99	98	80	736
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	3	22	30	13	19	37	28	52	204
Enterohaemorrhagic <i>Escherichia coli</i>	13	3	6	6	9	2	2	7	48
Giardiasis	3	1	2	1	0	1	3	1	12
Listeriosis	0	0	0	1	0	0	1	0	2
Noroviral infection	127	37	17	37	4	11	16	4	253
Paratyphoid	~	~	~	~	~	~	~	~	0
Salmonellosis	29	4	6	5	2	6	8	9	69
Shigellosis	3	0	2	0	0	2	1	0	8
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	~	~	~	~	~	~	~	~	6
Yersiniosis	0	0	0	0	0	0	0	1	1
Zoonotic Disease									
Anthrax	0	0	0	0	0	0	0	0	0
Brucellosis	1	0	0	0	0	0	0	0	1
Echinococcosis	0	0	0	0	0	0	0	0	0
Leptospirosis	0	0	1	1	0	0	0	0	2
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	4	0	1	0	0	0	2	0	7
Trichinosis	0	0	0	0	0	0	0	0	0
Typhus	0	0	0	0	0	0	0	0	0
Vectorborne Disease									
Malaria	4	0	0	1	0	1	1	0	7

*Since May 4th 2008, the category Acute Infectious Gastroenteritis (AIG) has included *C. difficile*. Note that data for AIG since this time is not directly comparable with data collected previous to this

Human salmonellosis (*S. enterica*) is a notifiable disease. The National Reference Laboratory for Salmonella (NSRL) 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 2011. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q2 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	4	0	3	3	2	0	2	2	16
May	13	2	0	0	0	3	0	4	22
Jun	12	2	3	2	0	3	6	3	31
Total	29	4	6	5	2	6	8	9	69

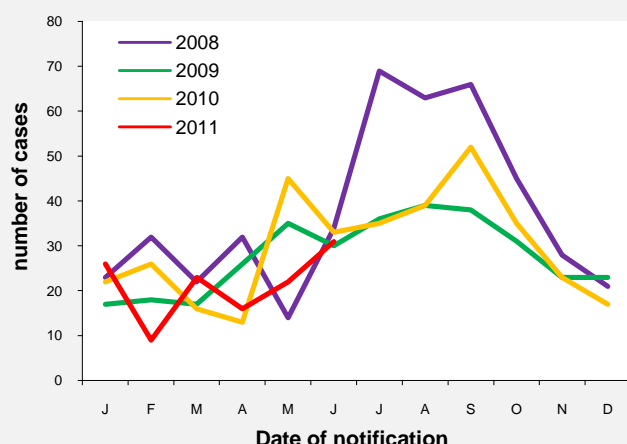


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2008 to end quarter 2 2011

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSRL in the first quarter of 2011 by HSE area (n=72). The commonest human serotypes isolated were *S. Typhimurium* (n= 24 [33%] –includes 7 cases of monophasic *S. Typhimurium* (4,5,12:i:-), and *S. Enteritidis* (n= 14 [19%]).

Twenty-six (36%) *S. enterica* isolates were reported to NSRL as being associated with travel outside of Ireland during this quarter.

Table 8 shows the serotype distribution of confirmed *Salmonella* notifications by travel status this quarter among salmonellosis notifications on CIDR.

Table 7. Serotypes of *S. enterica* Referred to NSRL in Quarter 2, 2011 (Data are provided courtesy of Prof. Martin Cormican and staff, NSRL).

Serotype	E	M	MW	NE	NW	SE	S	W	Total
4,5,12:i:-	3	1	0	1	0	0	1	1	7
Amersfoort	0	1	0	0	0	0	0	0	1
Bardo	1	0	0	0	0	0	0	0	1
Concord	1	0	0	0	0	0	1	0	2
Durban	1	0	0	0	0	0	0	0	1
Enteritidis	7	2	1	0	0	3	1	0	14
Glostrup	0	0	0	0	0	1	0	0	1
Heidelberg	1	0	0	0	0	0	0	0	1
Infantis	1	0	0	0	0	0	0	0	1
IV 50:g,z51	0	0	0	0	0	0	0	1	1
Kentucky	1	0	0	0	0	1	0	1	3
Liverpool	0	0	0	0	1	0	0	0	1
Mbandaka	0	0	0	0	1	0	0	4	5
Monschau	1	0	0	0	0	0	0	0	1
Montevideo	1	0	0	0	0	0	0	0	1
Napoli	1	0	0	0	0	0	1	0	2
Oranienburg	0	0	0	0	0	0	1	0	1
Rissen	1	0	0	0	0	0	0	0	1
Typhi	~	~	~	~	~	~	~	~	5
Typhimurium	7	1	2	3	0	1	2	1	17
Umbilo	0	0	1	0	0	0	0	0	1
Unnamed	1	0	0	0	0	0	0	0	1
Virchow	1	0	0	0	0	0	1	0	2
Worthington	1	0	0	0	0	0	0	0	1
Total	32	5	5	4	2	6	9	9	72

Table 8. Confirmed *Salmonella* notifications by Serotype and Travel Status, Q2 2011 [n(%)]

Serotype	Indigenous	Travel-associated	Unk/not specified	Total
<i>S. Enteritidis</i>	3 (12%)	5 (23%)	5 (24%)	13 (19%)
<i>S. Typhimurium</i>	9 (35%)	3 (14%)	8 (38%)	20 (29%)
Other	9 (35%)	14 (63%)	7 (33%)	30 (43%)
<i>S. spp</i>	5 (19%)	0 (0%)	1 (5%)	6 (9%)
Total	26 (100%)	22 (100%)	21 (100%)	69 (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 six cases of typhoid notified this quarter but none of paratyphoid (Table 5). The typhoid cases were associated with travel to Bangladesh (n=2), with one case each associated with travel to Cameroon, Ghana, Philippines and India.

Outbreaks of Salmonellosis

There were two family outbreaks of salmonellosis reported in Q2 2011 (Tables 1 & 2).

VEROTOXIGENIC *E. COLI* (VTEC)

Illness caused by enterohaemorrhagic *E. coli* (EHEC) became a notifiable disease on January 1st 2004. Under EHEC, all verotoxin positive *E. coli*, and *E. coli* of serogroups O157, O26, O111, O103, O145 regardless of whether verotoxin producers, are reported. Previously, VTEC were notified under the category of 'Food Poisoning (bacterial other than Salmonella)'.

The number of EHEC notified in Q2 2011 is shown in Table 5. Under the legislation, it is required that information on EHEC be gathered and reported. However, because of their clinical and public health significance, it is important to distinguish between those isolates that are verotoxin-producers and those that are not.

Forty-eight EHEC were notified in this quarter, 46 of which were confirmed or probable VTEC (Table 9). This compares with 53 VTEC cases notified in Q2 2010 and 62 in Q2 2009 (Figure 2). Table 9 shows the number of VTEC cases reported by serogroup and month, Q2 2011.

Table 9. Confirmed and Probable VTEC Notified by Serogroup and Month, Q2 2011

Month	O157	O26	Other	Total
Apr	4	1	1	6
May	7	5	4	16
Jun	15 ^a	3	6	24
Total	26	9	11	46

^aIncludes one probable case reported based on being epidemiologically linked

One confirmed case notified during this quarter was reported as having developed HUS –the case was infected with *E. coli* O157.

Outbreaks of VTEC infection

During this quarter, one general outbreak and seven family outbreaks of EHEC infection were reported (see Tables 1 & 2).

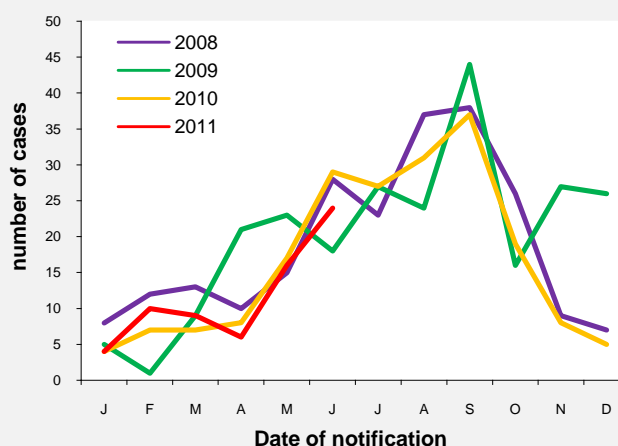


Figure 2. Seasonal Distribution of Confirmed and Probable VTEC Cases Notified 2008 to end quarter 2 2011

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 10 shows the *vt* types of VTEC isolates referred to the laboratory in Q2 2011.

Table 10. Verotoxin typing results of VTEC isolates referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q2 2011. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	vt1	vt2	vt1+vt2	Total
O157	0	17	8	25
O26	6	0	3	9
Other	5	2	4	11
Total	11	19	15	45

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 2011 are shown in Table 11. Comparison with previous years is shown in Figure 3. The current upsurge involves an increase in sporadic *Campylobacter* cases. To date no explanation has been found to account for this marked increase

Table 11. Campylobacter Notifications by HSE-Area and Month, Q2 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	38	2	11	13	11	12	22	18	127
May	71	20	25	23	6	41	19	33	238
Jun	128	31	37	33	10	46	57	29	371
Total	237	53	73	69	27	99	98	80	736

Outbreaks of Campylobacter infection

There was one family outbreak of campylobacteriosis reported in Q2 2011 (Tables 1 & 2).

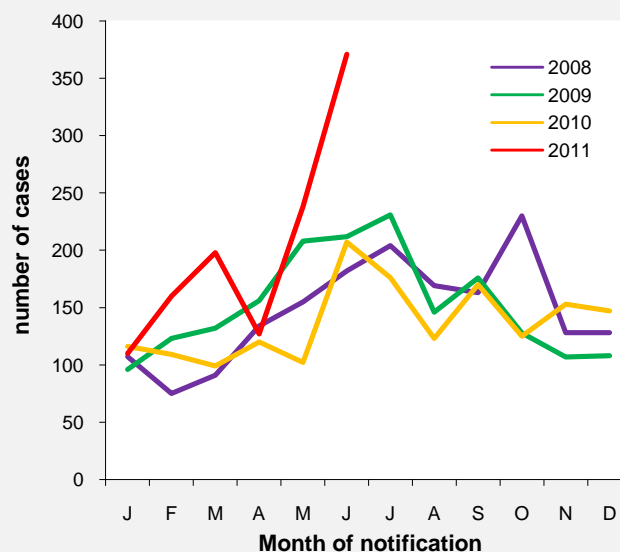


Figure 3. Seasonal distribution of Campylobacter notifications 2008 to end quarter 2 2011

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 2011, 204 cases of cryptosporidiosis were notified (Table 12), compared to 152 in the same period in 2010 and 249 in Q2 2009 (Figure 4).

Table 12. Cryptosporidiosis Notifications by HSE-Area and Month, Q2 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	1	6	14	8	6	11	11	25	82
May		9	10	3	8	16	11	16	73
Jun	2	7	6	2	5	10	6	11	49
Total	3	22	30	13	19	37	28	52	204

Outbreaks of cryptosporidiosis

There were three general and thirteen family outbreaks of cryptosporidiosis reported in quarter 2 (Tables 1 & 2).

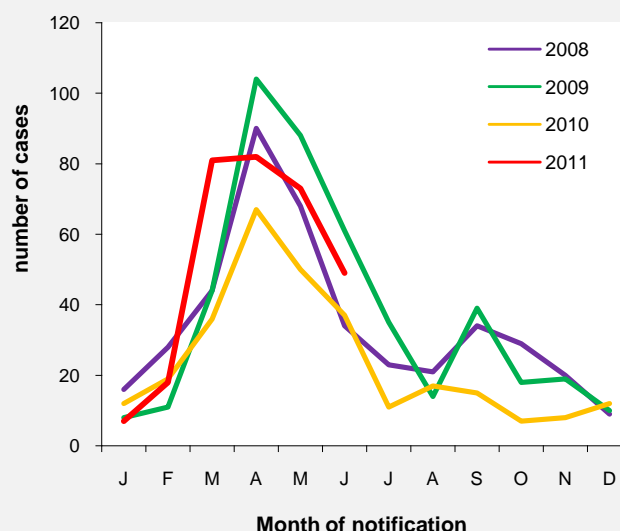


Figure 4. Seasonal distribution of cryptosporidiosis notifications 2008 to end quarter 2 2011

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 253 cases notified in the second quarter of 2011 (Table 13). These data are certainly an under-ascertainment of the true burden of disease due to this pathogen.

Table 13. Norovirus Notifications by HSE-Area and Month, Q2 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	44	2	4	25	1	8	12	2	98
May	52	25	10	5	1		1	2	96
Jun	31	10	3	7	2	3	3		59
Total	127	37	17	37	4	11	16	4	253

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the second quarter of 2011 there were 30 outbreaks confirmed as being caused by this virus, involving at least 382 people becoming ill, as outlined in Tables 1 & 2. The seasonal trend is outlined in Figure 5.

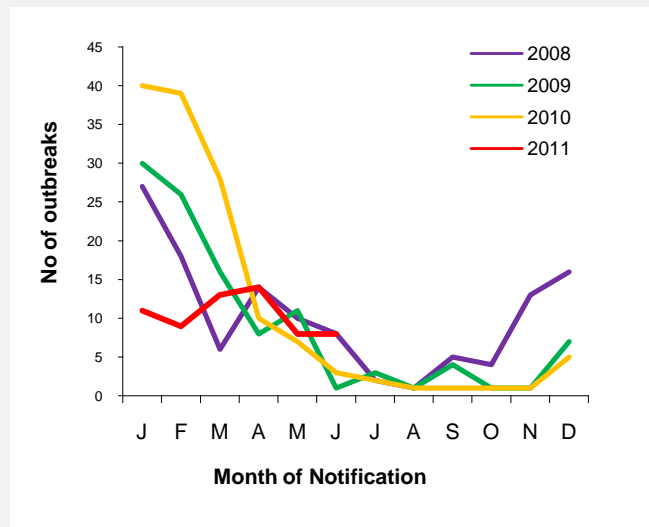


Figure 5. Seasonal Distribution of Confirmed Norovirus Outbreaks, 2008 to end quarter 2 2011.

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 cases of listeriosis notified in Q2 2011, compared to two in quarter 2 2010 and three in quarter 2 2009. There was one adult case and one

neonatal case notified this quarter. Both isolates were referred to the NSRL (Table 14).

Table 14: Serotypes of Q2 2011 human *Listeria* isolates referred to the NSRL (Data are provided courtesy of Prof. Martin Cormican and staff at the NSRL).

Serotype	Number of isolates
1/2	2

SHIGELLA

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

During Q2 2011, eight cases of shigellosis were notified (Table 5). This compares with 14 cases notified as shigellosis in Q2 2010 and 17 in Q2 2009. Five cases were reported as *S. sonnei*, one as *S. flexneri*, one as *S. boydii* and the organism was not specified for one remaining case.

Three cases (38%) were reported to have acquired their illness abroad, while country of infection was reported as unknown or not specified for the remaining five cases.

Outbreaks of shigellosis

There were no outbreaks of shigellosis reported in Q2 2011 (Tables 1 & 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 2011, 12 cases of giardiasis were notified (Table 5); this compares with 12 cases notified in Q2 2010 and 22 in Q2 2009.

Two cases (17%) were 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 eight cases.

Outbreaks of giardiasis

There were no outbreaks of giardiasis notified in Q2 2011 (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 1st 2004. Prior to this, these diseases were notified under the category of 'Food Poisoning (bacterial other than Salmonella)'.

No cases of foodborne intoxication were notified this quarter.

Outbreaks of foodborne intoxications

There were no outbreaks of food-borne infection/intoxication notified this quarter (Tables 1 & 2).

ACUTE INFECTIOUS GASTROENTERITIS incl. ROTAVIRUS

Since 1st January 2004, there is a notifiable disease category termed 'Acute Infectious Gastroenteritis'. Until May 3rd 2008, this included all unspecified causes of gastroenteritis and also specifically, gastroenteritis due to rotavirus. Since May 4th 2008, it has also specifically included *Clostridium difficile* associated disease (CDAD). AIG cases due to unspecified causes or to rotavirus are notifiable in all age groups, unlike the former notifiable disease category of 'Gastroenteritis in children under 2 years'. CDAD cases are only notifiable in patients two years or older that meet the case definition.

Table 15. Rotaviral Infections Notified under the Category of 'Acute Infectious Gastroenteritis' by HSE-Area and Month, Q2 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	98	62	21	35	34	70	83	75	478
May	47	75	24	26	27	39	44	58	340
Jun	32	48	10	32	27	23	24	43	239
Total	177	185	55	93	88	132	151	176	1057

During Quarter 2 2011, there were 1575 notifications of acute infectious gastroenteritis. Of these, 1057 (67%) were reported as rotavirus (Table 15 & Figure 6). Seven hundred and sixty-eight rotavirus

notifications (73%) were for children less than two years of age.

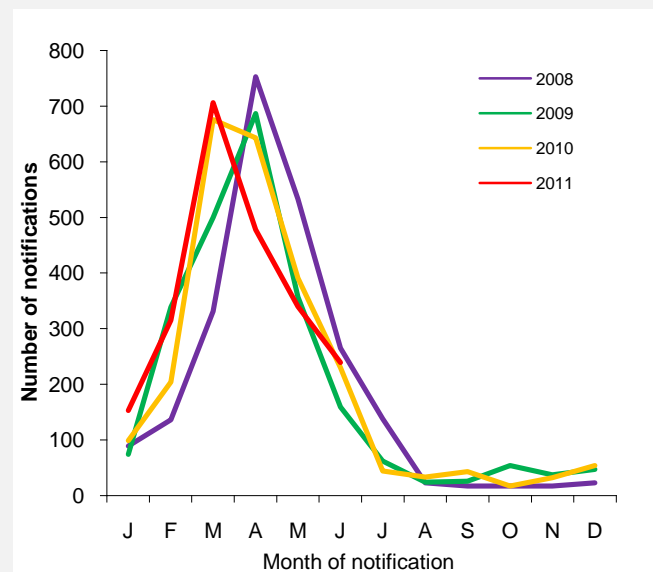


Figure 6. Seasonal Distribution of Rotavirus Notifications, 2008 to end quarter 2 2011

Outbreaks of Rotavirus

There was one general and one family outbreak of rotavirus notified this quarter (Tables 1 & 2).

NON-IID ZONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q fever, toxoplasmosis, trichinosis, typhus and rabies. The Q2 2011 notifications of these zoonotic diseases are reported by HSE-Area in Table 5.

Seven cases of toxoplasmosis were notified in this quarter. This compares with nine cases notified in the same period in 2010 and seven cases in Q2 2009.

Two cases of leptospirosis were notified in Q2 2011; this compares with one in Q2 2010 and three in Q2 2009. One case reported possible exposure during recreational activities, and one reported possible exposure through animal contact occupationally.

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

MALARIA

Malaria is a notifiable disease for many years. The Q2 2011 notifications are reported in Table 5 by HSE-Area.

Seven cases of malaria were notified in Q2 2011. This compares with 19 cases reported in Q2 2010 and 16 in Q2 2009.

Five cases were reported as *P. falciparum*, one as *P. ovale*, and one as *P. vivax*.

Five cases were exposed in Sub-Saharan Africa. No data were provided on country of infection for the remaining two cases.

The reason for travel for two cases was reported as 'visiting family in country of origin', one case reported business travel and two cases occurred in Irish citizens working abroad. The reason for travel was not specified/unknown for the remaining two cases.

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