SURVEILLANCE of INFECTIOUS INTESTINAL (IID), ZOONOTIC AND VECTORBORNE DISEASE, and OUTBREAKS of INFECTIOUS DISEASE IN IRELAND

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

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

Quarter 4 –2011 **March 2012**

This is the fourth 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.

Table 1. General Outbreaks of Infectious Intestinal Disease (IID) in Quarter 4, 2011

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	MW	Hospital	6	6	-	P-P	Noroviral infection
Oct	W	Hospital	3	3	-	P-P	Noroviral infection
Oct	E	Residential institution	12	-	10/10/2011	P-P	AIG
Oct	E	Unknown	2	0	10/06/2011	Not Specified	Salmonellosis
Oct	M	Community outbreak	2	2	28/09/2011	Unknown	EHEC
Oct	E	Hospital	8	8	-	P-P	Clostridium difficile infection
Oct	NE	Residential institution	7	0	24/10/2011	Not Specified	AIG
Oct	NE	Hospital	16	13	24/10/2011	P-P & AB	Noroviral infection
Oct	SE	Hospital	8	-	23/10/2011	P-P	Noroviral infection
Oct	E	Creche	14	-	-	P-P	AIG
Oct	NE	Residential institution	23	0	-	P-P & AB	Noroviral infection
Nov	HPSC	Travel related	6	3	01/08/2011	Unknown	Salmonellosis
Nov	E	Residential institution	23	-	-	Unknown	Noroviral infection
Nov	E	Creche	1	1	20/10/2011	Unknown	EHEC
Nov	E	Other	15	0	-	P-P	Suspected Norovirus
Nov	MW	Hospital	8	8	-	P-P	Noroviral infection
Nov	NE	Residential institution	6	0	-	P-P & AB	Noroviral infection
Nov	S	Residential institution	29	0	13/11/2011	P-P	Noroviral infection
Nov	NE	Hospital	6	-	-	P-P & AB	Noroviral infection
Nov	MW	Comm. Hosp/Long-stay unit	5	5	19/11/2011	P-P	Noroviral infection
Nov	S	Creche	16	0	08/10/2011	Not Specified	EHEC
Nov	NE	Hospital	10	10	17/11/2011	P-P & AB	AIG
Nov	M	Creche	6	-	16/11/2011	P-P	EHEC
Dec	SE	Hospital	6	-	-	P-P	Noroviral infection
Dec	MW	Creche	2	0	07/11/2011	P-P	EHEC
Dec	E	Residential institution	43	2	30/11/2011	Not Specified	Noroviral infection
Dec	M	Residential institution	11	-	-	P-P & AB	Noroviral infection
Dec	NW	Extended family	7	3	08/01/2010	Unknown	EHEC
Dec	S	Comm. Hosp/Long-stay unit	10	0	23/11/2011	P-P & AB	AIG
Dec	S	Comm. Hosp/Long-stay unit	4	-	05/12/2011	P-P	AIG
Dec	E	Hospital	465	299	06/12/2012	P-P	Noroviral infection
Dec	NW	Comm. Hosp/Long-stay unit	12	0	01/12/2011	P-P	AIG
Dec	SE	Residential institution	18	-	12/12/2011	P-P	Noroviral infection
Dec	E	Hotel	584	2	-	Unknown	Noroviral infection
Dec	W	Residential institution	14	-	-	Not Specified	Noroviral infection
Dec	W	Comm. Hosp/Long-stay unit	3	-	19/12/2011	Unknown	AIG
Dec	S	Comm. Hosp/Long-stay unit	-	-	07/12/2011	P-P & AB	AIG
Dec	S	Comm. Hosp/Long-stay unit	32	-	17/12/2011	P-P & AB	AIG
Dec	E	Comm. Hosp/Long-stay unit	10	-	19/12/2011	P-P	AIG
Dec	M	Residential institution	63	-	-	P-P & AB	Noroviral infection
Dec	W	Hospital	5	5	-	P-P	AIG
Dec	E	Hospital	52	-	12/12/2011	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; 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 4, 2011

Month	HSE region	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	M	Private house	-	-	07/10/2011	Environmental / Fomite	EHEC
Oct	W	Private house	2	-	-	Unknown	Campylobacter infection
Oct	E	Extended family	3	2	16/09/2011	P-P	Shigellosis
Oct	SE	Private house	4	1	27/09/2011	P-P	Salmonellosis
Oct	M	Private house	1	0	-	FB	Salmonellosis
Oct	NE	Private house	2	1	30/09/2011	Unknown	EHEC
Oct	M	Private house	2	-	06/10/2011	Unknown	EHEC
Oct	S	Private house	2	-	30/09/2011	P-P & FB	EHEC
Oct	W	Private house	2	0	27/09/2011	Unknown	Campylobacter infection
Nov	W	Private house	2	0	12/07/2011	Unknown	EHEC
Nov	S	Not Specified	-	-	17/10/2011	Not Specified	EHEC
Nov	S	Private house	4	2	10/10/2011	Animal contact	EHEC
Nov	MW	Private house	1	1	18/10/2011	P-P & Animal	EHEC
Nov	MW	Private house	1	-	08/10/2011	Not Specified	EHEC
Nov	MW	Private house	9	0	06/11/2011	Unknown	AIG
Nov	W	Private house	2	0	11/11/2011	Unknown	Cryptosporidiosis
Nov	W	Private house	2	1	-	Unknown	Campylobacter infection
Nov	M	Private house	1	-	27/11/2011	Unknown	EHEC
Dec	MW	Private house	1	0	16/10/2011	P-P	EHEC
Dec	SE	Private house	2	0	17/11/2011	P-P	EHEC
Dec	S	Private house	2	0	21/10/2011	Other	EHEC
Dec	E	Private house	2	1	03/11/2011	Unknown	EHEC
Dec	S	Private house	2	1	05/09/2011	Not Specified	Giardiasis
Dec	S	Private house	2	-	24/07/2011	Not Specified	Salmonellosis
Dec	E	Private house	2	0	28/11/2011	Unknown	Cryptosporidiosis
Dec	W	Private house	3	1	12/12/2011	P-P	EHEC
Dec	W	Private house	2	0	08/12/2011	P-P	Campylobacter infection
Dec	W	Extended family	1	0	08/12/2011	Unknown	EHEC
Dec	SE	Private house	3	0	09/12/2011	P-P & WB	Cryptosporidiosis

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 4, 2011

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Oct	E	Family	Private house	3	0	29/09/2011	P-P & AB	Measles
Oct	S	Family	Extended family	5	-	11/08/2011	P-P	Pertussis
Oct	E	Family	Private house	4	0	21/09/2011	P-P & AB	Measles
Oct	E	General	Hospital	4	-	11/09/2011	P-P & AB	Measles
Oct	S	Family	Extended family	2	1	15/09/2011	P-P	Pertussis
Oct	NE	Family	Extended family	3	-	-	P-P	Tuberculosis
Oct	E	General	Creche	12	1	13/10/2011	P-P	Measles
Nov	E	Family	Private house	2	2	13/10/2011	P-P & AB	Meningococcal disease
Nov	S	General	Creche	4	0	08/11/2011	P-P	Varicella
Nov	SE	Family	Travel related	2	1	10/11/2011	AB	Legionellosis
Nov	E	General	Community outbreak	3	0	15/11/2011	P-P	Mumps
Dec	M	Family	Private house	2	0	21/11/2011	P-P	Pertussis
Dec	E	General	Hospital	0	-	-	P-P	Carbapenem-Resistant Enterobacteriaceae
Dec	E	General	Other	9	0	05/12/2011	P-P	Suspected hand foot and mouth disease
Dec	S	Family	Private house	2	1	25/09/2011	AB	Pertussis
Dec	E	Family	Extended family	2	-	02/12/2011	AB	Pertussis
Dec	E	Family	Private house	6	1	22/11/2011	P-P	Pertussis
Dec	NW	Family	Private house	4	0	-	P-P	Pertussis

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 fourth quarter of 2011. There were 42 general and 29 family IID outbreaks reported during this period, resulting in at least 1635 people being ill.

Norovirus (n=20) and Acute infectious gastroenteritis (AIG) (n = 12) were responsible for the majority of general outbreaks of IID (76% of all general outbreaks).

The most common cause of family outbreaks of IID was EHEC (n=16) [55%]. The other diseases responsible for family outbreaks were AIG, Campylobacter infection, Cryptosporidiosis, giardiasis, salmonellosis and shigellosis (Table 2).

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

There were eighteen non-IID outbreaks reported during Quarter 4 - see Table 3.

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q4 2011.

Table 4. Number of Infectious Disease Outbreaks per HSE Region, Q4 2011

HSE Area	No. of outbreaks	Rate per 100,000 population
E	25	1.7
M	9	3.6
MW	8	2.2
NE	8	2.0
NW	3	1.3
SE	7	1.5
S	16	2.6
W	12	3.0
Total	**88**	**2.1**

NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZOONOTIC AND VECTORBORNE DISEASE

The number of notifications of infectious intestinal, zoonotic and vectorborne disease by HSE-Area for the fourth quarter of 2011 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 4, 2011 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
Acute infectious gastroenteritis* (incl. rotavirus & *C. difficile*)	239	25	38	33	38	61	65	53	552
Bacillus cereus foodborne infection/intoxication	0	0	0	0	0	0	0	0	**0**
Botulism	0	0	0	0	0	0	0	0	**0**
Campylobacter infection	204	40	41	46	33	71	74	49	**558**
Cholera	0	0	0	0	0	0	0	0	**0**
Clostridium perfringens (type A) food-borne disease	0	0	0	0	0	0	0	0	**0**
Cryptosporidiosis	4	6	7	3	3	11	2	15	**51**
Enterohaemorrhagic *Escherichia coli*	8	15	34	6	16	12	25	8	**124**
Giardiasis	5	1	2	0	0	0	1	1	**10**
Listeriosis	1	0	0	0	0	0	0	0	**1**
Noroviral infection	86	11	44	25	1	10	6	7	**190**
Paratyphoid	~	~	~	~	~	~	~	~	**1**
Salmonellosis	23	10	8	5	1	9	4	8	**68**
Shigellosis	7	0	1	1	0	0	2	1	**12**
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	**0**
Typhoid	~	~	~	~	~	~	~	~	**6**
Yersiniosis	1	0	0	0	2	0	0	0	**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	2	1	0	0	1	0	**5**
Plague	0	0	0	0	0	0	0	0	**0**
Q Fever	0	0	0	1	0	1	1	0	**3**
Rabies	0	0	0	0	0	0	0	0	**0**
Toxoplasmosis	6	0	0	1	0	0	2	0	**9**
Trichinosis	0	0	0	0	0	0	0	0	**0**
Vectorborne Disease									
Malaria	8	3	0	0	0	0	3	1	**15**
Typhus	0	0	0	0	0	1	0	0	**1**

*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 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 2011. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q4 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	9	7	3	3	1	6	2	5	**36**
Nov	6	2	3	2	0	2	2	2	**19**
Dec	8	1	2	0	0	1	0	1	**13**
Total	**23**	**10**	**8**	**5**	**1**	**9**	**4**	**8**	**68**

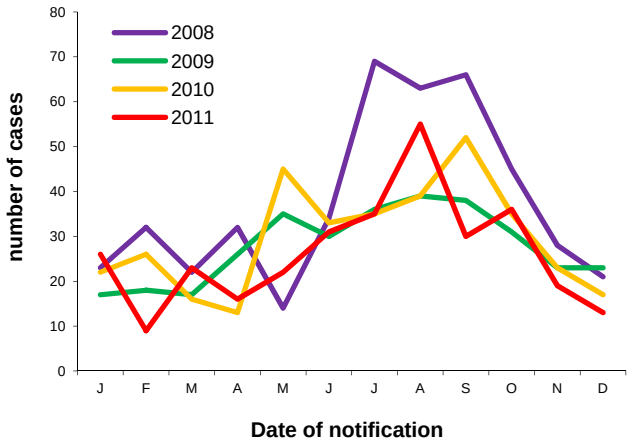

Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2008 to end quarter 4 2011

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSSLRL in the fourth quarter of 2011 by HSE area (n=61). The commonest human serotypes isolated were *S.* Typhimurium* (n= 25, 41%) and *S.* Enteritidis (n= 9, 15%).

Sixteen (26%) *S. enterica* isolates were reported to NSSLRL 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 NSSLRL in Quarter 4, 2011

(Data are provided courtesy of Prof. Martin Cormican and staff, NSSLRL).

Serotype	E	M	MW	NE	NW	SE	S	W	Total
4,5,12:i:-	2	0	0	1	0	1	0	1	5
Agona	0	0	0	0	1	0	0	0	1
Amager	1	0	0	0	0	0	0	0	1
Anatum	0	1	0	0	0	0	0	0	1
Braenderup	1	0	0	0	0	0	0	0	1
Derby	1	0	0	0	0	0	0	0	1
Elisabethville	0	0	1	0	0	0	0	0	1
Enteritidis	3	2	0	0	0	1	0	3	9
Fairfield	1	0	0	0	0	0	0	0	1
Goldcoast	0	0	0	0	0	0	0	1	1
Indiana	0	0	1	0	0	0	0	0	1
Infantis	1	0	0	0	0	0	0	0	1
Montevideo	0	0	0	2	0	0	0	0	2
Newport	2	0	1	0	0	0	0	1	4
Paratyphi A	~	~	~	~	~	~	~	~	1
Saintpaul	0	2	0	0	0	0	0	0	2
Stanley	0	0	0	0	0	2	0	0	2
Typhi	~	~	~	~	~	~	~	~	4
Typhimurium	5	6	2	0	0	4	2	1	20
Unnamed	1	0	0	0	0	0	0	0	1
Weltevreden	1	0	0	0	0	0	0	0	1
Total	**20**	**11**	**7**	**4**	**1**	**8**	**2**	**8**	**61**

Table 8. Confirmed *Salmonella* notifications by Serotype and Travel Status, Q4 2011 [n(%)]

Serotype	Indigenous	Travel-associated	Unk/not specified	Total
***S.* Enteritidis**	1 (4%)	7 (30%)	2 (9%)	**10 (15%)**
***S.* Typhimurium**	13 (54%)	4 (18%)	10 (48%)	**27 (40%)**
Other	9 (38%)	7 (30%)	8 (38%)	**24 (35%)**
***S.* spp**	1 (4%)	5 (22%)	1 (5%)	**7 (10%)**
Total	**24 (100%)**	**23 (100%)**	**21 (100%)**	**68 (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. Country of infection was reported as Bangladesh for two cases and Ireland for two cases (secondary transmission from a travel-associated case). Country of infection for the remaining two cases was reported as unknown/not specified. There was one notification of paratyphoid, associated with travel to India (Table 5).

Outbreaks of Salmonellosis

There were two general and three family outbreaks of salmonellosis reported in Q4 2011 (Tables 1 & 2).

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

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 Q4 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.

A hundred and twenty-four EHEC were notified in this quarter, 118 of which were confirmed or probable VTEC (Table 9). This compares with 32 VTEC cases notified in Q4 2010 and 69 in Q4 2009 (Figure 2). Table 9 shows the number of VTEC cases reported by serogroup and month, Q4 2011.

Table 9. Confirmed and Probable VTEC Notified by Serogroup and Month, Q4 2011

Month	O157	O26	Other	Total
Oct	27	7	2	**36**
Nov	42	5	2	**49**
Dec	26	4	3	**33**
Total	**95**[a]	**16**	**7**	**118**

[a]Includes eight probable cases reported on the basis of being epidemiologically linked to confirmed VTEC O157 cases

Eleven confirmed and one probable case notified during this quarter were reported as having developed HUS –ten were infected with *E. coli* O157, one with a VTEC O26 strain and one was laboratory negative but epidemiologically linked to a confirmed VTEC O157 case.

Outbreaks of VTEC infection

During this quarter, six general and 15 family outbreaks of VTEC infection were reported (see Tables 1 & 2).

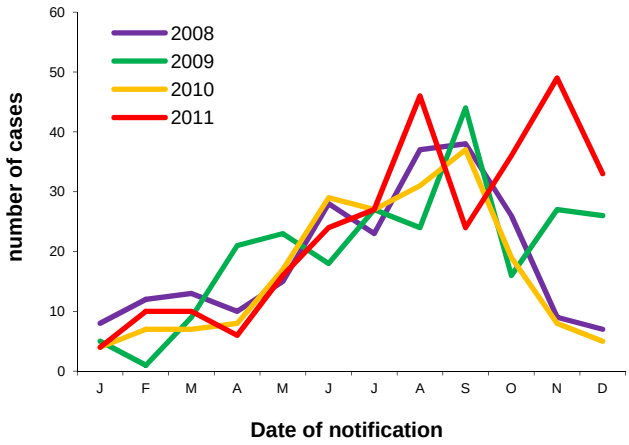

Figure 2. Seasonal distribution of confirmed and probable VTEC cases notified 2008 to end quarter 4 2011

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 Q4 2011.

Table 10. Verotoxin typing results of VTEC isolates referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q4 2011 (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	*vt1*	*vt2*	*vt1+vt2*	Total
O157	0	73	14	**87**
O26	11	1	4	**16**
Other	1	6	0	**7**
Total	**12**	**80**	**18**	**110**

Note: excludes 8 probable VTEC cases reported on the basis of Epi-link

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 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. Despite analysis of the distribution of cases by age, sex and HSE-area, it has not been possible, so far, to determine the cause of this increase.

Table 11. Campylobacter Notifications by HSE-Area and Month, Q4 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	69	14	14	12	14	26	25	19	**193**
Nov	76	11	19	23	16	24	24	18	**211**
Dec	59	15	8	11	3	21	25	12	**154**
Total	**204**	**40**	**41**	**46**	**33**	**71**	**74**	**49**	**558**

Outbreaks of Campylobacter infection

There were four family outbreaks of campylobacteriosis reported in Q4 2011 (Table 2).

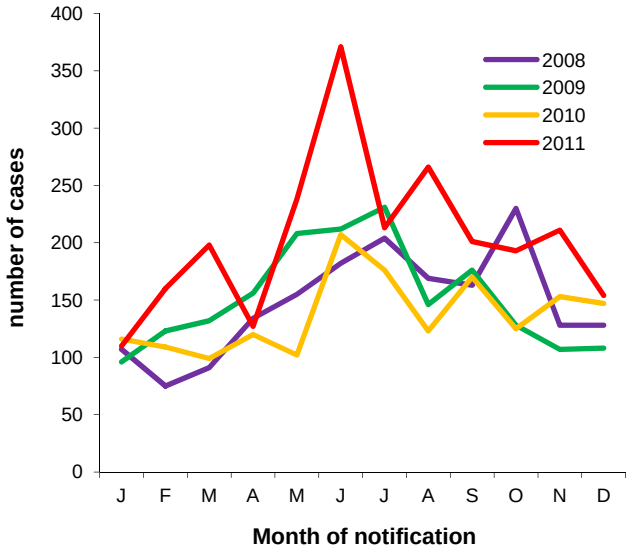

Figure 3. Seasonal distribution of Campylobacter notifications 2008 to end quarter 4 2011

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 Q4 2011, 51 cases of cryptosporidiosis were notified (Table 12), compared to 27 in the same period in 2010 and 47 in Q4 2009 (Figure 4).

Table 12. Cryptosporidiosis Notifications by HSE-Area and Month, Q4 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	0	1	4	1	1	3	2	6	**18**
Nov	1	4	3	2	1	3	0	5	**19**
Dec	3	1	0	0	1	5	0	4	**14**
Total	**4**	**6**	**7**	**3**	**3**	**11**	**2**	**15**	**51**

Outbreaks of cryptosporidiosis

There were three family outbreaks of cryptosporidiosis reported in quarter 4 (Table 2).

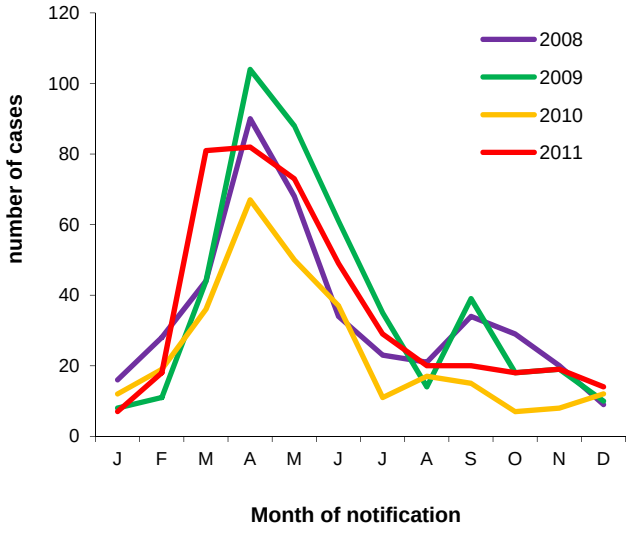

Figure 4. Seasonal distribution of cryptosporidiosis notifications 2008 to end quarter 4 2011

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 190 cases notified in the fourth quarter of 2011 (Table 13). These data are certainly an under-ascertainment of the true burden of disease due to this pathogen. Cumulatively, Norovirus infection levels have been low in 2011.

Table 13. Norovirus Notifications by HSE-Area and Month, Q4 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	12	1	12	1	0	5	0	3	**34**
Nov	11	1	22	22	1	4	5	0	**66**
Dec	63	9	10	2	0	1	1	4	**90**
Total	**86**	**11**	**44**	**25**	**1**	**10**	**6**	**7**	**190**

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the fourth quarter of 2011 there were 20 outbreaks confirmed as being caused by this virus, involving at least 1389 people becoming ill, as outlined in Tables 1 & 2. The seasonal trend is outlined in Figure 5.

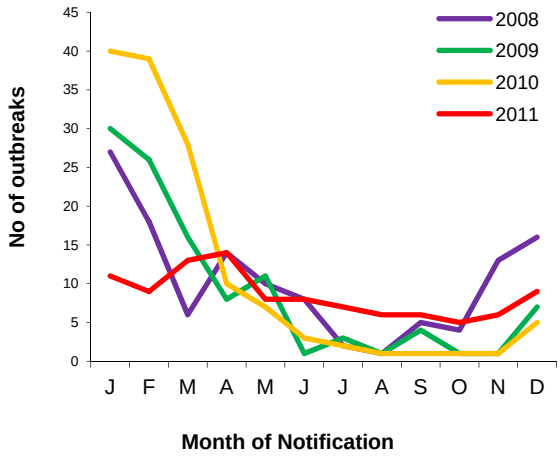

Figure 5. Seasonal Distribution of Confirmed Norovirus Outbreaks, 2008 to end quarter 4 2011.

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 was one adult case of listeriosis notified in Q4 2011, compared to two in quarter 4 2010 and three in quarter 4 2009. No isolates were referred for typing this quarter.

SHIGELLA

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

During Q4 2011, twelve cases of shigellosis were notified (Table 5). This compares with 17 cases notified as shigellosis in Q4 2010 and 10 in Q4 2009. Seven cases were reported as *S. sonnei* and five as *S. flexneri.*

Five cases (42%) were reported to have acquired their illness abroad, two cases acquired their illness in Ireland while country of infection was reported as unknown or not specified for the remaining five cases.

Outbreaks of shigellosis

There was one family outbreak of shigellosis reported in Q4 2011 (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 4 2011, 10 cases of giardiasis were notified (Table 5); this compares with 15 cases notified in Q4 2010 and 7 in Q4 2009.

Four cases (40%) were reported to have acquired their illness abroad. Country of infection was reported as Ireland for one case and 'not specified' or 'unknown' for the remaining five cases.

Outbreaks of giardiasis

There was one family outbreak of giardiasis notified in Q4 2011 (Table 2).

FOODBORNE INTOXICATIONS

Bacillus cereus foodborne infection/intoxication, botulism, *Clostridium perfringens* (type A) food-borne 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.

During Quarter 4 2011, there were 552 notifications of acute infectious gastroenteritis. Of these, 67 (12%) were reported as rotavirus (Table 15 & Figure 6).

Table 14. Rotaviral Infections Notified under the Category of 'Acute Infectious Gastroenteritis' by HSE-Area and Month, Q4 2011

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	2	2	4	9	3	3	5	1	**29**
Nov	2	1	3	4	2	3	0	3	**18**
Dec	6	5	2	1		2	2	2	**20**
Total	**10**	**8**	**9**	**14**	**5**	**8**	**7**	**6**	**67**

Forty-nine (73%) were in children less than two years of age.

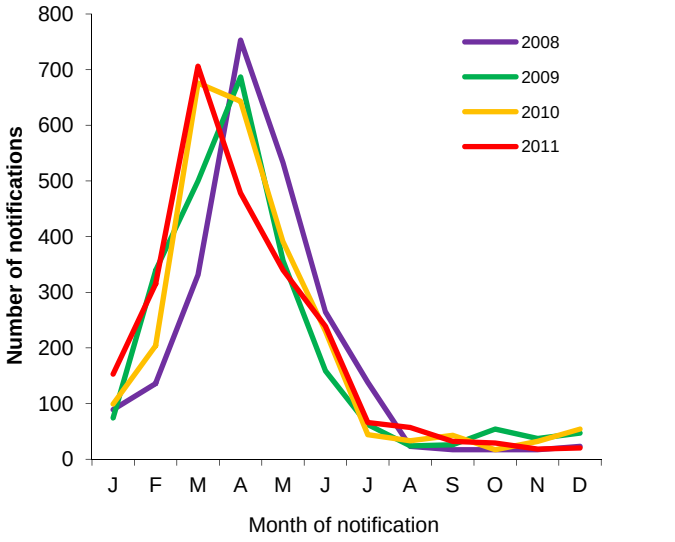

Figure 6. Seasonal Distribution of Rotavirus Notifications, 2008 to end quarter 4 2011

Outbreaks of Rotavirus

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

NON-IID ZOONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q fever, toxoplasmosis, trichinosis, typhus and rabies. The Q4 2011 notifications of these zoonotic diseases are reported by HSE-Area in Table 5.

Nine cases of toxoplasmosis were notified in this quarter. This compares with twelve cases notified in the same period in 2010 and six cases in Q4 2009.

Five cases of leptospirosis were notified in Q4 2011; this compares with five in Q4 2010 and ten in Q4 2009. Two cases reported possible occupational exposure, while the source of infection was unknown for the remaining three cases.

There were three cases of Q fever notified in Q4 2011; this compares with two in Q4 2010 and two in Q4 2009.

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

MALARIA

Malaria is a notifiable disease for many years. The Q4 2011 notifications are reported in Table 5 by HSE-Area.

Fifteen cases of malaria were notified in Q4 2011. This compares with 20 cases reported in Q4 2010 and 14 in Q4 2009.

Eleven cases were reported as *P. falciparum*, one as *P. vivax*, one as *P. ovale* and the organism was not specified for the remaining two cases.

Nine cases were exposed in Sub-Saharan Africa and one in the Indian sub-continent. No data were provided on country of infection for the remaining five cases.

The reason for travel for six cases was reported as 'visiting family in country of origin', two cases reported business travel, one case was a new entrant to Ireland and once case was in an Irish citizen living abroad. The reason for travel was not specified/unknown for the remaining five cases.

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