

SURVEILLANCE of INFECTIOUS INTESTINAL (IID), ZONOTIC AND VECTORBORNE DISEASE, and OUTBREAKS of INFECTIOUS DISEASE



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

Quarter 4 –2009

February 2010

This is the fourth quarterly report for 2009 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, 2009

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	NE	Hospital	2	2	-	P-P	Rotavirus
Oct	W	Residential institution	14	4	05/10/2009	Not Specified	AIG
Oct	NE	Hospital	4	4	-	Not Specified	Clostridium difficile
Oct	SE	Hospital	24	-	-	P-P	Norovirus
Nov	E	Hospital	14	-	14/11/2009	P-P	Norovirus
Nov	S	Other	5	0	03/11/2009	WB	EHEC
Dec	W	Private house	11	-	-	P-P	Norovirus
Dec	W	Hospital	4	4	-	P-P	Clostridium difficile
Dec	NW	Hospital	5	5	-	P-P	Norovirus
Dec	NW	Residential institution	5	5	01/12/2009	P-P	Norovirus
Dec	NW	Comm. Hosp/Long-stay unit	13	0	02/12/2009	P-P	AIG
Dec	E	Creche	3	0	-	P-P	Norovirus
Dec	HPSC	Community outbreak	15	6	24/10/2009	FB	Salmonellosis
Dec	NW	Private house	2	0	-	P-P	EHEC
Dec	W	Restaurant / Cafe	5	1	12/12/2009	P-P	AIG
Dec	W	Hospital	11	11	09/12/2009	P-P	Norovirus
Dec	MW	Hospital	4	4	07/12/2009	P-P	Norovirus
Dec	NW	Comm. Hosp/Long-stay unit	13	12	09/12/2009	P-P	AIG
Dec	NW	Comm. Hosp/Long-stay unit	8	7	16/12/2009	P-P	AIG
Dec	MW	Hotel	15	-	11/12/2009	NK	AIG
Dec	E	Residential institution	23	0	28/12/2010	NK	Norovirus

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, 2009

Month	HSE region	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	NE	Private house	2	1	20/09/2009	P-P & FB	Salmonellosis
Oct	NW	Private house	3	1	23/09/2009	P-P & FB	EHEC
Oct	NW	Private house	3	0	26/09/2009	NK	EHEC
Oct	NW	Private house	6	1	25/09/2009	P-P & FB	Campylobacter
Oct	M	Private house	4	0	31/08/2009	FB & Animal	Salmonellosis
Oct	E	Private house	1	0	10/09/2009	NK	EHEC
Oct	S	Extended family	2	0	28/08/2009	NK	EHEC
Nov	NW	Private house	4	4	22/10/2009	P-P	Rotavirus
Nov	E	Unknown	11	0	-	FB	<i>C. perfringens</i>
Nov	E	Private house	2	0	24/10/2009	P-P & FB	Salmonellosis
Nov	W	Private house	2	0	-	P-P & WB	EHEC
Nov	S	Private house	2	1	01/11/2009	WB	EHEC
Dec	SE	Private house	3	2	20/11/2009	NK	EHEC
Dec	NW	Private house	2	2	17/11/2009	P-P	Salmonellosis
Dec	SE	Private house	2	1	07/11/2009	WB	EHEC
Dec	W	Private house	3	0	23/11/2009	NK	EHEC

Dec	NW	Private house	3	0	06/11/2009	NK	EHEC
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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, 2009

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Oct	W	General	Private house	2	-	16/09/2009	P-P	Pandemic (H1N1) 2009
Oct	W	General	School	50	1	-	P-P	Pandemic (H1N1) 2009
Oct	S	General	Hospital	2	0	23/09/2009	P-P	Pandemic (H1N1) 2009
Oct	S	General	Residential institution	4	0	-	P-P	Pandemic (H1N1) 2009
Oct	S	General	School	12	-	-	P-P	Influenza-like illness
Oct	NE	General	School	51	0	25/09/2009	P-P	Pandemic (H1N1) 2009
Oct	W	Family	Unknown	2	2	04/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	NE	Family	Private house	2	1	23/09/2009	Not Specified	Pandemic (H1N1) 2009
Oct	S	General	School	8	0	-	P-P	Influenza-like illness
Oct	S	General	School	17	0	-	P-P	Influenza-like illness
Oct	S	General	School	2	0	-	P-P	Influenza-like illness
Oct	E	General	School	13	-	06/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	E	General	School	12	0	-	P-P & AB	Pandemic (H1N1) 2009
Oct	E	General	School	37	0	-	P-P	Pandemic (H1N1) 2009
Oct	NE	General	School	8	0	07/10/2009	AB	Pandemic (H1N1) 2009
Oct	SE	General	School	10	-	09/10/2009	AB	Influenza-like illness
Oct	E	General	School	24	0	05/10/2009	P-P	Pandemic (H1N1) 2009
Oct	NE	Family	Private house	2	2	30/09/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	E	General	School	16	0	-	P-P & AB	Pandemic (H1N1) 2009
Oct	NW	General	School	22	0	11/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	SE	General	School	30	-	-	AB	Pandemic (H1N1) 2009
Oct	SE	General	School	6	-	-	AB	Pandemic (H1N1) 2009
Oct	NW	General	School	21	0	11/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	S	General	School	-	-	-	P-P	Influenza-like illness
Oct	S	General	School	-	-	-	P-P	Influenza-like illness
Oct	S	General	School	-	-	-	P-P	Influenza-like illness
Oct	S	General	School	-	-	-	P-P	Influenza-like illness
Oct	S	General	School	-	-	-	P-P	Influenza-like illness
Oct	SE	General	School	26	-	12/10/2009	AB	Influenza-like illness
Oct	E	General	School	12	0	-	Not Specified	Pandemic (H1N1) 2009
Oct	E	General	Creche	22	1	15/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	NE	General	School	22	0	14/10/2009	AB	Pandemic (H1N1) 2009
Oct	S	General	School	16	-	-	P-P	Influenza-like illness
Oct	E	General	School	31	0	19/10/2009	P-P	Pandemic (H1N1) 2009
Oct	E	General	School	13	0	18/10/2009	P-P & AB	Influenza-like illness
Oct	S	General	School	104	-	-	P-P	Influenza-like illness
Oct	E	General	School	7	1	14/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	E	General	School	12	0	18/10/2009	NK	Influenza-like illness
Oct	E	General	School	9	0	-	P-P & AB	Pandemic (H1N1) 2009
Oct	NE	General	School	40	0	12/10/2009	P-P	Pandemic (H1N1) 2009

Oct	E	General	School	12	0	18/10/2009	NK	Influenza-like illness
Oct	E	General	School	12	0	17/10/2009	NK	Influenza-like illness
Oct	E	General	School	8	0	17/10/2009	NK	Influenza-like illness
Oct	NW	General	School	38	0	16/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	NW	General	School	7	-	-	P-P & AB	Influenza Like Illness
Oct	MW	General	School	12	-	-	P-P & AB	Pandemic (H1N1) 2009
Oct	E	General	School	10	0	16/10/2009	NK	Influenza-like illness
Oct	E	General	School	15	0	-	NK	Pandemic (H1N1) 2009
Oct	S	General	School	12	-	-	P-P	Influenza-like illness
Oct	E	General	School	15	0	16/10/2009	P-P & AB	Influenza-like illness
Oct	E	General	School	8	0	20/10/2009	P-P	Influenza-like illness
Oct	S	General	School	2	-	-	P-P	Influenza-like illness
Oct	E	General	School	12	0	-	NK	Pandemic (H1N1) 2009
Oct	NW	Family	Private house	2	2	12/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	NW	Family	Private house	2	1	12/10/2009	P-P & AB	Pandemic (H1N1) 2009
Oct	M	Family	Private house	3	3	12/10/2009	P-P	Pandemic (H1N1) 2009
Oct	NE	General	School	22	0	13/10/2009	AB	Pandemic (H1N1) 2009
Oct	NW	General	School	5	0	-	P-P & AB	Varicella
Oct	M	Family	Private house	3	0	-	P-P	Pandemic (H1N1) 2009
Oct	M	Family	Private house	2	0	-	P-P	Pandemic (H1N1) 2009
Oct	M	Family	Private house	2	0	-	P-P	Pandemic (H1N1) 2009
Oct	E	General	Residential institution	3	1	-	P-P	Pandemic (H1N1) 2009
Oct	E	General	School	150	0	17/10/2009	P-P	Pandemic (H1N1) 2009
Oct	SE	General	School	22	-	-	P-P & AB	Influenza-like illness
Oct	SE	General	School	6	-	-	P-P & AB	Influenza-like illness
Oct	SE	General	School	3	0	-	P-P & AB	Pandemic (H1N1) 2009
Oct	SE	General	Residential institution	5	-	-	P-P & AB	Pandemic (H1N1) 2009
Oct	NW	General	Other	25	0	-	P-P	Pandemic (H1N1) 2009
Oct	S	General	Residential institution	7	4	24/10/2009	P-P	Pandemic (H1N1) 2009
Oct	S	General	School	5	-	-	P-P	Influenza-like illness
Nov	S	General	Residential institution	2	1	-	P-P	Pandemic (H1N1) 2009
Nov	S	General	School		-	-	P-P	Influenza-like illness
Nov	S	General	Residential institution	2	-	-	P-P	Pandemic (H1N1) 2009
Nov	NE	Family	Private house	2	2	28/10/2009	AB	Pandemic (H1N1) 2009
Nov	E	General	Comm. Hosp/Long-stay unit	5	-	-	P-P & AB	Pandemic (H1N1) 2009
Nov	M	Family	Private house	2	2	17/10/2009	P-P & AB	Pandemic (H1N1) 2009
Nov	S	General	Other	2	0	-	P-P	Pandemic (H1N1) 2009
Nov	NW	Family	Private house	3	2	19/10/2009	P-P	Pandemic (H1N1) 2009
Nov	E	General	Residential institution	4	4	05/11/2009	P-P	Pandemic (H1N1) 2009
Nov	SE	General	School	50	0	-	P-P & AB	Influenza-like illness
Nov	S	General	Community outbreak	4	-	04/11/2009	P-P & AB	Measles
Nov	NW	Family	Private house	2	0	-	P-P	Pandemic (H1N1) 2009
Nov	S	General	School	4	0	-	P-P	Influenza-like illness
Nov	S	General	Creche	10	0	-	P-P	Influenza-like illness
Nov	W	General	Community outbreak	20	9	17/11/2009	P-P	Measles

Dec	SE	General	Community outbreak	21	-	01/10/2009	P-P	Measles
Dec	E	General	Residential institution	4	0	-	P-P	Pandemic (H1N1) 2009
Dec	S	Family	Private house	4	0	01/11/2009	P-P	Measles
Dec	S	Family	Private house	2	0	07/12/2009	P-P	Measles
Dec	S	Family	Private house	2	-	05/12/2009	P-P	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. Initial information is provided by a public health professional using a preliminary notification form (by fax or email). A full report is then forwarded 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 on final reports 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 2009. There were 21 general and 17 family IID outbreaks reported during this period, resulting in at least 255 people being ill.

Norovirus (n = 9) and AIG (n = 6) were responsible for the majority of general outbreaks of IID (71% of all general outbreaks).

The most common cause of family outbreaks of IID was EHEC, with ten outbreaks (59% of all family outbreaks) caused by this pathogen. The other pathogens responsible for family outbreaks were *Campylobacter*, *Clostridium perfringens*, Rotavirus and salmonellosis (Table 2).

Many general IID outbreaks were transmitted person-to-person (71%). Fourteen general outbreaks (66%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

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

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q4 2009.

Table 4. No. of infectious disease outbreaks per HSE region, Q4 2009

HSE Area	No. of outbreaks	Rate per 100,000 population
E	31	2.1
M	6	2.4
MW	3	0.8
NE	11	2.8
NW	22	9.3
SE	13	2.8
S	30	4.8
W	11	2.6
Total	127	3.0

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 2009 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 4, 2009 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
Acute infectious gastroenteritis* (incl. rotavirus & <i>C. difficile</i>)	169	20	25	53	31	112	62	99	571
<i>Bacillus cereus</i> foodborne infection/intoxication	0	0	0	1	0	0	0	0	1
Botulism	0	0	0	0	0	0	0	0	0
Campylobacter infection	116	19	29	32	17	40	41	49	343
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	4	5	3	4	1	15	9	6	47
Enterohaemorrhagic <i>Escherichia coli</i>	8	0	19	2	10	9	15	10	73
Giardiasis	3	1	0	0	0	1	2	0	7
Listeriosis	0	0	0	0	0	1	1	1	3
Noroviral infection	26	0	20	19	9	5	0	6	85
Paratyphoid	~	~	~	~	~	~	~	~	0
Salmonellosis	33	5	6	7	5	12	7	2	77
Shigellosis	6	0	2	0	0	0	1	1	10
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	~	~	~	~	~	~	~	~	1
Yersiniosis	0	0	1	0	0	0	0	0	1
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	3	0	2	2	0	2	1	0	10
Plague	0	0	0	0	0	0	0	0	0
Q Fever	0	0	0	0	0	0	2	0	2
Rabies	0	0	0	0	0	0	0	0	0
Toxoplasmosis	2	0	1	0	2	0	1	0	6
Trichinosis	0	0	0	0	0	0	0	0	0
Typhus	0	0	0	0	0	0	0	0	0
Vectorborne Disease									
Malaria	4	1	0	1	1	0	4	2	13

*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

SALMONELLA ENTERICA

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 fourth quarter of 2009. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q4 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	10	4	2	4	1	5	5	0	31
Nov	12	1	3	2	0	3	1	1	23
Dec	11	0	1	1	4	4	1	1	23
Total	33	5	6	7	5	12	7	2	77

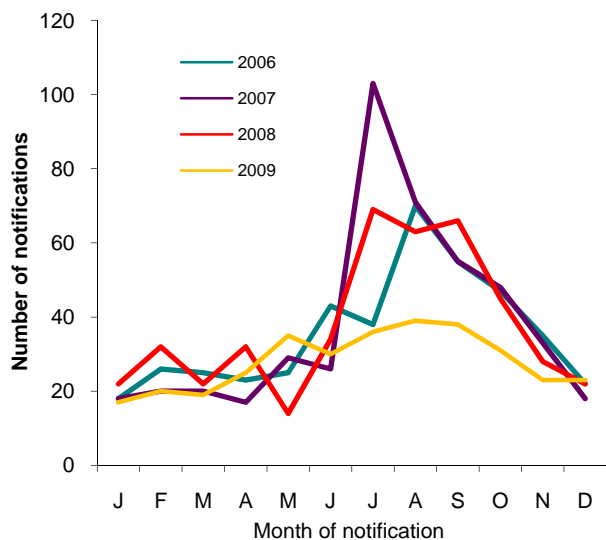


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2006 to end quarter 4 2009

Table 7 shows the *S. enterica* isolates typed by the NSRL in the fourth quarter of 2009 by HSE area (n=72). The commonest human serotypes isolated were *S. Enteritidis* (n= 21 [29%]) and *S. Typhimurium* (n=17 [24%]).

Fourteen (19%) *S. enterica* isolates were reported to be associated with travel outside of Ireland during this quarter.

Table 7. Serotypes of *S. enterica* referred to NSRL in Quarter 4, 2009 (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:-	0	1	0	1	0	1	1	0	4
Bovismorbificans	1	0	0	0	0	0	0	0	1
Braenderup	0	0	0	0	0	1	1	0	2
Cerro	0	0	1	0	0	0	0	0	1
Derby	1	0	0	0	0	0	0	0	1
Dublin	0	0	0	0	0	0	1	0	1
Enteritidis	8	2	1	2	1	4	2	1	21
Goldcoast	0	0	0	0	0	0	1	0	1
Idikan	0	0	0	0	0	1	0	0	1
Infantis	1	0	0	0	0	0	0	0	1
Jangwani	0	0	0	2	0	0	0	0	2
Javiana	0	0	1	0	0	0	0	0	1
London	0	0	0	0	1	0	0	0	1
Mbandaka	2	0	0	0	0	0	0	0	2
Newport	0	0	0	0	0	1	0	0	1
Oslo	1	0	0	0	0	0	0	0	1
Paratyphi B	~	~	~	~	~	~	~	~	1
Richmond	1	0	0	0	0	0	0	0	1
Saintpaul	1	0	0	0	0	0	0	1	2
Typhi	~	~	~	~	~	~	~	~	2
Typhimurium	8	2	2	3	0	2	0	0	17
Unnamed	4	0	0	0	2	0	0	0	6
Welikade	1	0	0	0	0	0	0	0	1
Total	32	5	5	8	4	10	6	2	72

S. Typhi and *S. Paratyphi*

There was one notification of *S. Typhi* reported during Q4 2009, which was associated with travel to Bangladesh. There were no notifications of *S. Paratyphi* reported during Q4 2009.

Outbreaks of salmonellosis

There were five outbreaks of salmonellosis reported in Q4 2009, four family outbreaks and one general outbreak (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 Q4 2009 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.

Seventy-three EHEC were notified in this quarter, 69 of which were confirmed or probable VTEC (Table 8). This compares with 41 VTEC cases notified in Q4 2008 and 25 in Q4 2007 (Figure 2). Table 8 shows the number of VTEC cases reported by serogroup and month, Q4 2009.

Table 8. Confirmed and Probable VTEC Notified by Serogroup and Month, Q4 2009

Month	O157	O26	Other	Total
Oct	8	5	3	16
Nov	19	5	3	27
Dec	17	4	5	26
Total	44	14	11	69

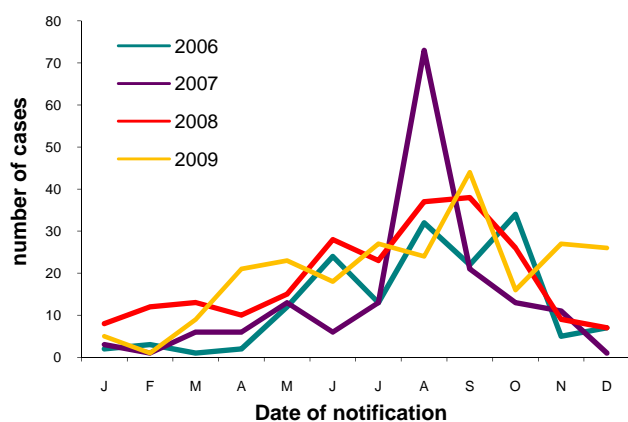


Figure 2. Seasonal distribution of confirmed and probable VTEC cases notified 2006 to end quarter 4 2009

Six cases notified during this quarter were reported as having developed HUS –four were infected with *E. coli* O157, and two with Ungroupable *E. coli* strains.

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. Tables 9 and 10 show the phage types and *vt* types of VTEC isolates referred to the laboratory in Q4 2009.

Table 9. Phage Types of VTEC O157 isolates referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q4 2009. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Phage type	Number of isolates
32	24
8	3
2	3
21/28	1
RDNC	1
Pending	12
Total	44

Includes isolates from confirmed cases only. All phage typing was undertaken at the HPA Laboratory of Enteric Pathogens (LEP), Colindale, UK

Table 10. Verotoxin typing results of VTEC isolates referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q4 2009. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	vt1	vt2	vt1+vt2	Pending	Total
O157	0	38	4	2	44
O26	7	1	6	0	14
Other	1	7	3	0	11
Total	8	46	13	2	69

Outbreaks of VTEC infection

During this quarter, two general and 10 family outbreaks of VTEC infection were reported (see Tables 1 & 2).

CAMPYLOBACTER

Human campylobacteriosis became a notifiable disease on January 1st 2004. Prior to this, human campylobacter infection was notified under the category of 'Food Poisoning (bacterial other than Salmonella)'. The notifications for the fourth quarter of 2009 are shown in Table 11. The number of cases notified this quarter is similar to quarter 3 in previous years (Figure 3).

Table 11. Campylobacter Notifications by HSE-Area and Month, Q4 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	51	9	9	10	9	11	11	18	128
Nov	36	5	13	8	7	12	14	12	107
Dec	29	5	7	14	1	17	16	19	108
Total	116	19	29	32	17	40	41	49	343

Outbreaks of Campylobacter infection

There was one family outbreak of campylobacteriosis reported in Q4 2009 (Table 2).

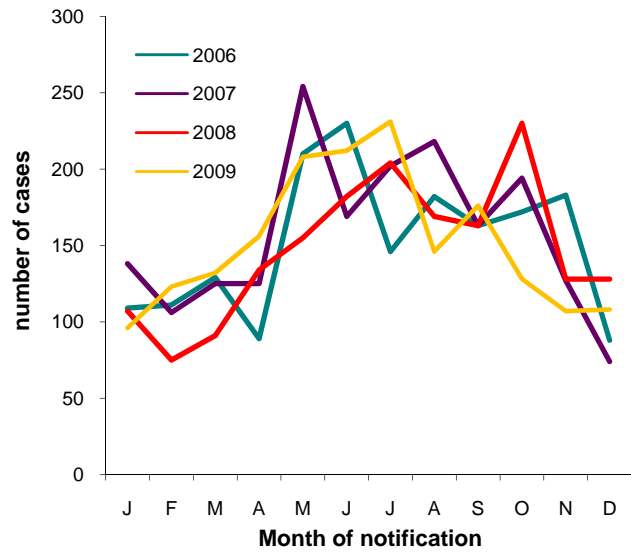


Figure 3. Seasonal distribution of Campylobacter notifications 2006 to end quarter 4 2009

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 2009, 47 cases of cryptosporidiosis were notified (Table 12), compared to 57 in the same period last year and 38 in Q4 2007 (Figure 4).

Table 12. Cryptosporidiosis Notifications by HSE-Area and Month, Q4 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	2	0	2	2	1	6	3	2	18
Nov	1	3	0	1	0	7	5	2	19
Dec	1	2	1	1	0	2	1	2	10
Total	4	5	3	4	1	15	9	6	47

Outbreaks of cryptosporidiosis

There were no outbreaks of cryptosporidiosis reported in Quarter 4, (Tables 1&2).

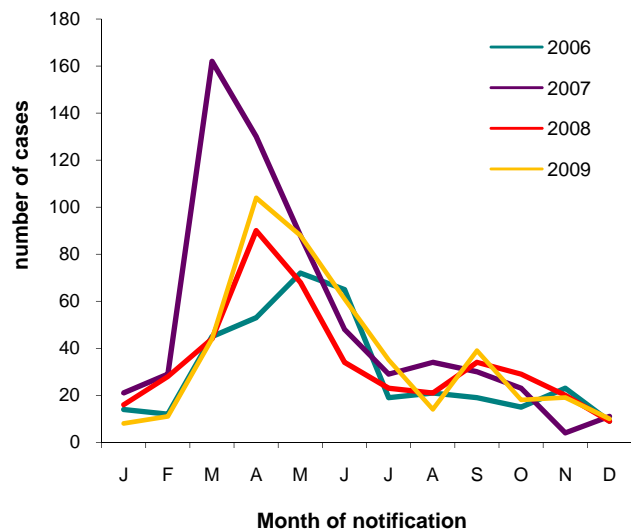


Figure 4. Seasonal distribution of cryptosporidiosis notifications 2006 to end quarter 4 2009

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 85 cases reported in the fourth quarter of 2009, as shown in 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, Q4 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	5	0	0	7	0	5	0	0	17
Nov	6	0	4	5	0	0	0	0	15
Dec	15	0	16	7	9	0	0	6	53
Total	26	0	20	19	9	5	0	6	85

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the fourth quarter of 2009 there were nine outbreaks confirmed as being caused by this virus,

involving at least 100 people becoming ill, as outlined in Table 1. The seasonal trend is outlined in Figure 5.

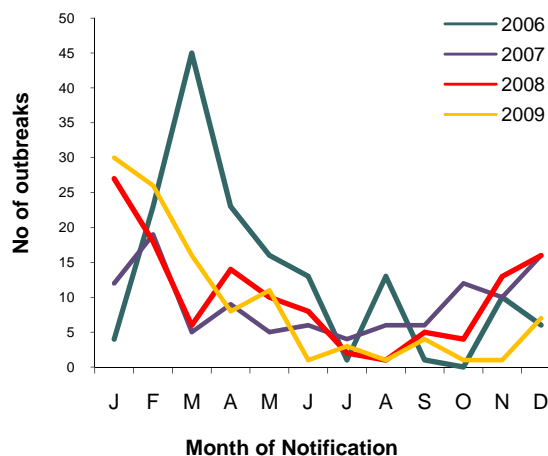


Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2006 to end quarter 4 2009.

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 three cases of listeriosis notified in Q4 2009, compared to five in quarter 4 2008 and seven in quarter 4 2007. One was a pregnancy-related case and two were non-pregnancy related adult cases. Two

isolates were referred to the NSRL. Table 14 lists the serotypes for these isolates.

Table 14: Serotypes of Q4 2009 human *Listeria* isolates referred to the NSRL (Data are provided courtesy of Prof. Martin Cormican and staff at the NSRL).

Serotype	Number of isolates
4b	1
1/2	1

SHIGELLA

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

During Q4 2009, ten cases of shigellosis were notified (Table 5). This compares with 14 cases notified as shigellosis in Q4 in 2008 and 10 in Q4 2007. Four cases were reported as *S. sonnei*, four as *S. flexneri*, one as *S. boydii*, and one as *S. dysenteriae*.

Four cases (40%) were reported to have acquired their illness abroad, one each in Argentina, Algeria, India and Nigeria. Country of infection was reported as 'not specified' or 'unknown' for the remaining six cases.

Outbreaks of shigellosis

There were no outbreaks of shigellosis reported in Q4 2009 (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 4 2009, seven cases of giardiasis were notified (Table 5); this compares with 15 cases notified in Q4 2008 and 15 in Q4 2007.

Outbreaks of giardiasis

There were no outbreaks of giardiasis notified in Q4 2009 (Tables 1&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)’.

There was one case of *Bacillus cereus* foodborne infection/intoxication notified during this quarter.

Outbreaks of foodborne intoxications

There was one family outbreak of *Clostridium perfringens* (type A) food-borne disease notified this quarter (Table 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, Q4 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	15	7	0	12	2	7	4	7	54
Nov	7	3	0	3	2	15	4	3	37
Dec	2	1	1	4	1	24	8	6	47
Total	24	11	1	19	5	46	16	16	138

During Quarter 4 2009, there were 571 notifications of acute infectious gastroenteritis. 138 of these (24%)

were reported as rotavirus (as shown in Table 15 & Figure 6).

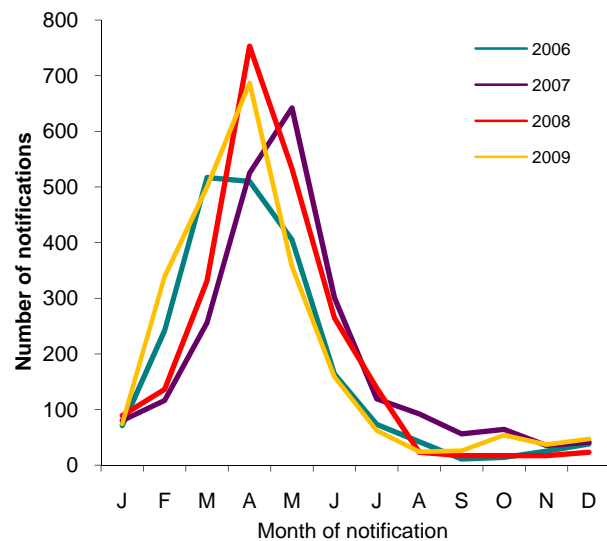


Figure 6. Seasonal distribution of rotavirus notifications 2006 to end quarter 4 2009

Outbreaks of Rotavirus

There were one family and one general outbreak of rotavirus 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 Q4 2009 notifications of these zoonotic diseases are reported by HSE-Area in Table 5.

Six cases of toxoplasmosis were notified in this quarter. This compares with seven cases notified in the same period in 2008 and 15 cases in Q4 2007.

There were no cases of brucellosis reported during this quarter compared with none in Q4 2008 and seven in Q4 2007.

Ten cases of leptospirosis were notified in Q4 2009; this compares with 12 in Q4 2008 and seven in Q4 2007. Five were reported as associated with leisure activities, three were reported as occupational and one as exposure =other; no exposure information was provided for the remaining case.

There were two cases of Q fever notified this quarter, compared to three in Q4 in 2008 and two in Q4 2007.

MALARIA

Malaria is a notifiable disease for many years. The Q4 2009 notifications are reported in Table 5 by HSE-Area.

Thirteen cases of malaria were notified in Q4 2009. This compares with 15 cases reported in Q4 2008 and 18 in Q4 2007.

Twelve cases were reported as *P. falciparum*, and species was not specified for one case.

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

The reason for travel for five cases was reported as visiting family in country of origin, with one case exposed during business/professional travel. The reason for travel was not specified/unknown for seven cases.

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