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

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 2 –2009 **August 2009**

This is the second 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.

Table 1. General Outbreaks of Infectious Intestinal Disease (IID) in Quarter 2, 2009

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Apr	E	Residential institution	12	-	20/04/2009	P-P	AIG
Apr	E	Creche	6	0	-	P-P	Rotavirus
Apr	E	Creche	13	-	26/03/2009	P-P	Norovirus and Rotavirus
Apr	E	Comm. Hosp/Long-stay unit	23	-	30/03/2009	P-P	AIG
Apr	E	Hospital	10	9	10/04/2009	P-P	Norovirus
Apr	E	Residential institution	9	-	31/03/2009	Not Specified	Norovirus
Apr	E	Comm. Hosp/Long-stay unit	17	15	-	P-P	Norovirus
Apr	E	Hospital	69	63	25/03/2009	P-P	Norovirus
Apr	E	Travel related	3	0	-	Not Specified	Giardiasis
Apr	M	Residential institution	19	0	10/04/2009	Unknown	AIG
Apr	M	Hospital	13	-	03/04/2009	Unknown	Rotavirus
Apr	M	Hospital	15	15	16/03/2009	Unknown	Rotavirus
Apr	NE	Comm. Hosp/Long-stay unit	32	1	-	P-P	Norovirus
Apr	NE	Hospital	6	6	-	P-P	*Clostridium difficile*
Apr	NE	Comm. Hosp/Long-stay unit	9	-	-	P-P	Norovirus
Apr	NE	Residential institution	2	2	-	P-P	*Clostridium difficile*
Apr	NW	Comm. Hosp/Long-stay unit	3	0	-	P-P	Rotavirus
Apr	NW	Comm. Hosp/Long-stay unit	14	12	-	P-P	Norovirus
Apr	SE	Residential institution	11	-	10/04/2009	P-P	AIG
Apr	SE	Comm. Hosp/Long-stay unit	7	0	10/04/2009	P-P	AIG
Apr	SE	Hospital	3	-	09/03/2009	P-P	AIG
Apr	S	Residential institution	5	0	16/04/2009	Not Specified	AIG
May	E	Comm. Hosp/Long-stay unit	30	0	18/04/2009	P-P & AB	Norovirus
May	E	Hospital	12	-	19/05/2009	P-P	Norovirus
May	HPSC	Community outbreak	12	5	28/02/2009	Unknown	Salmonellosis
May	MW	Hospital	6	-	28/05/2009	P-P	Norovirus
May	NE	Community outbreak	35	0	-	FB	Salmonellosis
May	NW	Comm. Hosp/Long-stay unit	23	0	-	P-P	Norovirus
May	NW	Workplace	5	0	-	P-P	Norovirus
May	NW	Comm. Hosp/Long-stay unit	16	0	06/05/2009	P-P	Norovirus
May	NW	Community outbreak	3	-	28/04/2009	P-P	Cryptosporidiosis
May	SE	Residential institution	4	0	04/05/2009	P-P	AIG
May	SE	Comm. Hosp/Long-stay unit	7	-	24/05/2009	P-P	Norovirus
May	S	Hotel	37	1	-	Not Specified	Norovirus
May	S	Hospital	19	-	-	Not Specified	Norovirus
May	S	Comm. Hosp/Long-stay unit	2	1	-	Not Specified	*Clostridium difficile*
May	W	Comm. Hosp/Long-stay unit	42	-	07/05/2009	Not Specified	Norovirus
May	E	Residential institution	10		07/05/2009	Not Specified	Norovirus
Jun	E	Hospital	16	-	14/06/2009	P-P	AIG
Jun	MW	Hotel	40	-	01/06/2009	Unknown	AIG
Jun	NW	Comm. Hosp/Long-stay unit	36	0	-	P-P	Norovirus

Jun	S	Other	6	0	20/06/2009	Not Specified	AIG
Jun	S	Hospital	3	-	-	P-P	*Clostridium difficile*

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*
* Total numbers ill does not include asymptomatic cases

Table 2. Family Outbreaks of Infectious Intestinal Disease (IID) in Quarter 2, 2009

Month	HSE region	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Apr	M	Private house	1	1	02/04/2009	FB	EHEC
Apr	M	Private house	3	1	17/04/2009	Animal contact	Cryptosporidiosis
Apr	M	Private house	2	1	03/04/2009	FB	Salmonellosis
Apr	MW	Private house	1		12/03/2009	Unknown	EHEC
Apr	NE	Private house	3	0	14/04/2009	Unknown	Cryptosporidiosis
Apr	NW	Private house	3	3	-	P-P	Rotavirus
Apr	SE	Travel related	2	-	18/02/2009	P-P & WB	Salmonellosis
Apr	S	Private house	1	1	16/03/2009	P-P	EHEC
Apr	S	Not Specified	-	-	04/04/2009	Not Specified	EHEC
May	E	Private house	1	1	22/04/2009	P-P & FB	EHEC
May	SE	Private house	2	1	22/04/2009	P-P	Salmonellosis
May	S	Private house	4	0	-	Not Specified	EHEC
Jun	NE	Private house	4	0	-	P-P & FB	Campylobacter
Jun	NW	Private house	5	0	10/05/2009	P-P	Campylobacter
Jun	NW	Private house	5	1	-	Unknown	EHEC
Jun	SE	Private house	2	1	10/05/2009	Unknown	Cryptosporidiosis
Jun	SE	Private house	1	1	18/05/2009	Unknown	EHEC
Jun	W	Private house	4		-	P-P	Cryptosporidiosis
Jun	W	Private house	3	0	31/05/2009	Not Specified	EHEC
Jun	W	Private house	1	0	20/05/2009	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*
* Total numbers ill does not include asymptomatic cases

Table 3. Non-IID Outbreaks in Quarter 2, 2009

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Apr	E	General	School	20	0	26/03/2009	P-P & AB	Mumps
Apr	E	General	Residential institution	4	0	21/04/2009	P-P	Mumps
Apr	E	General	University/College	8	1	29/03/2009	P-P & AB	Mumps
Apr	NE	General	School	3	0	15/03/2009	P-P & AB	Mumps
Apr	SE	Family	Private house	3	3	15/04/2009	P-P	Measles
May	E	General	Private house	2	2	28/03/2009	P-P	Hepatitis A
May	NE	General	School	5		25/05/2009	P-P	Chickenpox
May	SE	General	Other	5	4	01/05/2008	AB	Mycobacterium tuberculosis
Jun	E	Family	Travel related	2	2	08/06/2009	AB	Legionellosis
Jun	MW	General	Private house	6	0	31/05/2009	Not Specified	Pandemic (H1N1) 2009
Jun	MW	General	Private house	2		25/05/2009	Not Specified	Pandemic (H1N1) 2009
Jun	W	Family	Extended family	2	0	16/06/2009	P-P	Pandemic (H1N1) 2009

P-P denotes Person-to-Person transmission, WB denotes waterborne; AB denotes airborne; IDU denotes Injecting Drug Use
* 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 second quarter of 2009. There were 43 general and 20 family IID outbreaks reported during this period, resulting in at least 713 people being ill.

Norovirus was responsible for the majority of general outbreaks of IID (44% of all general outbreaks).

The most common cause of family outbreaks of IID was EHEC, with ten outbreaks (50% of all family outbreaks) caused by this pathogen. The other pathogens responsible for family outbreaks were campylobacter, cryptosporidiosis, rotavirus and salmonellosis. (Table 2).

Most general IID outbreaks were transmitted person-to-person (65%). Thirty-three general outbreaks (77%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

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

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q2 2009.

Table 4. No. of infectious disease outbreaks per HSE region, Q2 2009

HSE Area	No. of outbreaks	Rate per 100,000 population
E	19	1.3
M	6	2.4
MW	5	1.4
NE	9	2.3
NW	10	4.2
SE	11	2.4
S	9	0.5
W	5	1.2
Total	**74**	**1.7**

NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZOONOTIC AND VECTORBORNE DISEASE

The number of notifications of infectious intestinal, zoonotic and vectorborne disease by HSE-Area for the second quarter of 2009 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 2, 2009 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
Acute infectious gastroenteritis* (incl. rotavirus & *C. difficile*)	385	122	99	81	138	286	255	312	**1678**
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	179	33	67	39	29	63	79	87	**576**
Cholera	0	0	0	0	0	0	0	0	**0**
Clostridium perfringens (type A) food-borne disease	1	0	0	0	0	0	0	0	**1**
Cryptosporidiosis	2	31	40	13	23	31	41	72	**253**
Enterohaemorrhagic *Escherichia coli*	10	5	8	1	10	5	15	12	**66**
Giardiasis	12	0	1	4	0	0	2	4	**23**
Listeriosis	0	0	3	0	0	0	0	0	**3**
Noroviral infection	89	10	43	37	33	12	26	46	**296**
Paratyphoid	~	~	~	~	~	~	~	~	**4**
Salmonellosis	32	7	9	14	3	10	6	9	**90**
Shigellosis	11	2	1	1	1	0	0	2	**18**
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	**0**
Typhoid	~	~	~	~	~	~	~	~	**3**
Yersiniosis	1	0	0	1	0	0	0	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	1	0	0	0	0	0	0	0	**1**
Leptospirosis	0	0	0	0	1	1	2	0	**4**
Plague	0	0	0	0	0	0	0	0	**0**
Q Fever	0	1	0	0	0	0	7	0	**8**
Rabies	0	0	0	0	0	0	0	0	**0**
Toxoplasmosis	3	0	1	0	0	0	2	1	**7**
Trichinosis	0	0	0	0	0	0	0	0	**0**
Typhus	0	0	0	0	0	0	0	0	**0**
Vectorborne Disease									
Malaria	3	4	2	2	0	1	2	2	**16**

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

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q2 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	10	3	2	4	2	3	0	1	**25**
May	12	2	3	2	0	6	2	8	**35**
Jun	10	2	4	8	1	1	4	0	**30**
Total	**32**	**7**	**9**	**14**	**3**	**10**	**6**	**9**	**90**

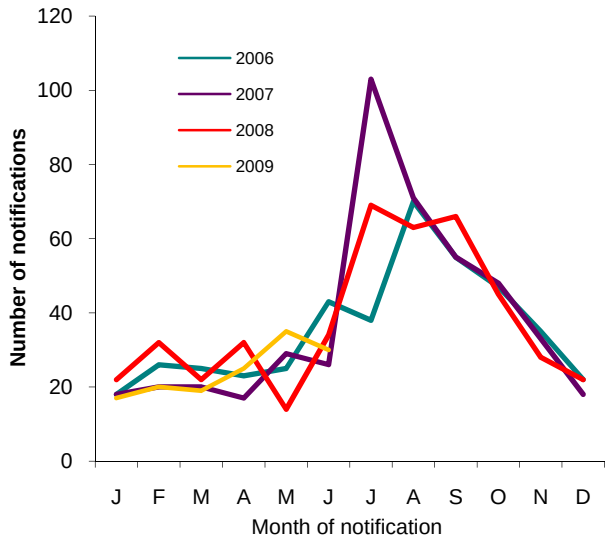

Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2006 to end quarter 2 2009

Table 7 shows the *S. enterica* isolates typed by the NSRL in the second quarter of 2009 (n=101). The commonest human serotypes isolated were *S.* Typhimurium (n=26 [26%]) and *S.* Enteritidis (n= 16 [16%]).

Seventeen (17%) *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 2, 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:-	5	3	0	2	0	1	0	0	**11**
Agama	0	0	0	0	0	0	0	1	**1**
Agona	1	0	0	3	0	0	0	0	**4**
Bareilly	1	0	0	0	0	0	0	0	**1**
Bredeney	1	0	0	0	0	0	0	0	**1**
Colindale	0	1	0	0	0	0	0	0	**1**
Concord	2	0	0	0	0	0	0	0	**2**
Dublin	0	0	0	1	0	0	1	0	**2**
Durham	0	0	0	0	0	0	2	0	**2**
Enteritidis	4	0	2	0	1	5	0	4	**16**
Give	1	0	0	0	0	0	0	0	**1**
Haifa	0	1	0	0	0	0	0	0	**1**
Herston	0	0	0	0	0	0	0	1	**1**
Hull	0	0	0	0	0	0	0	1	**1**
Ibadan	1	0	0	0	0	0	0	0	**1**
Java	1	0	0	0	0	0	0	0	**1**
Kentucky	2	0	1	3	0	0	0	0	**6**
Kisarawe	0	0	1	0	0	0	0	0	**1**
Kottbus	0	0	1	0	0	0	0	0	**1**
Mbandaka	1	0	0	0	0	0	0	0	**1**
Monschaui	0	0	0	1	0	0	0	0	**1**
Newport	1	0	0	0	0	0	0	0	**1**
Paratyphi A	~	~	~	~	~	~	~	~	**4**
Saintpaul	1	0	0	0	0	0	0	0	**1**
Schwarzengrund	1	0	0	0	0	0	0	0	**1**
Senftenberg	0	0	1	0	0	0	0	0	**1**
Stockholm	1	0	0	0	0	0	0	0	**1**
Typhi	~	~	~	~	~	~	~	~	**3**
Typhimurium	8	4	1	3	0	7	2	1	**26**
Unnamed	3	0	0	0	1	0	1	0	**5**
Virchow	0	0	1	0	0	0	0	0	**1**
Total	**38**	**9**	**8**	**14**	**2**	**16**	**6**	**8**	**101**

S. Typhi and S. Paratyphi

There were three cases of *S.* Typhi associated with travel to the Phillipines, India and Bangladesh, and four cases of *S.* Paratyphi A associated with travel to India and Pakistan notified during Q2 2009.

Outbreaks of salmonellosis

There were five outbreaks of salmonellosis reported in Q2 2009, three family outbreaks and two general outbreaks (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 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.

Sixty-six EHEC were notified in this quarter, 62 of which were confirmed VTEC (Table 8). This compares with 53 VTEC cases notified in Q2 2008 and 25 in Q2 2007 (Figure 2). Table 8 shows the number of VTEC cases reported by serogroup and month, Q2 2009.

Table 8. Confirmed and Probable VTEC Notified by Serogroup and Month, Q2 2009

Month	O157	O26	Other	Total
Apr	15	4	2	**21**
May	11	8	4	**23**
Jun	14	4	0	**18**
Total	**40**	**16**	**6**	**62**

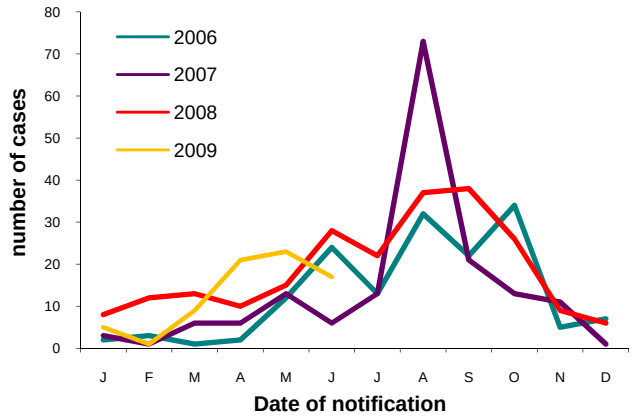

Figure 2. Seasonal distribution of confirmed and probable VTEC cases notified 2006 to end quarter 2 2009

Seven cases notified during this quarter were reported as having developed HUS –two were infected with *E. coli* O157, three with *E. coli* O26, one with *E. coli* O5 and one with *E. coli* O78.

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 Q2 2009.

Table 9. Phage Types of VTEC O157 isolates referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q2 2009. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Phage type	Number of isolates
32	19
RDNC	5
21/28	3
31	3
14	2
8	2
Other	4
Pending	2
Total	**40**

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 Q2 2009. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	*vt1*	*vt2*	*vt1+vt2*	UNK	Total
O157	0	33	6	1	**40**
O26	4	1	11	0	**16**
Other	2	4	0	0	**6**
Total	**6**	**38**	**17**	**1**	**62**

Outbreaks of VTEC infection

During this quarter, ten family outbreaks of VTEC infection were reported (see Table 2).

CAMPYLOBACTER

Human campylobacteriosis became a notifiable disease on January 1st 2004. Prior to this, human campylobacter infection was notified under the category of 'Food Poisoning (bacterial other than Salmonella)'. The notifications for the second quarter of 2009 are shown in Table 11. The number of cases notified this quarter is similar to quarter 2 in previous years (Figure 3).

Table 11. Campylobacter Notifications by HSE-Area and Month, Q2 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	45	11	18	11	6	22	23	20	**156**
May	71	9	22	14	14	16	31	31	**208**
Jun	63	13	27	14	9	25	25	36	**212**
Total	**179**	**33**	**67**	**39**	**29**	**63**	**79**	**87**	**576**

Outbreaks of Campylobacter infection

There were two family outbreaks of campylobacteriosis reported in Q2 2009 (Table 2).

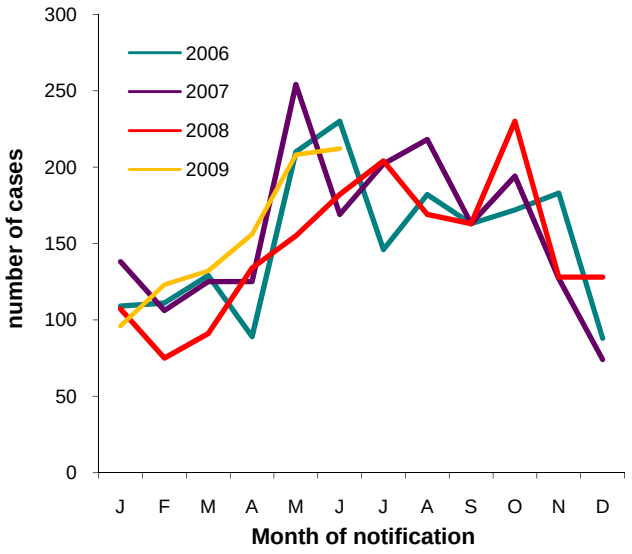

Figure 3. Seasonal distribution of Campylobacter notifications 2006 to end quarter 2 2009

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 Q2 2009, 253 cases of cryptosporidiosis were notified (Table 12), compared to 192 in the same period last year and 266 in Q2 2007 (Figure 4).

Table 12. Cryptosporidiosis Notifications by HSE-Area and Month, Q2 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	2	17	16	6	6	10	24	23	**104**
May	0	9	14	3	14	10	15	23	**88**
Jun	0	5	10	4	3	11	2	26	**61**
Total	**2**	**31**	**40**	**13**	**23**	**31**	**41**	**61**	**253**

Outbreaks of cryptosporidiosis

There were five outbreaks of cryptosporidiosis reported in Quarter 2, four family outbreaks and one general outbreak (Tables 1&2).

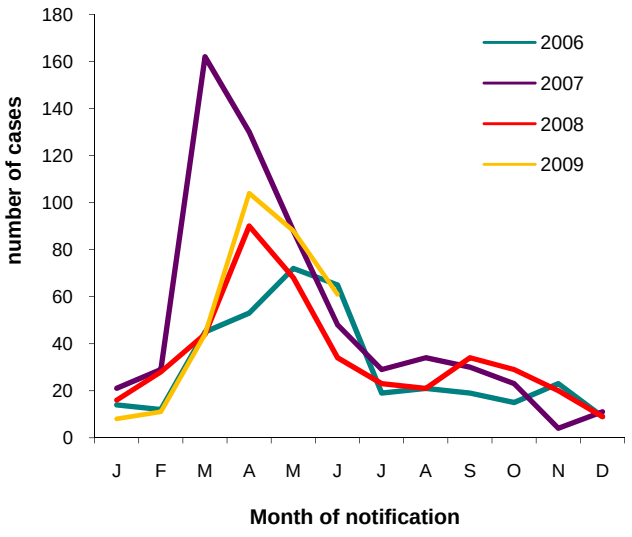

Figure 4. Seasonal distribution of cryptosporidiosis notifications 2006 to end quarter 2 2009

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 296 cases reported in the second 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, Q2 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	66	7	9	24	10	5	14	7	**142**
May	12	2	15	6	16	4	10	39	**104**
Jun	11	1	19	7	7	3	2	0	**50**
Total	**89**	**10**	**43**	**37**	**33**	**12**	**26**	**46**	**296**

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the second quarter of 2009 there were 20 outbreaks confirmed as being caused by this virus, involving at least 416 people becoming ill, as outlined in Table 1. The seasonal trend is outlined in Figure 5.

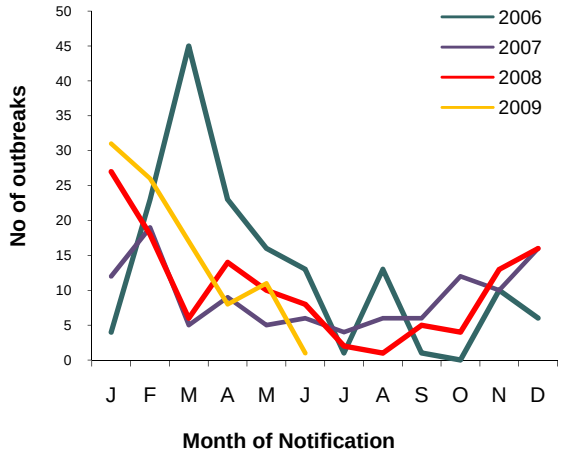

Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2006 to end quarter 2 2009.

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 Q2 2009, compared to two in quarter 2 2008 and one in quarter 2 2007. All were non-pregnancy related adult cases, and all three isolates were referred to the NSRL. Table 14 lists the serotypes for these isolates.

Table 14: Serotypes of Q2 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
1/2	1
4b	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 2009, eighteen cases of shigellosis were notified (Table 5). This compares with 30 cases notified as shigellosis in Q2 in 2008 and eight in Q2 2007. Nine cases were reported as *S. sonnei*, six as *S. flexneri*, one as *S. boydii*, one as *S. dysenteriae* and one was not specified.

During this quarter, seven cases (39%) were reported to have acquired their illness abroad, two in Egypt, and one each in Chad, Czech Republic, India, Pakistan and South Africa. Country of infection was reported as Ireland for two further cases, and as 'not specified' or 'unknown' for the remaining nine cases.

Outbreaks of shigellosis

There were no outbreaks of shigellosis reported in Q2 2009 (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 2009, 23 cases of giardiasis were notified (Table 5); this compares with 22 cases notified in Q2 2008 and 15 in Q2 2007.

Outbreaks of giardiasis

There was one general outbreak of giardiasis notified in Q2 2008 (Table 1).

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 *C. perfringens* foodborne disease notified during this quarter.

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 2009

Month	E	M	MW	NE	NW	SE	S	W	Total
Apr	132	62	31	30	59	121	113	139	**687**
May	60	39	23	14	20	57	68	76	**357**
Jun	26	11	4	13	20	28	24	33	**159**
Total	**218**	**112**	**58**	**57**	**99**	**206**	**205**	**248**	**1203**

During Quarter 2 2009, there were 1678 notifications of acute infectious gastroenteritis. 1203 of these (71%) were reported as rotavirus (as shown in Table 15 & Figure 6).

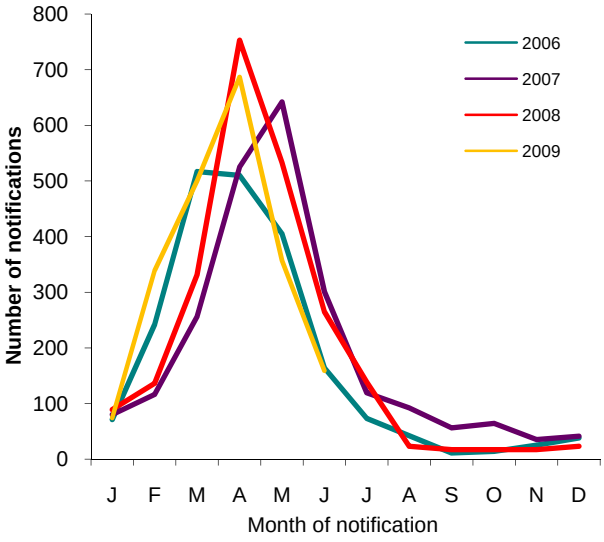

Figure 6. Seasonal distribution of rotavirus notifications 2006 to end quarter 2 2009

Outbreaks of Rotavirus

There were one family and four general outbreaks of rotavirus 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 Q2 2009 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 17 cases notified in the same period in 2008 and 15 cases in Q2 2007.

There were no cases of brucellosis reported during this quarter compared with one in Q2 2008 and seven in Q2 2007.

Four cases of leptospirosis were notified in Q2 2009; this compares with three in Q2 2008 and one in Q2 2007. Two were reported as associated with leisure activities; no exposure information was provided for the remaining two cases.

There were eight cases of Q fever notified this quarter, compared to three in Q2 in 2008 and seven in Q2 2007.

There was one case of echinococcosis notified this quarter.

MALARIA

Malaria is a notifiable disease for many years. The Q2 2009 notifications are reported in Table 5 by HSE-Area.

Sixteen cases of malaria were notified in Q2 2009. This compares with 21 cases reported in Q2 2008 and 14 in Q2 2007.

Eleven cases were reported as *P. falciparum*, one as *P. vivax*, two as *P. ovale*, and species was specified for two cases.

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

The reason for travel for six cases was reported as visiting family in country of origin. One case was exposed during holiday travel, three cases were reported as foreign students studying in Ireland, two were new entrants, while the reason for travel was specified as 'other' for one case, and not specified for three cases.

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