

SURVEILLANCE of INFECTIOUS INTESTINAL (IID), ZOO NOTIC 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 4–2006

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This is the fourth quarterly report for 2006 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, 2006

Month	HSE region	Type of outbreak	Location	No. ill	No. Hos p.	Date Onset	Suspect mode of transmission	Disease
Oct	MW	General	Crèche	2		19-Sep-06	FB	EHEC
Oct	MW	General	Hotel	40	0	8-Oct-06	Airborne	AIG
Oct	W	General	Crèche	12		5-Oct-06	FB	AIG
Oct	E	General	Hotel	18			Not Specified	AIG
Oct	E	General	Hospital	15	35	9-Oct-06	Unknown	AIG
Oct	M	General	Travel related	2	0	23-Sep-06	FB	Salmonellosis
Oct	W	General	Crèche	1		10-Sep-06	Unknown	EHEC
Oct	E	General	Comm. Hosp/Long-stay unit	8		26-Oct-06	P-P	AIG
Oct	E	General	Crèche	4	0	23-Oct-06	Unknown	Salmonellosis
Nov	E	General	Crèche	36			Not Specified	Noroviral infection
Nov	E	General	Crèche	41	0	25-Oct-06	P-P	Noroviral infection
Nov	E	General	Comm. Hosp/Long-stay unit	50			Not Specified	Noroviral infection
Nov	E	General	Crèche	22		7-Nov-06	P-P	Noroviral infection
Nov	S	General	Residential institution	37	1	16-Nov-06	P-P and AB	Noroviral infection
Nov	S	General	School	31	1	15-Nov-06	P-P and AB	AIG
Nov	S	General	Residential institution	3	0	21-Nov-06	P-P and AB	AIG
Nov	E	General	Other	37	0		Not Specified	AIG
Nov	E	General	Other	42		26-Nov-06	Not Specified	Noroviral infection
Nov	SE	General	Community outbreak	8	1	23-Oct-06	WB	Cryptosporidiosis
Nov	MW	General	Hospital	8		17-Nov-06	P-P	Noroviral infection
Nov	E	General	Staff canteen	9		28-Nov-06	Not Specified	Noroviral infection
Dec	NE	General	Comm. Hosp/Long-stay unit	13	1	1-Dec-06	Not Specified	Noroviral infection
Dec	E	General	Comm. Hosp/Long-stay unit	44			Not Specified	Noroviral infection
Dec	E	General	Residential institution	17	0	28-Nov-06	P-P	Noroviral infection
Dec	NE	General	Hotel	31	0	26-Nov-06	Not Specified	AIG
Dec	NE	General	Hospital	8	7	2-Dec-06	Unknown	AIG
Dec	NE	General	Hospital	1	4	1-Dec-06	P-P	VRE
Dec	E	General	Hospital	31			P-P	Noroviral infection
Dec	SE	General	Hospital	14	0	8-Dec-06	P-P	Noroviral infection
Dec	W	General	Hospital	19	15		P-P	AIG
Dec	W	General	Residential institution	14		11-Dec-06	P-P	AIG
Dec	E	General	Comm. Hosp/Long-stay unit	5			P-P	Noroviral infection
Dec	E	General	Hospital	9			Not Specified	Noroviral infection
Dec	E	General	Hospital	12		18-Dec-06	P-P	Noroviral infection
Dec	W	General	Travel related	3	1	30-Nov-06	FB	Salmonellosis

P-P denotes Person-to-Person transmission, FB denotes foodborne, WB denotes waterborne

AIG denotes Acute Infectious Gastroenteritis; VRE denotes Vancomycin Resistant Enterococci

Table 2. Family Outbreaks of Infectious Intestinal Disease (IID) in Quarter 4, 2006

Month	HSE region	Type of outbreak	Location	No. ill	No. Hosp p.	Date Onset	Suspect mode of transmission	Disease
Oct	W	Family	Travel related	6		11-Sep-06	WB	Cryptosporidiosis
Oct	E	Family	Private house	1	1	21-Sep-06	Unknown	EHEC
Oct	E	Family	Private house	2	1	28-Sep-06	Not Specified	EHEC
Oct	S	Family	Private house	3	0	30-Sep-06	P-P	EHEC
Oct	W	Family	Not Specified	1		29-Sep-06	Not Specified	EHEC
Oct	NE	Family	Private house	2	0	7-Jul-06	P-P	Cryptosporidiosis
Nov	SE	Family	Private house	3	2	20-Oct-06	FB	Campylobacter infection
Nov	S	Family	Hotel	4	0	6-Nov-06	FB	AIG
Nov	SE	Family	Hotel	4	0	4-Nov-06	P-P and FB	AIG
Nov	S	Family	Private house	2	0	6-Nov-06	P-P	Campylobacter infection
Nov	E	Family	Travel related	2	2		Not Specified	Typhoid
Dec	SE	Family	Private house	3		18-Nov-06	Unknown	EHEC
Dec	SE	Family	Not Specified	2	0		Unknown	Giardiasis
Dec	E	Family	Travel related	4		30-Nov-06	FB	Salmonellosis

P-P denotes Person-to-Person transmission, FB denotes foodborne, WB denotes waterborne

Table 3. Non-IID Outbreaks in Quarter 4, 2006

Month	HSE region	Type of outbreak	Location	No. ill	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Oct	SE	General	Hospital	7	7	5-Dec-05	Unknown	Hepatitis B
Nov	S	General	Community outbreak	4	1	18-Sep-06	AB	Mycobacterium tuberculosis
Nov	S	Family	Private house	5	0		P-P	Hepatitis B
Dec	E	Family	Private house	2	2		P-P	Meningococcal disease

P-P denotes Person-to-Person transmission

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 last quarter of 2006. There were 35 general and 14 family IID outbreaks reported during this period, resulting in at least 686 people being ill.

Norovirus (either confirmed or suspected) was responsible for the majority of general outbreaks of IID with 16 outbreaks alone confirmed to be caused by this organism (46% of all general outbreaks)

The most common cause of family outbreaks of IID was Enterohaemorrhagic *Escherichia coli* (EHEC), with 5 outbreaks (36% of all family outbreaks) caused by this pathogen. The other pathogens responsible for family outbreaks included cryptosporidium, campylobacter, typhoid and giardia (Table 2).

Most general outbreaks were transmitted person-to-person (43%). Four general outbreaks were associated with foodborne transmission and one was reported as waterborne. 18 general outbreaks (51%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period. Two general outbreaks and three family outbreaks were associated with travel outside of Ireland.

There were 4 non-IID outbreaks (2 Hepatitis B, 1 Meningococcal disease and 1 Mycobacterium tuberculosis) reported during Quarter 4 - see Table 3.

Table 4. No. of infectious disease outbreaks per HSE region

HSE Area	No. of outbreaks	Rate per 100,000 population
E	21	1.5
M	1	0.5
MW	3	0.9
NE	6	1.8
NW	0	0
SE	7	1.7
S	8	1.4
W	7	1.8
Total	53	-

NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZOOBOTIC AND VECTORBORNE DISEASE

The number of notifications of infectious intestinal, zoonotic and vectorborne disease by HSE-Area for the fourth quarter of 2006 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 4, 2006 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
Acute infectious gastroenteritis (incl. rotavirus)	38	2	1	3	13	14	29	15	115
<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	190	31	26	30	26	46	52	49	450
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	1	6	6	3	2	17	4	7	46
Enterohaemorrhagic <i>Escherichia coli</i>	9	1	7	4	2	6	8	13	50
Giardiasis	10	0	2	0	0	3	3	2	20
Listeriosis	1	0	0	0	0	0	0	0	1
Noroviral infection	109	2	6	5	3	3	10	13	151
Paratyphoid	~	~	~	~	~	~	~	~	1
Salmonellosis	55	4	4	10	7	3	8	13	104
Shigellosis	11	0	1	0	0	0	0	0	12
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	~	~	~	~	~	~	~	~	4
Yersiniosis	0	0	0	0	0	0	0	0	0
Zoonotic Disease	E	M	MW	NE	NW	SE	S	W	Total
Anthrax	0	0	0	0	0	0	0	0	0
Brucellosis	0	0	6	0	0	0	0	0	6
Echinococcosis	0	0	0	0	0	0	0	0	0
Leptospirosis	5	1	0	0	0	4	0	0	10
Plague	0	0	0	0	0	0	0	0	0
Q Fever	0	0	2	0	0	0	1	0	3
Rabies	0	0	0	0	0	0	0	0	0
Toxoplasmosis	5	0	0	0	1	0	0	3	9
Trichinosis	0	0	0	0	0	0	0	0	0
Typhus	0	0	0	0	0	0	0	0	0
Vectorborne Disease	E	M	MW	NE	NW	SE	S	W	Total
Malaria	6	0	1	0	2	3	3	4	19

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 2006. Comparison of trends with previous years is shown in Figure 1 below.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q4 2006

Salmonellosis	E	M	MW	NE	NW	SE	S	W	Total
Oct	24	2	3	5	4	1	5	3	47
Nov	19	2	1	4	1	2	1	5	35
Dec	12	0	0	1	2	0	2	5	22
Total	55	4	4	10	7	3	8	13	104

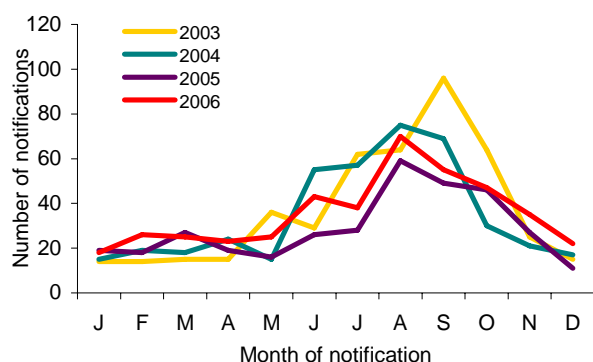


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2003-2005 and to end Q4 2006

Table 7 shows the *S. enterica* isolates typed by the NSRL in the fourth quarter of 2006 (n=102). The commonest human serotypes isolated were *S. Enteritidis* (n=38 [37%]) and *S. Typhimurium* (n=18 [18%]).

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

S. Typhi and *S. Paratyphi*

There were 3 cases of typhoid and one case of paratyphoid reported during Quarter 4, 2006.

Outbreaks of salmonellosis

There were 3 general outbreaks of salmonellosis reported in Q4, 2006 (see Table 1).

Table 7. Serotypes of *S. enterica* referred to NSRL in Quarter 4, 2006 (Data are provided courtesy of Prof. Martin Cormican and Dr Geraldine Corbett-Feeney, NSRL).

Serotype	E	M	MW	NE	NW	SE	S	W	Total
Agona	0	0	0	0	1	0	0	0	1
Braenderup	1	0	0	0	0	0	0	0	1
Brandenburg	1	0	0	0	0	0	0	0	1
Bredeney	2	0	0	0	0	0	0	0	2
Chester	1	0	0	0	0	0	0	0	1
Colindale	1	0	0	0	0	0	0	0	1
Enteritidis	11	3	3	3	6	1	4	7	38
Gatuni	1	0	0	0	0	0	0	0	1
Glostrup	0	0	0	0	0	0	0	1	1
Hadar	2	0	0	0	0	0	0	1	3
Indiana	1	0	0	0	0	0	0	0	1
Infantis	0	0	0	0	0	0	0	1	1
Java	1	0	0	0	0	0	0	0	1
Livingstone	1	0	0	0	0	0	0	0	1
London	0	0	0	1	0	0	0	0	1
Muenster	1	0	0	0	0	0	0	0	1
Napoli	1	0	0	0	0	0	0	0	1
Newport	1	0	0	0	0	1	0	0	2
Oranienburg	0	0	0	0	0	0	0	1	1
Orion	1	0	0	0	0	0	0	0	1
Panama	0	0	0	0	0	0	2	0	2
Paratyphi A	~	~	~	~	~	~	~	~	1
Poona	1	0	0	0	0	0	1	0	2
Potsdam	1	0	0	0	0	0	0	0	1
Schwarzengrund	1	0	0	0	0	0	0	0	1
Stanley	0	1	1	0	0	1	0	0	3
Tennessee	0	1	0	0	0	0	0	0	1
Typhi	~	~	~	~	~	~	~	~	3
Typhimurium	12	0	0	1	1	0	2	2	18
Unnamed	3	0	0	0	0	1	0	1	5
Virchow	1	0	0	1	0	0	0	0	2
Weltevreden	1	0	0	0	0	0	0	0	1
Zanzibar	1	0	0	0	0	0	0	0	1

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 2006 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.

Fifty EHEC were notified in this quarter, 46 of which are VTEC (44 confirmed and 2 probable -Table 8). This compares with 50 VTEC cases notified in Q4 2005 and 10 in Q4 2004 (Figure 2). Table 8 shows the number of VTEC cases reported by serogroup and month, Q4 2006.

Table 8. Confirmed and Probable VTEC Notified by Serogroup and Month, Q4 2006

Month	O157	O26	O103	O113	Mixed O157/O26	Total
Oct	30 ^a	3	1	0	0	34
Nov	4	0	0	1	0	5
Dec	5	1	0	0	1	7
Total	39^a	4	1	1	1	46

^aIncludes two probable cases

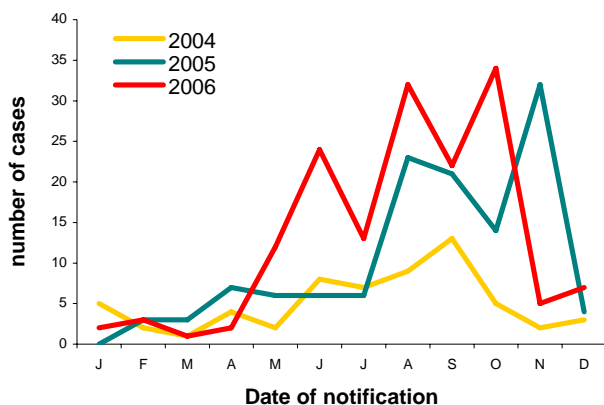


Figure 2. Seasonal distribution of confirmed and probable VTEC cases notified 2004-2005, and to Q4 2006

Enhanced information is provided by HSE-Area personnel on all VTEC cases. Four VTEC cases notified in this quarter developed HUS. Three were due to *E. coli* O157 and 1 had a mixed VTEC O157/O26 infection.

The HSE SWA 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 this laboratory in Q4 2006.

Table 9. Phage Types of VTEC O157 isolates referred to the HSE SWA Public Health Laboratory, Cherry Orchard Hospital in Q4 2006. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Phage type	Number of isolates
32	24
31	4
8	4
34	2
2	1
21/28	1
Not yet available	2
Total	38^a

^aNote: no isolates available for probable cases

Table 10. Verotoxin typing results of VTEC isolates referred to the HSE SWA Public Health Laboratory, Cherry Orchard Hospital in Q4 2006. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	vt1	vt2	vt1+vt2	Total
<i>E. coli</i> O157	0	34	4	38 ^a
<i>E. coli</i> O26	3	0	2	5
<i>E. coli</i> O113	1	0	0	1
<i>E. coli</i> O103	1	0	0	1
Total	5	34	6	45

^aNote: no isolates available for probable cases

Outbreaks of VTEC infection

During this quarter, 2 general and 5 family outbreaks of VTEC infection were reported, 6 due to *E. coli* O157 and 1 due to *E. coli* O26 (see Tables 1 and 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 2006 are shown in Table 11. The seasonal trend is broadly similar to the same period for the last year as depicted in Figure 3.

Table 11. Campylobacter Notifications by HSE-Area and Month, Q4 2006

Campylobacter Infection	E	M	MW	NE	NW	SE	S	W	Total
Oct	73	9	15	7	15	13	25	16	173
Nov	79	15	9	17	11	17	16	23	187
Dec	38	7	2	6	0	16	11	10	90
Total	190	31	26	30	26	46	52	49	450

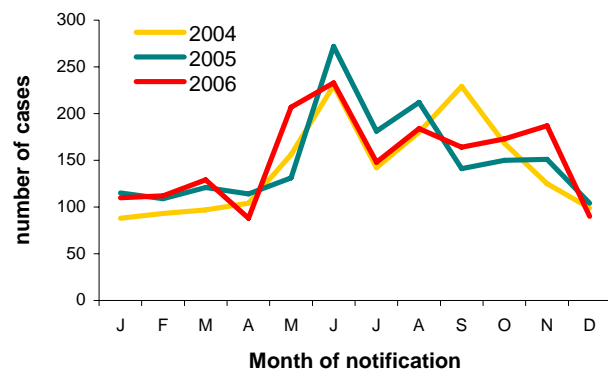


Figure 3. Seasonal distribution of Campylobacter notifications 2004, 2005 and to end Q4 2006

Outbreaks of Campylobacter infection

2 family outbreaks of Campylobacter infection were reported in Q4 2006 (Table 2).

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 2006, 46 cases of cryptosporidiosis were notified (Table 12), compared to 64 in the same period last year and 50 in Q4 2004 (Figure 4).

Table 12. Cryptosporidiosis Notifications by HSE-Area and Month, Q4 2006

Cryptosporidiosis	E	M	MW	NE	NW	SE	S	W	Total
Oct	0	3	4	1	0	1	2	3	14
Nov	1	2	1	1	0	13	2	3	23
Dec	0	1	1	1	2	3	0	1	9
Total	1	6	6	3	2	17	4	7	46

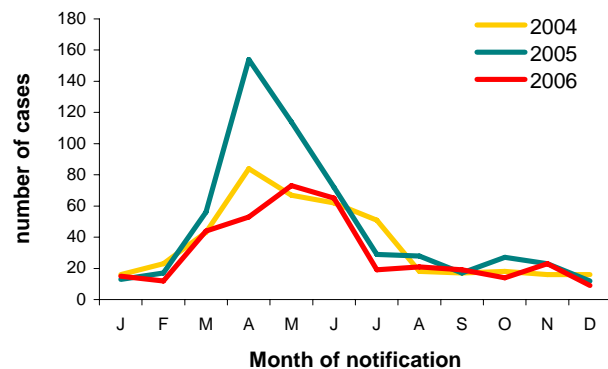


Figure 4. Seasonal distribution of cryptosporidiosis notifications 2004, 2005 and to end Q4 2006

Outbreaks of cryptosporidiosis

In quarter 4, there were 2 family outbreaks and one general outbreak of cryptosporidiosis reported (Tables 1 and 2).

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 151 cases reported in the fourth quarter of 2006, 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 2006

Noroviral Infection	E	M	MW	NE	NW	SE	S	W	Total
Oct	16	1	2	1	2	1	0	5	28
Nov	47	1	2	2	1	2	5	3	63
Dec	46	0	2	2	0	0	5	5	60
Total	109	2	6	5	3	3	10	13	151

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the fourth quarter of

2006 there were 25 outbreaks confirmed or suspected as being caused by this virus, involving at least 634 people becoming ill, as outlined in Table 1.

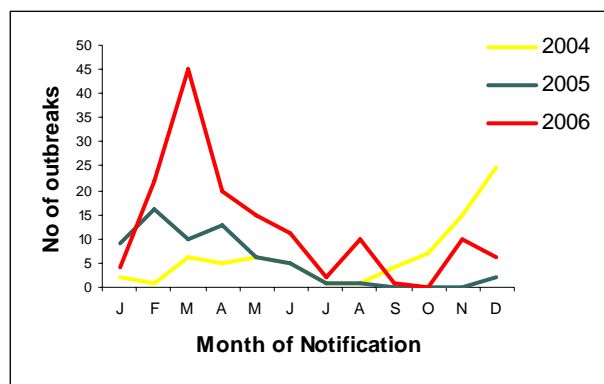


Figure 5. Seasonal distribution of Confirmed Norovirus Outbreaks, 2004, 2005 and to end Q4 2006.

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 1 adult case of listeriosis notified in Q4 2006, compared to 2 in the same period 2005 and 2 in Q4 2004.

SHIGELLA

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

During Q4 2006, 12 cases of shigellosis were notified (Table 5). This compares with 7 cases notified as shigellosis in Q4 in 2005 and 20 in Q4 2004.

Four cases were reported as *S. sonnei*, five as *S. flexneri*, 1 as *S. boydii* and two as *Shigella* sp.

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'.

During Quarter 4 2006, 20 cases of giardiasis were notified (Table 5); this compares with 21 cases notified in Q4 2005 and 23 in Q4 2004.

FOODBORNE INTOXICATIONS

Bacillus cereus foodborne infection/intoxication, botulism, *Clostridium perfringens* (type A) foodborne disease and staphylococcal food poisoning became notifiable diseases on January 1st 2004. Prior

to this, these diseases were notified under the category of 'Food Poisoning (bacterial other than Salmonella)'.

There were no cases of foodborne intoxications notified in Q4, 2006 (Table 5).

ACUTE INFECTIOUS GASTROENTERITIS incl. ROTAVIRUS

Since 1st January 2004, there is a notifiable disease category termed 'Acute Infectious Gastroenteritis'. This includes all unspecified causes of gastroenteritis and also specifically, gastroenteritis due to rotavirus. It should be noted that acute infectious gastroenteritis is now notifiable in all age groups, unlike the former notifiable disease category of 'Gastroenteritis in children under 2 years'.

During Quarter 4, 2006, there were 115 notifications of acute infectious gastroenteritis. 77 were reported as rotavirus (Table 14) and 73% of these were in children under 2 years of age.

Table 14. Rotaviral Infections Notified under the Category of 'Acute Infectious Gastroenteritis' by HSE-Area and Month, Q4 2006

Rotaviral Infection	E	M	MW	NE	NW	SE	S	W	Total
Oct	3	0	0	1	3	2	3	2	14
Nov	7	1	1	1	1	2	6	6	25
Dec	12	1	0	1	6	0	11	7	38
Total	22	2	1	3	10	4	20	15	77

NON-IID ZOONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q Fever, toxoplasmosis, trichinosis, typhus and rabies. The Q4 2006 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 thirteen cases notified in the same period in 2005 and eight cases in Q4 2004.

There were six cases of brucellosis reported during this quarter compared with ten in Q4 2005 and thirteen in Q4 2004.

Ten cases of leptospirosis was notified in Q4 2006; this compares with seven in Q4 2005 and eight in Q4 2004.

There were also three cases of Q fever notified this quarter, compared to one in Q4 in 2005 and two in Q4 2004.

MALARIA

Malaria is a notifiable disease for many years. The Q4 2006 notifications are reported in Table 5 by HSE-Area.

Nineteen cases of malaria were notified in Q4 2006. This compares with 7 cases reported in Q4 2005 and 4 in Q4 2004.

Fourteen cases were reported as *P. falciparum*, one as *P. ovale*, two as *P. vivax*, one as *P. malariae* and for one notification, the species was not specified.

The countries of infection were Nigeria (8 cases), Uganda (2 cases), Ghana (1 case), Liberia (1 case), and India (1 case); no data were provided on country of infection for the remaining 6 cases.

The reason for travel was reported as new entrant (n=2), visiting family in country of origin (n=7), holiday travel (n=2), and armed services (n=1); reason for travel was not specified for 7 cases.

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