

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 3–2007

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This is the third quarterly report for 2007 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 3, 2007

Month	HSE region	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Jul	W	Residential institution	12	-	20-May-07	P-P	Norovirus
Jul	W	Travel related	8	-	26-Jun-07	FB	AIG
Jul	MW	Crèche	4	3	22-Jun-07	Unknown	Cryptosporidium
Jul	M	Hospital	5	0	13-Jul-07	Unknown	AIG
Jul	S	Community outbreak	50	-	6-Jul-07	P-P and FB	Salmonella
Jul	E	Crèche	5	0	9-Jun-07	Not Specified	Salmonella
Jul	SE	Hospital	134	-	-	P-P	Norovirus
Jul	SE	Residential institution	11	-	-	P-P	Norovirus
Jul	E	Hotel	15	-	-	Not Specified	Norovirus
Jul	NE	Hotel	34	0	-	Unknown	Norovirus
Aug	MW	Hospital	31	-	27-Jul-07	P-P	Norovirus
Aug	S	Hospital	31	26	-	P-P and Airborne	Norovirus
Aug	SE	Comm. Hosp/Long-stay unit	15	-	30-Jul-07	P-P	Norovirus
Aug	E	Comm. Hosp/Long-stay unit	6	-	11-Aug-07	Unknown	AIG
Aug	NW	Hotel	4	1	9-Aug-07	Unknown	<i>E. coli</i> O157
Aug	E	Hospital	22	-	-	P-P	Norovirus
Aug	SE	Residential institution	6	1	19-Aug-07	FB	AIG
Aug	S	Other	11	0	18-Aug-07	Unknown	AIG
Aug	M	Crèche	2	0	17-Aug-07	Not Specified	<i>E. coli</i> O157
Sep	MW	Hospital	15	-	26-Aug-07	P-P	Norovirus
Sep	NE	Hotel	133	5	-	Not Specified	Norovirus
Sep	S	Hotel	48	1	13-Sep-07	Not Specified	Norovirus
Sep	E	Residential institution	27	0	-	Not Specified	Norovirus
Sep	E	Comm. Hosp/Long-stay unit	17	-	14-Sep-07	Not Specified	AIG
Sep	E	Hospital	14	11	19-Sep-07	Not Specified	AIG
Sep	NW	Comm. Hosp/Long-stay unit	18	-	-	P-P	Norovirus

P-P denotes Person-to-Person transmission, FB denotes foodborne, WB denotes waterborne; AIG denotes Acute Infectious Gastroenteritis; EHEC denotes Enterohaemorrhagic *E. coli*

* Total numbers ill does not include asymptomatic cases

Table 2. Family Outbreaks of Infectious Intestinal Disease (IID) in Quarter 3, 2007

Month	HSE region	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Jul	S	Private house	2	-	13-Jun-07	Not Specified	Salmonella
Jul	S	Private house	2	0	4-Jul-07	Unknown	<i>E. coli</i> O157
Jul	NW	Private house	2	0	3-Jul-07	P-P	<i>E. coli</i> O157
Jul	M	Private house	2	1	6-Jun-07	P-P and FB	Salmonella
Jul	S	Private house	2	0	14-Jun-07	FB	Campylobacter
Jul	S	Private house	2	-	23-Jun-07	WB	Cryptosporidium
Aug	S	Travel related	2	1	30-Jul-07	Unknown	<i>E. coli</i> O157
Aug	E	Private house	8	-	-	P-P	Norovirus

Aug	SE	Private house	2	1	7-Aug-07	Unknown	Salmonella
Aug	S	Private house	5	1	4-Jul-07	P-P	Salmonella
Sep	MW	Private house	3	-	11-Aug-07	P-P	<i>E. coli</i> O157
Sep	NE	Private house	2	0	10-Aug-07	Unknown	Campylobacter
Sep	NE	Private house	1	1	21-Aug-07	Unknown	<i>E. coli</i> O157
Sep	S	Private house	6	4	-	P-P	AIG
Sep	SE	Private house	1	1	14-Jul-07	Unknown	Giardiasis

P-P denotes Person-to-Person transmission, FB denotes foodborne; AIG denotes Acute Infectious Gastroenteritis

* Total numbers ill does not include asymptomatic cases

Table 3. Non-IID Outbreaks in Quarter 3, 2007

Month	HSE region	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Jul	NW	General	Not Specified	7	-	-	P-P	Mumps
Aug	NE	General	Unknown	2	0	13-Jul-07	Airborne	Measles
Aug	SE	General	Refugee centre	3	1	30-Jul-07	Unknown	Suspected Varicella
Sep	W	Family	Other	3	1	1-Aug-07	P-P	Varicella

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

* 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 third quarter of 2007. There were 26 general and 15 family IID outbreaks reported during this period, resulting in at least 722 people being ill.

Norovirus (either confirmed or suspected) was responsible for the majority of general outbreaks of IID with 14 outbreaks alone confirmed to be caused by this organism (54% of all general outbreaks).

The most common cause of family outbreaks of IID was *E. coli* O157, with five outbreaks (33% of all family outbreaks) caused by this pathogen. The other pathogens responsible for family outbreaks were Salmonella, Campylobacter, Cryptosporidiosis, Norovirus, Giardiasis and AIG. (Table 2).

Most general outbreaks were transmitted person-to-person (31%). One family outbreak of cryptosporidium (in a private house) was reported as waterborne. Fifteen general outbreaks (58%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

There were 4 non-IID outbreaks reported during Quarter 2 - see Table 3.

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q2 2007.

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

HSE Area	No. of outbreaks	Rate per 100,000 population
E	8	0.53
M	3	1.19
MW	4	1.11
NE	5	1.27
NW	4	1.69
SE	7	1.52
S	11	1.77
W	3	0.72
Total	45	-

NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZOOBOTIC AND VECTORBORNE DISEASE

The number of notifications of infectious intestinal, zoonotic and vectorborne disease by HSE-Area for the third quarter of 2007 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 3, 2007 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
Acute infectious gastroenteritis (incl. rotavirus)	72	31	5	8	21	27	25	119	308
<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	221	52	41	52	30	42	70	82	590
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	7	9	13	6	9	17	16	18	95
Enterohaemorrhagic <i>Escherichia coli</i>	8	12	9	5	7	4	9	4	58
Giardiasis	4	0	1	0	0	4	1	0	10
Listeriosis	5	2	1	0	1	0	1	1	11
Noroviral infection	66	0	18	16	7	51	13	10	181
Paratyphoid	~	~	~	~	~	~	~	~	1
Salmonellosis	67	9	13	14	9	14	80	23	229
Shigellosis	9	0	0	4	0	1	3	1	18
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	~	~	~	~	~	~	~	~	2
Yersiniosis	0	1	0	0	0	0	0	1	2
Zoonotic Disease	E	M	MW	NE	NW	SE	S	W	Total
Anthrax	0	0	0	0	0	0	0	0	0
Brucellosis	1	0	9	0	0	0	0	0	10
Echinococcosis	0	0	0	0	0	0	0	0	0
Leptospirosis	2	2	1	2	2	2	0	1	12
Plague	0	0	0	0	0	0	0	0	0
Q Fever	0	0	3	0	0	0	2	2	7
Rabies	0	0	0	0	0	0	0	0	0
Toxoplasmosis	8	1	0	2	0	0	0	0	11
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	14	3	1	3	0	5	3	2	31

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 third quarter of 2007. Comparison of trends with previous years is shown in Figure 1 below.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q3 2007

Salmonellosis	E	M	MW	NE	NW	SE	S	W	Total
Jul	21	3	7	1	2	3	57	9	103
Aug	23	4	5	7	4	10	13	5	71
Sep	23	2	1	6	3	1	10	9	55
Total	67	9	13	14	9	14	80	23	229

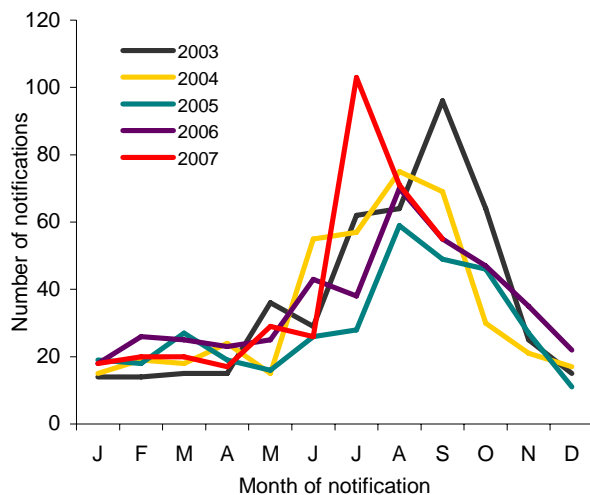


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2003-2006 and to end Q3 2007

Table 7 shows the *S. enterica* isolates typed by the NSRL in the third quarter of 2007 (n=195). The commonest human serotypes isolated were *S. Enteritidis* (n=108 [55%]) and *S. Typhimurium* (n=31 [16 %]).

Forty-two (22%) *S. enterica* isolates were reported to be associated with travel outside of Ireland during this quarter.

S. Typhi and S. Paratyphi

There were two travel associated cases of typhoid (one associated with travel to Nepal, other unknown) and one case of paratyphoid reported during Quarter 3, 2007.

Outbreaks of salmonellosis

There were six outbreaks of salmonellosis reported in Q3 2007, two general and four family outbreaks (see Table 1 and Table 2). One large community outbreak of *S. Enteritidis* PT4 occurred in HSE-S in July, involving 50 cases.

Table 7. Serotypes of *S. enterica* referred to NSRL in Quarter 3, 2007 (Data are provided courtesy of Prof. Martin Cormican and Dr Geraldine Corbett-Feeney, NSRL).

Serotype	E	M	MW	NE	NW	SE	S	W	Total
Agama	0	0	1	0	0	0	0	0	1
Bere	0	0	0	0	0	1	0	0	1
Bury	1	0	0	0	0	0	0	0	1
Chester	3	0	0	0	0	0	0	0	3
Colindale	0	1	0	0	0	0	0	0	1
Derby	0	0	0	0	1	0	0	0	1
Eastbourne	1	0	0	0	0	0	0	0	1
Enteritidis	23	1	7	4	4	4	52	13	108
Florida	1	0	0	0	0	0	1	0	2
Haifa	0	0	0	0	0	0	0	1	1
Ibadan	1	0	0	0	0	0	0	0	1
Infantis	2	0	0	0	0	0	1	0	3
Java	0	0	0	0	0	0	0	1	1
Kentucky	1	1	0	0	0	0	1	1	4
Kottbus	1	0	0	0	0	2	0	0	3
Litchfield	0	0	0	0	0	1	0	0	1
London	1	0	0	0	0	0	0	0	1
Manhattan	0	0	0	0	0	1	0	0	1
Montevideo	1	0	0	0	0	0	0	1	2
Newport	4	0	0	0	0	0	0	0	4
Oranienburg	0	0	0	0	0	0	1	0	1
Panama	0	0	0	0	0	0	3	0	3
Paratyphi A	~	~	~	~	~	~	~	~	1
Poona	0	0	1	0	0	0	0	0	1
Saarbruecken	0	0	0	0	0	0	0	1	1
Saintpaul	0	0	0	0	0	0	1	1	2
Schwarzengrund	1	0	0	0	1	0	0	0	2
Soerenga	0	0	0	0	1	0	0	0	1
Stanley	1	0	0	0	0	0	0	0	1
Thompson	0	0	0	0	0	1	0	0	1
Typhi	~	~	~	~	~	~	~	~	2
Typhimurium	11	5	3	2	0	3	5	2	31
Unnamed	1	0	0	0	1	1	2	1	6
Virchow	0	0	0	0	0	0	1	0	1
Total	56	8	12	6	8	14	69	22	195

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 Q3 2007 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-eight EHEC were notified in this quarter, 55 of which are VTEC (all confirmed -Table 8). This compares with 66 VTEC cases notified in Q3 2006 and 50 in Q3 2005 (Figure 2). Table 8 shows the number of VTEC cases reported by serogroup and month, Q3 2007.

Table 8. Confirmed and Probable VTEC Notified by Serogroup and Month, Q3 2007

Month	O157	O26	Other	Total
Jul	13	0	0	13
Aug	18	1	2	21
Sep	18	1	2	21
Total	49	2	4	55

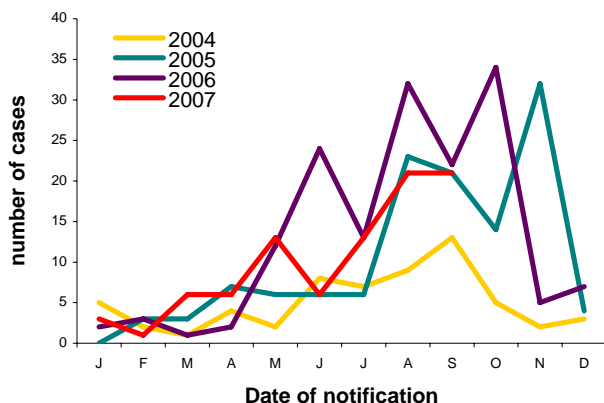


Figure 2. Seasonal distribution of confirmed and probable VTEC cases notified 2004-2006, and to Q3 2007

Enhanced information is provided by HSE-Area personnel on all VTEC cases. Two cases of HUS due to VTEC were notified in this quarter, one associated with *E. coli* O157 and one with *E. coli* O145.

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 this laboratory in Q3 2007.

Table 9. Phage Types of VTEC O157 isolates referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q3 2007. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Phage type	Number of isolates
32	20
51	6
8	4
4	4
2	3
21/28	3
14	1
Not yet available	8
Total	49

Table 10. Verotoxin typing results of VTEC isolates referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q3 2007. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	vt1	vt2	vt1+vt2	Total
<i>E. coli</i> O157	0	40	9	49
<i>E. coli</i> O26	1	0	1	2
<i>E. coli</i> O145	0	1	0	1
<i>E. coli</i> O111	1	0	0	1
<i>E. coli</i> O128	0	1	0	1
<i>E. coli</i> Ungroupable	0	1	0	1

Outbreaks of VTEC infection

During this quarter, five family outbreaks and two general outbreaks of VTEC infection were reported; all were due to *E. coli* O157 (see Table 1 and 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 third quarter of 2007 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, Q3 2007

Campylobacter Infection	E	M	MW	NE	NW	SE	S	W	Total
Jul	71	18	19	13	9	12	29	33	204
Aug	82	22	13	13	11	19	29	31	220
Sep	68	12	9	26	10	11	12	18	166
Total	221	52	41	52	30	42	70	82	590

Outbreaks of Campylobacter infection

There were two family outbreaks and no general outbreaks of campylobacteriosis reported in Q3 2007 (Table 2).

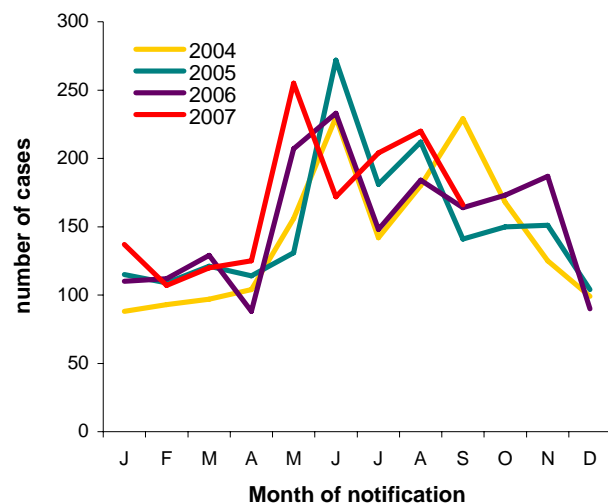


Figure 3. Seasonal distribution of Campylobacter notifications 2004-2006, and to end Q3 2007

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 Q3 2007, 95 cases of cryptosporidiosis were notified (Table 12), compared to 59 in the same period last year and 74 in Q3 2005 (Figure 4).

Table 12. Cryptosporidiosis Notifications by HSE-Area and Month, Q2 2007

Cryptosporidiosis	E	M	MW	NE	NW	SE	S	W	Total
Jul	2	3	2	4	0	3	5	10	29
Aug	2	2	5	2	6	6	5	7	35
Sep	3	4	6	0	3	8	6	1	31
Total	7	9	13	6	9	17	16	18	95

Outbreaks of cryptosporidiosis

In quarter 3, there was one general and one family outbreak of cryptosporidiosis reported (Table 1 and Table 2).

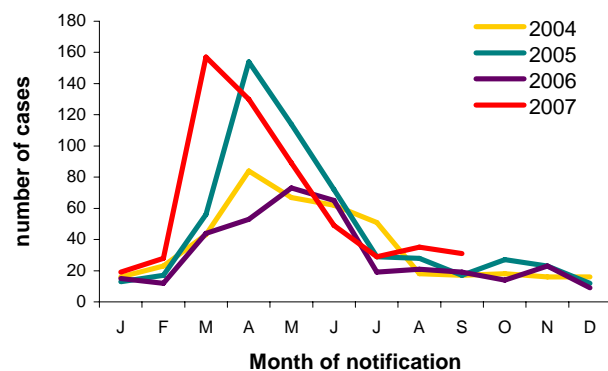


Figure 4. Seasonal distribution of cryptosporidiosis notifications 2004-2006, and to end Q3 2007

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 181 cases reported in the third quarter of 2007, 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, Q3 2007

Noroviral Infection	E	M	MW	NE	NW	SE	S	W	Total
Jul	17	0	2	1	0	18	2	1	41
Aug	22	0	10	5	2	30	10	2	81
Sep	27	0	6	10	5	3	1	7	59
Total	66	0	18	16	7	51	13	10	181

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the third quarter of 2007 there were fifteen outbreaks confirmed as being caused by this virus, involving at least 554 people becoming ill, as outlined

in Tables 1 & 2. The seasonal trend is outlined in Figure 5.

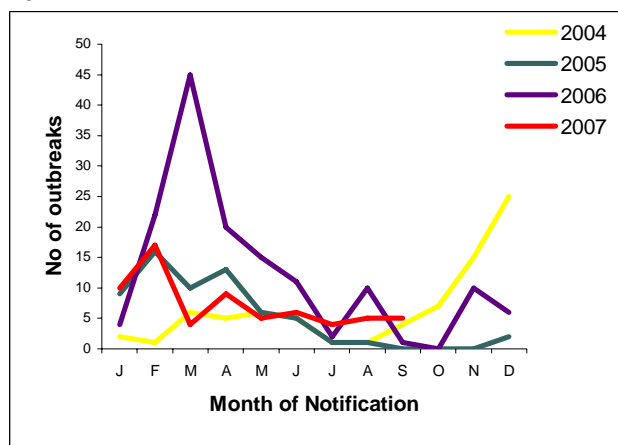


Figure 5. Seasonal distribution of Confirmed Norovirus Outbreaks, 2004-2006 and to end Q3 2007.

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 11 cases of listeriosis notified in Q3 2007, compared to one in quarter 3 2006 and five in quarter 3 2005. Two cases were pregnancy-related, two were neonatal and seven were non-pregnancy related adult cases.¹

1. Garvey P and P. McKeown. 2007. Increase in listeriosis in Ireland 2007. Epi-Insight 8(12):2-3

SHIGELLA

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

During Q3 2007, eighteen cases of shigellosis were notified (Table 5). This compares with twenty cases notified as shigellosis in Q3 in 2006 and sixteen in Q3 2005. Nine cases were reported as *S. sonnei*, eight as *S. flexneri*, and one as *S. species*.

Travel data recorded on CIDR for shigellosis cases has improved substantially this year. During this quarter, eight cases (44%) were reported to have acquired their illness abroad, two each in India and Mexico and one in each of Afghanistan, Gambia, Pakistan and UK. Country of infection was reported as 'not specified' or 'unknown for the remaining 10 cases.

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 3 2007, ten cases of giardiasis were notified (Table 5); this compares with 16 cases notified in Q3 2006 and 17 in Q3 2005.

There was one family outbreak of giardiasis this quarter (table 2).

FOODBORNE INTOXICATIONS

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

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

There were no cases of foodborne intoxications notified in Q3 2007 (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 3 2007, there were 308 notifications of acute infectious gastroenteritis. 271 of these (88%) were reported as rotavirus (as shown in Table 14).

Table 14. Rotaviral Infections Notified under the Category of 'Acute Infectious Gastroenteritis' by HSE-Area and Month, Q3 2007

Rotaviral Infection	E	M	MW	NE	NW	SE	S	W	Total
Jul	21	6	1	6	13	7	14	51	119
Aug	20	10	3	1	8	6	5	42	95
Sept	14	12	1	1	0	3	3	23	57
Total	55	28	5	8	21	16	22	116	271

NON-IID ZONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q Fever, toxoplasmosis, trichinosis, typhus and rabies. The Q3 2007 notifications of these zoonotic diseases are reported by HSE-Area in Table 5.

Eleven cases of toxoplasmosis were notified in this quarter. This compares with 16 cases notified in the same period in 2006 and 12 cases in Q3 2005.

There were ten cases of brucellosis reported during this quarter compared with six in Q3 2006 and 12 in Q3 2005.

Twelve cases of leptospirosis was notified in Q3 2007; this compares with four in Q3 2006 and five in Q3 2005. Five were reported as occupationally acquired and two as acquired through leisure activities. For three, no obvious exposure was identified and for two cases, no exposure was specified.

There were also seven cases of Q fever notified this quarter, compared to two in Q3 in 2006 and three in Q3 2005.

MALARIA

Malaria is a notifiable disease for many years. The Q3 2007 notifications are reported in Table 5 by HSE-Area.

Thirty-one cases of malaria were notified in Q3 2007. This compares with 34 cases reported in Q3 2006 and 12 in Q3 2005.

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

Eighteen cases were exposed in Sub-Saharan Africa, three in Asia, and one in South America, while no data were provided on country of infection for the remaining nine cases.

The reason for travel for thirteen cases was reported as visiting family in country of origin. There were two new entrants, three cases associated with holiday travel, one business traveller, one case from the armed services, one case where reason for travel was reported as other, with the reason for travel not specified for ten cases.

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