

SURVEILLANCE of INFECTIOUS INTESTINAL DISEASE (IID), ZONOSSES and OUTBREAKS of INFECTIOUS DISEASE



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

Quarter 4–2005

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This is the fourth quarterly report for 2005 produced by the Gastroenteric Unit of the Health Protection Surveillance Centre.

News

VTEC Outbreak in the Midwestern Area

During the final quarter of 2005, the Mid-West area experienced its and the country's largest outbreak of infectious intestinal disease caused by Verocytotoxigenic *Escherichia coli*. In total, 18 cases of VTEC (half of which were asymptomatic) had been identified between October and December. Most of the cases were in preschool aged children; two were admitted with Haemolytic Uraemic Syndrome. A multidisciplinary team in the Mid West Area investigated the outbreak. No definitive point source could be identified despite extensive investigation, the most likely source being a contaminated local private Group Water Scheme (GWS) with onward propagation by person-to-person spread. This outbreak has again highlighted the importance of maintaining water quality standards in private GWSs, and the need for parents to be aware of how childcare facilities are regulated.

All-Island Infectious Intestinal Disease Conference

The Food Safety Promotion Board hosted the "All-Island Infectious Intestinal Disease Conference: Sharing strategies for control and prevention" on 18th & 19th January 2006 in the Europa Hotel, Belfast. An all-island IID Collaborative forum comprising the HPSC (ROI) CDSC (NI) and *safefood*, the Food Safety Promotion Board was set up in early 2005 as a network for Public Health professionals involved in the prevention and control of foodborne disease. It was decided that an All-Island Infectious Intestinal Disease Conference would be an important early undertaking of the Forum and that the Conference would have as its aims:

1. To provide an opportunity to highlight lessons learned and examples of good practice in the prevention and control of IID.
2. To explore opportunities for all-island collaboration in research and guidelines development.
3. To support the networking of relevant professionals from across the island of Ireland.

The Conference was very well attended with a range of guest speakers and submitted papers for oral and poster presentation. A series of recommendations about further conferences and other aspects of training and professional development in the area of IID are due to be published soon by *safefood*.

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

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. Outbreaks of Infectious Intestinal Disease (IID) in Quarter 4, 2005

Month	HSE region	Type of outbreak	Location	No. cases	No. ill	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Oct	SE	General	Community outbreak	-	6	-	22/07/2005	Foodborne	Salmonella
Oct	E	Family	Private house	-	2	0		Foodborne	Campylobacter
Oct	E	Family	Private house	-	3	-		Unknown	<i>Giardia lamblia</i>
Oct	E	General	Hospital	-	9	8	13/10/2005	Person-to-person	<i>C. difficile</i>
Oct	E	General	Hospital	-	11	10		Person-to-person	<i>C. difficile</i>
Oct	W	General	Travel related	-	4	-	23/09/2005	Unknown	Cryptosporidium
Oct	M	Family	Private house	-	2	-	08/10/2005	Unknown	Salmonella
Oct	S	General	Not Specified	-	2	0	24/09/2005	Not Specified	<i>Salmonella</i> Enteritidis
Oct	SE	General	Travel related	-	3	-	11/10/2005	Foodborne	Salmonella
Nov	E	Family	Private house	-	2	1	16/10/2005	P-P and FB	<i>E. coli</i> O157
Nov	E	General	Residential institution	-	8	1	29/10/2005	Person-to-person	Suspected Norovirus
Nov	MW	General	Private house/Creche	18	9	2	20/10/2005	P-P and WB or animal contact	<i>E. coli</i> O157
Nov	W	General	Creche	3	2	-	22/10/2005	Unknown	<i>E. coli</i> O157
Nov	E	Family	Private house	4	2	-	21/09/2005	P-P and WB	<i>E. coli</i> O157
Nov	E	Family	Private house	4	1	1	30/10/2005	Foodborne	<i>E. coli</i> O157
Nov	E	Family	Private house	-	2	-		Foodborne	Campylobacter
Nov	E	General	Hospital	-	14	10	17/11/2005	Person-to-person	Suspected Norovirus
Nov	SE	Family	Not Specified	2	1	-	02/09/2005	Not Specified	<i>E. coli</i> O157
Dec	M	Family	Private house	-	3	0	18/11/2005	Not Specified	<i>E. coli</i> O157 (VT neg)
Dec	SE	Family	Private house	-	2	1	09/11/2005	Person-to-person	Salmonella
Dec	NE	Family	Private house	2	1	1	08/11/2005	Person-to-person	<i>E. coli</i> O157
Dec	S	General	Community	-	3	1	15/11/2005	Unknown	Cryptosporidium
Dec	SE	General	Hospital	-	5	-	19/12/2005	Person-to-person	AIG
Dec	ER	General	Other	-	12	1	06/12/2005	Foodborne	Norovirus
Dec	NW	Family	Private house	-	5	-	05/11/2005	Person-to-person	<i>Salmonella</i> Typhimurium
Dec	NE	Family	Residential institution	-	15	0	14/12/2005	Unknown	AIG
Dec	SE	General	Hospital	-	13	-	04/12/2005	Person-to-person	Norovirus
Dec	SE	General	Hospital	-	7	5	09/12/2005	Not Specified	AIG
Dec	MW	Family	Private house	-	3	1	31/12/2005	P-P and FB	Salmonella
Dec	SE	General	Hospital	-	3	1	04/10/2005	Person-to-person	AIG
Dec	S	General	Residential institution	-	35	1	05/10/2005	P-P and Airborne	AIG

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

Table 2. Non-IID Outbreaks in Quarter 4, 2005

Month	HSE region	Type of outbreak	Location	No. ill	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Nov	S	General	Creche	2	2	24/08/2005	Airborne	Hib
Nov	S	Family	Community outbreak	10	0	22/09/2005	Airborne	Mumps
Nov	S	General	School	5	0	16/08/2005	Airborne	Mumps
Nov	W	General	Community outbreak	12	-	28/10/2005	Not Specified	Mumps
Nov	S	General	Residential institution	4	-		Not Specified	Scabies
Oct	E	General	Creche	20	-	26/09/2005	Person-to-person	Suspected streptococcal infection

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'.

Table 1 shows a line listing of all general and family IID outbreaks reported to the HPSC in the fourth quarter of 2005. There were 31 IID outbreaks reported during this period, resulting in at least 293 people being ill. The most common cause of IID outbreaks was *E coli* with 8 outbreaks (26% of all outbreaks). There were 8 suspect foodborne outbreaks: 2 *Campylobacter*, 3 *Salmonella*, 2 *E. coli* and 1 Norovirus. There was 2 suspected waterborne outbreaks reported, both. *E coli* O157. 10 outbreaks (32%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

There were 6 non-IID outbreaks (3 Mumps, 1 Hib, 1 Scabies and 1 suspected streptococcal infection) reported during Quarter 4 - see Table 2.

Table 3. No of IID outbreaks per HSE region

HSE area	No of IID outbreaks	Rate per 100,000 population
E	11	0.78
M	2	0.89
MW	2	0.59
NE	2	0.58
NW	1	0.45
SE	8	1.89
S	3	0.52
W	2	0.53

NOTIFICATIONS OF INFECTIOUS INTESTINAL AND ZOOBOTIC DISEASE

The number of notifications of infectious intestinal and zoonotic disease by HSE-Area and month for the fourth quarter of 2005 is shown in Table 4.

Table 4. Intestinal Infectious and Zoonotic Disease Notifications Quarter 4 2005 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
Acute infectious gastroenteritis (incl. rotavirus)	42	10	1	16	8	11	6	5	99
<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	133	29	39	30	13	60	68	34	406
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	3	5	6	10	4	11	16	6	61
Enterohaemorrhagic <i>Escherichia coli</i>	13	6	22	4	0	3	1	7	56
Giardiasis	8	0	1	1	1	3	3	1	18
Listeriosis	0	1	0	0	0	0	0	1	2
Noroviral infection	30	0	1	1	0	3	3	1	39
Paratyphoid	0	0	0	0	0	0	0	0	0
Salmonellosis	25	7	7	4	11	7	13	9	83
Shigellosis	2	3	1	0	0	0	1	0	7
Staphylococcal food poisoning	3	0	0	0	0	0	0	0	3
Typhoid	1	0	0	0	0	0	0	0	1
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	9	0	0	0	0	0	9
Echinococcosis	0	0	0	0	0	0	0	0	0
Leptospirosis	2	0	2	0	2	1	0	1	8
Plague	0	0	0	0	0	0	0	0	0
Q Fever	0	0	0	0	0	0	0	0	0
Toxoplasmosis	7	1	1	0	1	1	1	0	12
Trichinosis	0	0	0	0	0	0	0	0	0
Typhus	0	0	0	0	0	0	0	0	0
Rabies	0	0	0	0	0	0	0	0	0

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 5 shows the number of salmonellosis notifications by HSE-Area and month for the fourth quarter of 2005. Comparison of trends with previous years is shown in Figure 1 below.

Table 5. Salmonellosis Notifications by HSE-Area and Month, Q4 2005

Salmonellosis	E	M	MW	NE	NW	SE	S	W	Total
Oct	15	4	5	2	6	1	9	3	45
Nov	7	3	1	2	2	5	2	5	27
Dec	3	0	1	0	3	1	2	1	11
Total	25	7	7	4	11	7	13	9	83

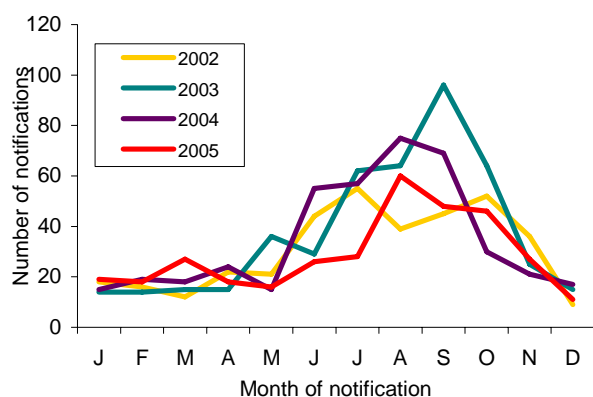


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2002-2004 and to end Q4 2005

Table 6 shows the *S. enterica* isolates typed by the NSRL in the fourth quarter of 2005 (n=86). The commonest human serotypes isolated were *S. Enteritidis* (n=30 [35%]) and *S. Typhimurium* (n=21 [24%]).

20 (23%) of *S. enterica* isolates were reported to be associated with travel outside of Ireland during this quarter.

S. Typhi and S. Paratyphi

There were 1 case of typhoid (associated with travel to India) and 1 case of paratyphoid (associated with travel to Bangladesh) reported during Quarter 4, 2005.

Outbreaks of salmonellosis

There were 7 small outbreaks (4 family outbreaks) of salmonellosis reported in Q4, 2005 (see Table 1).

Table 6. Serotypes of *S. enterica* referred to NSRL in Quarter 4, 2005 (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	1	0	0	0	0	2	0	0	3
Anatum	1	0	0	0	0	0	0	0	1
Cotham	0	0	0	0	0	0	0	1	1
Enteritidis	9	2	2	1	7	1	5	3	30
Give	1	0	0	0	0	0	0	0	1
Goldcoast	1	0	1	2	1	0	0	1	6
Hadar	1	0	0	0	0	0	0	0	1
Java	1	0	0	0	0	0	0	4	5
Javiana	1	0	0	0	1	0	0	0	2
Kentucky	0	0	0	0	0	0	0	1	1
Limete	1	0	0	0	0	0	0	0	1
Mikawasima	0	1	0	0	0	0	0	0	1
Newport	1	0	0	0	1	0	0	0	2
Paratyphi A	1	0	0	0	0	0	0	0	1
Saintpaul	0	0	0	0	0	0	0	1	1
Schwarzengrund	0	0	0	0	0	0	1	0	1
Stanley	2	0	0	0	0	0	0	0	2
Stanleyville	0	0	0	0	0	0	1	0	1
Thompson	0	0	0	0	0	0	1	0	1
Typhi	1	0	0	0	0	0	0	0	1
Typhimurium	3	4	1	1	3	5	4	0	21
Unnamed	1	0	0	0	0	0	0	0	1
Virchow	0	0	0	0	0	0	0	1	1
Total	26	7	4	4	13	8	12	12	86

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 2005 is shown in Table 4. 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.

56 EHEC were notified in this quarter, 50 of which were confirmed or probable VTEC (Table 7). This compares with 10 VTEC cases notified in Q4 2004 (Figure 2). Table 7 shows the number of VTEC cases reported by serogroup and month, Q4 2005.

Table 7. Confirmed VTEC Notified by Serogroup and Month, Q4 2005

VTEC	O157	O26	Other	Total
Oct	13	1	0	14
Nov	30	1	1	32
Dec	3	0	1	4
Total	46	2	2	50

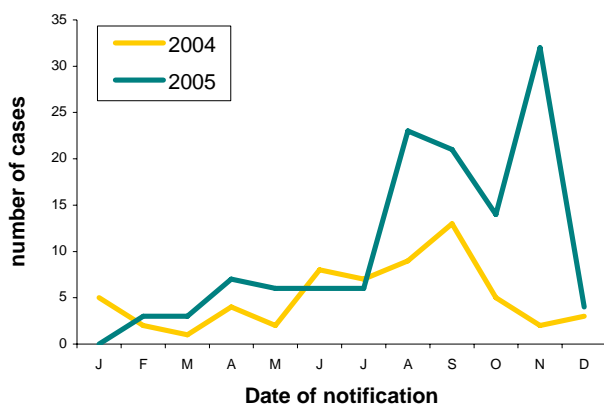


Figure 2. Seasonal Distribution of Confirmed VTEC cases notified 2004, and to Q4 2005

Enhanced information is provided by HSE-Area personnel on all VTEC cases. Six VTEC cases notified in this quarter developed HUS.

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 8 and 9 show the phage types and VT types of VTEC isolates referred to this laboratory in Q4 2005.

Table 8. Phage Types of VTEC O157 isolates referred to the HSE SWA Public Health Laboratory, Cherry Orchard Hospital in Q4 2005. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Phage type	Number of isolates
32	29
21/28	5
8	5
4	3
14	3
54	1
Total	46

Table 9. Verotoxin typing results of VTEC isolates referred to the HSE SWA Public Health Laboratory, Cherry Orchard Hospital in Q4 2005. (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	Vt1	Vt2	Vt1+Vt2	Total
<i>E. coli</i> O157	0	41	5	46
<i>E. coli</i> O26	0	0	2	2
<i>E. coli</i> O123	1	0	0	1
<i>E. coli</i> Ungroupable	0	1	0	1
Total	1	42	7	50

Outbreaks of VTEC infection

A general outbreak (18 confirmed cases) of *E. coli* O157 was reported by the HSE-MW; this is the largest VTEC outbreak ever reported in Ireland. Six additional outbreaks of VTEC infection (5 family and one general) were reported during Q4 2005, all due to *E. coli* O157. The modes of transmission and numbers ill in each outbreak are reported in Table 1.

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 2005 are shown in Table 10. The seasonal trend is broadly similar to 2004, as depicted in Figure 3.

Table 10. Campylobacter Notifications by HSE-Area and Month, Q4 2005

Campylobacter Infection	E	M	MW	NE	NW	SE	S	W	Total
Oct	54	11	14	7	4	23	23	15	151
Nov	42	9	20	14	4	23	26	13	151
Dec	37	9	5	9	5	14	19	6	104
Total	133	29	39	30	13	60	68	34	406

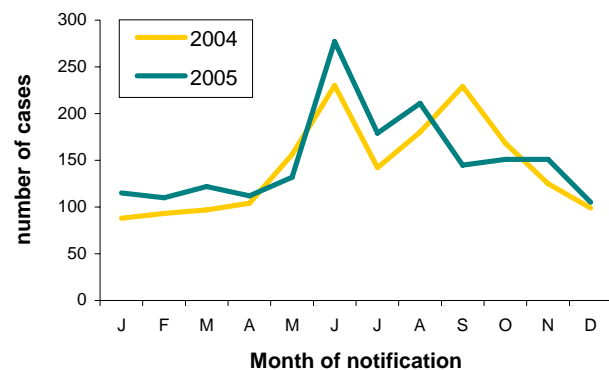


Figure 3. Seasonal distribution of Campylobacter cases 2004 and to end Q4 2005

Outbreaks of campylobacter infection

Two family outbreaks of Campylobacter infection were reported in Q4 2005 (Table 1).

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 2005, 61 cases of cryptosporidiosis were notified (Table 11), compared to 51 in same period last year (Figure 4).

Table 11. Cryptosporidiosis Notifications by HSE-Area and Month, Q4 2005

Cryptosporidiosis	E	M	MW	NE	NW	SE	S	W	Total
Oct	1	3	3	5	2	5	6	2	27
Nov	2	1	1	3	2	6	4	3	22
Dec	0	1	2	2	0	0	6	1	12
Total	3	5	6	10	4	11	16	6	61

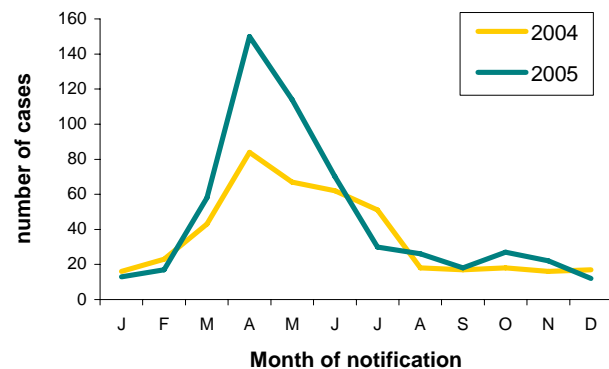


Figure 4. Seasonal distribution of cryptosporidiosis notifications 2004 and to end Q4 2005

Outbreaks of cryptosporidiosis

Two small general outbreaks of cryptosporidiosis were reported, one by the HSE-W and one by the HSE-S (Table 1)

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 39 cases reported in the fourth quarter of 2005, as shown in Table 12. These data are certainly an under-ascertainment of the true burden of disease due to this pathogen.

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the fourth quarter of 2005 there were 8 outbreaks confirmed or suspected to be caused by this virus,

involving at least 207 people becoming ill, as outlined in Table 1.

Table 12. Norovirus Notifications by HSE-Area and Month, Q4 2005

Noroviral Infection	E	M	MW	NE	NW	SE	S	W	Total
Oct	5	0	0	0	0	1	1	0	7
Nov	3	0	0	1	0	1	2	0	7
Dec	22	0	1	0	0	1	0	1	25
Total	30	0	1	1	0	3	3	1	39

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.

Two cases of listeriosis were notified in Q4 2005 (Table 4), the same as were reported in the same period last year; both were non pregnancy-associated adult cases.

SHIGELLA

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

During Q4 2005, 7 cases of shigellosis were notified (Table 4). This compares with 21 cases notified as

shigellosis in quarter 4 in 2004 and 12 as bacillary dysentery in 2003.

Four cases were reported as *S. sonnei*, two as *S. flexneri* and one 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 2005, 18 cases of giardiasis were notified (Table 4); this compares with 23 cases notified in Q4 2004.

Outbreak of giardiasis

A family outbreak of giardiasis was reported by the HSE-E (Table 1).

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*)'.

Three cases of staphylococcal food poisoning were notified in Q4 2005 (Table 4), compared to none in the same period in 2004.

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 2005, there were 99 notifications of acute infectious gastroenteritis. 79 were reported as rotavirus (Table 13) and 76% of these were in children under 2 years of age.

Table 13. Rotaviral Infections Notified under the Category of 'Acute Infectious Gastroenteritis' by HSE-Area and Month, Q4 2005

Rotaviral Infection	E	M	MW	NE	NW	SE	S	W	Total
Oct	1	1	0	2	1	0	1	0	6
Nov	13	2	1	10	2	3	1	1	33
Dec	17	7	0	4	5	5	1	1	40
Total	31	10	1	16	8	8	3	2	79

NON-IID ZOONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q Fever, toxoplasmosis, trichinosis, typhus and rabies. The Q1 2005 notifications of these zoonotic diseases are reported by HSE-Area in Table 4.

Twelve cases of toxoplasmosis were notified in this quarter. This compares with 8 cases notified in the same period in 2004.

There were 9 cases of brucellosis reported during this quarter compared with 13 in Q4 2004.

Eight cases of leptospirosis were notified in Q4 2005; this compares with 8 in Q4 2004 and 4 in Q4 2003.

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