

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



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

Quarter 4 –2012

March 2013

This is the fourth quarterly report for 2012 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, 2012

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	NW	Comm. Hosp/Long-stay unit	16			P-P	Noroviral infection
Oct	NW	Comm. Hosp/Long-stay unit	3	3	29/09/2012	P-P	AIG
Oct	NE	Residential institution	13	0		AB	Noroviral infection
Oct	E	Comm. Hosp/Long-stay unit	8		06/10/2012	Unknown	AIG
Oct	E	Comm. Hosp/Long-stay unit	14		08/10/2012	P-P	Noroviral infection
Oct	M	Hotel	29			P-P	Noroviral infection
Oct	E	Hospital	180	109	06/10/2012	P-P	Noroviral infection
Oct	SE	Residential institution	20		02/10/2012	P-P	Noroviral infection
Oct	M	Comm. Hosp/Long-stay unit	12			P-P & AB	Noroviral infection
Oct	E	Comm. Hosp/Long-stay unit	16		13/10/2012	P-P	Noroviral infection
Oct	E	Comm. Hosp/Long-stay unit	42		12/10/2012	P-P	Noroviral infection
Oct	NW	Comm. Hosp/Long-stay unit	11			P-P	AIG
Oct	S	Other	20			P-P & AB	AIG
Oct	M	Hospital	4			P-P & AB	Noroviral infection
Oct	W	Residential institution	7			P-P	AIG
Oct	E	Comm. Hosp/Long-stay unit	14		16/10/2012	P-P	AIG
Oct	NE	Residential institution	19	0		P-P & AB	Noroviral infection
Oct	E	Comm. Hosp/Long-stay unit	29		19/10/2012	P-P	Noroviral infection
Oct	MW	Hospital	6	6	19/10/2012	P-P	Clostridium difficile
Oct	M	Residential institution	2		24/10/2012	P-P & AB	AIG
Oct	S	Comm. Hosp/Long-stay unit	6	0	22/10/2012	P-P & AB	AIG
Oct	E	Comm. Hosp/Long-stay unit	79		23/10/2012	P-P	Noroviral infection
Oct	NE	Residential institution	8	0	24/10/2012	P-P & AB	AIG
Oct	SE	Residential institution	22		17/10/2012	P-P	Noroviral infection
Oct	E	Residential institution	5	0	23/10/2012	Unknown	AIG
Oct	E	Comm. Hosp/Long-stay unit	23		27/10/2012	Unknown	AIG
Oct	E	Other	19	2	25/10/2012	Unknown	Noroviral infection
Oct	E	Comm. Hosp/Long-stay unit	8		23/10/2012	P-P	Noroviral infection
Oct	W	Comm. Hosp/Long-stay unit	33			P-P	Noroviral infection
Nov	W	Hospital	13	13		P-P	Noroviral infection
Nov	NW	Comm. Hosp/Long-stay unit	5		05/11/2012	P-P	AIG
Nov	E	Comm. Hosp/Long-stay unit	33		01/11/2012	P-P	Noroviral infection
Nov	S	Comm. Hosp/Long-stay unit	8			P-P & AB	Noroviral infection
Nov	S	Comm. Hosp/Long-stay unit	3	0	30/10/2012	P-P & AB	AIG
Nov	E	Comm. Hosp/Long-stay unit	31		04/11/2012	P-P	Noroviral infection
Nov	MW	Hospital	10	6	31/10/2012	P-P	Noroviral infection
Nov	S	Comm. Hosp/Long-stay unit	19	0		P-P & AB	Noroviral infection
Nov	E	Comm. Hosp/Long-stay unit	11		04/11/2012	P-P	Noroviral infection
Nov	E	Comm. Hosp/Long-stay unit	57		06/11/2012	P-P	Noroviral infection
Nov	W	Residential institution	3	3	07/11/2012	P-P	AIG
Nov	E	Hospital	5		07/11/2012	P-P	Noroviral infection
Nov	E	Residential institution	38		08/11/2012	P-P	Noroviral infection
Nov	E	Hospital	106	77	11/11/2012	P-P	Noroviral infection
Nov	E	Comm. Hosp/Long-stay unit	16		10/11/2012	Unknown	AIG

Nov	MW	Hospital	5			P-P	Noroviral infection
Nov	W	Hospital	5	5		P-P	Clostridium difficile
Nov	SE	Residential institution	23		08/11/2012	P-P & AB	Noroviral infection
Nov	W	Comm. Hosp/Long-stay unit	18	18	12/11/2012	P-P	AIG
Nov	SE	Hospital	5		10/10/2012	P-P	Noroviral infection
Nov	E	School	25			Unknown	AIG
Nov	E	Comm. Hosp/Long-stay unit	13		09/11/2012	P-P	Noroviral infection
Nov	E	Residential institution	8		14/11/2012	Unknown	AIG
Nov	E	Residential institution	12		13/11/2012	Unknown	AIG
Nov	NE	Residential institution	9	0	17/11/2012	P-P & AB	AIG
Nov	W	Hospital	8	8		P-P	Clostridium difficile
Nov	W	Hotel	12	0		Unknown	Noroviral infection
Nov	MW	Comm. Hosp/Long-stay unit	6	6	17/11/2012	Unknown	Noroviral infection
Nov	E	Hospital	18		10/11/2012	P-P	Noroviral infection
Nov	E	Comm. Hosp/Long-stay unit	27		20/11/2012	P-P	Noroviral infection
Nov	MW	Residential institution	11		30/10/2012	Not Specified	Noroviral infection
Nov	NE	Residential institution	7	0		P-P & AB	AIG
Nov	SE	Residential institution	25		14/11/2012	P-P	AIG
Nov	W	Restaurant / Cafe	4	1	19/11/2012	Unknown	Noroviral infection
Nov	NE	Residential institution	10	0	23/11/2012	P-P & AB	AIG
Nov	NE	Hospital	18		15/11/2012	P-P & AB	Noroviral infection
Nov	S	Comm. Hosp/Long-stay unit	11	0		P-P & AB	Noroviral infection
Nov	E	Comm. Hosp/Long-stay unit	15		22/11/2012	P-P	AIG
Nov	NE	Residential institution	6	0	20/11/2012	P-P & AB	AIG
Nov	NW	Comm. Hosp/Long-stay unit	28	0	24/11/2012	P-P	Noroviral infection
Nov	SE	Residential institution	19		22/11/2012	P-P	Noroviral infection
Nov	E	Comm. Hosp/Long-stay unit	11		24/11/2012	P-P	AIG
Nov	W	Residential institution	9	1	23/11/2012	P-P	Suspected Noroviral infection
Nov	S	Residential institution				P-P & AB	Noroviral infection
Nov	SE	Residential institution	14		19/11/2012	P-P	Noroviral infection
Nov	SE	Hospital	16		18/11/2012	P-P	Noroviral infection
Nov	E	Comm. Hosp/Long-stay unit	52		25/11/2012	P-P	Noroviral infection
Nov	NE	Residential institution	8	0		P-P & AB	Noroviral infection
Nov	MW	Hotel	9	0	23/11/2012	WB	Food Poisoning (bacterial other than salmonella)
Nov	E	Residential institution	6		27/11/2012	Unknown	AIG
Nov	E	Hospital	25		12/11/2012	Unknown	Noroviral infection
Nov	SE	Hospital	19		26/11/2012	P-P	AIG
Nov	E	Hospital	34	28	23/11/2012	P-P	Noroviral infection
Dec	E	Residential institution	16		30/11/2012	P-P	Noroviral infection
Dec	S	Comm. Hosp/Long-stay unit	17	1	28/11/2012	P-P & AB	AIG
Dec	SE	Residential institution	31		30/11/2012	P-P	Noroviral infection
Dec	NE	Residential institution	11	2	28/11/2012	P-P & AB	Noroviral infection
Dec	W	Creche	25	0		P-P	AIG
Dec	W	Hospital	11	11		P-P	Noroviral infection
Dec	E	Hospital	40	20	27/11/2012	P-P	Noroviral infection
Dec	E	Residential institution	19			Unknown	Noroviral infection
Dec	SE	Hospital	6		30/11/2012	P-P	Noroviral infection

Dec	S	Residential institution	5	0		P-P & AB	Noroviral infection
Dec	E	Comm. Hosp/Long-stay unit	13		02/12/2012	P-P	Noroviral infection
Dec	NW	Comm. Hosp/Long-stay unit	17	0	23/11/2012	P-P	Noroviral infection
Dec	NW	Other	13	0	25/11/2012	P-P	AIG
Dec	NW	Comm. Hosp/Long-stay unit	8	0	29/11/2012	P-P	AIG
Dec	S	Hotel	35	0		P-P & AB	Noroviral infection
Dec	E	Comm. Hosp/Long-stay unit	26		28/11/2012	P-P	Noroviral infection
Dec	W	School	17	0	01/12/2012	P-P	AIG
Dec	S	Comm. Hosp/Long-stay unit				P-P & AB	Noroviral infection
Dec	E	Comm. Hosp/Long-stay unit	13		06/12/2012	P-P	AIG
Dec	NW	Comm. Hosp/Long-stay unit	11		04/12/2012	P-P	AIG
Dec	NW	Hospital	80	64	07/12/2012	P-P	Noroviral infection
Dec	M	Residential institution	31	0		P-P & AB	Noroviral infection
Dec	MW	Hotel	30	0		P-P	Noroviral infection
Dec	E	Residential institution	8		09/12/2012	P-P	AIG
Dec	NW	Hospital	14	8	26/11/2012	P-P	Noroviral infection
Dec	E	Comm. Hosp/Long-stay unit	28		28/11/2012	P-P	Noroviral infection
Dec	S	Comm. Hosp/Long-stay unit	10		12/12/2012	P-P & AB	AIG
Dec	S	Comm. Hosp/Long-stay unit	10		09/12/2012	P-P & AB	AIG
Dec	W	Hospital	6	5		P-P	Noroviral infection
Dec	M	Residential institution	3	0		Not Specified	AIG
Dec	S	Comm. Hosp/Long-stay unit	11	0	12/12/2012	P-P & AB	AIG
Dec	SE	Hospital	7		07/01/2012	P-P	Noroviral infection
Dec	NW	Hospital	2	2	30/11/2012	P-P	Cryptosporidiosis
Dec	MW	Hospital	31	31		P-P	Noroviral infection
Dec	W	Hospital	13	9		P-P	Noroviral infection
Dec	S	Comm. Hosp/Long-stay unit	6	0	18/12/2012	P-P & AB	AIG
Dec	S	Comm. Hosp/Long-stay unit	4	0		P-P & AB	Noroviral infection
Dec	SE	Residential institution	37		15/12/2012	P-P	Noroviral infection
Dec	SE	Residential institution	11		15/12/2012	P-P	Noroviral infection
Dec	E	Comm. Hosp/Long-stay unit	11		16/12/2012	Unknown	Noroviral infection
Dec	SE	Residential institution	5		19/12/2012	P-P	AIG
Dec	SE	Hospital	19		11/12/2012	P-P	Noroviral infection
Dec	M	Hospital				P-P & AB	Noroviral infection
Dec	NW	Comm. Hosp/Long-stay unit	17	0		Not Specified	Noroviral infection
Dec	NW	Residential institution	7	0	14/12/2012	P-P & AB	AIG
Dec	NW	Residential institution	13	0	13/12/2012	P-P	AIG
Dec	M	Residential institution	9			P-P & AB	Noroviral infection
Dec	NE	Residential institution	12	0	10/12/2012	P-P	Noroviral infection
Dec	SE	Residential institution	13		20/12/2012	P-P	Noroviral infection
Dec	E	Comm. Hosp/Long-stay unit	45		26/10/2012	P-P	Noroviral infection
Dec	NW	Comm. Hosp/Long-stay unit	8	0	21/12/2012	P-P	Noroviral infection
Dec	NW	Comm. Hosp/Long-stay unit	30	0		P-P	Noroviral infection
Dec	E	Comm. Hosp/Long-stay unit	5			P-P	Noroviral infection
Dec	M	Residential institution	12	0		P-P & AB	Noroviral infection
Dec	W	Hospital	14	14		P-P	Noroviral infection

P-P denotes Person-to-Person transmission, FB denotes foodborne, WB denotes waterborne; AB denotes airborne; AIG denotes Acute Infectious Gastroenteritis (unspecified); VTEC denotes infection with Verotoxigenic *E. coli*; NK=unknown

* Total numbers ill does not include asymptomatic cases

Table 2. Family Outbreaks of Infectious Intestinal Disease (IID) in Quarter 4, 2012

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Oct	S	Private house	2		01/09/2012	Unknown	VTEC
Oct	E	Creche	1		20/09/2012	P-P	VTEC
Oct	S	Private house	3	1		Not Specified	VTEC
Oct	MW	Private house	2	0	13/09/2012	P-P	VTEC
Oct	S	Private house			14/09/2012	P-P	VTEC
Oct	M	Private house	1	1	17/10/2012	WB	VTEC
Oct	SE	Private house	2		29/09/2012	P-P	VTEC
Oct	M	Private house	1	0	21/10/2012	WB	VTEC
Oct	E	Private house	1	1	10/09/2012	P-P & FB	Typhoid
Oct	E	Guest house / B and B	1	0	08/10/2012	FB	VTEC
Nov	NW	Private house			20/10/2012	P-P	Rotavirus
Nov	M	Private house	1			Not Specified	VTEC
Nov	S	Private house	2	0	07/10/2012	Unknown	VTEC
Nov	MW	Private house	3	0	02/11/2012	FB	Campylobacter
Nov	M	Private house			02/11/2012	Not Specified	VTEC
Nov	M	Private house	4	0	02/11/2012	Unknown	Cryptosporidiosis
Nov	NW	Private house	1	1	05/11/2012	P-P	VTEC
Nov	MW	Private house	3	0	24/11/2012	P-P	Noroviral infection
Dec	M	Private house	2	1	18/11/2012	Unknown	VTEC
Dec	E	Private house	2		12/11/2012	Unknown	VTEC
Dec	M	Private house	1	0	01/12/2012	P-P & Animal	VTEC

P-P denotes Person-to-Person transmission, FB denotes foodborne, WB denotes waterborne; AB denotes airborne; AIG denotes Acute Infectious Gastroenteritis; VTEC denotes infection with Verotoxigenic *E. coli* NK denotes unknown

* Total numbers ill does not include asymptomatic cases

Table 3. Non-IID Outbreaks in Quarter 4, 2012

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Oct	E	General	Creche	5	-	10/09/2012	P-P & AB	Measles
Oct	E	Family	Private house	2	-	23/05/2012	P-P	Pertussis
Oct	E	Family	Private house	2	1	10/09/2012	P-P	Hepatitis A (acute)
Oct	S	General	Comm. Hosp/Long-stay unit	17	3	19/10/2012	P-P	Acute Respiratory Illness
Oct	MW	General	Hospital	3	3	13/10/2012	Not Specified	MRSA
Nov	E	General	Hospital	6	6	14/08/2012	Environmental	Linezolid resistant VRE
Nov	S	Family	Private house	2	1	03/08/2012	P-P	Pertussis
Nov	SE	General	Other	3	-	01/01/2012	Not Specified	Tuberculosis
Nov	E	Family	Private house	2	1	28/09/2012	P-P	Pertussis
Nov	E	Family	Private house	2	0	24/09/2012	P-P	Pertussis
Nov	NW	Family	Private house	2	0	02/10/2012	P-P	Pertussis
Dec	S	Family	Extended family	4	0	03/11/2012	P-P	Pertussis
Dec	E	General	School	3	-	-	Unknown	Streptococcus Group A
Dec	NW	General	Residential institution	53	4	-	P-P	Human Metapneumovirus

Dec	S	General	Comm. Hosp/Long-stay unit	15	2	06/12/2012	P-P & AB	Respiratory Illness
Dec	E	Family	Private house	2	1	18/10/2012	P-P	Pertussis
Dec	NW	Family	Private house	2	2	18/11/2012	P-P	Mumps
Dec	E	Family	Private house	2	0	19/11/2012	P-P	Possible Pertussis
Dec	NW	General	Other	7	1	03/01/2013	P-P	Influenza
Dec	E	General	Comm. Hosp/Long-stay unit	16	1	-	P-P	Influenza

P-P denotes Person-to-Person transmission, WB denotes waterborne; AB denotes airborne; IDU denotes Injecting Drug Use; NK denotes unknown

* Total numbers ill does not include asymptomatic cases

Since July 2001, outbreaks have been reported to HPSC. Preliminary information is provided by a public health professional when the outbreak is first notified. Further information is provided 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 is crucial in providing information on the reasons why the outbreak occurred, the factors that lead to the spread of disease and the lessons that can be learnt to prevent further such outbreaks.

Since the 1st January 2004, with the amendment to the Infectious Diseases Regulations (2003), there is a statutory requirement for medical practitioners and clinical directors of a diagnostic laboratory to notify to the medical officer of health 'any unusual clusters or changing patterns of any illness, and individual cases thereof, that may be of public health concern'.

Tables 1 and 2 present a line listing of all general and family outbreaks of IID reported to HPSC in the fourth quarter of 2012. There were 137 general and 21 family IID outbreaks reported during this period, resulting in at least 2,506 people being ill.

Norovirus (n=87) was responsible for the most general outbreaks of IID (64% of all general outbreaks).

The most common causes of family outbreaks of IID were VTEC (n=16) [76%]. The other diseases responsible for family outbreaks were campylobacteriosis, cryptosporidiosis, norovirus, rotavirus and typhoid. (Table 2).

One hundred and seventeen general IID outbreaks were transmitted person-to-person/person-to-person and airborne (85%). One hundred and twenty five general outbreaks (91%) were reported to have

occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

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

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q4 2012.

Table 4. Number of Infectious Disease Outbreaks by HSE Area, Q4 2012

HSE Area	No. of outbreaks	Rate per 100,000 population
E	57	3.5
M	16	6.0
MW	12	3.2
NE	11	2.5
NW	23	9.0
SE	19	4.0
S	24	4.0
W	16	3.5
Total	178	4.0

NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZONOTIC AND VECTORBORNE DISEASE

The number of notifications of infectious intestinal, zoonotic and vectorborne disease by HSE-Area for the fourth quarter of 2012 is shown in Table 5.

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 4, 2012 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
<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	187	29	43	48	17	58	66	13	461
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	6	10	12	15	5	7	15	11	81
Giardiasis	8	2	0	0	0	1	3	2	16
Listeriosis	1	1	0	1	0	0	0	0	3
Noroviral infection	478	36	51	97	22	49	34	53	820
Paratyphoid	~	~	~	~	~	~	~	~	1
Rotavirus infection ^a	21	16	4	5	28	23	20	6	123
Salmonellosis	25	5	4	6	4	7	2	7	60
Shigellosis	5	0	0	0	0	2	5	0	12
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	0
Typhoid	~	~	~	~	~	~	~	~	4
Verotoxigenic <i>Escherichia coli</i> infection ^b	10	12	11	5	5	6	28	10	87
Yersiniosis	0	0	0	0	0	0	0	0	0
Zoonotic Disease									
Anthrax	0	0	0	0	0	0	0	0	0
Brucellosis	0	0	0	0	0	1	0	0	1
Echinococcosis	0	0	0	0	0	0	0	0	0
Leptospirosis	2	0	0	0	0	0	1	2	5
Plague	0	0	0	0	0	0	0	0	0
Q Fever	1	1	0	0	0	1	1	0	4
Rabies	0	0	0	0	0	0	0	0	0
Toxoplasmosis	7	0	1	1	2	1	5	1	18
Trichinosis	0	0	0	0	0	0	0	0	0
Vectorborne Disease									
Chikungunya disease ^c	0	0	0	0	0	0	0	0	0
Dengue ^c	1	0	0	0	0	0	0	0	1
Lyme disease (neuroborreliosis) ^c	0	0	0	0	1	0	1	0	2
Malaria	6	1	0	0	0	2	2	3	14
Typhus	0	0	0	0	0	0	0	0	0
West Nile fever ^c	0	0	0	0	0	0	0	0	0

^a Notifiable under the category Acute Infectious Gastroenteritis 2004-2011

^b Notifiable under the category Enterohaemorrhagic *E. coli* 2004-2011

^c Newly added to the list of notifiable diseases in 2012 under Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011)

Human salmonellosis (*S. enterica*) is a notifiable disease. The National Salmonella, Shigella and Listeria Reference Laboratory (NSSLRL) 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 2012. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q4 2012

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	12	1	1	3	2	4	1	2	26
Nov	7	3	2	1	1	1	1	3	19
Dec	6	1	1	2	1	2		2	15
Total	25	5	4	6	4	7	2	7	60

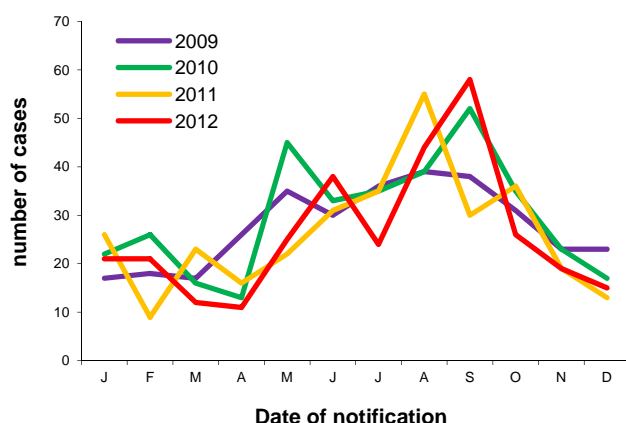


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2009 to end quarter 4 2012

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSSLRL in the fourth quarter of 2012 by HSE area (n=54). The commonest human serotypes isolated were *S. Typhimurium** (n= 24, 44%) and *S. Enteritidis* (n= 6, 11%).

Seventeen (31%) *S. enterica* isolates were reported to NSSLRL as being associated with travel outside of Ireland during this quarter.

Table 8 shows the serotype distribution of confirmed *Salmonella* notifications by travel status this quarter among salmonellosis notifications on CIDR.

Table 7. Serotypes of *S. enterica* Referred to NSSLRL in Quarter 4, 2012 (Data are provided courtesy of Prof. Martin Cormican and staff, NSSLRL).

Serotype	E	M	MW	NE	NW	SE	S	W	Total
4,[5],12:i:-	4	2	0	0	1	3	0	0	10
Anatum	1	0	0	0	0	0	0	0	1
Braenderup	1	0	0	0	0	0	0	1	2
Brandenburg	1	0	0	0	0	0	0	0	1
Bredeney	1	0	0	0	0	0	0	0	1
Dublin	0	0	1	0	0	0	1	0	2
Enteritidis	1	0	1	2	0	0	1	1	6
Godesberg	0	0	0	1	0	0	0	0	1
Heidelberg	1	0	0	0	0	0	0	0	1
Indiana	0	0	0	0	0	1	0	0	1
Infantis	0	0	0	0	0	0	0	1	1
Kentucky	1	0	0	0	0	0	0	0	1
Mbandaka	0	0	0	1	0	0	0	0	1
Mikawasima	0	1	1	0	0	0	0	1	3
Newport	1	0	0	0	0	0	0	0	1
Panama	0	1	0	0	0	0	0	0	1
Paratyphi A	~	~	~	~	~	~	~	~	1
Stanleyville	0	0	0	0	1	0	0	0	1
Typhi	~	~	~	~	~	~	~	~	4
Typhimurium	9	0	1	1	0	1	0	2	14
Total	26	4	4	5	2	5	2	6	54

Table 8. Confirmed Salmonella notifications by Serotype and Travel Status, Q4 2012 [n(%)]

Serotype	Indigenous	Travel-associated	Unk/not specified	Total
<i>S. Enteritidis</i>	1 (4%)	5 (26%)	2 (13%)	8 (14%)
<i>S. Typhimurium</i>	16 (64%)	5 (26%)	5 (33%)	26 (45%)
Other	6 (24%)	8 (42%)	7 (54%)	21 (36%)
<i>Salmonella</i> spp	2 (8%)	1 (6%)	0 (0%)	3 (5%)
Total	25 (100%)	19 (100%)	15 (100%)	58 (100%)

Note: Data source CIDR. Travel status is inferred from *Country of Infection* variable on CIDR. Note excludes probable notifications

S. Typhi and *S. Paratyphi*

There were four cases of typhoid notified this quarter, all associated with travel to the Indian sub-continent. There was one case of Paratyphi A reported in Q4 2012 associated with travel to Indonesia (Table 5).

Outbreaks of Salmonellosis

There were no outbreaks of salmonellosis notified in Q4 2012 (Tables 1 & 2).

* –includes 10 cases of monophasic *S. Typhimurium* 4,5,12:i:-

VEROTOXIGENIC *E. COLI* (VTEC)

Verotoxigenic *E. coli* (VTEC) became a notifiable disease on January 1st 2012. Previously, VTEC were notified under the category of Enterohaemorrhagic *E. coli* between 2004 and 2011.

Eighty-seven cases of VTEC were notified this quarter, the regional distribution of which is shown in Table 9. This compares with 118 VTEC cases notified in Q4 2011 and 32 in Q4 2010 (Figure 2).

Table 9 shows the number of VTEC cases reported by case classification and HSE-area and Table 10 shows the number of VTEC cases by serogroup and month, Q4 2012.

Table 9. Number VTEC notified by case classification and HSE-area, Q4 2012

Case classification	E	M	MW	NE	NW	SE	S	W	Total
Conf	9	5	8	5	1	6	24	8	66
Prob	1	5	3	0	4	0	4	2	19
Poss	0	2	0	0	0	0	0	0	2
Total	10	12	11	5	5	6	28	10	87

Table 10. VTEC notified by Serogroup and Month, Q4 2012

Month	O157	O26	Other	None*	Total
Oct	24	10	6	2	42
Nov	14	6	9	0	29
Dec	5	4	6	1	16
Total	43	20	21	3	87

*Includes 1 case reported as epidemiologically-linked case and 2 as possible VTEC cases

Four VTEC cases notified during this quarter were reported as having developed HUS. Two were infected with *E. coli* O157 and two were reported as possible VTEC cases.

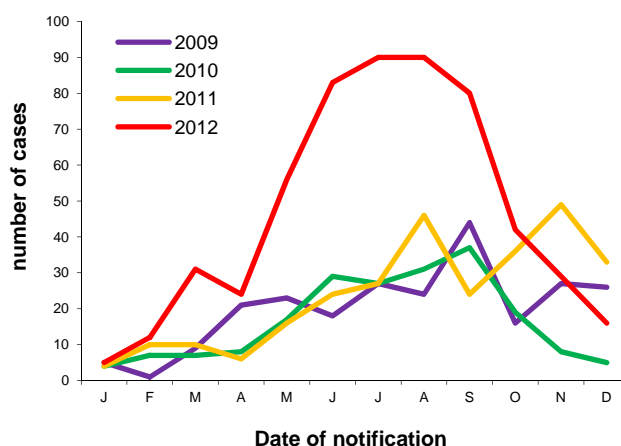


Figure 2. Seasonal distribution of VTEC cases notified 2009 to end quarter 4 2012

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. Table 11 shows the *vt* types of VTEC cases notified in Q4 2012.

Table 11. Verotoxin typing profiles of *E. coli* referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q4 2012 (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

Serogroup	vt1	vt2	vt1+vt2	Total
O157	0	32	11	43
O26	10	1	9	20
Other	3	13	5	21
Total	13	46	25	84

*Excludes three notifications reported as probable on the basis of epidemiological link or reported as possible VTEC cases, as no strains available

Outbreaks of VTEC infection

During this quarter, sixteen family outbreaks of VTEC infection were reported (see Tables 1 & 2).

CAMPYLOBACTER

Human campylobacteriosis became a notifiable disease on January 1st 2004. Prior to this, human campylobacter infection was notified under the category of 'Food Poisoning (bacterial other than Salmonella)'. The notifications for the fourth quarter of 2012 are shown in Table 12. Comparison with previous years is shown in Figure 3. An upsurge involving an increase in sporadic *Campylobacter* cases since early 2011 showed signs of returning to rather more normal seasonal levels during November and December 2012 (figure 3).

Table 12. Campylobacter Notifications by HSE-Area and Month, Q4 2012

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	83	12	12	27	8	25	21	5	193
Nov	66	12	18	14	4	18	30	3	165
Dec	38	5	13	7	5	15	15	5	103
Total	187	29	43	48	17	58	66	13	461

Outbreaks of Campylobacter infection

There was one family outbreak of campylobacteriosis reported in Q4 2012 (Tables 1 and 2).

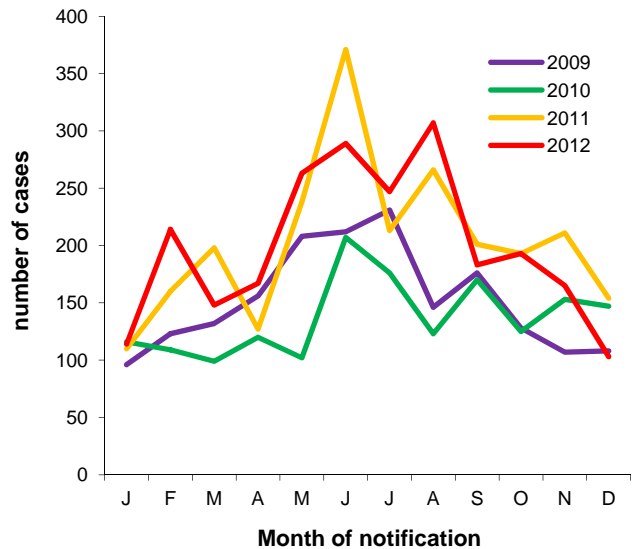


Figure 3. Seasonal distribution of Campylobacter notifications 2009 to end quarter 4 2012

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 2012, 81 cases of cryptosporidiosis were notified (Table 13), compared to 51 in the same period in 2011 and 27 in Q4 2010 (Figure 4).

Table 13. Cryptosporidiosis Notifications by HSE-Area and Month, Q4 2012

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	1	2	8	6	2	3	7	2	31
Nov	1	7	2	3	1	3	4	7	28
Dec	4	1	2	6	2	1	4	2	22
Total	6	10	12	15	5	7	15	11	81

Outbreaks of cryptosporidiosis

There was one general and one family outbreak of cryptosporidiosis reported in quarter 4 2012 (Tables 1 and 2).

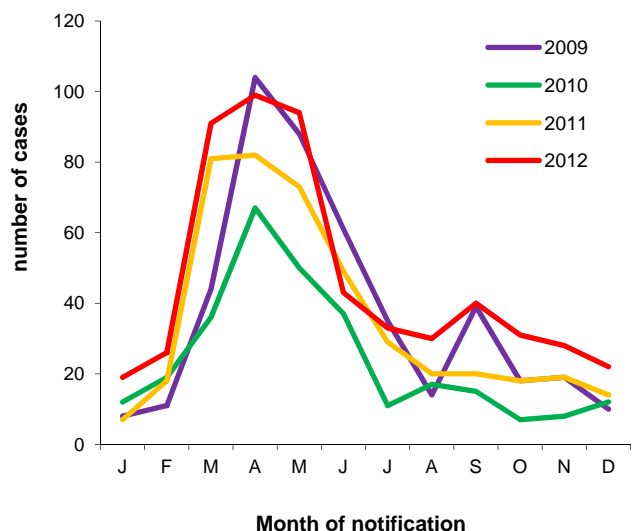


Figure 4. Seasonal distribution of cryptosporidiosis notifications 2009 to end quarter 4 2012

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 820 cases notified in the fourth quarter of 2012 (Table 14). These data are certainly an under-ascertainment of the true burden of disease due to this pathogen.

Table 14. Norovirus Notifications by HSE-Area and Month, Q4 2012

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	115	12	13	23	3	12	2	9	189
Nov	171	12	22	30	3	18	12	22	290
Dec	192	12	16	44	16	19	20	22	341
Total	478	36	51	97	22	49	34	53	820

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the fourth quarter of 2012 there were eighty-eight outbreaks confirmed as being caused by this virus, involving at least 1955

people becoming ill, as outlined in Tables 1 & 2. The seasonal trend is outlined in Figure 5.

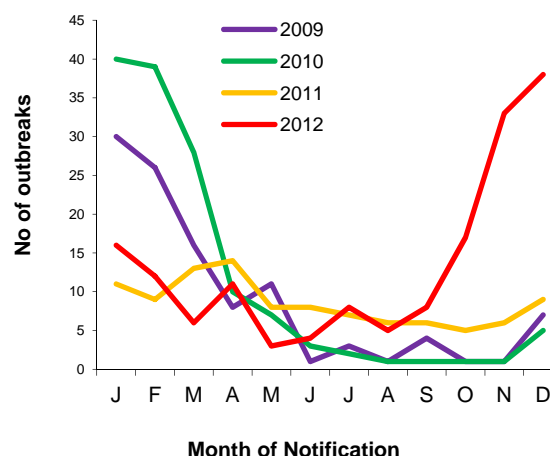


Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2009 to end quarter 4 2012

SHIGELLA

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

During Q4 2012, twelve cases of shigellosis were notified (Table 5). This compares with twelve cases notified in Q4 2011 and seventeen in Q4 2010. The distribution by serotype is shown in Table 15.

Four cases were travel related, four acquired their illness in Ireland while country of infection was reported as not specified for the remaining four cases.

Outbreaks of shigellosis

There were no outbreaks of shigellosis reported in Q4 2012 (Table 2).

Table 15: Species and serotype distribution of Q4 2012 human *Shigella* isolates (Shigella typing services are provided courtesy of Prof. Martin Cormican and staff at the National Salmonella Shigella and Listeria Reference Laboratory).

Serotype	Number of isolates
<i>Shigella sonnei</i>	9
<i>Shigella flexneri</i>	1
<i>Shigella flexneri</i> 6	1
<i>Shigella dysenteriae</i>	1
Total	12

GIARDIA

Human giardiasis became a notifiable disease on January 1st 2004. Prior to this, giardiasis was notifiable in Ireland only in young children under the category 'gastroenteritis in children under 2 years'.

During Quarter 4 2012, sixteen cases of giardiasis were notified (Table 5); this compares with 10 cases notified in Q4 2011 and 15 in Q4 2010.

Eleven cases (69%) were reported to have acquired their illness abroad. Country of infection was reported as Ireland for two cases and 'not specified' or 'unknown' for the remaining three cases.

Outbreaks of giardiasis

There were no outbreaks of giardiasis notified in Q4 2012 (Table 2).

LISTERIA

Human listeriosis became a notifiable disease on January 1st 2004. Prior to this, listeriosis was notified under the category of 'Food Poisoning (bacterial other than Salmonella)' or 'Bacterial Meningitis' as appropriate.

There were three cases of listeriosis notified in Q4 2012, compared to one in quarter 4 2011 and two in quarter 4 2010. Two cases this quarter were adult cases, and there was one pregnancy related case.

One isolate was referred for typing to NSSLRL (Table 16).

Table 16: Serotypes of Q4 2012 human *Listeria* isolates referred to the NSSLRL (Typing services are provided by Prof. Martin Cormican and staff at the National Salmonella Shigella and Listeria Reference Laboratory).

Serotype	Number of isolates
4b	1

ROTAVIRUS INFECTION

Since 2004, rotavirus, although not specifically listed, was a notifiable disease in Ireland under the Acute Infectious Gastroenteritis (AIG) disease category. Prior to 2004, rotavirus cases were notified in the former notification category of "Gastroenteritis in children under two years". In April 2008 the case definition of AIG was amended specifying rotavirus. Rotavirus became notifiable as a disease in its own right under the Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011). Rotavirus notifications for the fourth quarter of 2012 are shown in Table 17.

Table 17. Rotavirus Infection by HSE-Area and Month, Q4 2012

Month	E	M	MW	NE	NW	SE	S	W	Total
Oct	7	9	1	1	14	7	5	3	47
Nov	5	5	1	1	11	10	11	2	46
Dec	9	2	2	3	3	6	4	1	30
Total	21	16	4	5	28	23	20	6	123

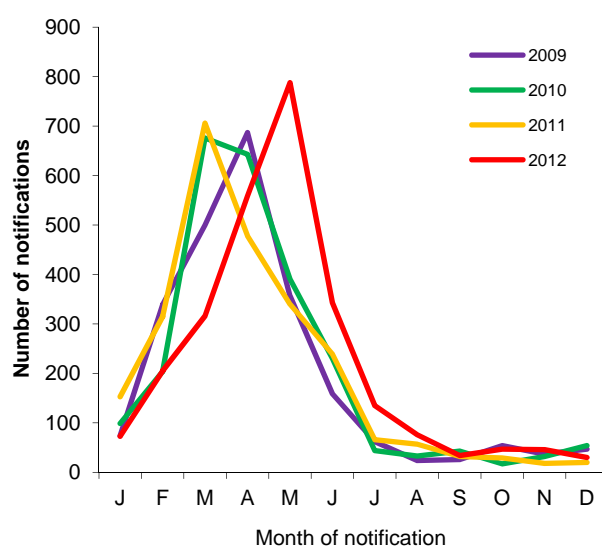


Figure 6. Seasonal Distribution of Rotavirus Notifications, 2009 to end quarter 4 2012

Outbreaks of Rotavirus

There was one family outbreak of rotavirus notified this quarter (Tables 1 & 2).

FOODBORNE INTOXICATIONS

Bacillus cereus foodborne infection/intoxication, botulism, *Clostridium perfringens* (type A) food-borne disease and staphylococcal food poisoning became notifiable diseases on January 1st 2004. Prior to this, these diseases were notified under the

category of 'Food Poisoning (bacterial other than Salmonella)'.

There were no cases of foodborne intoxication notified this quarter.

NON-IID ZONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q fever, toxoplasmosis, trichinosis and rabies. The Q4 2012 notifications of these zoonotic diseases are reported by HSE-Area in Table 5.

Eighteen cases of toxoplasmosis were notified in this quarter. This compares with nine cases notified in the same period in 2011 and 12 cases in Q4 2010.

There were five cases of leptospirosis notified in Q4 2012; this compares with four in Q4 2011 and five

in Q4 2010. Four cases this quarter reported occupational exposure and once case reported exposure during leisure activity as the possible source of infection.

There were four cases of Q fever notified in Q4 2012; this compares with three cases in Q4 2011 and two in Q4 2010.

There were no cases of echinococcosis or trichinosis notified this quarter.

MALARIA

Malaria is a notifiable disease for many years. The Q4 2012 notifications are reported in Table 5 by HSE-Area.

Fourteen cases of malaria were notified in Q4 2012. This compares with fifteen cases reported in Q4 2011 and 20 in Q4 2010.

Ten were reported as *P. falciparum*, two as *P. ovale*, one as *P. malariae* and the organism was not specified for the remaining case.

Ten cases were exposed in Africa, one in South America, and the country of infection is unknown/not specified for the remaining three cases.

The reason for travel for seven cases was reported as 'visiting family in country of origin', one case occurred in an Irish citizen living abroad, one case reported business travel, one case was a new entrant to Ireland and another case reported other reasons for travel. The reason for travel was not specified/unknown for the remaining three cases.

OTHER NOTIFIABLE VECTORBORNE DISEASES

Under Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011) (Sept 2011), Chikungunya disease, Dengue, Lyme disease (neuroborreliosis) and West Nile fever were made notifiable. The Q4 2012 notifications are reported in Table 5 by HSE-Area.

There were two cases of Lyme disease (neuroborreliosis) and one case of Dengue fever reported in Q4 2012.

There were no notifications of Chikungunya disease or West Nile fever this quarter.

Health Protection Surveillance Centre
25-27 Middle Gardiner St, Dublin 1, Ireland
www.hpsc.ie
Tel: +353-1-8765300
Fax: +353-1-8561299

Report prepared by:
Ms Fiona Cloak
Dr Patricia Garvey
Ms. Sarah Jackson
Dr Paul McKeown