

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



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive



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

Quarter 3 –2012

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This is the third 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 3, 2012

| Month | HSE area | Location | No. ill * | No. Hosp. | Date Onset | Suspect mode of transmission | Disease |
|-------|----------|---------------------------|-----------|-----------|------------|------------------------------|-----------------------|
| Jul | M | Residential institution | 9 | - | 24/06/2012 | P-P & AB | AIG |
| Jul | E | Residential institution | 16 | 0 | 05/07/2012 | P-P | Norovirus |
| Jul | MW | Creche | 8 | - | 09/06/2012 | P-P | VTEC |
| Jul | E | Hospital | 9 | - | - | P-P | Clostridium difficile |
| Jul | SE | Hotel | 20 | 0 | 06/07/2012 | P-P | Norovirus |
| Jul | SE | Community outbreak | 11 | 3 | 24/04/2012 | WB | Cryptosporidium |
| Jul | E | Comm. Hosp/Long-stay unit | 24 | - | 13/07/2012 | P-P | AIG |
| Jul | E | Comm. Hosp/Long-stay unit | 13 | - | 15/07/2012 | P-P | AIG |
| Jul | E | Residential institution | 5 | - | 12/07/2012 | P-P | Norovirus |
| Jul | MW | Restaurant / Cafe | 32 | 0 | 30/06/2012 | FB | AIG |
| Jul | E | Extended family | 6 | 0 | 02/07/2012 | FB | VTEC |
| Jul | NW | Comm. Hosp/Long-stay unit | 6 | 0 | - | P-P | Norovirus |
| Jul | SE | Residential institution | 7 | - | 16/07/2012 | P-P | Suspected norovirus |
| Jul | SE | Hospital | 7 | - | 18/06/2012 | P-P | Norovirus |
| Jul | NW | Comm. Hosp/Long-stay unit | 13 | 0 | 17/07/2012 | P-P | AIG |
| Jul | NW | Comm. Hosp/Long-stay unit | 4 | 0 | 19/07/2012 | Not Specified | Norovirus |
| Jul | E | Comm. Hosp/Long-stay unit | 5 | - | 25/07/2012 | P-P | AIG |
| Jul | MW | Travel related | 1 | 1 | 15/05/2012 | P-P & FB | VTEC |
| Jul | NW | Extended family | 10 | 0 | 17/07/2012 | P-P | AIG |
| Jul | S | Hospital | 3 | 3 | - | P-P | Norovirus |
| Aug | NE | Residential institution | 2 | 0 | - | P-P & AB | Norovirus |
| Aug | M | Community outbreak | 27 | - | 21/07/2012 | WB | VTEC |
| Aug | E | Hotel | 60 | 0 | 01/08/2012 | P-P & FB | Norovirus |
| Aug | W | Community outbreak | 2 | 0 | 11/07/2012 | Unknown | VTEC |
| Aug | SE | Residential institution | 33 | 0 | 08/08/2012 | P-P | Suspected norovirus |
| Aug | M | Residential institution | 27 | 0 | - | P-P & AB | Norovirus |
| Aug | E | Residential institution | 10 | 0 | 02/08/2012 | Unknown | AIG |
| Aug | E | Community outbreak | 4 | 1 | 31/07/2012 | Unknown | VTEC |
| Aug | SE | Comm. Hosp/Long-stay unit | 17 | - | 13/08/2012 | P-P | suspected Norovirus |
| Aug | E | Comm. Hosp/Long-stay unit | 4 | - | 19/08/2012 | Unknown | AIG |
| Aug | E | Unknown | 2 | 0 | 12/08/2012 | Unknown | VTEC |
| Aug | S | Creche | 3 | - | 01/06/2012 | Not Specified | VTEC |
| Aug | M | Community outbreak | 17 | 3 | 16/08/2012 | WB | VTEC |
| Aug | E | Hotel | 19 | - | - | P-P & AB | Norovirus |
| Sep | W | Other | 1 | 0 | 06/08/2012 | Unknown | VTEC |
| Sep | E | Comm. Hosp/Long-stay unit | 7 | - | 27/08/2012 | Unknown | AIG |
| Sep | HPSC | Community outbreak | 27 | 6 | 12/08/2012 | Unknown | Salmonella |
| Sep | E | Residential institution | 40 | 1 | 16/09/2012 | P-P | Norovirus |
| Sep | M | Residential institution | 55 | 2 | - | P-P & AB | Norovirus |
| Sep | E | Residential institution | 17 | - | 16/09/2012 | P-P | Norovirus |
| Sep | NE | Private house | 2 | 1 | 17/08/2012 | Unknown | VTEC |
| Sep | E | Residential institution | 42 | 4 | 06/09/2012 | P-P | Norovirus |
| Sep | E | Residential institution | 26 | - | 18/09/2012 | P-P | Norovirus |
| Sep | NE | Residential institution | 6 | 0 | - | P-P & AB | Norovirus |

| | | | | | | | |
|-----|----|---------------------------|-----|-----|------------|---------|-----------|
| Sep | NW | Comm. Hosp/Long-stay unit | 13 | - | 24/09/2012 | P-P | Norovirus |
| Sep | E | Hospital | 330 | 290 | 26/09/2012 | Unknown | Norovirus |

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 3, 2012

| Month | HSE region | Location | No. ill * | No. Hosp. | Date Onset | Suspect mode of transmission | Disease |
|-------|------------|-----------------|-----------|-----------|------------|------------------------------|-------------------|
| Jul | W | Extended family | 2 | 0 | 26/06/2012 | Unknown | VTEC |
| Jul | M | Private house | 4 | 0 | - | P-P | Norovirus |
| Jul | M | Private house | 1 | 1 | 30/06/2012 | Not Specified | VTEC |
| Jul | S | Private house | 2 | - | 15/06/2012 | Not Specified | VTEC |
| Jul | S | Private house | 2 | - | 17/06/2012 | Not Specified | VTEC |
| Jul | M | Private house | 2 | 1 | 06/07/2012 | Unknown | VTEC |
| Jul | M | Private house | 1 | 0 | 20/06/2012 | Unknown | VTEC |
| Jul | W | Private house | 2 | 0 | 08/06/2012 | Unknown | VTEC |
| Jul | S | Private house | 2 | - | 15/04/2012 | Not Specified | VTEC |
| Jul | S | Private house | 2 | - | 17/06/2012 | Not Specified | VTEC |
| Jul | MW | Private house | 0 | 0 | - | P-P & WB | VTEC |
| Jul | MW | Private house | 1 | 1 | 10/06/2012 | P-P & WB | VTEC |
| Jul | E | Private house | 2 | 1 | - | Unknown | VTEC |
| Jul | MW | Not Specified | 1 | 1 | 18/06/2012 | P-P & WB | VTEC |
| Jul | MW | Not Specified | 1 | 0 | 13/06/2012 | P-P & WB | VTEC |
| Jul | E | Private house | 2 | 0 | - | P-P & FB | Campylobacter |
| Jul | MW | Private house | 1 | 0 | 07/07/2012 | Not Specified | VTEC |
| Jul | S | Private house | 2 | - | 10/07/2012 | P-P | VTEC |
| Aug | S | Private house | 5 | - | 17/07/2012 | Not Specified | VTEC |
| Aug | S | Private house | 1 | - | 09/07/2012 | Not Specified | VTEC |
| Aug | S | Private house | 2 | - | 23/05/2012 | Not Specified | VTEC |
| Aug | W | Private house | 2 | 0 | - | Unknown | VTEC |
| Aug | S | Private house | 2 | 0 | - | Animal contact | Salmonella |
| Aug | W | Not Specified | 2 | 0 | 16/07/2012 | Not Specified | VTEC |
| Aug | W | Private house | 2 | 1 | 29/07/2012 | Not Specified | VTEC |
| Aug | SE | Private house | 5 | 0 | 29/07/2012 | Not Specified | Cryptosporidiosis |
| Aug | NW | Unknown | 2 | 2 | 09/08/2012 | P-P | Rotavirus |
| Aug | S | Private house | 2 | - | 02/07/2012 | Not Specified | VTEC |
| Aug | S | Private house | 2 | - | 25/02/2012 | Not Specified | VTEC |
| Aug | MW | Private house | 1 | 0 | 07/07/2012 | WB | VTEC |
| Aug | W | Private house | 3 | 0 | 14/08/2012 | Not Specified | VTEC |
| Aug | NE | Private house | 3 | 1 | 07/08/2012 | P-P | VTEC |
| Aug | NW | Private house | 2 | 0 | 07/08/2012 | P-P | VTEC |
| Aug | W | Private house | 3 | 1 | 18/08/2012 | Unknown | VTEC |
| Sep | S | Private house | 2 | 0 | 12/08/2012 | P-P | VTEC |
| Sep | NW | Private house | 6 | 1 | - | Not Specified | Campylobacter |
| Sep | M | Private house | 2 | 0 | 20/08/2012 | WB | VTEC |
| Sep | NW | Travel related | 2 | 0 | 22/08/2012 | P-P | Cryptosporidiosis |
| Sep | NE | Private house | 1 | 0 | 15/08/2012 | Unknown | VTEC |
| Sep | NE | Private house | 1 | 1 | 25/08/2012 | Unknown | VTEC |

| | | | | | | | |
|-----|----|---------------|---|---|------------|---------------|-------------------|
| Sep | NE | Private house | 1 | 1 | 31/08/2012 | Unknown | VTEC |
| Sep | W | Private house | 2 | 0 | 07/09/2012 | Unknown | VTEC |
| Sep | MW | Private house | 2 | 1 | 15/08/2012 | P-P | VTEC |
| Sep | S | Private house | 4 | 0 | 21/08/2012 | P-P | VTEC |
| Sep | S | Private house | 2 | 0 | 01/08/2012 | Unknown | VTEC |
| Sep | E | Private house | 3 | 0 | 06/09/2012 | Unknown | VTEC |
| Sep | E | Private house | 2 | 1 | 10/09/2012 | WB | VTEC |
| Sep | W | Private house | 1 | - | - | Unknown | VTEC |
| Sep | M | Not Specified | 1 | - | - | Not Specified | VTEC |
| Sep | M | Private house | - | - | 20/09/2012 | Unknown | VTEC |
| Sep | W | Private house | 3 | 1 | 19/09/2012 | Unknown | VTEC |
| Sep | S | Private house | 2 | 0 | 28/08/2012 | P-P & WB | Cryptosporidiosis |

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-ILD Outbreaks in Quarter 3, 2012

| Month | HSE area | Type of outbreak | Location | No. ill * | No. Hosp. | Date Onset | Suspect mode of transmission | Organism |
|-------|----------|------------------|---------------------------|-----------|-----------|------------|------------------------------|-----------------------------------|
| Jul | E | Family | Private house | 2 | 0 | - | P-P | Hepatitis C |
| Jul | NW | Family | Private house | 5 | 1 | 04/06/2012 | P-P | Pertussis |
| Jul | E | General | Other | 10 | 0 | - | P-P | Hand-Foot-and-Mouth Disease Virus |
| Jul | E | Family | Private house | 6 | - | - | P-P | Hepatitis B |
| Jul | S | General | Comm. Hosp/Long-stay unit | 8 | - | 14/07/2012 | AB | Respiratory Illness |
| Jul | S | General | Comm. Hosp/Long-stay unit | 6 | - | 17/07/2012 | AB | Respiratory Illness |
| Jul | E | Family | Private house | 3 | - | 10/06/2012 | P-P & AB | Pertussis |
| Jul | E | Family | Private house | - | - | 04/07/2012 | FB & AB | Suspected Pertussis |
| Aug | SE | Family | Private house | 2 | 0 | 21/06/2012 | P-P & AB | Pertussis |
| Aug | E | Family | Private house | 2 | 0 | 31/07/2012 | AB | Pertussis |
| Aug | E | General | Other | 3 | 0 | - | P-P | Viral meningitis |
| Aug | W | General | Hospital | 9 | 9 | 14/03/2012 | Unknown | MRSA |
| Aug | E | General | Residential institution | 9 | - | - | P-P | Possible scabies |
| Aug | SE | Family | Private house | 3 | 2 | 25/07/2012 | AB | Pertussis |
| Aug | NE | Family | Private house | 2 | 2 | 10/07/2012 | P-P | Pertussis |
| Aug | SE | Family | Private house | 2 | 0 | 25/07/2012 | AB | Pertussis |
| Sep | E | Family | Private house | 4 | 1 | 02/08/2012 | P-P | Pertussis |
| Sep | E | Family | Private house | 2 | 0 | 27/08/2012 | P-P | Possible Pertussis |
| Sep | E | Family | Private house | 2 | - | 14/08/2012 | P-P & AB | Pertussis |
| Sep | W | General | Other | 4 | 0 | - | P-P | Neisseria gonorrhoeae |
| Sep | E | General | Other | 8 | 0 | 16/08/2012 | P-P & AB | Possible Measles |
| Sep | NW | Family | Private house | 3 | - | 01/08/2012 | P-P | Pertussis |
| Sep | E | Family | Private house | 2 | 0 | 04/09/2012 | P-P & AB | Pertussis |
| Sep | E | Family | Private house | 2 | 1 | 27/08/2012 | P-P & AB | Pertussis |
| Sep | E | Family | Private house | 4 | 0 | 01/09/2012 | P-P & AB | Pertussis |
| Sep | E | General | Private house | 2 | - | 07/08/2012 | Unknown | Pertussis |
| Sep | E | Family | Private house | 2 | 1 | 08/06/2012 | P-P | Hepatitis A |

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 third quarter of 2012. There were forty-six general and fifty-two family IID outbreaks reported during this period, resulting in at least 1,064 people being ill.

Norovirus (n=19) was responsible for the most general outbreaks of IID (41% of all general outbreaks).

The most common causes of family outbreaks of IID were VTEC (n=44) [85%]. The other diseases responsible for family outbreaks were campylobacteriosis, cryptosporidiosis, norovirus and salmonellosis. (Table 2).

Twenty-seven general IID outbreaks were transmitted person-to-person (59%). Twenty-eight general outbreaks (61%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

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

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q3 2012.

Table 4. Number of Infectious Disease Outbreaks by HSE Area, Q3 2012

| HSE Area | No. of outbreaks | Rate per 100,000 population |
|--------------|------------------|-----------------------------|
| E | 40 | 2.5 |
| M | 12 | 4.2 |
| MW | 10 | 3.0 |
| NE | 8 | 2.0 |
| NW | 11 | 4.3 |
| SE | 10 | 2.0 |
| S | 19 | 3.0 |
| W | 14 | 3.1 |
| Total | 124 | 3.0 |

NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZONOTIC AND VECTORBORNE DISEASE

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

Table 5. Intestinal Infectious, Zoonotic and Vectorborne Disease Notifications Quarter 3, 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 | 268 | 67 | 82 | 58 | 32 | 91 | 121 | 18 | 737 |
| 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 | 8 | 12 | 7 | 9 | 19 | 19 | 23 | 103 |
| Giardiasis | 4 | 2 | 0 | 1 | 1 | 0 | 2 | 1 | 11 |
| Listeriosis | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 3 |
| Noroviral infection | 59 | 17 | 14 | 10 | 8 | 10 | 12 | 7 | 137 |
| Paratyphoid | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | 1 |
| Rotavirus infection ^a | 54 | 39 | 5 | 25 | 30 | 31 | 34 | 27 | 245 |
| Salmonellosis | 45 | 10 | 9 | 12 | 3 | 13 | 15 | 19 | 126 |
| Shigellosis | 4 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 9 |
| Staphylococcal food poisoning | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Typhoid | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | 1 |
| Verotoxigenic <i>Escherichia coli</i> infection ^b | 24 | 33 | 45 | 22 | 5 | 12 | 78 | 42 | 260 |
| 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 | 0 | 0 | 0 | 0 |
| Echinococcosis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Leptospirosis | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 1 | 7 |
| Plague | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q Fever | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rabies | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toxoplasmosis | 1 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 6 |
| 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 | 1 | 1 | 0 | 0 | 3 |
| Lyme disease (neuroborreliosis) ^c | 0 | 0 | 2 | 0 | 2 | 3 | 2 | 0 | 9 |
| Malaria | 21 | 1 | 1 | 5 | 3 | 2 | 2 | 1 | 36 |
| 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 third quarter of 2012. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis Notifications by HSE-Area and Month, Q3 2012

| Month | E | M | MW | NE | NW | SE | S | W | Total |
|-------|----|----|----|----|----|----|----|----|-------|
| Jul | 10 | 2 | 1 | 0 | 0 | 2 | 5 | 4 | 24 |
| Aug | 13 | 6 | 1 | 2 | 0 | 8 | 6 | 8 | 44 |
| Sep | 22 | 2 | 7 | 10 | 3 | 3 | 4 | 7 | 58 |
| Total | 45 | 10 | 9 | 12 | 3 | 13 | 15 | 19 | 126 |

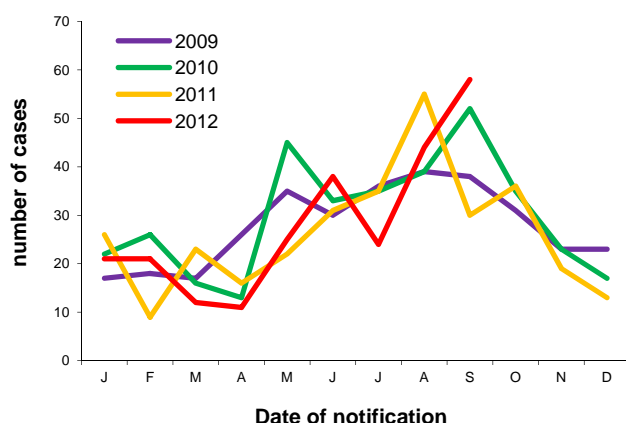


Figure 1. Seasonal Distribution of Human Salmonellosis Notifications, 2009 to end quarter 3 2012

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSSLRL in the third quarter of 2012 by HSE area (n=118). The commonest human serotypes isolated were *S. Typhimurium** (n= 52, 44%) and *S. Enteritidis* (n= 27, 23%).

Thirty-two (27%) *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 3, 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:- | 7 | 1 | 2 | 6 | 2 | 3 | 3 | 2 | 26 |
| Agona | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| Altona | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Bareilly | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Bonn | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Braenderup | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Bredeney | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Cotham | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Dublin | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Enteritidis | 9 | 2 | 1 | 1 | 1 | 6 | 4 | 3 | 27 |
| Fresno | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Heidelberg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| IIIb 61:I,v:5,7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Infantis | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| Java | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Kottbus | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Mgulani | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Muenchen | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Muenster | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Newport | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Paratyphi A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | 1 |
| Rissen | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| Saintpaul | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Senftenberg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Stanley | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| Typhimurium | 7 | 4 | 2 | 2 | 1 | 3 | 4 | 3 | 26 |
| Unnamed | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| Weltevreden | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 39 | 12 | 9 | 10 | 5 | 14 | 14 | 15 | 118 |

Table 8. Confirmed Salmonella notifications by Serotype and Travel Status, Q3 2012 [n(%)]

| Serotype | Indigenous | Travel-associated | Unk/not specified | Total |
|-----------------------|------------|-------------------|-------------------|------------|
| <i>S. Enteritidis</i> | 3 (7%) | 17 (37%) | 5 (14%) | 25 (20%) |
| <i>S. Typhimurium</i> | 29 (64%) | 7 (15%) | 18 (51%) | 54 (43%) |
| Other | 11 (24%) | 20 (43%) | 10 (29%) | 41 (32%) |
| <i>Salmonella spp</i> | 2 (5%) | 2 (5%) | 2 (6%) | 6 (5%) |
| Total | 45 (100%) | 46 (100%) | 35 (100%) | 126 (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 was one case of typhoid notified this quarter, associated with travel to Cameroon. There was one case of Paratyphi A reported in Q3 2012 associated with travel to Indonesia (Table 5).

Outbreaks of Salmonellosis

There was one family and one general outbreak of salmonellosis notified in Q3 2012 (Tables 1 & 2).

* –includes 26 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.

A marked upsurge in VTEC has resulted in 260 cases being notified this quarter, the regional distribution of which is shown in Table 9. This compares with 97 VTEC cases notified in Q3 2011 and 95 in Q3 2010 (Figure 2). The increase is due in part to improved testing for non-O157 infections but also reflects a true increase in VTEC incidence this year.^{1,2}

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, Q3 2012.

Table 9. Number VTEC notified by case classification and HSE-area, Q3 2012

| Case classification | E | M | MW | NE | NW | SE | S | W | Total |
|---------------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|------------|
| Conf | 23 | 26 | 23 | 12 | 2 | 11 | 68 | 37 | 202 |
| Prob | 1 | 6 | 22 | 10 | 2 | 1 | 9 | 5 | 56 |
| Poss | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| Total | 24 | 32 | 45 | 22 | 5 | 12 | 78 | 42 | 260 |

Table 10. VTEC notified by Serogroup and Month, Q3 2012

| Month | O157 | O26 | Other | None* | Total |
|--------------|------------|-----------|-----------|----------|------------|
| Jul | 26 | 40 | 22 | 2 | 90 |
| Aug | 51 | 21 | 13 | 5 | 90 |
| Sep | 56 | 18 | 5 | 1 | 80 |
| Total | 133 | 79 | 40 | 8 | 260 |

*Includes 6 cases reported as epidemiologically-linked cases and 2 as possible VTEC cases

Sixteen VTEC cases notified during this quarter were reported as having developed HUS. Seven was infected with *E. coli* O157, four with *E. coli* O26, four with Other VTEC strains, and one was reported as a possible VTEC case.

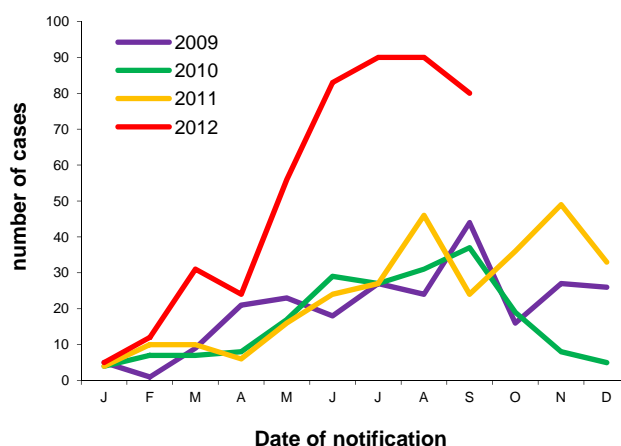


Figure 2. Seasonal distribution of VTEC cases notified 2009 to end quarter 3 2012

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 isolates notified in Q3 2012.

Table 11. Verotoxin typing profiles of *E. coli* isolates referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q3 2012 (Data are provided courtesy of Dr. Eleanor McNamara and Dr. Anne Carroll).

| Serogroup | vt1 | vt2 | vt1+vt2 | Not reported | Total |
|--------------|-----------|------------|-----------|--------------|------------|
| O157 | 0 | 107 | 24 | 2 | 133 |
| O26 | 38 | 2 | 39 | 0 | 79 |
| Other | 16 | 22 | 2 | 0 | 40 |
| Total | 54 | 131 | 65 | 2 | 252 |

*Excludes 8 notifications reported as probable on the basis of epidemiological link or reported as possible VTEC cases, as no isolates available

Outbreaks of VTEC infection

During this quarter, eleven general and forty-four family outbreaks of VTEC infection were reported (see Tables 1 & 2).

1. Garvey et al. 2012. Significant increase in VTEC reported in 2012. Epi-Insight. 13(8) <http://ndsc.newsweaver.ie/epiinsight/utis1jopyq7?a=2&p=26356295&t=17517804>
2. Garvey et al. 2012. Increase in number of waterborne VTEC outbreaks reported in 2012. Epi-Insight 13(11) <http://ndsc.newsweaver.ie/epiinsight/rfdmv5afksd?a=1&p=28981745&t=17517774>

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 2012 are shown in Table 12. Comparison with previous years is shown in Figure 3. An upsurge since 2011 involves an increase in sporadic *Campylobacter* cases. Despite analysis of the distribution of cases by age, sex and HSE-area, it has not been possible, so far, to determine the cause of this increase.

Table 12. Campylobacter Notifications by HSE-Area and Month, Q3 2012

| Month | E | M | MW | NE | NW | SE | S | W | Total |
|-------|-----|----|----|----|----|----|-----|----|-------|
| Jul | 89 | 23 | 30 | 16 | 11 | 29 | 42 | 7 | 247 |
| Aug | 109 | 33 | 28 | 33 | 12 | 38 | 47 | 7 | 307 |
| Sep | 70 | 11 | 24 | 9 | 9 | 24 | 32 | 4 | 183 |
| Total | 268 | 67 | 82 | 58 | 32 | 91 | 121 | 18 | 737 |

Outbreaks of Campylobacter infection

There were two family outbreaks of campylobacteriosis reported in Q3 2012 (Tables 1 and 2).

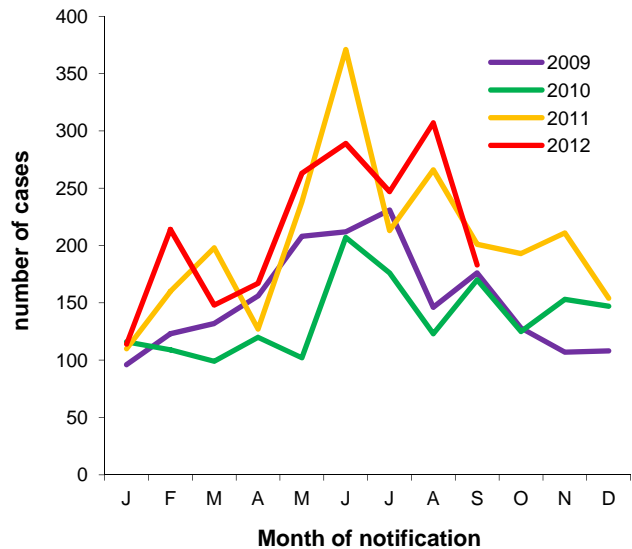


Figure 3. Seasonal distribution of Campylobacter notifications 2009 to end quarter 3 2012

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 Q3 2012, 103 cases of cryptosporidiosis were notified (Table 13), compared to 69 in the same period in 2011 and 43 in Q3 2010 (Figure 4).

Table 13. Cryptosporidiosis Notifications by HSE-Area and Month, Q3 2012

| Month | E | M | MW | NE | NW | SE | S | W | Total |
|-------|---|---|----|----|----|----|----|----|-------|
| Jul | 2 | 3 | 5 | 2 | 2 | 6 | 3 | 10 | 33 |
| Aug | 1 | 2 | 2 | 2 | 1 | 7 | 7 | 8 | 30 |
| Sep | 3 | 3 | 5 | 3 | 6 | 6 | 9 | 5 | 40 |
| Total | 6 | 8 | 12 | 7 | 9 | 19 | 19 | 23 | 103 |

Outbreaks of cryptosporidiosis

There was one general and three family outbreaks of cryptosporidiosis reported in quarter 3 2012 (Tables 1 and 2).

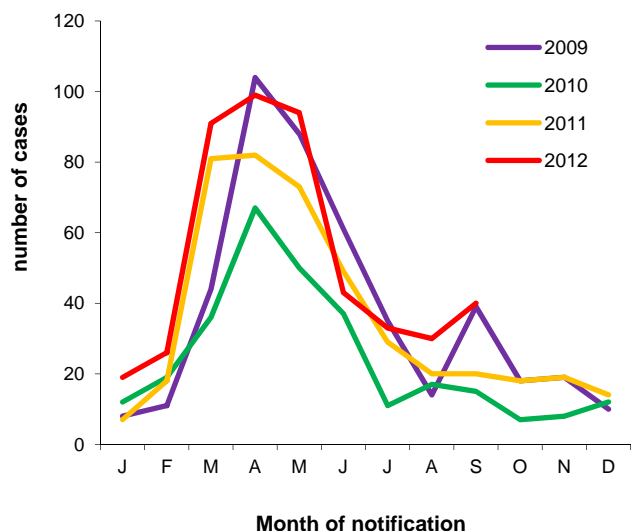


Figure 4. Seasonal distribution of cryptosporidiosis notifications 2009 to end quarter 3 2012

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. There were 137 cases notified in the third 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, Q3 2012

| Month | E | M | MW | NE | NW | SE | S | W | Total |
|-------|----|----|----|----|----|----|----|---|-------|
| Jul | 14 | 5 | 10 | 1 | 7 | 6 | 2 | 3 | 48 |
| Aug | 16 | 4 | 2 | 6 | 0 | 3 | 5 | 3 | 39 |
| Sep | 29 | 8 | 2 | 3 | 1 | 1 | 5 | 1 | 50 |
| Total | 59 | 17 | 14 | 10 | 8 | 10 | 12 | 7 | 137 |

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the third quarter of 2012 there were twenty outbreaks confirmed as being caused by this virus, involving at least 702 people

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

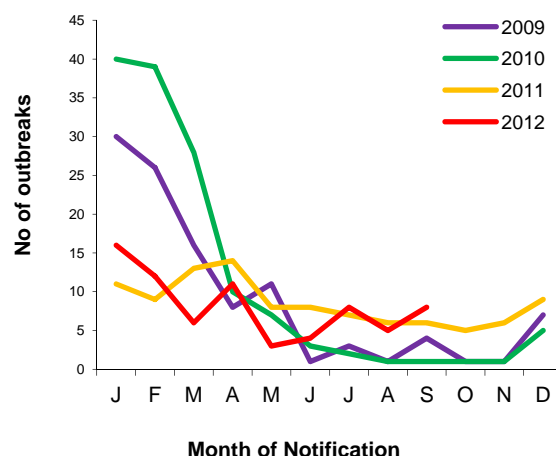


Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2009 to end quarter 3 2012

SHIGELLA

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

During Q3 2012, nine cases of shigellosis were notified (Table 5). This compares with eleven cases notified in Q3 2011 and twenty in Q3 2010. The distribution by serotype is shown in Table 15.

Seven cases acquired their illness in Ireland while country of infection was reported as not specified for the remaining two cases.

Outbreaks of shigellosis

There were no outbreaks of shigellosis reported in Q3 2012 (Table 2).

Table 15: Species and serotype distribution of Q3 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> | 7 |
| <i>Shigella flexneri</i> | 1 |
| <i>Shigella flexneri</i> 4a | 1 |
| Total | 9 |

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 2012, eleven cases of giardiasis were notified (Table 5); this compares with 19 cases notified in Q3 2011 and 15 in Q3 2010.

Six cases (55%) were reported to have acquired their illness abroad. Country of infection was reported as Ireland for three cases and 'not specified' or 'unknown' for the remaining two cases.

Outbreaks of giardiasis

There were no outbreaks of giardiasis notified in Q3 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 Q3 2012, compared to three in quarter 3 2011 and five in quarter 3 2010. All three this quarter were adult

cases. Two isolates were referred for typing to NSSLRL (Table 16).

Table 16: Serotypes of Q3 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 | 2 |

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 third quarter of 2012 are shown in Table 17.

Table 17. Rotavirus Infection by HSE-Area and Month, Q3 2012

| Month | E | M | MW | NE | NW | SE | S | W | Total |
|-------|----|----|----|----|----|----|----|----|-------|
| Jul | 35 | 22 | 2 | 12 | 12 | 14 | 24 | 14 | 135 |
| Aug | 14 | 15 | 3 | 11 | 10 | 10 | 5 | 8 | 76 |
| Sep | 5 | 2 | 0 | 2 | 8 | 7 | 5 | 5 | 34 |
| Total | 54 | 39 | 5 | 25 | 30 | 31 | 34 | 27 | 245 |

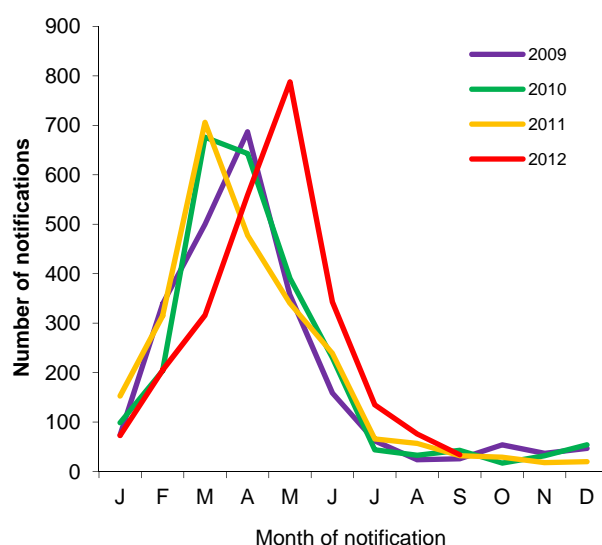


Figure 6. Seasonal Distribution of Rotavirus Notifications, 2009 to end quarter 3 2012

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) 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 intoxication notified this quarter.

Outbreaks of foodborne intoxications

There were no outbreaks of foodborne infection/intoxication notified this quarter (Tables 1 & 2).

NON-IID ZONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q fever, toxoplasmosis, trichinosis and rabies. The Q3 2012 notifications of these zoonotic diseases are reported by HSE-Area in Table 5.

Six cases of toxoplasmosis were notified in this quarter. This compares with eight cases notified in the same period in 2011 and 4 cases in Q3 2010.

There were seven cases of leptospirosis notified in Q3 2012; this compares with seven in Q3 2011 and

five in Q3 2010. Three cases this quarter reported occupational exposure, three cases reported exposure during leisure activity and the source of infection was unknown for the remaining case.

There were no cases of Q fever notified in Q3 2012; this compares with two cases in Q3 2011 and one in Q3 2010.

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

MALARIA

Malaria is a notifiable disease for many years. The Q3 2012 notifications are reported in Table 5 by HSE-Area.

Thirty-six cases of malaria were notified in Q3 2012. This compares with thirty cases reported in Q3 2011 and 25 in Q3 2010.

Thirty-five were reported as *P. falciparum* and one as *P. ovale*.

Twenty-nine cases were exposed in Africa and the country of infection is unknown/not specified for the remaining seven cases.

The reason for travel for sixteen cases was reported as 'visiting family in country of origin', five cases occurred in Irish citizens living abroad, three cases reported business travel, while another three cases reported other reasons for travel. The reason for travel was not specified/unknown for the remaining nine 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 Q3 2012 notifications are reported in Table 5 by HSE-Area.

There were nine cases of Lyme disease (neuroborreliosis) and three cases of Dengue fever reported in Q3 2012.

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

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