SURVEILLANCE OF INFECTIOUS INTESTINAL (IID), ZOONOTIC 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 1–2017 **July 2017**

This is the first quarterly report for 2017 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 Q1, 2017

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Jan	E	Nursing home	7	0	21/12/2016	P-P & AB	AIG
Jan	E	Comm. Hosp/Long-stay unit	22	-	20/12/2016	Unknown	Norovirus
Jan	E	Nursing home	5	0	31/12/2016	P-P & AB	AIG
Jan	E	Nursing home	11	-	28/12/2016	Unknown	Rotavirus
Jan	E	Nursing home	34	0	03/01/2017	P-P & AB	Norovirus
Jan	S	Nursing home	28	0	24/12/2016	P-P & AB	AIG
Jan	M	Hospital	5	-	-	P-P & AB	AIG
Jan	E	Nursing home	38	1	31/12/2016	Unknown	Norovirus
Jan	NW	Comm. Hosp/Long-stay unit	3	-	23/12/2016	Environmental / Fomite	Clostridium difficile
Jan	W	Nursing home	6	0	-	P-P	AIG
Jan	NE	Nursing home	9	-	-	P-P	AIG
Jan	MW	Hospital	23	-	07/01/2017	P-P	Norovirus
Jan	SE	Comm. Hosp/Long-stay unit	5	-	03/01/2017	P-P	Norovirus
Jan	MW	Nursing home	23	0	10/01/2017	P-P & AB	Norovirus
Jan	S	Comm. Hosp/Long-stay unit	8	1	06/01/2017	P-P	Norovirus
Jan	S	Comm. Hosp/Long-stay unit	22	1	13/12/2016	P-P	AIG
Jan	NE	Nursing home	13	-	13/01/2017	P-P	AIG
Jan	E	Nursing home	4	0	19/01/2017	Unknown	Norovirus
Jan	S	Nursing home	17	0	17/01/2017	P-P	Norovirus
Jan	MW	Extended family	2	-	30/10/2016	P-P	VTEC
Jan	SE	Nursing home	10	-	20/01/2017	P-P	AIG
Jan	NW	Nursing home	12	-	25/01/2017	Not Specified	Norovirus
Jan	E	Nursing home	28	0	16/01/2017	P-P & AB	Norovirus
Jan	E	Hospital	10	-	23/01/2017	P-P	Norovirus
Jan	NW	Residential institution	2	0	28/01/2017	P-P	AIG
Jan	NE	Comm. Hosp/Long-stay unit	5	0	-	P-P & AB	Norovirus
Feb	SE	Nursing home	26	-	01/02/2017	P-P	Norovirus
Feb	SE	Nursing home	13	-	23/01/2017	P-P	AIG
Feb	E	Hospital	14	-	21/01/2017	P-P & AB	Norovirus
Feb	M	Comm. Hosp/Long-stay unit	7	0	-	P-P & AB	Norovirus
Feb	E	Nursing home	19	0	01/02/2017	P-P & AB	Norovirus
Feb	NE	Nursing home	11	1	03/02/2017	P-P & AB	Norovirus
Feb	E	Hospital	16	-	06/02/2017	P-P	Norovirus
Feb	E	Nursing home	12	-	04/02/2017	P-P & AB	Norovirus
Feb	E	Hospital	16	4	06/02/2017	P-P & AB	Norovirus
Feb	E	Comm. Hosp/Long-stay unit	7	-	13/02/2017	P-P & AB	Norovirus
Feb	NE	Nursing home	7	0	19/02/2017	P-P & AB	AIG
Feb	S	Nursing home	14	0	15/02/2017	P-P	Norovirus
Feb	MW	Hospital	10	-	14/02/2017	P-P	Norovirus
Feb	S	Comm. Hosp/Long-stay unit	27	-	21/02/2017	P-P	Norovirus
Feb	SE	Nursing home	9	0	17/02/2017	Unknown	AIG
Mar	S	School	19	0	14/02/2017	P-P	AIG
Mar	E	Nursing home	17	-	26/02/2017	P-P	Norovirus

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Mar	M	University/College	12	1	24/02/2017	Animal contact	Campylobacter
Mar	SE	Hospital	4	-	24/02/2017	P-P	Norovirus
Mar	MW	Nursing home	15	0	01/03/2017	P-P & AB	Norovirus
Mar	S	Comm. Hosp/Long-stay unit	12	-	25/02/2017	P-P	AIG
Mar	S	Comm. Hosp/Long-stay unit	9	-	01/03/2017	P-P	Norovirus
Mar	E	Hospital	8	-	03/03/2017	P-P	Norovirus
Mar	E	Nursing home	17	0	03/03/2017	P-P	Rotavirus
Mar	S	Nursing home	9	0	03/03/2017	Unknown	AIG
Mar	M	Comm. Hosp/Long-stay unit	7	-	02/03/2017	Unknown	AIG
Mar	MW	Hospital	6	-	21/02/2016	P-P	Norovirus
Mar	W	Hospital	9	9	12/03/2017	P-P	Norovirus
Mar	E	Nursing home	17	0	10/03/2017	Unknown	Norovirus
Mar	W	Restaurant / Cafe	2	0	02/03/2017	Unknown	Salmonellosis
Mar	E	Nursing home	8	0	02/03/2017	P-P & AB	Norovirus
Mar	S	School	2	-	07/03/2017	P-P &Animal	VTEC
Mar	S	Comm. Hosp/Long-stay unit	4	-	15/03/2017	Not Specified	AIG
Mar	M	Nursing home	10	0	17/03/2017	Unknown	Norovirus
Mar	NW	Hospital	15	15	-	P-P	Norovirus
Mar	NW	Nursing home	4	-	20/03/2017	Not Specified	AIG
Mar	M	Private house	2	0	01/03/2017	Unknown	VTEC
Mar	M	University/College	7	1	04/03/2017	Unknown	Cryptosporidiosis
Mar	E	Hospital	6	6	11/02/2017	Unknown	Norovirus
Mar	SE	Hospital	5	-	-	Environmental / Fomite	Clostridium difficile
Mar	SE	Nursing home	6	-	20/03/2017	P-P	AIG
Mar	SE	Comm. Hosp/Long-stay unit	4	-	20/03/2017	P-P	AIG
Mar	NW	Nursing home	3	-	-	Not Specified	AIG
Mar	S	Childcare facility	5	0	15/03/2017	P-P	Rotavirus
Mar	M	Hospital	8	0	-	Unknown	Norovirus
Mar	M	Comm. Hosp/Long-stay unit	3	-	-	Unknown	Rotavirus
Mar	S	Hotel	22	0	25/03/2017	P-P & AB	AIG
Mar	NE	Nursing home	12	-	26/03/2017	P-P & AB	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 Q1, 2017

Month	HSE area	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Disease
Jan	M	Private house	1	-	30/12/2016	Unknown	VTEC
Jan	M	Private house	1	0	26/12/2016	WB	VTEC
Jan	M	Private house	1	-	-	Unknown	VTEC
Jan	E	Private house	3	0	25/12/2016	Unknown	Giardiasis
Jan	W	Private house	3	-	01/12/2016	P-P	Giardiasis
Jan	W	Private house	1	-	29/12/2016	P-P	VTEC
Jan	M	Private house	1	-	13/01/2017	Unknown	VTEC
Jan	M	Private house	4	-	21/12/2016	P-P	VTEC
Feb	M	Private house	1	-	-	Unknown	VTEC

Feb	MW	Private house	7	2	12/01/2017	Unknown	VTEC
Feb	M	Private house	3	0	09/02/2017	Animal contact	VTEC
Feb	E	Private house	3	0	26/01/2017	P-P	Shigellosis
Feb	M	Private house	1	-	17/02/2017	Unknown	VTEC
Feb	E	Travel related	2	-	15/02/2017	Unknown	Salmonellosis
Feb	M	Private house	1	1	19/02/2017	Unknown	VTEC
Mar	M	Private house	3	-	01/01/2017	Unknown	VTEC
Mar	NE	Private house	1	-	15/02/2017	P-P	Giardiasis
Mar	W	Private house	2	2	02/03/2017	P-P & FB	Listeriosis
Mar	E	Private house	4	0	27/02/2017	Unknown	Giardiasis
Mar	M	Private house	1	-	04/03/2017	Unknown	VTEC
Mar	W	Extended family	3	-	18/02/2017	P-P	VTEC
Mar	SE	Private house	2	1	02/03/2017	Unknown	VTEC
Mar	MW	Extended family	4	0	01/12/2016	P-P	VTEC
Mar	SE	Private house	1	0	24/02/2017	Unknown	VTEC
Mar	S	Private house	3	0	01/03/2017	P-P & Animal	VTEC
Mar	M	Private house	1	0	17/03/2017	Unknown	VTEC
Mar	S	Private house	2	0	27/02/2017	Animal contact	VTEC
Mar	M	Private house	3	1	27/02/2017	Unknown	Cryptosporidiosis
Mar	M	Private house	2	0	24/03/2017	Unknown	VTEC
Mar	M	Private house	2	1	18/03/2017	Unknown	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 Q1, 2017

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Jan	E	General	Nursing home	5	2	-	P-P & AB	Influenza
Jan	E	General	Nursing home	6	-	26/12/2016	P-P & AB	Influenza
Jan	E	General	Nursing home	17	2	28/12/2016	Unknown	Influenza
Jan	E	General	Nursing home	6	-	27/12/2016	Unknown	Influenza
Jan	E	General	Nursing home	13	-	24/12/2016	Unknown	Influenza
Jan	M	General	Nursing home	19	1	02/01/2017	P-P	Influenza
Jan	M	General	Nursing home	16	0	-	P-P	Influenza
Jan	W	General	Hospital	14	11	22/12/2016	P-P	Influenza
Jan	W	General	Nursing home	15	6	30/12/2016	P-P	Influenza
Jan	E	General	Nursing home	24	-	-	P-P & AB	Influenza
Jan	S	General	Nursing home	17	1	18/12/2016	P-P & AB	Influenza
Jan	S	General	Nursing home	56	2	24/12/2016	P-P & AB	Influenza
Jan	S	General	Nursing home	27	5	23/12/2016	P-P & AB	Acute respiratory infection
Jan	NE	General	Nursing home	10	0	30/12/2016	P-P	Influenza
Jan	NW	General	Comm. Hosp/Long-stay unit	14	1	21/12/2016	Not Specified	Acute respiratory infection
Jan	NW	General	Comm. Hosp/Long-stay unit	9	6	01/01/2017	P-P	Influenza
Jan	S	General	Nursing home	-	-	20/12/2016	P-P & AB	Influenza

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Jan	S	General	Nursing home	11	-	27/12/2016	P-P & AB	Acute respiratory infection
Jan	E	General	Nursing home	5	-	03/01/2017	Unknown	Acute respiratory infection
Jan	E	General	Nursing home	15	1	06/01/2017	P-P & AB	Influenza
Jan	MW	General	Hospital	12	12	05/01/2017	P-P	Influenza
Jan	NW	General	Comm. Hosp/Long-stay unit	6	-	04/01/2016	P-P	Influenza
Jan	NW	General	Comm. Hosp/Long-stay unit	5	-	04/01/2017	P-P	Influenza
Jan	NE	General	Nursing home	18	-	-	Not Specified	Influenza
Jan	S	General	Comm. Hosp/Long-stay unit	28	2	29/12/2016	P-P	Influenza
Jan	NE	General	Nursing home	6	-	05/01/2017	P-P	Influenza
Jan	E	General	Residential institution	6	-	04/01/2017	P-P & AB	Influenza
Jan	E	General	Residential institution	6	-	05/01/2017	P-P & AB	Influenza
Jan	E	General	Nursing home	12	1	08/01/2017	P-P & AB	Influenza
Jan	M	General	Nursing home	14	2	-	P-P	Influenza
Jan	NW	General	Nursing home	19	1	06/01/2017	P-P	Influenza
Jan	NE	General	Nursing home	13	-	04/01/2017	P-P	Influenza
Jan	W	Family	Private house	2	-	-	P-P	Influenza
Jan	S	Family	Residential institution	2	1	18/12/2016	P-P	Influenza
Jan	S	General	Comm. Hosp/Long-stay unit	5	0	06/01/2017	P-P	Influenza
Jan	E	General	Nursing home	10	-	07/01/2017	P-P & AB	Influenza
Jan	S	General	Comm. Hosp/Long-stay unit	6	1	30/12/2016	P-P & AB	Influenza
Jan	S	General	Comm. Hosp/Long-stay unit	15	1	04/01/2017	P-P	Influenza
Jan	MW	General	Hospital	7	-	06/01/2017	P-P	Influenza
Jan	MW	General	Nursing home	24	0	10/01/2017	P-P & AB	Influenza
Jan	MW	General	Comm. Hosp/Long-stay unit	5	-	03/01/2017	P-P	Influenza
Jan	NW	General	Comm. Hosp/Long-stay unit	4	0	10/01/2017	P-P	Influenza
Jan	W	General	Hospital	3	3	-	P-P	Influenza
Jan	MW	General	Nursing home	32	3	20/12/2016	P-P	Influenza
Jan	S	General	Comm. Hosp/Long-stay unit	12	0	12/01/2017	P-P & AB	Influenza
Jan	MW	Family	Private house	1	1	01/10/2016	P-P	Hepatitis A (acute)
Jan	SE	General	Comm. Hosp/Long-stay unit	24	3	09/01/2017	P-P & AB	Influenza
Jan	NW	General	Nursing home	14	-	16/01/2017	P-P & AB	Influenza
Jan	E	General	Hospital	2	-	12/01/2017	P-P & AB	Influenza
Jan	E	General	Residential institution	3	-	19/01/2017	P-P & AB	RSV
Jan	E	General	Nursing home	10	-	09/01/2017	P-P & AB	Influenza
Jan	S	General	Comm. Hosp/Long-stay unit	12	1	01/01/2017	P-P	Influenza
Jan	S	General	Comm. Hosp/Long-stay unit	14	-	19/01/2017	P-P	Influenza
Jan	E	General	Nursing home	2	-	19/01/2017	P-P	Influenza
Jan	NE	General	Nursing home	6	-	-	P-P	Influenza
Jan	E	General	Nursing home	25	0	09/01/2017	P-P & AB	Influenza

Month	HSE area	Type of outbreak	Location	No. ill *	No. Hosp.	Date Onset	Suspect mode of transmission	Organism
Jan	W	General	Nursing home	3	3		P-P	Influenza
Jan	E	General	Nursing home	9	0	20/01/2017	P-P & AB	Influenza
Jan	E	General	Nursing home	11	1	17/01/2017	P-P & AB	Influenza
Jan	E	General	Hospital	3	-	23/01/2017	P-P & AB	Influenza
Jan	E	General	Hospital	6	-	14/01/2017	P-P & AB	Influenza
Jan	SE	General	Hospital	-	-	-	P-P	CRE
Jan	SE	General	Hospital	-	-	-	Unknown	CRE
Feb	E	General	School	22	0	13/01/2017	P-P	Mumps
Feb	S	Family	Private house	2	2	28/01/2017	P-P & AB	Meningococcal disease
Feb	M	General	Nursing home	8	0	-	P-P & AB	Influenza
Feb	NE	General	Hospital	2	-	-	Unknown	Klebsiella pneumonia
Feb	S	General	Comm. Hosp/Long-stay unit	5	1	02/01/2017	P-P & AB	Influenza
Feb	E	General	Hospital	0	-	01/02/2017	P-P	MRSA
Feb	MW	General	Childcare facility	9	-	-	P-P	Suspected Chickenpox
Feb	SE	General	Nursing home	12	4	02/02/2017	P-P & AB	Influenza
Feb	S	General	School	3		19/12/2016	P-P & AB	Pertussis
Feb	NE	General	Nursing home	21	1	02/02/2017	P-P	Influenza
Feb	E	General	Hospital	-	-	-	P-P	MRSA
Feb	M	General	Nursing home	6	0	-	P-P	Influenza
Feb	S	Family	Extended family	2	2	17/01/2017	Unknown	Hepatitis A (acute)
Feb	SE	Family	Private house	2	0	25/12/2016	P-P	Pertussis
Feb	S	General	Community outbreak	5	1	15/12/2016	P-P & AB	Pertussis
Mar	E	General	Nursing home	0	0	-	P-P	CRE
Mar	S	General	Community outbreak	-	-	21/02/2017	AB	Legionellosis
Mar	MW	General	Nursing home	15	0	07/03/2017	P-P & AB	Influenza
Mar	NW	Family	Private house	2	2	21/02/2016	P-P	Streptococcus group A infection (invasive)
Mar	E	General	Nursing home	7	0	10/02/2017	P-P & AB	Influenza
Mar	E	General	Hospital	9	-	10/02/2017	P-P	MRSA
Mar	E	General	Hospital	2	-	12/03/2017	P-P	VRE
Mar	E	General	Nursing home	2	2	22/03/2017	P-P & AB	Influenza
Mar	E	General	Nursing home	12	0	15/03/2017	P-P	Suspected Scabies
Mar	E	Family	Extended family	3	0	01/03/2017	P-P	Pertussis
Mar	E	Family	Extended family	3	1	06/03/2017	P-P	Hepatitis A (acute)

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

* 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 are 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 first quarter of 2017. There were 74 general and 30 family IID outbreaks reported during this period, resulting in at least 914 people being ill.

Norovirus (n=39) was responsible for the most general outbreaks of IID (53%), followed by Acute infectious gastroenteritis (n=23).

The most common cause of family outbreaks of IID was VTEC (n=22) [73%]. Other pathogens responsible for family outbreaks in Q1 2017 were cryptosporidiosis, giardiasis, listeriosis, salmonellosis and shigellosis. (Table 2).

Fifty-one general IID outbreaks were transmitted person-to-person/person-to-person & airborne (69%). Sixty-five general IID outbreaks (88%) were reported to have occurred in healthcare settings, i.e. hospitals or residential institutions, during this period.

There were eighty-nine non-IID outbreaks reported during Q1 2017 (Table 3). The most common cause of non IID outbreaks was during this period was influenza (n=63) [71%], the majority of which occurred in healthcare settings, i.e. hospitals or residential institutions.

Table 4 outlines the outbreak rate per HSE-area for outbreaks notified during Q1 2017.

Table 4. Number of infectious disease outbreaks by HSE Area, Q1 2017

HSE Area	No. of outbreaks	Rate per 100,000 population
E	57	3.5
M	29	10.3
MW	16	4.2
NE	14	3.2
NW	14	5.4
SE	16	3.2
S	35	5.2
W	12	2.7
Total	**193**	**4.2**

NOTIFICATIONS OF INFECTIOUS INTESTINAL, ZOONOTIC AND VECTORBORNE DISEASE

The number of notifications of infectious intestinal, zoonotic and vectorborne disease by HSE-Area for the first quarter of 2017 is shown in Table 5.

Table 5. Infectious intestinal, zoonotic and vectorborne disease notifications Q1, 2017 by HSE-Area

Infectious Intestinal Disease	E	M	MW	NE	NW	SE	S	W	Total
Bacillus cereus foodborne infection/intoxication	0	0	0	0	0	0	0	0	**0**
Botulism	0	0	0	0	0	0	0	0	**0**
Campylobacter infection	159	42	46	38	16	67	78	52	**498**
Cholera	0	0	0	0	0	0	0	0	**0**
Clostridium perfringens (type A) food-borne disease	0	0	0	0	0	0	1	0	**1**
Cryptosporidiosis	19	31	14	10	6	17	25	20	**142**
Giardiasis	30	1	0	5	1	16	7	7	**67**
Listeriosis	2	0	0	0	0	1	1	2	**6**
Noroviral infection [a1]	362	17	105	81	15	15	43	11	**649**
Paratyphoid	~	~	~	~	~	~	~	~	**2**
Rotavirus infection[b1]	263	70	67	58	38	81	97	86	**760**
Salmonellosis	20	2	2	7	2	10	6	4	**53**
Shigellosis	12	0	0	0	0	0	1	2	**15**
Staphylococcal food poisoning	0	0	0	0	0	0	0	0	**0**
Typhoid	~	~	~	~	~	~	~	~	**4**
Verotoxigenic *Escherichia coli* infection	12	28	19	10	2	16	22	15	**124**
Yersiniosis	1	0	0	0	0	0	0	0	**1**
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	0	0	1	0	2	0	0	0	**3**
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	3	2	0	0	0	1	0	0	**6**
Trichinosis	0	0	0	0	0	0	0	0	**0**
Vectorborne Disease									
Chikungunya disease	0	0	0	0	0	0	0	0	**0**
Dengue	0	0	0	0	0	1	1	1	**3**
Lyme disease (neuroborreliosis)	0	1	0	0	0	0	3	0	**4**
Malaria	4	0	0	4	0	0	1	0	**9**
Typhus	0	0	0	0	0	0	0	0	**0**
West Nile fever	0	0	0	0	0	0	0	0	**0**
Zika Virus Infection	0	0	0	0	0	0	0	0	**0**

[1] Since March 2013, norovirus and rotavirus notifications from HSE-East are based on laboratory testing results rather than patient episodes. Notifications from HSE-E may also refer to area of laboratory testing rather than area of patient residence.

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 first quarter of 2017. Comparison of trends with previous years is shown in Figure 1.

Table 6. Salmonellosis notifications by HSE-Area and month, Q1 2017

Month	E	M	MW	NE	NW	SE	S	W	Total
Jan	3	0	0	1	1	1	3	1	**10**
Feb	8	1	1	2		5		1	**18**
Mar	9	1	1	4	1	4	3	2	**25**
Total	**20**	**2**	**2**	**7**	**2**	**10**	**6**	**4**	**53**

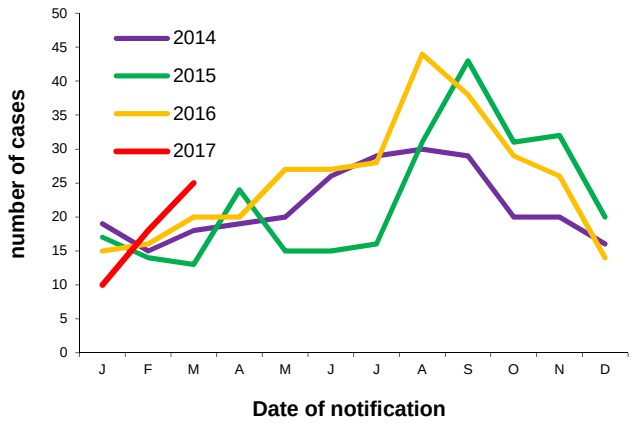

Figure 1. Seasonal distribution of human salmonellosis notifications, 2014 to end Q1 2017

Table 7 shows the serotypes for the *Salmonella* isolates typed by the NSSLRL in the first quarter of 2017 by HSE area (n=60). The commonest human serotypes reported were *S.* Enteritidis (n=16, 27%) and *S.* Typhimurium[†] (n=11, 18%).

Table 8 shows the serotype distribution of confirmed *Salmonella* notifications by travel status this quarter among salmonellosis notifications on CIDR. 30% (n=16) were travel-associated, 45% (n=24) were indigenous and for 13 cases, the country of infection was unknown/not specified.

Outbreaks of salmonellosis

There was one general and one family outbreak of salmonellosis notified in Q1 2017 (Tables 1 &2).

Table 7. Serotypes of human *S. enterica* isolates referred to NSSLRL Q1 2017

Serotype	E	M	MW	NE	NW	SE	S	W	Total
4,[5],12:i:-	3	1	0	2	0	1	0	0	**7**
Agama	0	0	0	0	1	0	0	0	**1**
Agbeni	0	0	0	0	0	1	0	0	**1**
Agona	0	0	0	1	0	0	0	0	**1**
Bonn	0	1	0	0	0	0	0	0	**1**
Bredeney	0	0	0	1	0	0	0	0	**1**
Chester	0	0	0	1	0	0	0	0	**1**
Durham	1	0	0	0	0	0	0	0	**1**
Enteritidis	6	0	1	1	0	3	2	3	**16**
Hadar	1	0	0	0	0	0	0	0	**1**
Infantis	1	0	0	0	1	0	0	0	**2**
Irumu	0	0	0	0	0	0	1	0	**1**
Java	1	0	0	0	0	0	1	0	**2**
Kiambu	1	0	0	0	0	0	0	0	**1**
Kottbus	1	0	0	0	0	0	0	0	**1**
London	1	0	0	0	0	0	0	0	**1**
Luke	0	0	0	0	0	1	0	0	**1**
Manhattan	1	0	0	0	0	0	0	0	**1**
Minnesota	1	0	0	0	0	0	0	0	**1**
Newport	1	0	0	0	0	0	0	0	**1**
Paratyphi A	0	0	1	0	0	0	0	0	**1**
Paratyphi B	1	0	0	0	0	0	0	0	**1**
Schwarzengrund	0	0	1	0	0	0	0	0	**1**
Stanley	2	0	0	1	0	0	0	1	**4**
Typhi	2	0	0	0	0	1	0	0	**3**
Typhimurium	1	0	0	0	0	3	0	0	**4**
Virchow	0	0	0	0	0	0	2	0	**2**
Weltevreden	1	0	0	0	0	0	0	0	**1**
Grand Total	**26**	**2**	**3**	**7**	**2**	**10**	**6**	**4**	**60**

Data Source: NSSLRL

Table 8. Confirmed *Salmonella* notifications by serotype and travel status, Q1 2017 [n(%)]

Serotype	Indigenous	Travel-associated	Unk/not specified	Total
***S.* Enteritidis**	5 (21%)	9 (56%)	4 (31%)	**18 (34%)**
S.* Typhimurium	8 (33%)	0 (0%)	1 (8%)	**9 (17%)**
Other	10 (42%)	7 (44%)	8 (61%)	**25 (47%)**
***Salmonella* spp**	1 (4%)	0 (0%)	0 (0%)	**1 (2%)**
Total	**24 (100%)**	**16 (100%)**	**13 (100%)**	**53 (100%)**

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

* Includes monophasic S.Typhimurium 4,5,12:i:-

S. Typhi and S. Paratyphi

There were four cases of typhoid reported to CIDR in Q1 2017, two were associated with travel to the Indian Sub-Continent and one associated with travel to Africa.

[†]includes 7 cases of monophasic *S.*Typhimurium 4,5,12:i:-

There were two cases of paratyphoid reported this quarter, one of which was associated with travel to the Indian Sub-Continent.

Outbreaks of S. Typhi and S. Paratyphi

There were no outbreaks of typhoid or paratyphoid notified in Q1 2017.

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.

One hundred and twenty-four cases of VTEC were notified this quarter, the regional distribution of which is shown in Table 9. This compares with 104 VTEC cases notified in Q1 2016 and 69 in Q1 2015 (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, Q1 2017.

Table 9. Number VTEC notified by case classification and HSE-area, Q1 2017

Case classification	E	M	MW	NE	NW	SE	S	W	Total
Confirmed	12	19	19	10	2	14	22	14	**112**
Probable	0	9	0	0	0	2	0	1	**12**
Possible	0	0	0	0	0	0	0	0	**0**
Total	**12**	**28**	**19**	**10**	**2**	**16**	**22**	**15**	**124**

Table 10. VTEC notified by serogroup and month, Q1 2017

Month	O157	O26	Other	Total
Jan	9	6	8	**23**
Feb	2	7	19	**28**
Mar	12	21	40	**73**
Total	**23**	**34**	**67**	**124**

One VTEC O145 case notified this quarter was reported as having developed HUS.

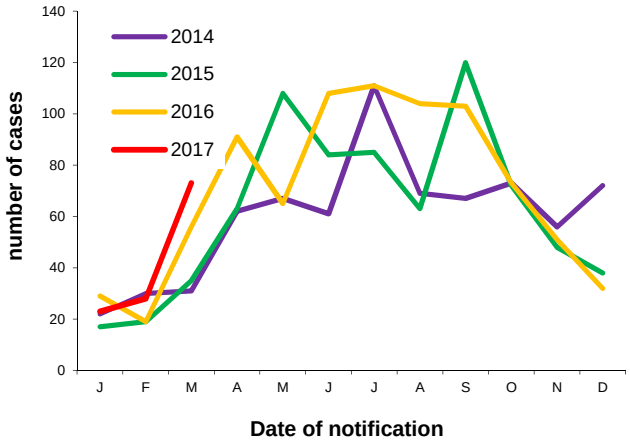

Figure 2. Seasonal distribution of VTEC cases notified 2014 to end Q1 2017

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 Q1 2017.

Table 11. Verotoxin typing profiles of *E. coli* referred to the HSE DML Public Health Laboratory, Cherry Orchard Hospital in Q1 2017

Serogroup	*vt1*	*vt2*	*vt1+vt2*	Not spec.	Total
O157	0	13	10	0	**23**
O26	9	1	22	2	**34**
Other	19	10	24	14	**67**
Total	**28**	**24**	**56**	**16**	**124**

Data Source: PHL Cherry Orchard

Outbreaks of VTEC infection

During this quarter, three general and twenty-two family outbreaks of VTEC infection were reported (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 first quarter of 2017 are shown in Table 12. There were 498 cases of campylobacteriosis notified in Q1 2017 compared to 558 in the same period in 2016 and 421 in Q1 2015 (Figure 3).

Table 12. *Campylobacter* notifications by HSE-Area and month, Q1 2017

Month	E	M	MW	NE	NW	SE	S	W	Total
Jan	39	9	8	8	7	16	25	10	**122**
Feb	51	17	12	12	3	16	22	9	**142**
Mar	69	16	26	18	6	35	31	33	**234**
Total	**159**	**42**	**46**	**38**	**16**	**67**	**78**	**52**	**498**

Outbreaks of *Campylobacter* infection

There was one general outbreak of campylobacteriosis reported in Q1 2017 (Tables 1 and 2).

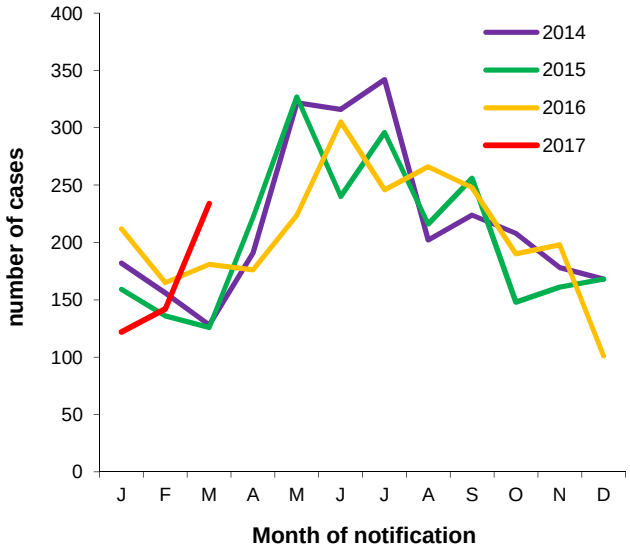

Figure 3. Seasonal distribution of *Campylobacter* notifications 2014 to end Q1 2017

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 Q1 2017, 142 cases of cryptosporidiosis were notified (Table 13), compared to 144 in the same period in 2016 and 58 in Q1 2015 (Figure 4).

Table 13. Cryptosporidiosis notifications by HSE-Area and month, Q1 2017

Month	E	M	MW	NE	NW	SE	S	W	Total
Jan	1	0	1	1	0	2	1	2	**8**
Feb	8	2	1	2	1	1	5	2	**22**
Mar	10	29	12	7	5	14	19	16	**112**
Total	**19**	**31**	**14**	**10**	**6**	**17**	**25**	**20**	**142**

Outbreaks of cryptosporidiosis

There was one general and one family outbreak of cryptosporidiosis reported in quarter 1 2017. (Tables 1 and 2).

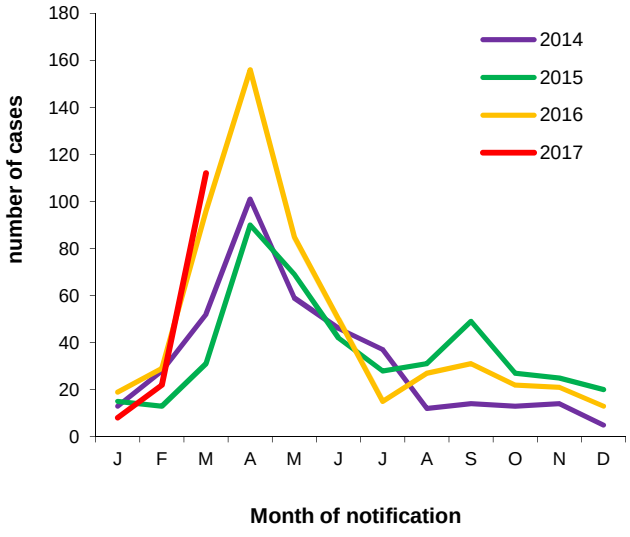

Figure 4. Seasonal distribution of cryptosporidiosis notifications 2014 to end Q1 2017

NOROVIRUS

Human noroviral infection became a notifiable disease on January 1st 2004. Since March 2013, norovirus notifications from HSE-East are based on laboratory testing results rather than patient episodes. Notifications from HSE-E may also refer to area of laboratory testing rather than area of patient residence.

There were 649 cases notified in the first quarter of 2017 (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, Q1 2017

Month	E	M	MW	NE	NW	SE	S	W	Total
Jan	113	3	38	41	2	8	13	3	**221**
Feb	138	10	45	16	5	3	17	2	**236**
Mar	111	4	22	24	8	4	13	6	**192**
Total	**362**	**17**	**105**	**81**	**15**	**15**	**43**	**11**	**649**

Norovirus outbreaks

Norovirus or suspect viral aetiology is the commonest cause of outbreaks of acute gastroenteritis in Ireland. In the first quarter of 2017, there were thirty-nine outbreaks confirmed as being caused by this virus, involving at least 552 people becoming ill, as outlined in tables 1 & 2. The seasonal trend is outlined in figure 5.

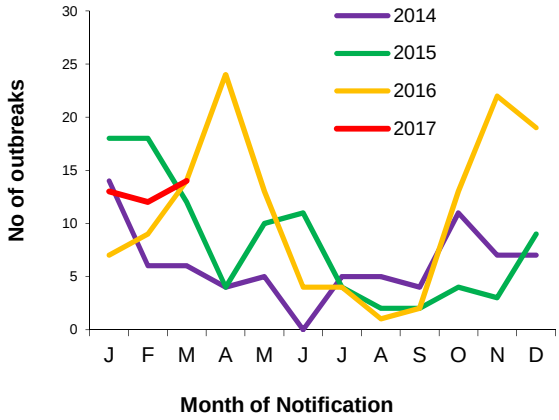

Figure 5. Seasonal distribution of confirmed norovirus outbreaks, 2014 to end Q1 2017

SHIGELLA

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

During Q1 2017, fifteen cases of shigellosis were notified (Table 5). This compares with nineteen cases notified in Q1 2016 and ten in Q1 2015.

Five cases were travel related and the county of infection was reported as Ireland for a futher five cases. The country of infection was reported as unknown/not specified for the remaining five cases.

Table 15: Species and serotype distribution of Q1 2017 human *Shigella* isolates referred to the NSSLRL.

Serotype	Number of isolates
Shigella dysenteriae	2
Shigella flexneri 1b	1
Shigella flexneri 2a	6
Shigella sonnei	4
Not specified	2
Total	**15**

Data Source: NSSLRL

Outbreaks of shigellosis

There was one family outbreak of shigellosis notified in Q1 2017 (Table 2).

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 1, 2017, sixty-seven cases of giardiasis were notified (Table 5); this compares with 55 cases notified in Q1 2016 and 24 in Q1 2015.

Sixteen cases were reported to have acquired their illness abroad. Country of infection was reported as Ireland for twenty-nine cases and 'not specified' or 'unknown' for the remaining twenty-two cases.

Outbreaks of giardiasis

There were four family outbreaks of giardiasis notified in Q1 2017. (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 six (four adult/juvenile and two pregnancy/neonatal) cases of listeriosis notified in Q1 2017, compared to six cases in quarter 1 2016 and five in quarter 1 2015.

Outbreaks of listeriosis

There was one family outbreak of listeriosis notified in Q1 2017. (Table 2).

Six isolates were referred for typing to NSSLRL this quarter (Table 16).

Table 16: Serotypes of Q1 2017 human *Listeria* isolates referred to the NSSLRL

Serotype	Number of isolates
1/2a	3
1/2b	2
4b	1

Data Source: NSSLRL

ROTAVIRUS INFECTION

Prior to 2004, rotavirus cases were notified under the "Gastroenteritis in children under two years" disease category. From 2004 to 2010, rotavirus was notifiable in all age groups under the "Acute Infectious Gastroenteritis" (AIG) disease category, until it became notifiable as a disease in its own right under the Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011). Since March 2013, rotavirus notifications from HSE-East are based on laboratory testing results rather than patient episodes. Notifications from HSE-E may also refer to area of laboratory testing rather than area of patient residence.

Rotavirus notifications for the first quarter of 2017 are shown in Table 17 and Figure 6.

Table 17. Rotavirus infection by HSE-Area and month, Q1 2017

Month	E	M	MW	NE	NW	SE	S	W	Total
Jan	48	10	18	20	8	10	26	19	**159**
Feb	87	29	28	15	11	18	16	31	**235**
Mar	128	31	21	23	19	53	55	36	**366**
Total	**263**	**70**	**67**	**58**	**38**	**81**	**97**	**86**	**760**

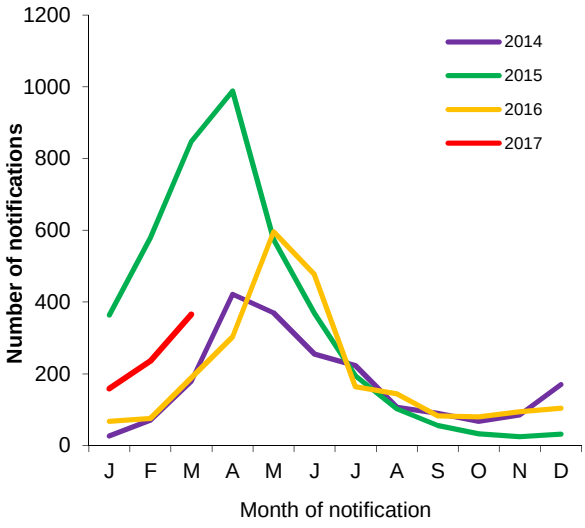

Figure 6. Seasonal distribution of rotavirus notifications, 2014 to end Q1 2017

Outbreaks of rotavirus

There were four general outbreaks of rotavirus notified this quarter (Table 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 was one case of *Clostridium perfringens* (type A) food-borne disease notified this quarter.

NON-IID ZOONOTIC DISEASES

Non-IID zoonoses now notifiable include: anthrax, brucellosis, echinococcosis, leptospirosis, plague, Q fever, toxoplasmosis, trichinosis and rabies. The Q1 2017 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 eleven cases notified in the same period in 2016 and seven cases in Q1 2015.

There were three cases of leptospirosis notified in Q1 2017. This compares with two cases in Q1 2016 and none in Q1 2015.

One case was reported to have acquired their infection occupationally, one as a result of recreational leisure water contact and one as river water contact.

There were no cases of brucellosis, echinococcosis trichinosis or Q Fever notified in Q1 2017.

MALARIA

Malaria has been a notifiable disease for many years. The Q1 2017 notifications are reported in Table 5 by HSE-Area.

Nine cases of malaria were notified in Q1 2017. This compares with seven cases reported in Q1 2016 and seventeen in Q1 2015.

Seven cases this quarter were reported as *P. falciparum*, and the organism was not specified for the remaining two cases.

One case was exposed in Sub-Saharan Africa and one in the Indian Sub-Continent. The country of infection is unknown/not specified for the remaining seven cases this quarter.

The reason for travel for one case was reported as 'visiting family in country of origin'. One case was exposed while on a student placement.
The reason for travel was not specified/unknown for the remaining seven 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.

Zika virus infection is a notifiable disease in Ireland under the Infectious Diseases (Amendment) Regulations 2016 (S.I. No. 276 of 2016).

All medical practitioners and laboratories are required to notify cases of Zika virus infection to the Medical Officer of Health. A full suite of guidance for health care professionals and the general public, including travel advice, is available at www.hpsc.ie

The Q1 2017 notifications are reported in Table 5 by HSE-Area.

There were four cases of Lyme disease (neuroborreliosis) reported in Q1 2017.

There were three cases of Dengue fever reported this quarter. Two cases were associated with travel to SE Asia. The country of infection was unknown/not specified for the remaining case.

There were no notifications of Chikungunya disease, West Nile fever or Zika virus infection this quarter.

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