



Annual Epidemiological Report

August 2018

Infectious disease outbreaks in Ireland, 2017

Key Facts

2017:

- 558 outbreaks of infectious diseases were reported
- 4215 outbreak associated cases of illness
- 320 (7.6%) outbreak associated cases hospitalised
- 40 outbreak associated deaths
- The trend remains stable in comparison to 549 outbreaks reported during 2016 and a mean number of 506 outbreaks between 2012 and 2016.

Background

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'.

Methods

Notifications are reported using the Computerised Infectious Disease Reporting system (CIDR) which is described [here](#). Further information on the process of reporting notifiable infectious diseases is available here.

<http://www.hpsc.ie/notifiablediseases/notifyinginfectiousdiseases/>

Epidemiology

During 2017, 558 outbreaks of infectious diseases were reported with 4215 associated cases of illness, including 320 (7.6%) cases hospitalised and 40 associated deaths. This remains stable in comparison to 549 outbreaks reported during 2016 and a mean number of 506 outbreaks between 2012 and 2016.

Regional variation in the numbers of outbreaks reported was observed between HSE areas. The highest outbreak reporting rates were observed in HSE-M (31.8/100,000 population) while the lowest rate was observed in HSE-E at (6.5). Table 1 details the regional distribution of all outbreaks by HSE area and disease.

Similar to previous years, airborne/ person-to-person spread was reported as the mode of transmission for the majority of outbreaks (61.1%, n=341). Mode of transmission was reported as unknown for 30.3% of outbreaks. Table 2 details all outbreaks by infectious disease and probable mode of transmission.

The number of outbreaks reported peaked in January. This peak was mainly due to high numbers of influenza, norovirus and acute infectious gastroenteritis (AIG) outbreaks. A secondary peak was also observed during March. This peak was mainly due to norovirus, verotoxigenic *E. coli* infection (VTEC) and AIG outbreaks. Figure 1 illustrates the number of IID and non-IID outbreaks by month of notification during 2017.

The most frequently reported outbreak locations were private houses (n=197, 35.3%), nursing homes (n=130, 23.3%), hospitals (n=68, 12.2%) and community hospital/ long-stay units (n=63, 11.3%). The highest numbers ill were reported from outbreaks in nursing homes (n=1,933), community hospital/ long-stay units (n=673), private houses (377) and hospitals (n=374).

General outbreaks accounted for 62.0% (n= 346) of all outbreaks notified during 2017. The remaining outbreaks (38.0%, n= 212) were reported as family/household outbreaks.

Infectious intestinal disease (IID) outbreaks:

During 2017, 390 IID outbreaks were reported, accounting for 69.9% of all outbreaks. After VTEC, the next most commonly reported IID outbreaks were norovirus and AIG. Table 3 details the total number ill by disease and the median number ill per outbreak for disease where five or more outbreaks were reported.

Non-infectious intestinal disease (Non-IID) outbreaks:

During 2017, 144 non-IID outbreaks were reported, accounting for 25.8% of all outbreaks. After influenza, the next most commonly reported non-IID outbreaks were pertussis and acute respiratory infections.

Multi-drug resistant organism (MDRO) outbreaks:

During 2017, 24 MDRO outbreaks were reported, accounting for 4.3% of all outbreaks reported to HPSC. Outbreaks due to Carbapenem-producing *Enterobacteriaceae* (CPE)¹ (n=14) were the most commonly reported MDRO outbreak. Outbreaks due to MDROs are primarily associated with colonisation but all MDROs have the potential to cause infections in vulnerable populations.

¹ Previously known as Carbapenem-resistant *Enterobacteriaceae* (CRE)

Figure 1: Number of IID and non-IID outbreaks in Ireland by month of notification and associated numbers ill, 2017

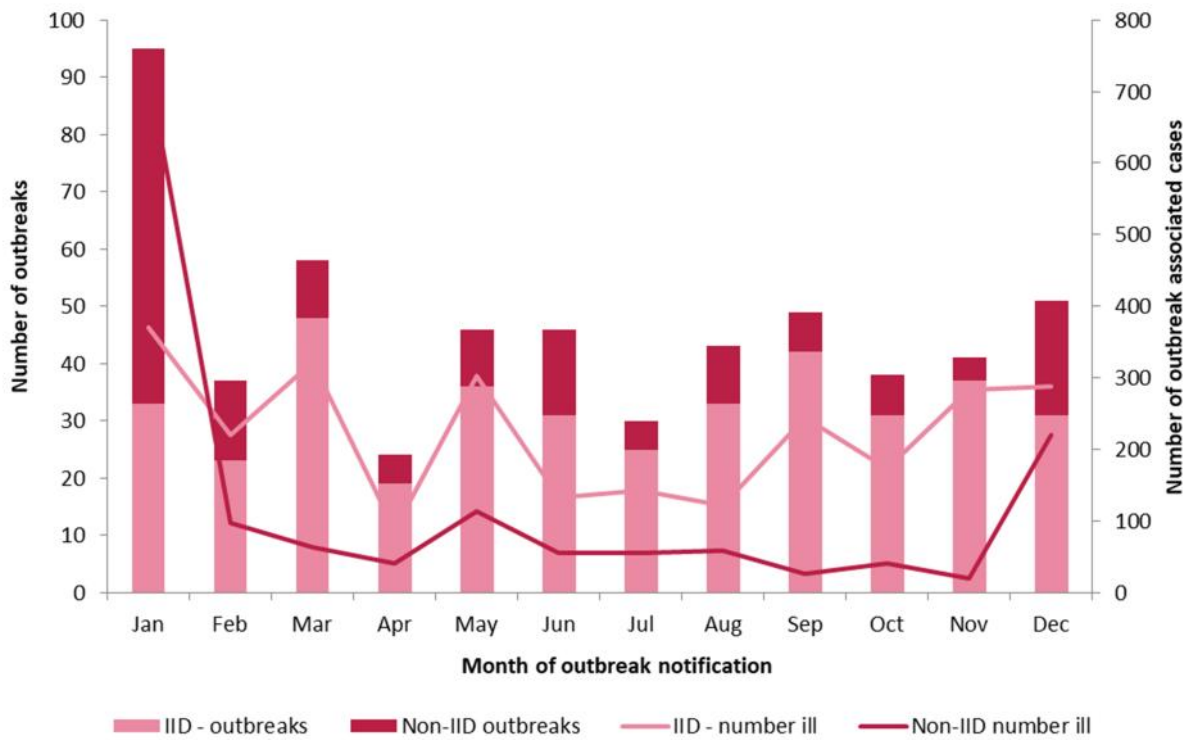


Table 1: Number of IID and non-IID outbreaks in Ireland by disease and HSE area, 2017

Disease category	Disease	HSE-E	HSE-M	HSE-MW	HPSC	HSE-NE	HSE-NW	HSE-SE	HSE-S	HSE-W	Total
Infectious intestinal disease	VTEC	4	63	24		5	2	9	21	18	146
	Norovirus	29	8	9		5	3	11	12	7	84
	AIG	9	4	4		11	13	7	22	10	80
	Rotavirus	2	2	1			2		3	6	16
	Cryptosporidium	3	5		1			2	3	1	15
	Salmonellosis	4	1	3	2			1	1	1	13
	<i>C. difficile</i>	1		2			2	1	1	2	9
	Giardiasis	2	1			1			1	3	8
	<i>Campylobacter</i>	2	1				1	1		1	6
	Hepatitis A	3	1	1					1		6
	Shigellosis	2				1			1		4
	Typhoid	1									1
	Staphylococcal food poisoning	1									1
Listeriosis									1	1	
Non-infectious intestinal disease	Influenza	26	6	6		7	10	3	17	8	83
	Pertussis	5	1	2		1	1	5	4		19
	ARI	2					6		8		16
	RSV	2		1			2				5
	Chicken pox / suspected chicken pox	1		2				1			4
	Mumps	1							1	1	3
	Measles	1				2					3
	Viral meningitis							1	1	1	3
	Tuberculosis					2					2
	Suspected scabies	1						1			2
	Meningococcal disease								1		1
	Legionellosis								1		1
	Varicella zoster	1									1
	Streptococcus group A infection (invasive)							1			1
Multi-drug resistant organisms	CPE*	3		2				6		3	14
	MRSA [†]	3						1		1	5
	VRE [‡]	1							1		2
	<i>Klebsiella</i> spp					1					1
	ESBL <i>E. coli</i> [§]	1									1
	<i>Pseudomonas</i> spp.	1									1
Total number of outbreaks		112	93	57	3	36	43	50	100	64	558
Crude outbreak incidence rate		6.5	31.8	14.8	n/a	7.8	16.7	7.2	19.6	14.1	11.7

Table 2: Number of IID and non-IID outbreaks in Ireland by disease and probable route of transmission, 2017

Disease category	Disease	PP/ Airborne	Animal contact	Foodborne	Waterborne	Environmental / Fomite	Unknown	Total
Infectious intestinal disease	VTEC	43	13	2	10	1	77	146
	Norovirus	66		2			16	84
	AIG	58		2			20	80
	Rotavirus	10					6	16
	Cryptosporidium	3	2		1		9	15
	Salmonellosis	3	1	1			8	13
	C. difficile	3				3	3	9
	Giardiasis	4		1			3	8
	Hepatitis A	3					3	6
	Campylobacter	1	1			2	2	6
	Shigellosis	1			2		1	4
	Typhoid						1	1
	Staphylococcal food poisoning				1			1
	Listeriosis				1			1
Non-infectious intestinal disease	Influenza	78					5	83
	Pertussis	19						19
	ARI	13					3	16
	RSV	5						5
	Chicken pox / suspected chicken pox	4						4
	Viral meningitis	3						3
	Measles	3						3
	Mumps	3						3
	Tuberculosis	2						2
	Suspected scabies	2						2
	Meningococcal disease	1						1
	Varicella zoster	1						1
	Legionellosis	1						1
	Streptococcus group A infection (invasive)	1						1
	Multi-drug resistant organisms	CPE*	4				2	8
MRSA [†]		4					1	5
VRE [‡]		2						2
Pseudomonas spp.							1	1
ESBL <i>E. coli</i> [§]							1	1
	Klebsiella spp.						1	1
Total number of outbreaks		341	17	12	13	6	169	558

% of outbreaks	61.1	3.0	2.2	2.3	1.1	30.3	100.0
----------------	------	-----	-----	-----	-----	------	-------

Table 3: Infectious disease outbreaks in Ireland by size of outbreak, 2017**

Disease category	Disease	Number of outbreaks	Number ill	Number ill range	Mean number ill	Median number ill	Number lab confirmed	Median number lab conf
IID	VTEC	146	293	0 - 44	2	2	194	2
	Norovirus	84	1226	2 - 71	15	13	132	2
	AIG	80	814	2 - 47	11	7	0	0
	Rotavirus	16	102	2 - 30	6	3	25	2
	Cryptosporidium	15	46	2 - 11	3	2	12	2
	Salmonellosis	13	85	2 - 51	7	2	52	2
	<i>C. difficile</i>	9	29	2 - 6	3	3	19	2.5
	Giardiasis	8	19	1 - 4	2	2	18	2
	<i>Campylobacter</i>	6	28	2 - 12	6	5	11	2.5
	Hepatitis A	6	12	1 - 3	2	2	7	2
Non-IID	Influenza	83	1042	2 - 56	13	10	188	2
	Pertussis	19	55	2 - 5	3	3	20	1
	ARI	16	204	3 - 30	13	10	5	0
	RSV	5	33	2 - 14	7	6	19	4.5
MDRO	CPE*	14	1	0 - 1	0	0	43	4.5
	MRSA [†]	5	12	0 - 9	4	3	24	6

Further information available on HPSC website

<http://www.hpsc.ie/a-z/outbreaks/epidemiologicaldata/>

<http://www.hpsc.ie/a-z/outbreaks/surveillanceforms/>

<http://www.hpsc.ie/a-z/gastroenteric/norovirus/>

Acknowledgements

Sincere thanks are extended to all those who participated in the collection of data used in this report. This includes the notifying physicians, public health doctors, surveillance scientists, microbiologists, nurses, laboratory staff and administrative staff.

Report prepared by:

Sarah Jackson

* Previously known as Carbapenem-resistant *Enterobacteriaceae* (CRE)

[†] Meticillin-resistant *Staphylococcus aureus*

[‡] Vancomycin-Resistant Enterococci

[§] Extended spectrum beta lactamase producing *E. coli*

** Values shown for diseases with more than five outbreaks.