

Annual Epidemiological Report

August 2018

Haemophilus influenzae, in Ireland, 2018

Key Facts

In 2018, 58 cases of invasive *Haemophilus influenzae* disease were notified in Ireland (1.2 cases per 100,000 total population)

Non-typeable/non-capsular cases accounted for the majority of invasive *H. influenzae* cases notified (75.9%); the remaining cases were due to *H. influenzae* type f (8.6%), type e (3.5%), types a, b and not b (1.7% each) and isolates that were not typed (6.9%)

Highest frequency of cases occurred in the 0-4 year age group (13.8%), and among those aged 65+ years (48.3%), a pattern consistent with what has been observed since 2004

In 2018, 89.7% of cases had a clinical diagnosis recorded, the highest proportion recorded since 2004

Seven deaths were reported; median age of fatal cases was 73.2 years (range 11-97 years) and all were associated with non-typeable infections

Epidemiology

In 2018, 58 cases of invasive *Haemophilus influenzae* disease were notified in Ireland (1.2 cases per 100,000 total population). This is a 22.9% increase on the number reported in 2017. In 2004 the incidence rate was 0.9 cases/100,000 when there were 38 cases reported. No imported cases or outbreaks were reported in 2018.

The main change in 2018, when compared to 2017, is the increase in the number of non-typeable/non-capsular strains from 28 to 44 and the decrease in untyped cases from eight to four (Figure 1).

Non-typeable/non-capsular cases accounted for the majority of the invasive *H. influenzae* cases notified in 2018 (75.8%, n=44/58). The remaining cases were due to *H. influenzae* type f (8.6%; n=5), two type e (3.5%), one each of types a, b and not b (1.7%, n=1) and isolates that were not typed (6.9%; n=4), of which one (1.7%) was diagnosed by PCR testing only.

The median age of cases was 62.7 years (range eight months to 97 years). The incidence rates were highest amongst those aged 65+ years (4.4/100,000) and infants <1 year of age (3.2/100,000) (Table 1).

Cases occurring in children <10 years of age (n=9) and in elderly adults (65 years of age and older (n=28)) accounted for 65.5% of all invasive *H. influenzae* notifications in 2018 (Table 1). One notable trend since 2004 is the increase in the overall proportion of cases 65+ years of age from 26.3% (n=10/38) to 48.3% (n=28/58) in 2018.

Figures 2a and 2b present that cumulative distribution of cases by age group and type for the periods 2004-2010 and 2011-2018. The latter period show a sharp decline in type b cases and a marked increase in overall numbers, especially of non-typeable/non-capsular cases and also in those aged <1 year and those 70 years or greater.

In 2018 the number of male cases (n=25) was considerably less than that of females (n=33), a male to female ratio of 0.76:1.0, somewhat similar to that observed in 2017 (0.96:1.0).

Ethnicity details were poorly captured with five (8.6%) cases described as 'white', one (1.7%) as 'Irish Traveller' and the remaining 52 (89.7%) as not specified or not known.

Incidence of disease in 2018 was highest in the HSE NW area (2.3/100,000) while the lowest was in the HSE W area (0.4/100,000) (Table 2). No HSE area had an incidence rate that was significantly different from the national rate (Figure 3). Among the six cases reported in HSE NW, four were non-typeable/non-capsular and one case each of types b and e, all aged between 41 and 97 years.

Completion of clinical presentation has improved markedly since enhanced surveillance began in 2004. An annual breakdown by clinical diagnosis for all cases by age group between 2004 and 2018 is presented in Table 3. In 2018, septicaemia or pneumonia accounted for most cases (58.6%); clinical presentation was not specified for a minority of cases (10.3%). One case of an epiglottitis-related *H. influenzae* was also reported, a possible case that was untyped.

Seven deaths were reported among the 58 cases in 2018; median 73.2 years (range 11-97 years) and all associated with non-typeable infections. Apart from one case where the death was not due to infection, the actual causes of death were not known, not specified or pending at the time of writing.

In 2018, one case of *H. influenzae* type b (Hib) was reported; an unvaccinated case aged 85+ years, the same number as in 2017, also in an elderly person. Between Q3-2007 and Q8-2017, a period of more than 11 years, only one true Hib vaccine failure was reported, highlighting the continuing positive impact that the Hib booster catch up campaign has had in Ireland.

Since September 2008, the Hib booster dose has been administered at 13 months of age as part of the routine childhood immunisation schedule in addition to the three doses given during infancy (at 2, 4 and 6 months of age). Furthermore, vaccination is routinely recommended for those at increased risk of Hib disease due to underlying medical conditions or treatments. For information on uptake of *Haemophilus* type b vaccination, please refer to the National Immunisation Advisory Committee guidelines on *H. influenzae* available at <https://www.hse.ie/eng/health/immunisation/hcinfo/guidelines/chapter7.pdf>

The figures presented in this summary are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 22nd July, 2019. These figures may differ from those published previously due to on-going updating of notification data on CIDR.

Further information available on HPSC website:

<https://www.hpsc.ie/a-z/vaccinepreventable/haemophilusinfluenzae/>

Acknowledgements

HPSC wishes to thank all who provided data for this report: Departments of Public Health, Irish Meningitis & Sepsis Reference Laboratory and other Microbiology Laboratories.

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Figure 1. Number of invasive *H. influenzae* cases and proportion of cases attributable to type b and non-typeable strains with 95% confidence intervals, Ireland, 2002-2018

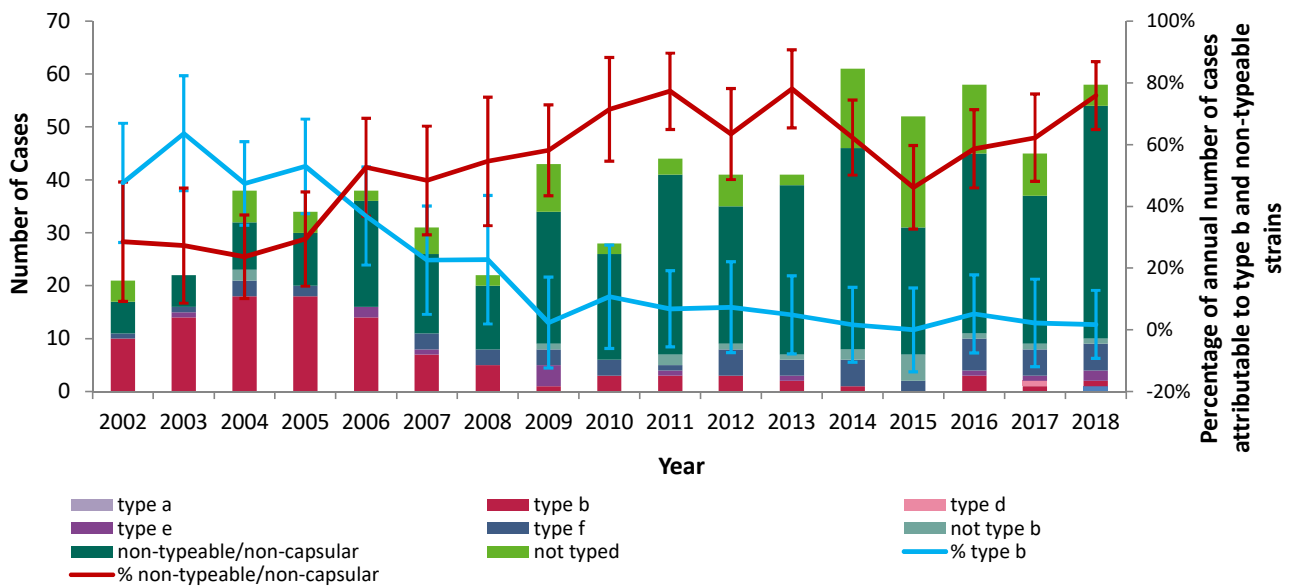


Figure 2a. Number of *H. influenzae* cases by age group and type, 2004-2010, Ireland

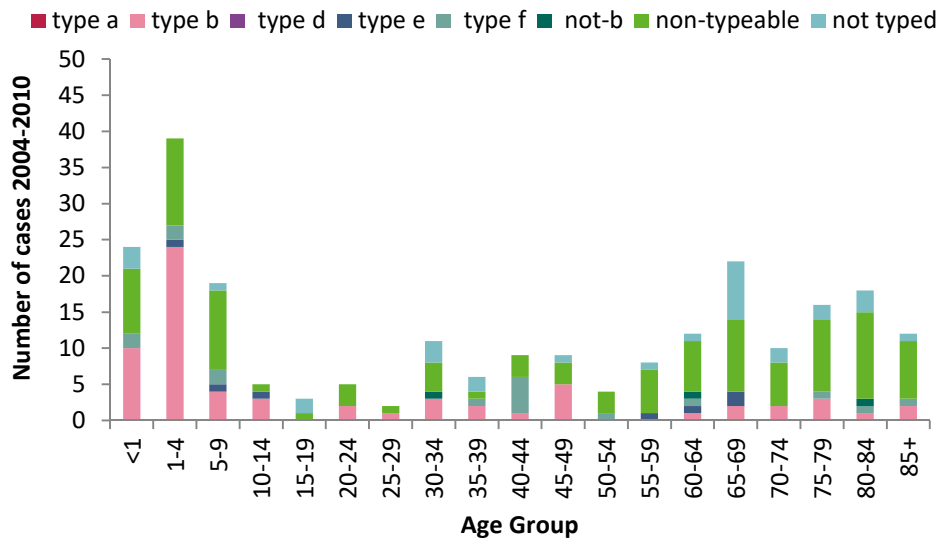


Figure 2b. Number of *H. influenzae* cases by age group and type, 2011-2018, Ireland

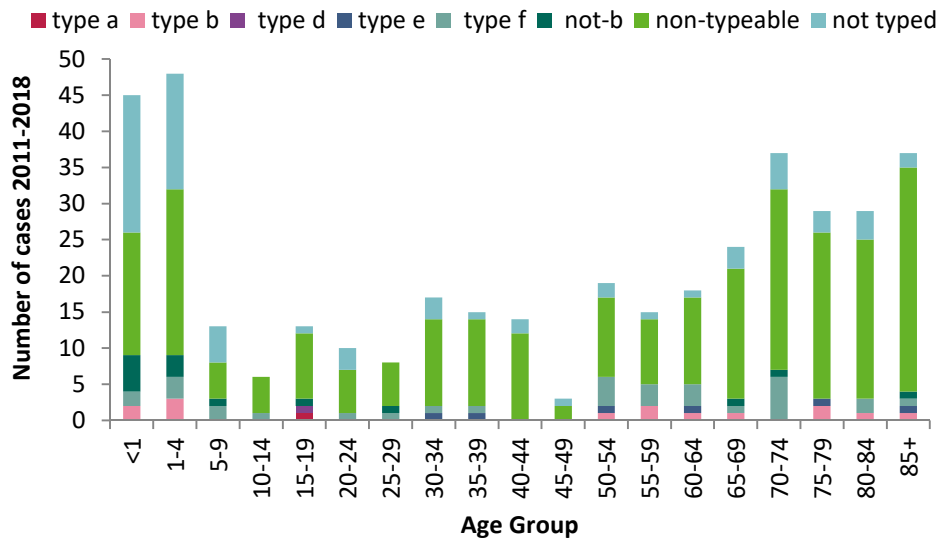


Figure 3. Crude incidence rates per 100,000 population with 95% confidence intervals for *H. influenzae* notifications by HSE area, Ireland, 2018 (Incidence rates based on Census 2016 data)

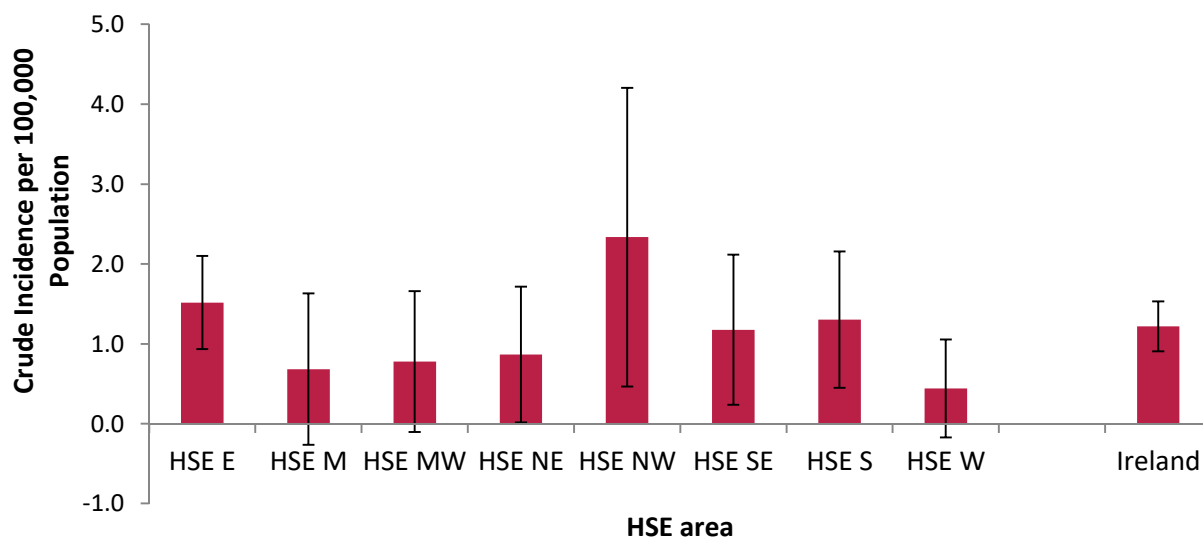


Table 1. Number and incidence rates of invasive *H. influenzae* cases by serotype and age group, Ireland, 2018

Age Group	type a	type b	type d	type e	type f	not type b	NT/NC	not typed, PCR	not typed	Total	ASIR
<1	0	0	0	0	0	0	1	1	0	2	3.21
1-4	0	0	0	0	0	1	5	0	0	6	2.23
5-9	0	0	0	0	0	0	1	0	0	1	0.28
10-14	0	0	0	0	0	0	3	0	0	3	0.94
15-19	1	0	0	0	0	0	2	0	1	4	1.32
20-24	0	0	0	0	0	0	0	0	0	0	0.00
25-34	0	0	0	0	0	0	1	0	0	1	0.15
35-44	0	0	0	0	0	0	3	0	1	4	0.54
45-54	0	0	0	0	1	0	3	0	0	4	0.64
55-64	0	0	0	1	1	0	3	0	0	5	0.98
65+	0	1	0	1	3	0	22	0	1	28	4.39
Total	1	1	0	2	5	1	44	1	3	58	1.22
CIR	0.02	0.02	0.00	0.04	0.11	0.02	0.92	0.02	0.06	1.22	-

CIR, crude incidence rate per 100,000 total population; ASIR, age specific incidence rate per 100,000 population; ASIR values calculated using Census 2016 data

NT/NC=non-typeable/non-capsular

not typed/PCR=not typed, a PCR only diagnosis

Table 2. Incidence rates per 100,000 population of invasive *H. influenzae* by HSE area, Ireland, 2004-2018

HSE Area	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
E	1.07	1.00	0.87	0.80	0.53	0.74	0.56	1.11	1.11	0.62	0.93	1.52	1.11	1.17	1.52
M	1.19	1.19	0.40	1.19	0.79	1.06	0.35	1.06	0.35	1.42	1.71	0.34	2.05	1.37	0.68
MW	0.83	0.28	0.83	0.55	0.83	2.11	0.53	0.53	1.05	0.79	2.08	1.04	1.30	1.82	0.78
NE	0.25	1.27	0.25	0.00	0.00	0.23	0.45	1.59	0.91	1.36	1.52	0.87	1.08	0.43	0.87
NW	0.42	0.00	2.11	0.42	0.00	0.39	0.39	0.77	0.77	1.16	0.39	0.78	1.95	0.78	2.34
SE	1.08	0.43	0.87	1.08	0.65	1.00	1.00	0.80	1.21	1.00	1.74	0.87	0.72	0.43	0.87
S	1.13	0.32	1.29	0.32	0.64	1.20	1.05	0.30	0.60	0.90	1.57	0.98	1.37	0.78	1.76
W	0.48	1.45	0.72	1.45	0.48	1.12	0.22	1.35	0.45	0.90	0.88	0.88	1.32	0.66	0.44
Ireland	0.90	0.80	0.90	0.73	0.52	0.94	0.61	0.96	0.89	0.89	1.28	1.09	1.22	0.95	1.22

Table 3. Number of invasive *H. influenzae* cases by clinical diagnosis, Ireland, 2004-2018

Clinical diagnosis	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Septicaemia	8	14	13	6	3	9	9	11	11	14	15	14	18	12	23
Pneumonia	5	0	3	6	3	8	5	12	12	4	12	8	12	7	11
Other	1	2	1	0	0	0	0	3	4	7	7	3	9	3	6
Bacteraemia (without focus)	1	0	1	1	2	0	0	3	5	6	9	8	6	4	7
Meningitis	3	9	3	2	2	2	1	3	2	2	7	3	1	1	3
Epiglottitis	1	3	3	1	1	0	2	0	0	3	1	1	1	0	1
Cellulitis	1	1	2	1	1	0	0	1	0	0	0	1	1	0	0
Meningitis & septicaemia	1	0	1	0	1	1	1	1	1	0	0	2	0	0	1
Septic arthritis	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0
Osteomyelitis	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Not specified	16	4	11	14	8	23	10	10	6	5	10	12	10	17	6
Total	38	34	38	31	22	43	28	44	41	41	61	52	58	45	58
%Not specified	42.1%	11.8%	28.9%	45.2%	36.4%	53.5%	35.7%	22.7%	14.6%	12.2%	16.4%	23.1%	17.2%	37.8%	10.3%