

1.1 *Haemophilus influenzae* (invasive)

Summary

Number of cases, 2015: 52
 Number of cases, 2014: 61
 Number of cases, 2013: 41
 Crude incidence rate, 2015: 1.1/100,000

In 2015, 52 cases of invasive *Haemophilus influenzae* disease were notified in Ireland (1.13 cases per 100,000 total population). This is a 14.8% decrease on the number reported in the previous year. In 2004 the incidence rate was 0.89 cases/100,000. No imported cases were reported in 2015.

The main change in 2015, when compared to 2014, is the decrease in the number of non-typeable/non-capsular strains from 38 to 24 (Figure 1).

Non-typeable/non-capsular cases accounted for the majority of the invasive *H. influenzae* cases notified in 2015 (46.2%, n=24/52). The remaining cases were due to *H. influenzae* 'not type b' (9.6%; n=5), type f (3.8%; n=2), and isolates that were

not typed (40.4%; n=21), of which 10 (19.2%) were diagnosed by PCR testing only. The median age of cases was 25 years (range two days to 93 years). The incidence rates were highest in infants <1 year (15.2/100,000) and those aged 1 to 4 years (2.8/100,000) (Table 1).

Cases occurring in children <10 years of age (n=22) and in elderly adults (65 years of age and older (n=18)) accounted for 76.9% of all invasive *H. influenzae* notifications in 2015 (Table 1). One notable trend since 2004 is the increase in the overall proportion of cases 65+ years of age from 26.3% to 34.6% in 2015 compared to the decline over the same period in those aged between 5 and 64 years from 47.4% to 26.9%.

In 2015, the highest frequency of cases occurs in the 0-4 year age group (38.5%; n=20), after which it falls sharply before increasing again among those aged 65+ years (34.6%; n=18) (Table 1), consistent with what has been observed since 2004 (Figure 2).

In 2015, the number of male cases (n=26) was identical to that of females giving a male to female ratio of 1:1. The M:F

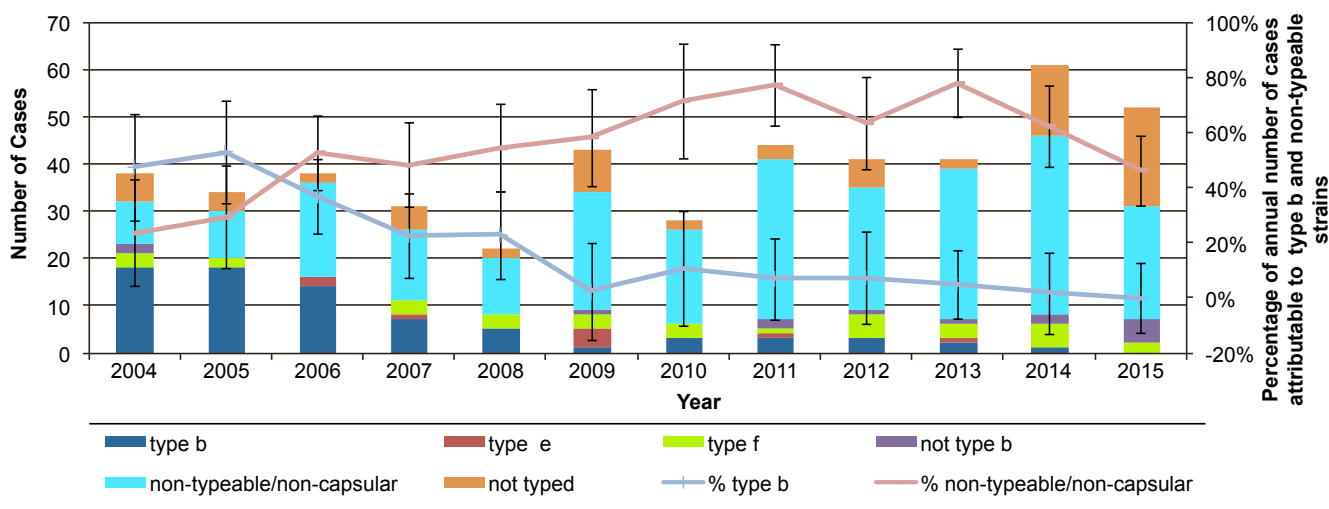


Figure 1. Number of invasive *H. influenzae* cases and proportion of cases attributable to type b and non-typeable strains with 95% confidence intervals, Ireland, 2004-2015

ratio has been observed to vary considerably in recent years with a 0.5:1 ratio recorded in 2014 and 2.7:1 in 2013 (Figure 3).

Between 2005 and 2011, the fewest quarterly number of cases has consistently been in the third quarter, but since 2012 that pattern no longer applies (Figure 3).

Incidence of disease in 2015 was highest in the HSE E area (1.6/100,000) with the lowest in the HSE M area (0.35/100,000) (Table 2). No HSE area had an incidence rate that was significantly different from the national rate (Figure 4).

A breakdown by clinical diagnosis for all cases by age group between 2004 and 2015 is presented in Table 3. In 2015, 23.1% (n=12/52) of cases did not have a clinical diagnosis recorded.

Two deaths were reported among the 52 cases in 2015, one aged 1-2 years and one aged 70-74 years. Their cause of

death was not reported. One had a confirmed non-typeable infection with bacteraemia and the other, a possible case, had epiglottitis.

In 2015, there were no cases of *H. influenzae* type b (Hib) reported, the result of a long term trend: in 2014, only one case of Hib occurred, with two cases in 2013 and 18 cases notified in both 2004 and 2005. Between Q3-2007 and Q4-2015, an eight and a half year period, 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).

Table 1. Number and incidence rates of invasive *H. influenzae* cases by serotype and age group, Ireland, 2015

Age Group	type b	type e	type f	not type b	non-typeable/ non-capsular	not typed (all)	not typed, PCR only diagnosis	not typed	Total	ASIR
<1	0	0	0	3	2	6	5	1	11	15.19
1-4	0	0	0	0	1	8	3	5	9	2.81
5-9	0	0	0	0	0	2	1	1	2	0.66
10-14	0	0	0	0	0	0	0	0	0	0.00
15-19	0	0	0	1	0	0	0	0	1	0.34
20-24	0	0	0	0	2	1	0	1	3	0.40
25-34	0	0	1	0	2	1	0	1	4	0.58
35-44	0	0	0	0	2	0	0	0	2	0.35
45-54	0	0	0	0	1	1	1	0	2	0.43
55-64	0	0	0	0	0	0	0	0	0	0.00
65+	0	0	1	1	14	2	0	2	18	0.39
Total	0	0	2	5	24	21	10	11	52	1.13
CIR	0.00	0.00	0.04	0.11	0.52	0.46	0.22	0.24	1.13	-

CIR, crude incidence rate per 100,000 total population; ASIR, age specific incidence rate per 100,000 population

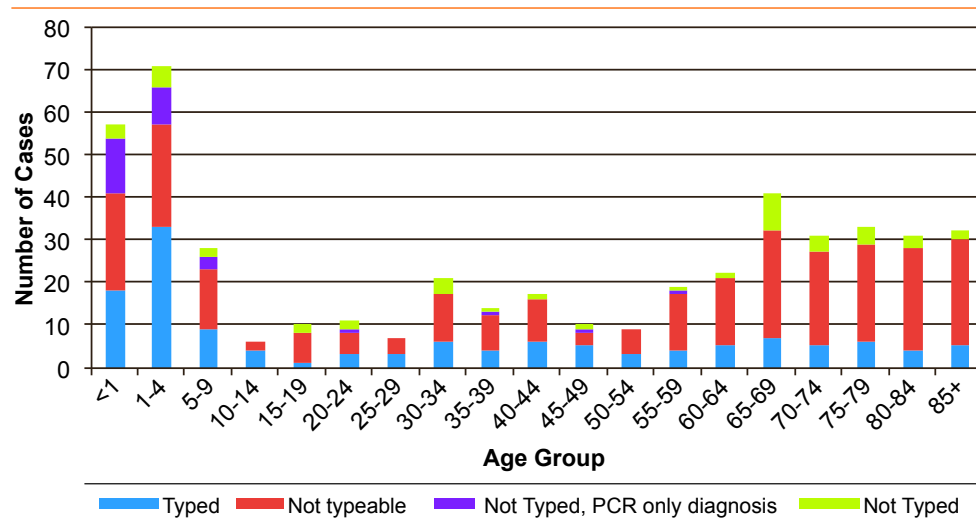


Figure 2. Number of *H. influenzae* cases by agegroup and type*, Ireland, 2004-2015

* Typed includes b, e, f, not-b

Table 2. Incidence rates per 100,000 population of invasive *H. influenzae* by HSE area, Ireland, 2004-2015

HSE Area	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
E	1.07	1.00	0.87	0.80	0.53	0.74	0.56	1.11	1.11	0.62	0.99	1.60
M	1.19	1.19	0.40	1.19	0.79	1.06	0.35	1.06	0.35	1.42	1.77	0.35
MW	0.83	0.28	0.83	0.55	0.83	2.11	0.53	0.53	1.05	0.79	2.11	1.05
NE	0.25	1.27	0.25	0.00	0.00	0.23	0.45	1.59	0.91	1.36	1.59	0.91
NW	0.42	0.00	2.11	0.42	0.00	0.39	0.39	0.77	0.77	1.16	0.39	0.77
SE	1.08	0.43	0.87	1.08	0.65	1.00	1.00	0.80	1.21	1.00	2.41	1.21
S	1.13	0.32	1.29	0.32	0.64	1.20	1.05	0.30	0.60	0.90	1.20	0.75
W	0.48	1.45	0.72	1.45	0.48	1.12	0.22	1.35	0.45	0.90	0.90	0.90
Ireland	0.90	0.80	0.90	0.73	0.52	0.94	0.61	0.96	0.89	0.89	1.33	1.13

Table 3. Number of invasive *H. influenzae* cases by clinical diagnosis, Ireland, 2004-2015

Clinical diagnosis	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	% 2015
Septicaemia	8	14	13	6	3	9	9	11	11	14	15	14	26.9%
Pneumonia	5	0	3	6	3	8	5	12	12	4	12	8	15.4%
Meningitis	3	9	3	2	2	2	1	3	2	2	7	3	5.8%
Bacteraemia (without focus)	1	0	1	1	2	0	0	3	5	6	9	8	15.4%
Other	1	2	1	0	0	0	0	3	4	7	7	3	5.8%
Epiglottitis	1	3	3	1	1	0	2	0	0	3	1	1	1.9%
Cellulitis	1	1	2	1	1	0	0	1	0	0	0	1	1.9%
Meningitis & septicaemia	1	0	1	0	1	1	1	1	1	0	0	2	3.8%
Osteomyelitis	1	0	0	0	0	0	0	0	0	0	0	0	0.0%
Septic arthritis	0	1	0	0	1	0	0	0	0	0	0	0	0.0%
Not specified	16	4	11	14	8	23	10	10	6	5	10	12	23.1%
Total	38	34	38	31	22	43	28	44	41	41	61	52	100 %
% 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%	-

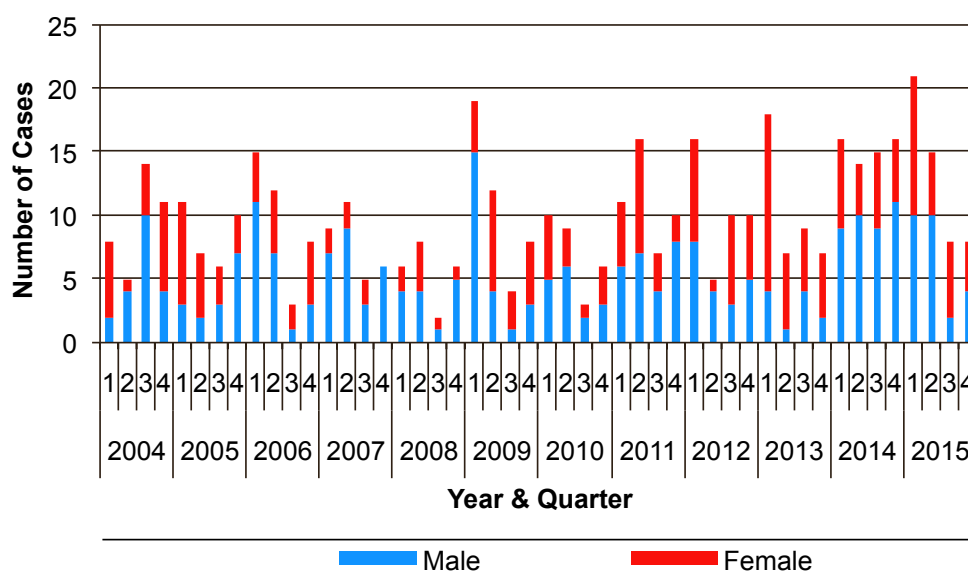


Figure 3. Number of *H. influenzae* cases by year/quarter and gender, Ireland, 2004-2015

Furthermore, vaccination is routinely recommended for those at increased risk of Hib disease due to underlying medical conditions or treatments.

The figures presented in this summary are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 30th August, 2016. These figures may differ from those published previously due to on-going updating of notification data on CIDR.

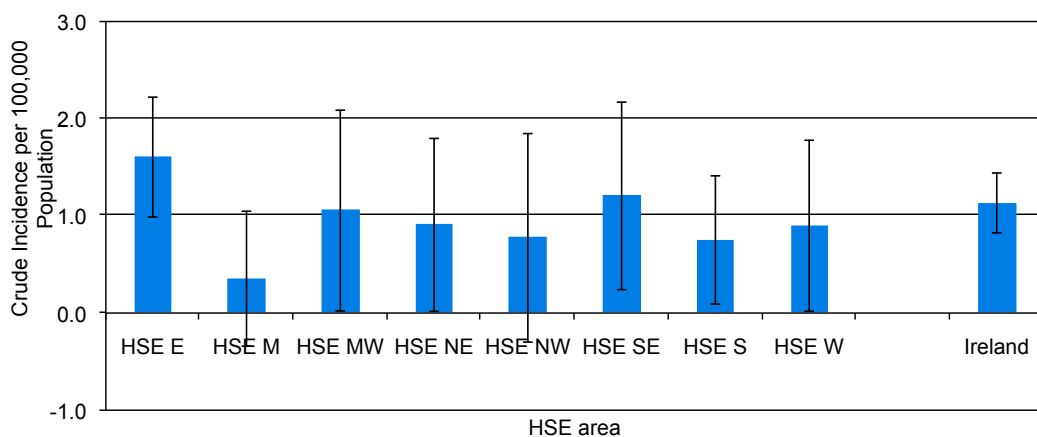


Figure 4. Crude incidence rates per 100,000 population with 95% confidence intervals for *H. influenzae* notifications by HSE area, Ireland, 2015