

1.1 *Haemophilus influenzae* (invasive)

Summary

Number of cases, 2014: 61
 Number of cases, 2013: 41
 Number of cases, 2012: 41
 Crude incidence rate, 2014: 1.3/100,000

In 2014, 61 cases of invasive *Haemophilus influenzae* disease were notified in Ireland (1.3/100,000 total population). This is a 48.8% increase on the number reported in the previous year. The annual average between 2004 (when *H. influenzae* first became a notifiable disease) and 2013 was 36 (figure 1). No imported cases were reported in 2014.

The main change in 2014, when compared to 2013, is the increase in the number of non-typeable/non-capsular strains from 32 to 38, not typed PCR only diagnosed cases from one to eight and of not typed cases from one to seven (figure 1).

Non-typeable/non-capsular cases accounted for the

majority of the invasive *H. influenzae* cases notified in 2014 (62.3%, n=38/61). The remaining cases were due to *H. influenzae* type f (8.2%; n=5), 'not type b' (3.3%; n=2), type b (1.6%; n=1) and isolates that were not typed (24.5%; n=15), of which eight (13.1%) were diagnosed by PCR testing only. The median age of cases was 44 years (range three days to 95 years). The incidence rates were highest in infants <1 year (16.6/100,000) and those aged 1 to 4 years (3.5/100,000) (table 1).

Cases occurring in children <10 years of age (n=23) and in elderly adults (65 years of age and older (n=21)) accounted for 72.1% of all invasive *H. influenzae* notifications in 2014 (table 1). One notable trend since 2004 is the increase in the overall proportion of cases 65+ years of age from 26.3% to 34.4% in 2014 compared to the decline in those aged between 5 and 64 years from 47.4% to 29.5%.

In 2014, the highest frequency of cases tend to occur in the 0-4 year age group, after which it falls sharply

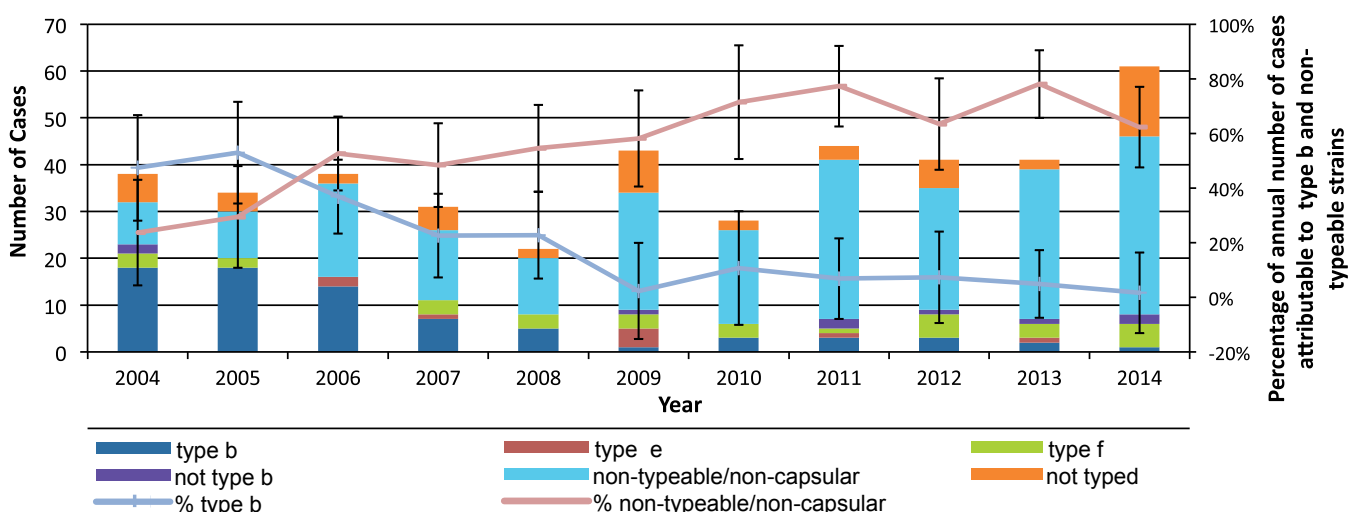


Figure 1. Number of invasive *H. influenzae* cases and proportion of cases attributable to type b and non-typeable strains with 95% confidence intervals, Ireland, 2004-2014

before increasing again among those aged 65+ years (table 1), consistent with what has been observed since 2004 (figure 2).

In 2014 the number of male cases (n=38) substantially exceeded that of females (n=22) (male to female ratio of 1.7:1.0), and for one case no gender details were reported. This M:F ratio was considerably higher than the 0.4:1.0 ratio recorded in 2013 (figure 3) which is atypical and is explained by the unusually large number in that year of non-typeable infections reported among females (n=23) compared to males (n=9), especially in the >65 year age group. Between 2004 and 2014, there were 132 and 109 cases of non-typeable cases among males and females, respectively, giving a M:F ratio of 1.2:1.0.

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 2014 was highest in the HSE SE area (2.41/100,000) with the lowest in the HSE NW area (0.39/100,000) (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 2014 is presented in Table 3. In 2014, 16.4% (n=10/61) of cases did not have a clinical diagnosis recorded.

Seven deaths were reported among the 61 cases in 2014; three were not caused by the infection; and the cause of death was not recorded for the remaining four cases. The age range was 36 to 95 years. Four non-typeable, two type f and one type b infection were recorded with these deaths.

In 2014, one case of *H. influenzae* type b (Hib) occurred in a 60-64 year old with an unknown vaccination status, no risk factors were identified. In the previous year, two

Table 1. Number and incidence rates of invasive *H. influenzae* cases by serotype and age group, Ireland, 2014

Age Group	Type b	Type e	Type f	Not type b	Non-typeable/ non-capsular	Not Typed, PCR only diagnosis	Not Typed	Total	ASIR of <i>H. influenzae</i> type b	ASIR of all <i>H. influenzae</i>
<1	0	0	1	1	5	4	1	12	0.00	16.57
1-4	0	0	1	0	5	2	2	10	0.00	3.52
5-9	0	0	0	0	0	1	0	1	0.00	0.31
10-14	0	0	0	0	1	0	0	1	0.00	0.33
15-19	0	0	0	0	1	0	0	1	0.00	0.35
20-24	0	0	1	0	0	0	0	1	0.00	0.34
25-34	0	0	0	1	1	0	0	2	0.00	0.26
35-44	0	0	0	0	3	0	1	4	0.00	0.58
45-54	0	0	1	0	1	0	0	2	0.00	0.35
55-64	1	0	1	0	3	1	0	6	0.22	1.30
65+	0	0	0	0	18	0	3	21	0.00	3.92
All Ages	1	0	5	2	38	8	7	61	0.02	1.33
CIR	0.02	0.00	0.11	0.04	0.83	0.17	0.15	1.33	-	-

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

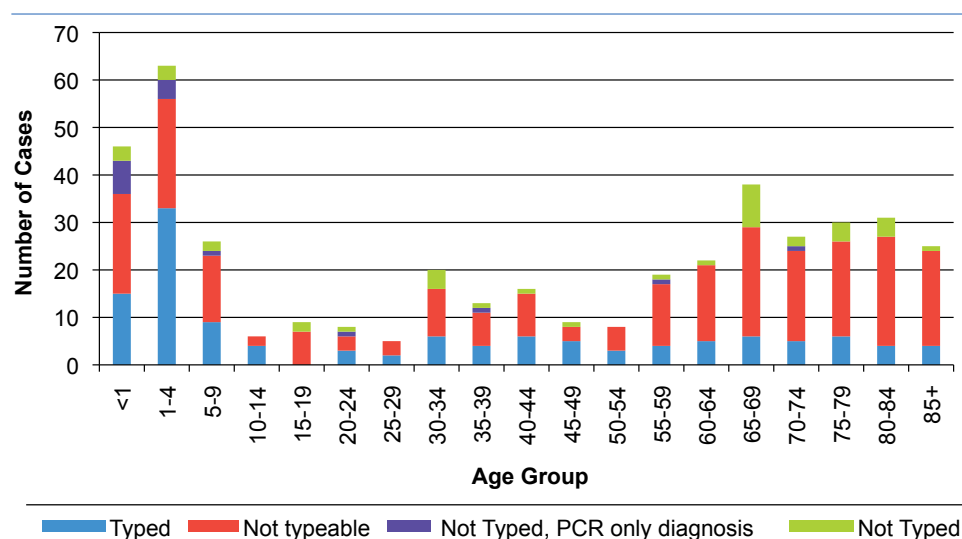


Figure 2. Number of *H. influenzae* cases by agegroup and type*, Ireland, 2004-2014

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

Table 2. Incidence rates per 100,000 population of invasive *H. influenzae* by HSE area, Ireland, 2004-2014

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

Table 3. Number of invasive *H. influenzae* cases by clinical diagnosis, Ireland, 2004-2014

Clinical Diagnosis	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	% 2014
Septicaemia	8	14	13	6	3	9	9	11	11	14	15	24.6%
Pneumonia	5	0	3	6	3	8	5	12	12	4	12	19.7%
Meningitis	3	9	3	2	2	2	1	3	2	2	7	11.5%
Bacteraemia (w/o focus)	1	0	1	1	2	0	0	3	5	6	9	14.8%
Other	1	2	1	0	0	0	0	3	4	7	7	11.5%
Epiglottitis	1	3	3	1	1	0	2	0	0	3	1	1.6%
Cellulitis	1	1	2	1	1	0	0	1	0	0	0	0.0%
Meningitis & Septicaemia	1	0	1	0	1	1	1	1	1	0	0	0.0%
Osteomyelitis	1	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%
Not specified	16	4	11	14	8	23	10	10	6	5	10	16.4%
Total	38	34	38	31	22	43	28	44	41	41	61	100%
% Known	57.9%	88.2%	71.1%	54.8%	63.6%	46.5%	64.3%	77.3%	85.4%	87.8%	83.6%	-

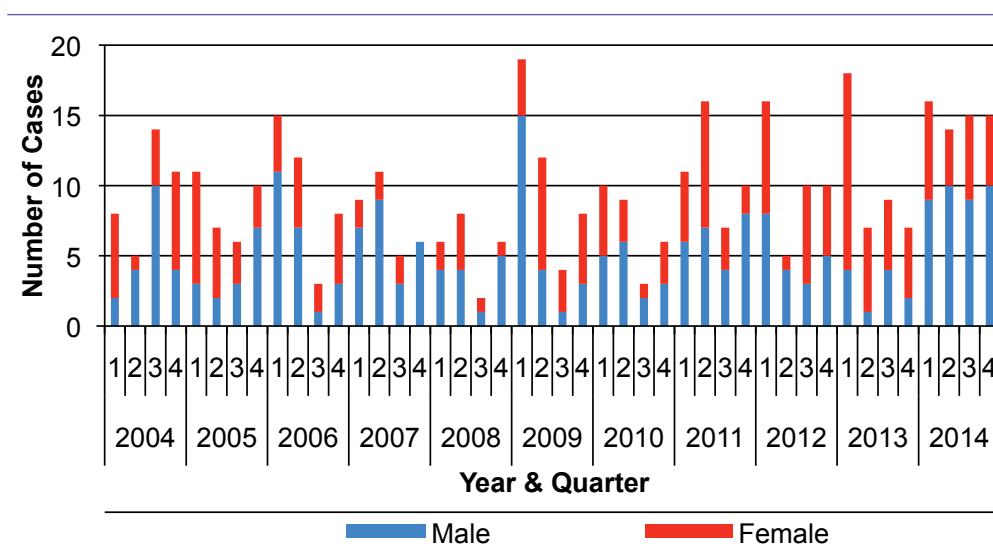


Figure 3. Number of *H. influenzae* cases by year/quarter and gender, Ireland, 2004-2014

cases of Hib occurred, both were two years of age and both were unvaccinated.

Between Q3-2007 and Q4-2014, a seven 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). Furthermore, vaccination is routinely recommended for those at increased risk of Hib disease due to underlying medical conditions or treatments.

In September 2014, a mother and baby pair of *H. influenzae* type f cases were reported, both of whom had septicaemia, but recovered. Type f *H. influenzae* was isolated from a placental swab.

The figures presented in this summary are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 13th August, 2015. These figures may differ from those published previously due to on-going updating of notification data on CIDR.

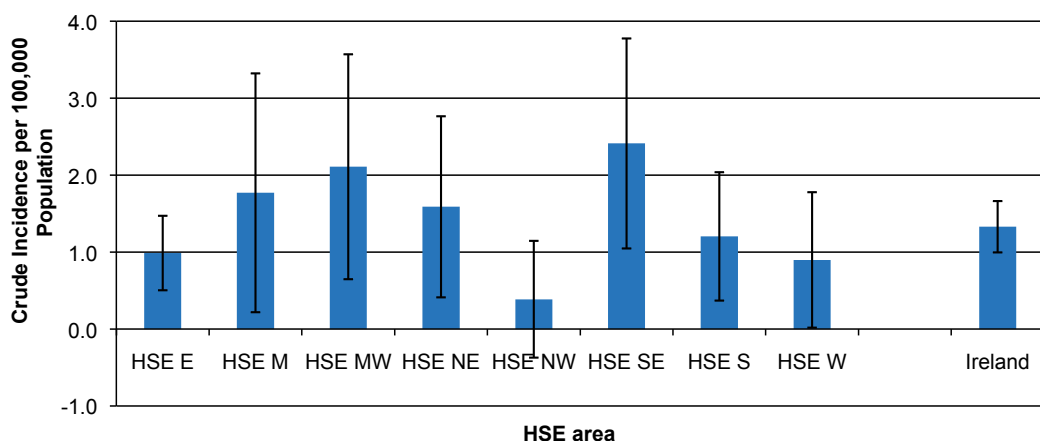


Figure 4. Crude incidence rates per 100,000 population with 95% confidence intervals for *H. influenzae* notifications by HSE area, Ireland, 2014