

# 1.1 *Haemophilus influenzae* (invasive)

## Summary

Number of cases, 2013: 41  
 Number of cases, 2012: 41  
 Number of cases, 2011: 44  
 Crude incidence rate, 2012: 0.9/100,000

In 2013, 41 cases of invasive *Haemophilus influenzae* disease were notified in Ireland (0.9/100,000 total population). This is identical to the number reported in the previous year, but still considerably higher than the 28 cases reported in 2010 (figure 1). No imported cases were reported in 2013.

The main change in 2013, when compared to 2012, is the increase in the number of non-typeable/non-capsular strains from 26 to 32 (figure 1). No other noteworthy change in the overall number of cases due to other serotypes has been observed since 2004 apart from the decline in the proportion of type b cases and the corresponding rise of non-typeable/non-capsular strains (figure 1).

Non-typeable/non-capsular cases accounted for the majority of the invasive *H. influenzae* cases notified in 2013 (78.0%, n=32/41). The remaining cases were due to *H. influenzae* type f (7.3%; n=3), type b (4.9%; n=2),

type e (2.4%; n=1), not type b (2.4%; n=1) and isolates that were not typed (4.9%; n=2), with the latter two cases being diagnosed by PCR testing only. The cases ranged in age from three months to 99 years (median 59 years). The incidence rates were highest in infants <1 year (4.1/100,000) and those aged 1 to 4 years (2.2/100,000) (table 1).

Cases occurring in children <10 years of age (n=11) and in elderly adults 65+ years of age (n=15) accounted for 63.4% of all invasive *H. influenzae* notifications in 2013 (table 1). One notable trend since 2004 is the increase in the overall proportion of cases 65+ years of age from 26.3% to 36.6% in 2013 compared to the decline in those aged between 5 and 64 years from 47.4% to 39.0% (figure 2).

The highest frequency of cases tend to occur in the 1 to 4 year age group, after which it falls sharply before rising steadily again across all 5-year age groups ≥55 years (figure 3). One consistent finding over the 2004 to 2013 period has been the predominance of non-typeable cases in most age groups (figure 3).

In 2013, the number of male cases (n=11) was just over a third of that of females (n=30), resulting in a male to female ratio of 0.37:1.0, considerably less than the 1.13:1.0 ratio for the 2004 to 2013 period (figure 4).

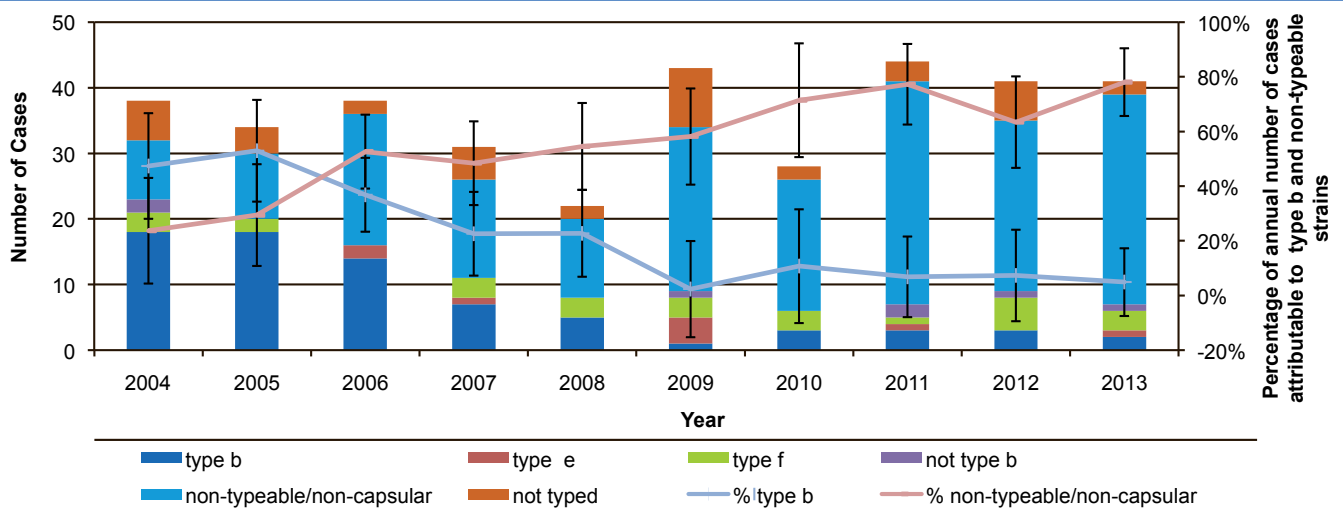


Figure 1. Number of invasive *H. influenzae* cases and proportion of cases attributable to type b and non-typeable strains with 95% confidence intervals, Ireland, 2004-2013

Incidence of disease in 2013 was highest in the HSE M area (1.42/100,000) with the lowest in the HSE E area (0.62/100,000) (table 2). No HSE area had an incidence rate that was significantly different from the national rate (figure 5) and no imported cases were reported in 2013.

Apart from the years 2004, 2007, 2008 and 2011, *H. influenzae* cases have tended to occur most often in the first quarter of each calendar year (figure 6).

Figure 7 shows how over the period 2009 to 2013 the proportion of non-typeable cases with septicaemia tends to fall between the age groups 5 to 24 and 65+ years. A breakdown by clinical diagnosis for all cases by age group between 2004 and 2013 is presented in Table 2.

Five deaths were reported in 2013. The age range was 3 months to 99 years. A non-typeable infection was

recorded with each death, but only one was reported to have been caused directly by the infection.

In 2013, two cases of *H. influenzae* type b (Hib) occurred, both were two years of age and both were unvaccinated. In the previous year, three cases of Hib occurred, two of whom were <5 years of age: one was unvaccinated and the other was incompletely vaccinated having received only three doses of the Hib vaccine; the remaining third case occurred in an adult aged 45 to 49 years and was unvaccinated.

Between Q3-2007 and Q4-2013, 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

Table 1. Number and incidence rates of invasive *H. influenzae* cases by serotype, Ireland, 2013

Age Group	Type b	Type e	Type f	Not type b	Non-typeable/ non-capsular	Not Typed*	Total	ASIR of Hib	ASIR of all <i>H. influenzae</i>
<1	0	0	0	0	3	0	3	0.00	4.14
1-4	2	0	0	0	4	1	7	0.62	2.18
5-9	0	0	0	0	1	0	1	0.00	0.33
10-14	0	0	0	0	0	0	0	0.00	0.00
15-19	0	0	0	0	0	0	0	0.00	0.00
20-24	0	0	0	0	0	1	1	0.00	0.13
25-34	0	1	1	0	3	0	5	0.00	0.72
35-44	0	0	0	0	2	0	2	0.00	0.35
45-54	0	0	0	0	0	0	0	0.00	0.00
55-64	0	0	1	0	6	0	7	0.00	1.31
65+	0	0	1	1	13	0	15	0.00	0.33
All Ages	2	1	3	1	32	2	41	0.04	0.89
CIR	0.04	0.02	0.07	0.02	0.70	0.04	0.89	-	-

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

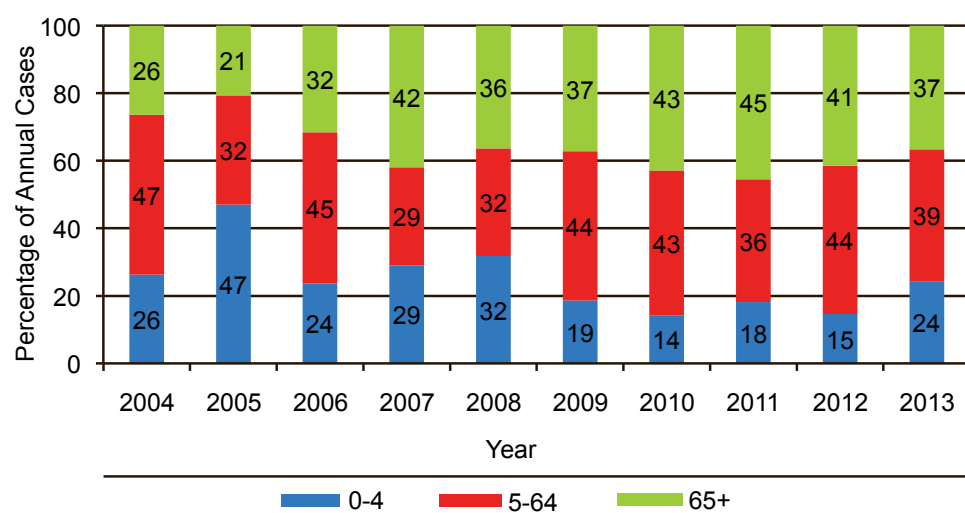


Figure 2. Percentage and number of cases of invasive *H. influenzae* cases by age group and year, Ireland, 2004-2013

Table 2. Number of invasive *H. influenzae* cases by clinical diagnosis, Ireland, 2004-2013

Clinical Diagnosis	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Septicaemia	8	14	13	6	3	9	9	11	11	14
Pneumonia	5	0	3	6	3	8	5	12	12	4
Meningitis	3	9	3	2	2	2	1	3	2	2
Meningitis & septicaemia	1	0	1	0	1	1	1	1	1	0
Bacteraemia (without focus)	1	0	1	1	2	0	0	3	5	6
Epiglottitis	1	3	3	1	1	0	2	0	0	3
Cellulitis	1	1	2	1	1	0	0	1	0	0
Septic arthritis	0	1	0	0	1	0	0	0	0	0
Osteomyelitis	1	0	0	0	0	0	0	0	0	0
Other	1	2	1	0	0	0	0	3	4	7
Not specified	16	4	11	14	8	23	10	10	6	5
Total	38	34	38	31	22	43	28	44	41	41
% Known Clinical Diagnosis	57.9%	88.2%	71.1%	54.8%	63.6%	46.5%	64.3%	77.3%	85.4%	87.8%

Table 3. Incidence rates per 100,000 population of invasive *H. influenzae* by HSE area, Ireland, 2004-2013

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

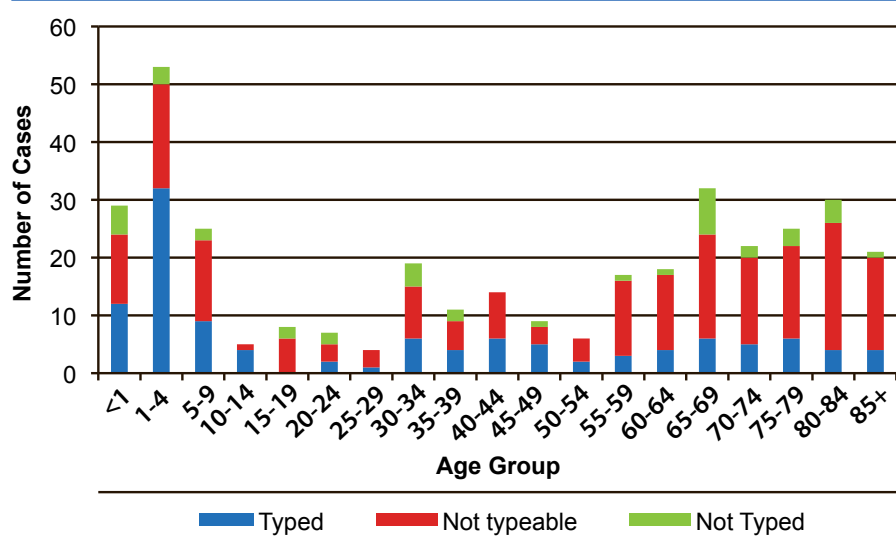


Figure 3. Number of *H. influenzae* cases by agegroup and type\*, Ireland, 2004-2013

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

months of age). 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 27<sup>th</sup> August, 2014. These figures may differ from those published previously due to ongoing updating of notification data on CIDR.

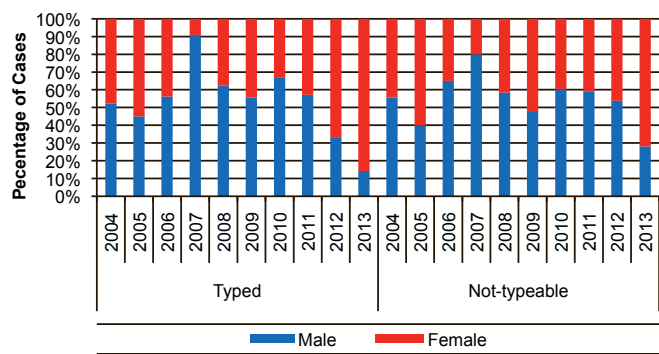


Figure 4. Percentage of *H. influenzae* cases by type\* and gender, Ireland, 2004-2013  
\* Typed includes b, e, f, not-b types

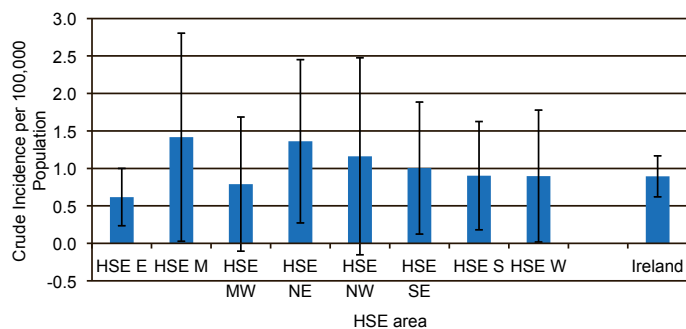


Figure 5. Crude incidence rates per 100,000 population with 95% confidence intervals for *H. influenzae* notifications by HSE area, Ireland, 2013

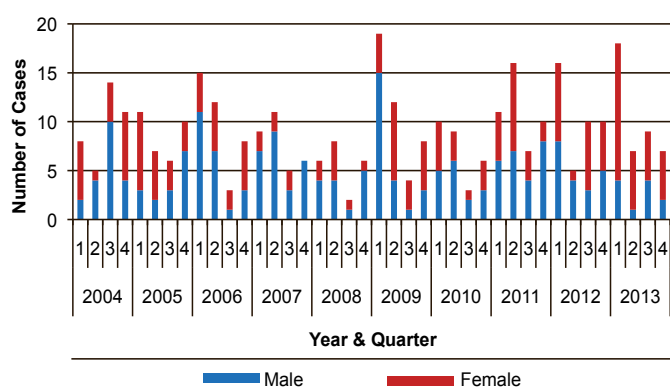


Figure 6. Number of *H. influenzae* cases by year/quarter and gender, Ireland, 2004-2013

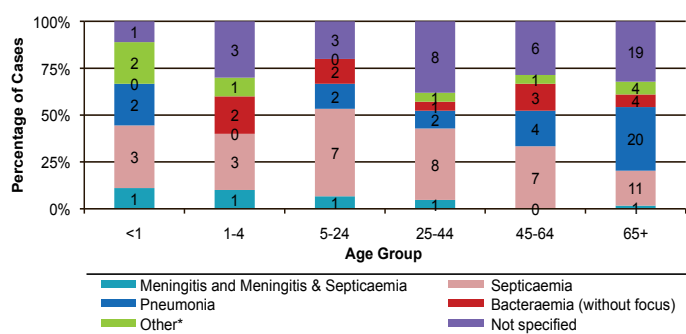


Figure 7. Percentage of *H. influenzae* non-typeable cases by age group and clinical diagnosis, Ireland, 2009-2013 (excludes two cases of unknown age)

\*Other category includes cellulitis, epiglottitis, septic arthritis and osteomyelitis and other not specified