

# 1.1 *Haemophilus influenzae* (invasive)

## Summary

Number of cases, 2009: 43  
Number of cases, 2008: 22  
Number of cases, 2007: 31  
Crude incidence rate, 2009: 1.0/100,000

In 2009, 43 cases of invasive *Haemophilus influenzae* disease were notified in Ireland (1.0/100,000 total population). This is a marked increase compared to the previous years when 22 and 31 cases were notified in 2008 and 2007, respectively (Figure 1).

The main changes in 2009, when compared to 2008, are the doubling in the overall number of cases due to non-typeable/non-capsular cases from 12 to 25, the increase in type e strains (four in 2009 compared to none in 2008), but also the continuing decline in the number of type b cases from five to one (Figure 1). No other noteworthy change in the number of cases due to other serotypes has been observed in recent years.

Non-typeable/non-capsular cases accounted for the majority of the invasive *H. influenzae* cases notified in 2009 (58%, n=25/43). The remaining cases were due to *H. influenzae* type b (2.3%, n=1), type e (9.3%; n=4), type f (7.0%; n=3) and isolates that were not typed (20.9%; n=9). The cases ranged in age from one

week to 88 years. The incidence rates were highest in infants <1 year (6.6/100,000) and those aged 65+ years (3.4/100,000) (Table 1).

Cases occurring in children <10 years of age (n=13) and elderly adults ≥65 years (n=16) accounted for 67% of all invasive *H. influenzae* notifications in 2009 (Table 1).

The clinical manifestations of invasive *H. influenzae* disease in the 13 children <10 years of age in 2009 were two cases of meningitis, two cases of pneumonia and one case each of meningitis/septicaemia and septicaemia. Clinical diagnosis was not reported for seven cases. A breakdown by clinical diagnosis for all age groups by year between 2004 and 2009 is presented in Table 2.

Two invasive *H. influenzae* related deaths were reported in 2009, both of which occurred in unvaccinated adults over 60 years of age. One had a non-typeable infection and was not the primary cause of death. The second death was associated with an untyped *H. influenzae* strain.

In 2009 one case of *H. influenzae* type b (Hib) occurred in an incompletely vaccinated four year-old child, who had received three doses of the 5 in 1 vaccine but not the Hib booster dose. In contrast, in 2008, five Hib cases were notified, three of which occurred in children ≤3

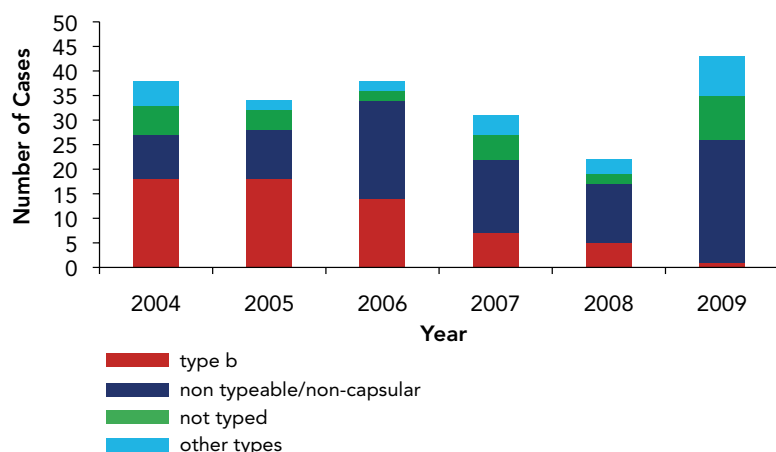


Figure 1. Annual number of invasive *Haemophilus influenzae* cases notified in Ireland, 2004-2009

years of age, with two cases occurring in infants <1 year and one in the 1-4 years age group. Of these three cases, two were vaccinated and one had received one dose of the Hib vaccine.

In 2009, no true Hib vaccine failures were reported, thus highlighting the positive impact the Hib booster catch up campaign has had in Ireland. This was also the case in 2008. In contrast, in 2007, two true Hib vaccine failures occurred in children aged 14 years or less, one of whom died from septicaemia. Both children received three doses of Hib vaccine when they were less than one year of age. Of note was the fact that one of the two true vaccine failures in 2007 occurred in a slightly older child, aged 10-14 years, who would not have been targeted by the catch-up programme.

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 at 2, 4 and 6 months of age. Vaccination is routinely recommended for those at increased risk of Hib disease.

The figures presented in this summary are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 7<sup>th</sup> July 2010. These figures may differ from those published previously due to ongoing updating of notification data on CIDR.

Table 1. Number and incidence rates of invasive *Haemophilus influenzae* cases by serotype plus number of Hib vaccine failures by age group, 2009

Age Group	Type b	Type e	Type f	Non-typeable/ non-capsular	Not Typed	Total	ASIR of Hib	ASIR of all <i>H.</i> <i>influenzae</i>	TVFs
<1	0	0	0	2	2	4	0.00	6.6	0
1-4	1	0	1	2	0	4	0.41	1.7	0
5-9	0	1	1	3	0	5	0.00	1.7	0
10-19	0	1	0	1	0	2	0.00	0.4	0
20-34	0	0	0	1	1	3	0.00	0.3	0
35-54	0	0	1	2	0	3	0.00	0.3	0
55-64	0	1	0	5	0	6	0.00	1.8	0
65+	0	1	0	9	6	16	0.00	3.4	0
All Ages	1	4	3	25	9	43	0.02	1.0	0
CIR	0.02	0.09	0.07	0.59	0.21	1.01	-	-	-

CIR, crude incidence rate per 100,000 total population

ASIR, age specific incidence rate per 100,000

TVFs, true Hib vaccine failures

Table 2. Number of invasive *Haemophilus influenzae* cases by clinical diagnosis, 2004- 2009

Clinical Diagnosis	2004	2005	2006	2007	2008	2009	2004- 2009	% of Total
Septicaemia	8	14	13	6	3	9	53	25.7%
Pneumonia	5	0	3	6	3	8	25	12.1%
Meningitis	3	9	3	2	2	2	21	10.2%
Epiglottitis	1	3	3	1	1	0	9	4.4%
Cellulitis	1	1	2	1	1	0	6	2.9%
Meningitis & septicaemia	1	0	1	0	1	1	4	1.9%
Osteomyelitis	1	0	0	0	0	0	1	0.5%
Septic arthritis	0	1	0	0	1	0	2	1.0%
Unknown	18	6	13	15	10	23	85	41.3%
<b>Total</b>	<b>38</b>	<b>34</b>	<b>38</b>	<b>31</b>	<b>22</b>	<b>43</b>	<b>206</b>	<b>100%</b>

Table 3. Incidence rates of invasive *Haemophilus influenzae* by HSE area, 2004-2009

HSE Area	2004	2005	2006	2007	2008	2009
E	1.1	1.0	0.9	0.8	0.5	0.8
M	0.5	0.5	0.2	0.5	0.3	0.5
MW	0.8	0.3	0.8	0.6	0.8	2.2
NE	0.2	1.1	0.2	0.0	0.0	0.2
NW	0.4	0.0	2.0	0.4	0.0	0.4
SE	1.3	0.5	1.0	1.3	0.8	1.3
S	3.0	0.8	3.4	0.8	1.7	3.4
W	0.5	1.4	0.7	1.4	0.5	1.2
<b>Ireland</b>	<b>0.9</b>	<b>0.8</b>	<b>0.9</b>	<b>0.7</b>	<b>0.5</b>	<b>1.0</b>