

1.1 *Haemophilus influenzae* (invasive)

Summary

Number of cases, 2008: 22
Number of cases, 2007: 31
Number of cases, 2006: 38
Crude incidence rate, 2008: 0.5/100,000

In 2008, 22 cases of invasive *Haemophilus influenzae* disease were notified in Ireland (0.5/100,000 total population). This a marked reduction compared to the previous years when 31 and 38 cases were notified in 2007 and 2006, respectively (Figure 1).

The main change in 2008, when compared to 2007, is the continuing, albeit slower, decline in the overall number of cases due to non-capsular and type b strains (Figure 1). No other noteworthy change in the number of cases due to other serotypes has been observed in recent years.

Non-capsular strains accounted for the majority of the invasive *H. influenzae* cases notified in 2008 (50%, n=11/22). The remaining cases were due to *H. influenzae* type b (n=5, 22.7%), type f (n=3), and three isolates that were not typed. The cases ranged in age from three weeks to 88 years. The incidence rates were highest in infants <1 year (8.2/100,000) and those aged 65+ years (1.7/100,000) (Table 1).

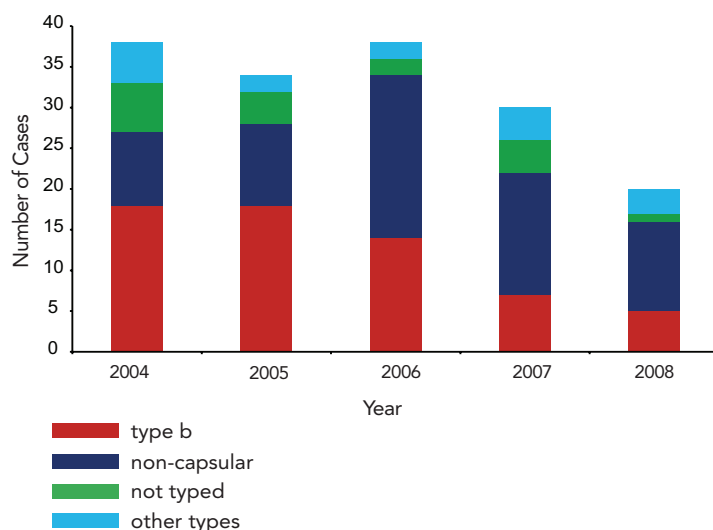


Figure 1. Annual number of invasive *Haemophilus influenzae* cases notified in Ireland, 2004-2008

Cases occurring in children <10 years of age (n=9) and elderly adults ≥ 65 years (n=8) accounted for 77% of the invasive *H. influenzae* notifications in 2008 (Table 1)

The clinical manifestations of invasive *H. influenzae* disease in the nine children <10 years of age in 2008 were two cases of meningitis and one case each of meningitis/septicaemia, epiglottitis, pneumonia and septic arthritis along with three cases where the clinical diagnosis was not reported. A breakdown by clinical diagnosis for all age groups by year between 2004 and 2008 is presented in Table 2.

Two invasive *H. influenzae* related deaths were reported in 2008, both of which occurred in adults over 65 years of age. One was associated with a type b strain and was the primary cause of death (the patient was unvaccinated). The second death was associated with a non-capsular *H. influenzae* strain.

H. influenzae type b (Hib) accounted for 23% of the invasive *H. influenzae* notifications in 2008, with five cases being notified (0.12/100,000 total population). Three of the five Hib cases (60%) occurred in children ≤ 4 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 unvaccinated and one had received one dose of the Hib vaccine. Similarly, in 2007, three of the seven Hib cases notified (42.9%) occurred in

children ≤4 years of age. In 2006, when 14 cases in total were notified, the number of Hib cases in children ≤4 years of age was five (35.7%). The introduction of a Hib booster catch-up campaign for children under four years of age in November 2005 and a routine Hib booster dose at 12 months in September 2006 is continuing to reduce the incidence of Hib disease in young children in 2008.

In 2008, no true Hib vaccine failures were reported, thus highlighting the positive impact the Hib booster catch up campaign has had in Ireland. 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.

In 2008, one apparent Hib vaccine failure occurred (in a child under one year of age), compared to none in 2007

and three in 2006. Apparent failures are defined as cases in children who are incompletely vaccinated.

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 8th July 2009. 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, 2008

	Type b	Type e	Type f	Non-capsular	Not Typed	Total	ASIR of Hib	ASIR of all <i>H. influenzae</i>	TVFs
<1	2	0	2	1	0	5	3.3	8.2	0
1-4	1	0	1	0	0	2	0.4	0.8	0
5-9	0	0	0	1	1	2	0.0	0.7	0
10-19	0	0	0	0	0	0	0.0	0.0	0
20-34	0	0	0	1	0	1	0.0	0.1	0
35-54	1	0	0	1	0	2	0.1	0.2	0
55-64	0	0	0	1	1	2	0.0	0.5	0
65+	1	0	0	6	1	8	0.2	1.7	0
All Ages	5	0	3	11	3	22	0.1	0.5	0
CIR	0.12	0.00	0.07	0.26	0.07	0.52	-	-	-

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- 2008

Clinical Diagnosis	2004	2005	2006	2007	2008	2004-2008	% of Total
Septicaemia	8	14	13	6	3	44	27.0%
Meningitis	3	9	3	2	2	19	11.7%
Septicaemia/ Meningitis	1	0	1	0	1	3	1.8%
Pneumonia	5	0	3	6	3	17	10.4%
Epiglottitis	1	3	3	1	1	9	5.5%
Cellulitis	1	1	2	1	1	6	3.7%
Septic arthritis	0	1	0	0	1	2	1.2%
Osteomyelitis	1	0	0	0	0	1	0.6%
Unknown	18	6	13	15	10	62	38.0%
Total	38	34	38	31	22	163	100%

Table 3. Incidence rates of invasive *Haemophilus influenzae* by HSE area, 2004-2008

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