

# Epidemiology and surveillance of meningococcal disease in 2005 and 2006 in France and overseas departments

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## Background

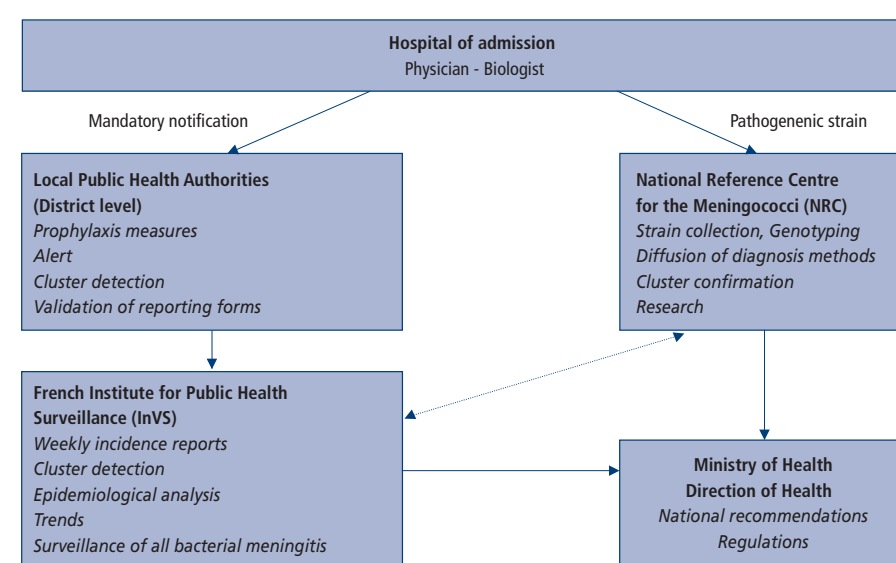
For more than 20 years in France, incidence rates of invasive meningococcal disease (IMD) have been varying from 1 to 2 cases per 100,000 inhabitants.

IMD incidence has been increasing each year from 1996 to 2003 and decreased in 2004. We describe the epidemiology of IMD in France in 2005 and 2006.

The completeness of the mandatory notification system has been regularly assessed with two or three sources capture-recapture analysis. It increased from 50% to about 90% between 1990 and 2005.

## Methods

### SURVEILLANCE NETWORK



### IMD CASE DEFINITION

Before July 2002: *N.meningitidis* strain isolated from blood or CSF or positive latex in blood, urines or CSF.  
 Since July 2002:

- *N.meningitidis* isolated from a sterile site;
- Gram-negative diplococci in CSF (microscopy);
- Purulent CSF and *N.meningitidis* antigens or positive PCR or cutaneous petechiae;
- *Purpura fulminans* (Waterhouse-Friderichsen syndrome).

### IMD CASE CLASSIFICATION

Laboratory confirmed case: one or more positive laboratory result (culture, latex, microscopy, PCR).  
 Clinical case: *purpura fulminans* or purulent CSF and cutaneous petechiae without any laboratory confirmation.

Analysis is compiled for 2005 and 2006. Incidence rates are corrected for under-reporting.

## Results

In 2005 and 2006, respectively 748 and 716 IMD cases were notified. Among them 7 and 6 were notified in overseas departments.

Over the 2005-2006 period, 1,353 (92%) were laboratory confirmed and 111 were clinical cases (8%). Non serogroup B IMD formed a larger proportion of cases in the  $\geq 50$  year olds.

FIGURE 1 IMD INCIDENCE RATE CORRECTED FOR UNDER-REPORTING, FRANCE, 1985-2006

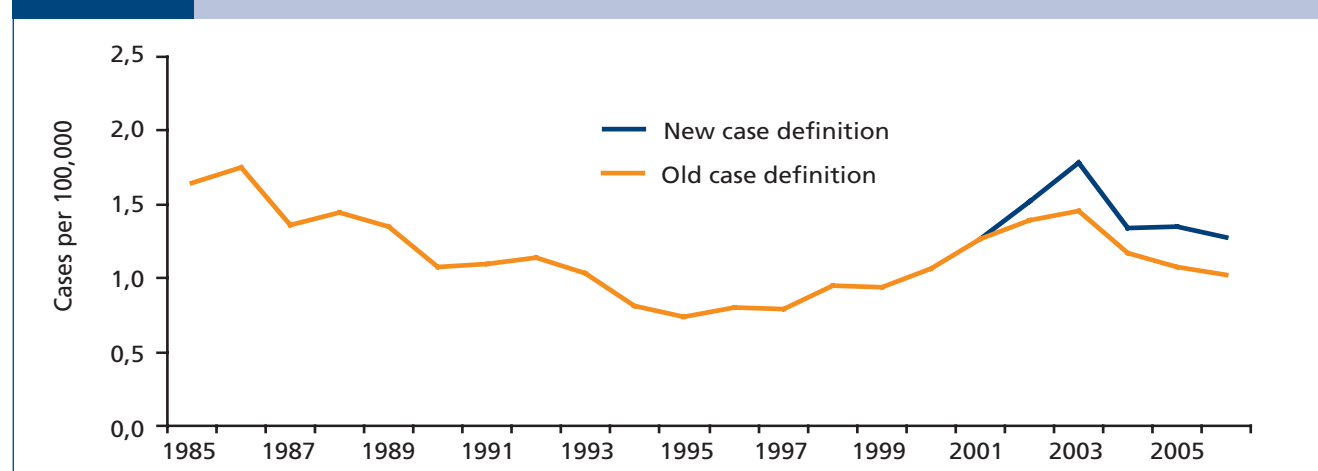
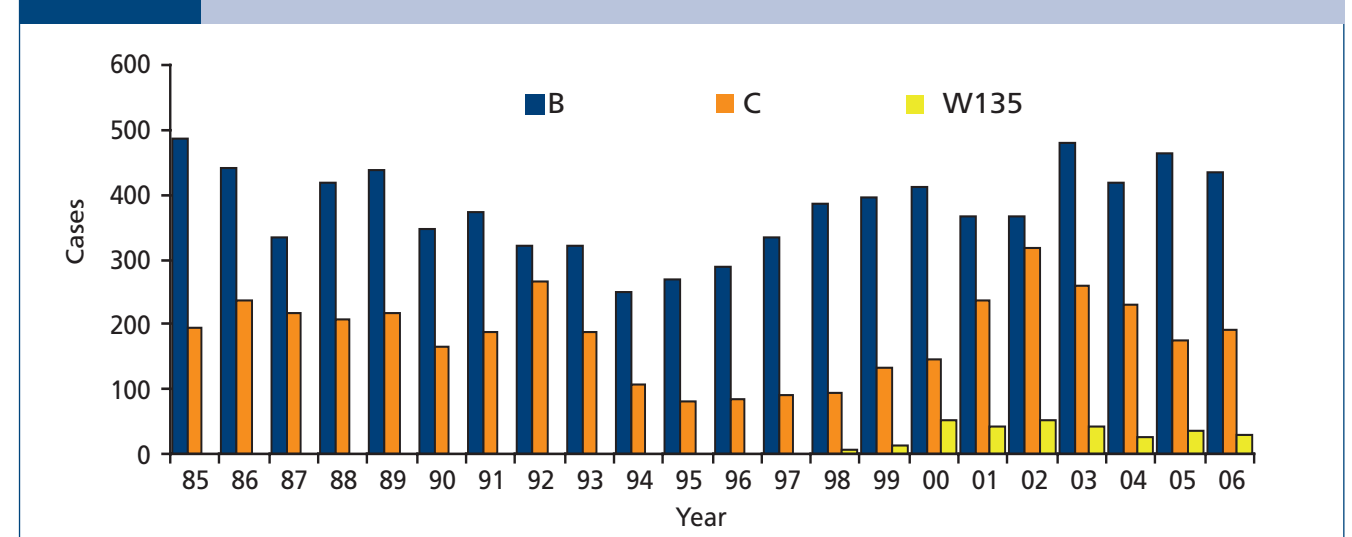


FIGURE 2 AGE SPECIFIC IMD INCIDENCE RATES, CORRECTED FOR UNDER-REPORTING, 2005-2006



In 2005 and 2006, the highest incidence rates were observed in the < 1 year age group (16.8 and 16.4/10<sup>5</sup>), in the 1-4 year olds (5.7 and 5.2/10<sup>5</sup>) and in the 15-19 year olds (3.2 and 3.0/10<sup>5</sup>).

FIGURE 3 EVOLUTION OF SEROGROUP B, C, W135 IMD CASES, CORRECTED FOR UNDER-REPORTING, 1985-2006



The number of serogroup B IMD cases increased between 2002 and 2005 whereas the number of serogroup C IMD cases decreased over the same period.

FIGURE 4 DISTRIBUTION OF IMD CASES BY SEROGROUP AND BY AGE, 2005-2006

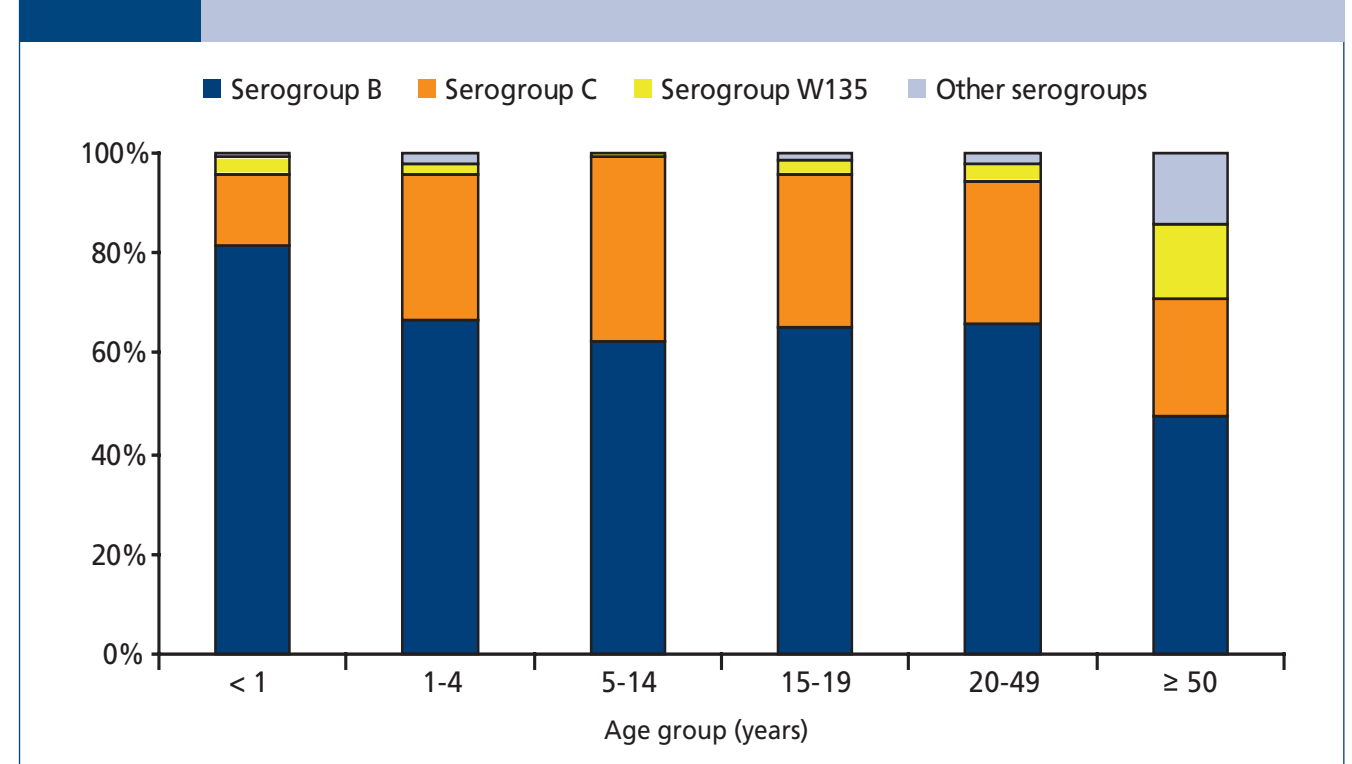
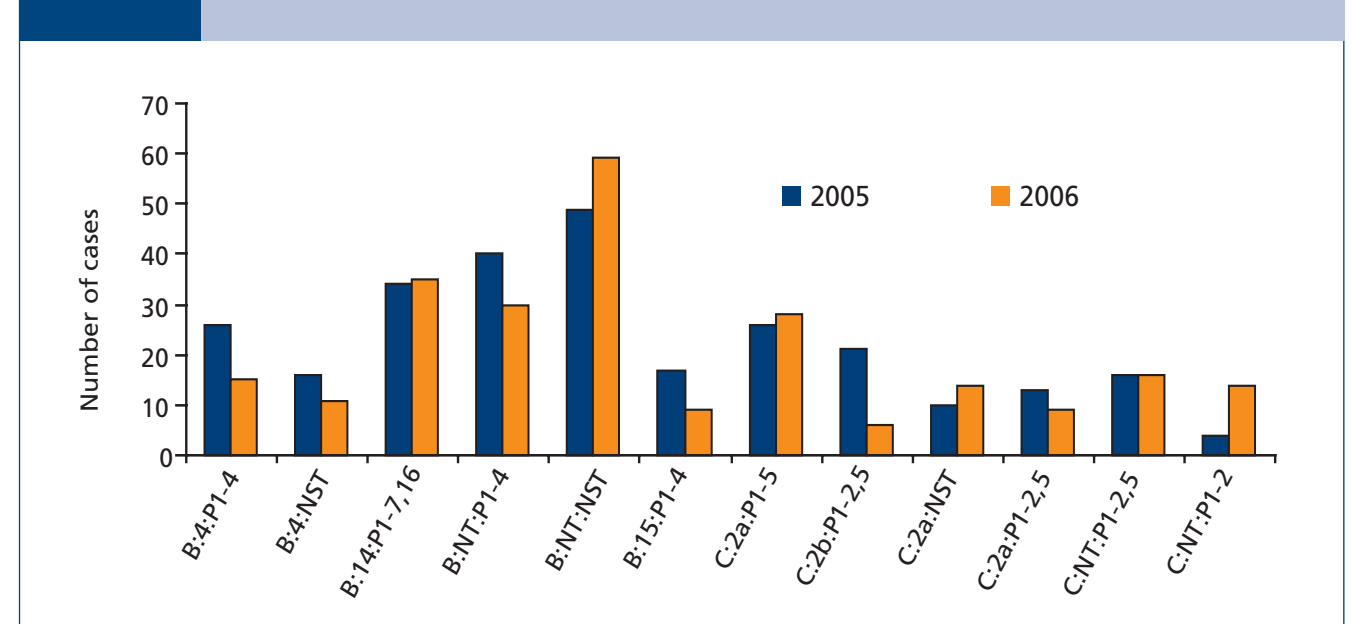


FIGURE 5 MAIN PHENOTYPES OF SEROGROUP B AND C STRAINS ISOLATED IN 2005 AND 2006



The serogroup B phenotypes varied over the years. In 2005 and 2006, the most common phenotype was B:NT:NST. For serogroup C, the most common phenotype was C:2a:P1.5.

TABLE 1 CASE FATALITY OF IMD CASES BY AGE AND SEROGROUP, 2005-2006

Age group	Serogroup B	Serogroup C	Global
< 1	9,9%	19,4%	11,9%
1-4	11,7%	5,7%	10,1%
5-14	4,2%	12,5%	7,7%
15-19	8,9%	15,0%	11,0%
20-49	8,5%	7,0%	7,9%
50 et +	19,7%	18,4%	19,2%
<b>Total</b>	<b>10,1%</b>	<b>11,7%</b>	<b>10,9%</b>

Case fatality is higher among cases with *purpura fulminans* (26% vs 4%,  $p < 0.001$ ).

## Conclusions

In 2005 and 2006, IMD-incidence rates were equal to 1.4 and 1.3 per 100,000 population respectively. In international comparison, IMD-incidence is low to moderate in France, with a predominance of serogroup B disease.

The number of reported serogroup C IMD cases decreased by 36% between 2002 and 2005 and increased by 10% in 2006 compared to 2005.

Since 2007, meningococcal PCR diagnostic on any sterile site has been included in the case definition.