

Epidemiological Surveillance of Meningococcal Disease in Poland in 2005-2006

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Background

- Historically epidemiological surveillance of IMD in Poland was constrained to meningitis cases.
- Invasive meningococcal disease (IMD) cases (including both meningitis and septicaemia) are reported to the statutory epidemiological surveillance system since 2004.
- Despite the systematic improvement of quality of information provided to the routine surveillance system, data from case-based investigations collected at the Department of Epidemiology and National Reference Centre for Bacterial Meningitis are not reconciled at the national level.
- The present paper aims at describing the diagnostic features of IMD surveillance based on individual case reports from 2005-2006.

Material and Methods

- Epidemiological surveillance is run by a network of public health departments (sanitary-epidemiological stations, SES) who conduct epidemiological investigation and implement control measures.
- Reporting by physicians diagnosing IMD cases is mandatory. Following the report public health officers are completing a report for each case, including demographic, clinical, diagnostic and exposure data.
- Case reports for the whole spectrum of IMD, available at the national level since 2005, were included in the present description.

Case classification used in Poland since January 2005

Clinical description

Clinical picture compatible with meningococcal disease, e.g. meningitis and/or meningococcaemia that may progress rapidly to purpura fulminans, shock and death. Other manifestations are possible.

Laboratory criteria for diagnosis

Isolation of *Neisseria meningitidis* from a normally sterile site (e.g. blood or cerebrospinal fluid (CSF) or, less commonly, joint, pleural or pericardial fluid)

Detection of *N. meningitidis* nucleic acid from normally sterile site

Demonstration of gram-negative diplococci from normally sterile site by microscopy

For probable case:

Single high titre of meningococcal antibody in convalescent serum.

Case classification

Possible: N.A.

Probable: A clinical picture compatible with invasive meningococcal disease without any laboratory confirmation, or with *N. meningitidis* identification from a non-sterile site, or with high levels of meningococcal antibody in convalescent serum.

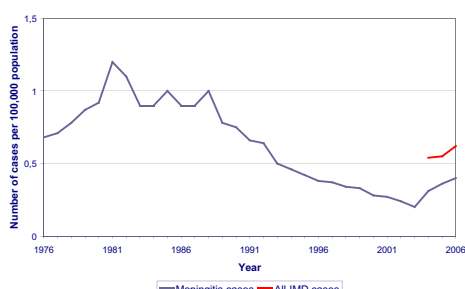
Confirmed: A clinically compatible case that is laboratory confirmed

Note that asymptomatic carriers should not be reported.

Results

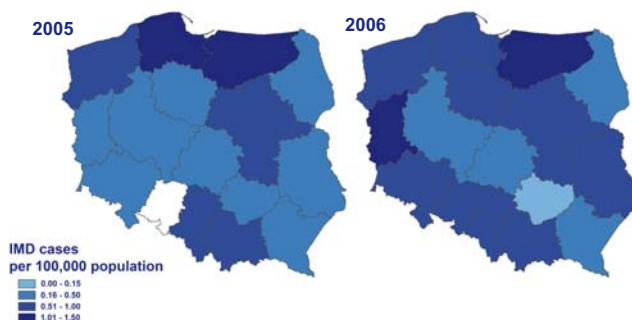
- Long-term monitoring of meningococcal meningitis incidence revealed its increase in 2003-2006 (Fig. 1).

Figure 1. Meningococcal meningitis incidence per 100,000, Poland, 1976-2006



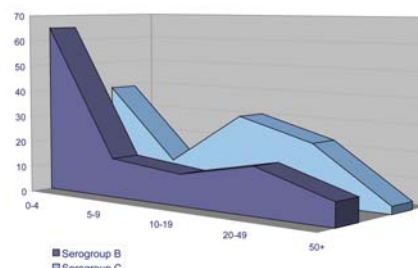
- There were 207 IMD case reports available from 2005 (incidence 0.54 per 100,000) and 233 reports from 2006 (incidence 0.62). The incidence varied across the country (Fig. 2).

Figure 2. Geographic distribution of IMD incidence, Poland, 2005-2006.



- The most common clinical syndromes were: meningitis (167 cases, 38%), septicaemia (153 cases, 35%) and meningitis with septicaemia (120 cases, 27%).
- Serogroup was established for 241 cases (55%): 119 cases (49%) were recognized as group B, 108 cases (45%) as group C, and 14 cases as other group (A, Y, or non-B) (Fig. 3).

Figure 3. Distribution of IMD cases by age and serogroup, Poland, 2005-2006 (n = 241).



- According to EU case definitions 357 cases (81%) were confirmed, 46 (11%) were probable, and 37 (8%) were discarded as not meeting diagnostic criteria.

Table 2. Case classification of IMD cases, Poland, 2005-2006.

Case classification	2005	2006
Confirmed	171 (82,6%)	185 (79,4%)
Demonstration of gram-negative diplococci	36 (21,1%)	26 (14,1%)
Isolation of <i>N. meningitidis</i> from CSF	105 (61,4%)	96 (51,9%)
Isolation of <i>N. meningitidis</i> from blood	77 (45,0%)	100 (54,1%)
Detection of <i>N. meningitidis</i> DNA by PCR	13 (7,6%)	11 (5,9%)
Probable	33 (15,9%)	13 (5,6%)
Discarded	3 (1,4%)	35 (15,0%)
Total	207 (100,0%)	233 (100,0%)

Conclusions

- Compared to previous years, a trend towards increase in IMD incidence can be observed.
- Increasing concerns related to recent serogroup C outbreaks might be the reason of improved completeness of reporting, and more common use of confirmatory tests, compared to previous years.
- Compared to previous years, a trend towards the increase of serogroup C proportion among serogrouped cases was detected, accompanied by increasing IMD incidence among teenagers and young adults.