

Austria 2006, Epidemiology and Surveillance of Meningococcal disease

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Aims:
 The National Reference Centre for Meningococci (NRCM) was founded by the Ministry of Health 1981 to monitor the serogroup and antibiotic resistance of meningococci isolated in Austria. This initial task was expanded over the years to include non-culture methods for diagnosis as well as phenotypic and genotypic identification. The NRCM has also become an important ally of public health departments with training options and guidance by meningococcal cluster and outbreak situations. Our aim is to achieve a comprehensive epidemiology and surveillance of meningococcal disease. With the non-culture methods, polymerase-chain-reaction (PCR) and serology, we want to achieve laboratory confirmation for those cases that otherwise would be classified as possible and therefore not notified.

Methods:
 Clinical and/or laboratory notification of meningococcal invasive disease (IMD) on the public health authorities is compulsory. The majority of the meningococci isolated in Austria are sent to the NRCM. The sender receives a report with the identification and antibiotic resistance testing results. The serogroup, sero- and serosubtype are defined by agglutination with monoclonal sera. The antibiotic resistance of the isolates is tested with E-test. The non-culture methods used are PCR in cerebro-spinal fluid, blood and post-mortem materials and serology.

Results:
 In the year 2006, 76 cases of IMD and 7 deaths were reported (Table 1). Austria has over 8 mills. residents with an incidence rate of 0.94/100,000 (Table 2). The case-fatality was 9.3% and the mortality rate 0.09/100000. 71 cases were laboratory confirmed. In 42.1% cases the diagnosis was confirmed with PCR. 5 cases were diagnosed only clinically. The serogroup distribution in all 76 cases was serogroup (SG) B 53.9%, SG C 32.9%, SG W135 6.6% and SG Y 1.3% (Table 3). In 5.3% of the cases the serogroup was unknown. The seven deaths were four serogroup C, two serogroup B and one serogroup W135. The allocation of the serogroups to the age groups is shown in Table 4. The clinical presentation was 44.7% meningitis, 25% septicaemia, 27.6% meningitis/ septicaemia combined and 2.7% other diagnoses. In 55 cases of the 76 laboratory confirmed invasive diseases we received isolates. The sero- and serosubtype distribution of the isolates was extremely diverse. By the 29 SG B isolates 16 different antigen formulae were determined. The 22 serogroup C isolates showed six sero- and serosubtype combinations. The five W135 all had different antigen formulae. In many cases the serosubtype was nontypable.

Table 1

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
IMD	87	104	76	97	85	105	88	82	88	106	76
SG B	47	53	38	49	45	52	41	44	49	53	41
SG C	14	20	18	15	16	38	19	14	19	25	25
SG Y	0	0	0	0	0	1	0	0	0	1	0
SG W135	0	0	0	0	0	0	0	0	0	0	0
Serogroup X	0	0	0	0	0	0	0	0	0	0	0
Serogroup NGA	0	0	0	0	0	0	0	0	0	0	0
Serogroup unknown	13	16	10	11	14	10	14	11	10	22	10

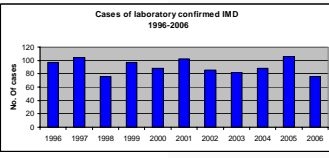


Table 2

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Gesamt	1.2	1.3	0.96	1.2	1.1	1.3	1.06	1.02	1.09	1.3	0.9

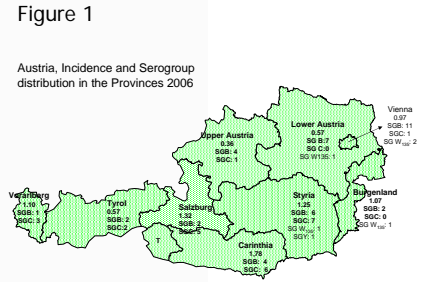
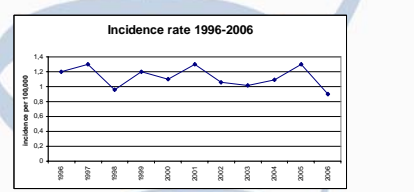


Table 3

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
SG B	41.5	44.4	35.8	37.3	39.3	45.2	45.2	45.4	45.4	45.4	45.4
SG C	15.6	24.4	22.1	15.1	17.6	24.3	21.4	20.3	22.1	23.9	28.7
SG Y	0	0	0	0	0	1.3	0	0	0	2.5	0
SG W135	0	0	0	0	0	0	0	0	0	0	0

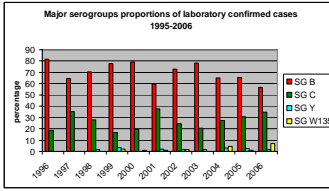
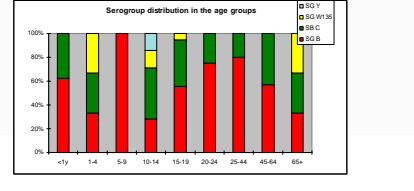


Table 4

	<1y	1-4	5-9	10-14	15-19	20-24	25-44	45-64	65+
SG B	62.5	33.3	100	28.5	52.6	75	57.1	50	33.3
SG C	37.5	33.3	0	42.9	36.8	25	14.3	37.5	33.3
SG W135	0	33.3	0	14.3	5.2	0	0	0	33.3
SG Y	0	0	0	14.3	0	0	0	0	0



Conclusions:
 The overall incidence 2006 with 0.94 is the lowest in Austria since 1998. In the different provinces we have variation in the incidence from 0.36 in upper Austria to 1.78 in Carinthia (Figure 1). The overall decrease in IMD, compared to 2005, is solely due to a reduction in serogroup B disease and non-laboratory confirmed cases. Although there is an overall decrease from 30% (2005: 106; 2006: 76), serogroup C disease remained the same (2005 und 2006: 25 cases.) and W135 increased (Table 3). Remarkable is also the regional distribution of the serogroup C cases (Figure 1). In the provinces lower Austria and Burgenland no serogroup C cases were registered. In Burgenland this could be due to an active MenC vaccination program in the schools. In the provinces Salzburg and Carinthia an abrupt rise in serogroup C cases compared to 2005 was registered. In the province Salzburg no special pattern was detected. In Carinthia, the serogroup C cases were restricted to three neighbouring regions. C: 2a:P1.7-2,13-1,35-1 and C:2a:P1.5,2,36-2 were the two strains responsible for all cases in these three regions. Closer relationships or contacts between the cases were not found, but the public interest was aroused and each new case became press coverage. The public health authority defined the risk population and found an incidence of 17/100.000 in this group. The consequence was that the public health authority issued a strong recommendation for MenC vaccination.