

## Background

The National Reference Centre for Meningococci (NRCM) was founded by the Ministry of Health about 30 years ago. It has been situated in Graz on the former Federal Institute for bacteriological and serological studies and now Austrian Agency for Food and Health Safety since 1981. The strain collection dates back to 1988. The National Reference Centre for Meningococci (NRCM) relies on a reporting system that combines a laboratory reporting system with clinical and local health authority notifications. Austria does not have a high incidence of meningococcal disease. It is therefore important to raise the awareness for the disease in the minds of the public and especially the local physicians with information, workshops and personal contacts.

Since 1995 a yearly report is sent to the Ministry of Health, public health authorities, clinical laboratories and interested persons. Over the years the initial passive mandate to monitor nationwide meningococcal disease has developed into an active surveillance system that offers support to hospitals, laboratories and public health authorities in all problems pertaining to meningococcal disease.

## Methods

Clinical and/or laboratory notification is compulsory in Austria. The majority of meningococci isolated including carrier strains are sent to the NRCM. The serogroup, serotype, serosubtype and antibiotic resistance of all strains is determined and a report is sent to the laboratory. With the strains or samples we receive information to birthday, address, begin and outcome of disease, antibiotic therapy, clinical diagnosis and basic symptoms. To raise the number of laboratory confirmed cases the NRCM offers free of charge since 1995 the nonculture methods serology and PCR to all hospitals.

From the public health authorities we receive notifications of meningococcal disease. These notifications are reconciled with the strains and notifications from the clinical laboratories. Where no strain has been sent to the NRZM, the hospital is contacted personally. The possibility of nonculture confirmation is discussed and a clinical record is requested. About 10-15% of the cases are diagnosed on the basis of clinical symptoms only. To determine the level of our case ascertainment a capture-recapture analysis was done in 2002. This analysis showed that 87.4 % (83 from 95 cases) was reported originally to the NRCM.

## Results

In the year 1995 it became compulsory to notify not only meningitis but all invasive disease. Since then the rate of invasive meningococcal disease in Austria varies between 80-100 notified cases per year (Table 1) with an incidence between 0.95 and 1.2 per 100 000 population (Table 2). We have mainly sporadic cases, clusters are seldom. The year 2004 was very typical for Austria with 88 cases of meningococcal disease reported and an incidence rate of 1.09. 7 deaths were registered which gave a case-fatality rate of 7.9% and mortality rate of 0.09/100 000. The distribution of the serogroups from 1995 to 2004 is shown in table 3. The highest percentage of serogroup C was registered 2001 with 39.8%. All isolates are tested with E-test for antibiotic resistance to penicillin, rifampicin, ciprofloxacin and ceftriaxon. No resistant strains have been found.

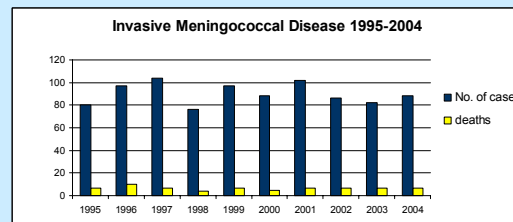


Table 1

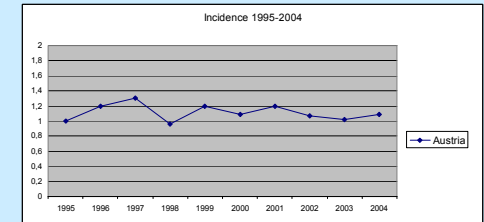


Table 2

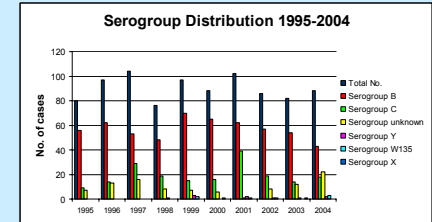


Table 3

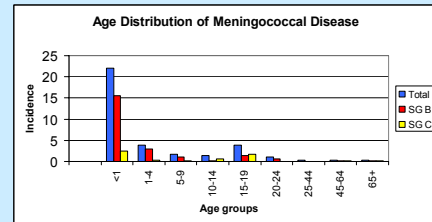


Table 4

## Conclusions

The incidence in Austria is between 0.95 and 1.2 always around the baseline of the middle category. The average case fatality rate is 7.2%. The major serogroup 2004 is again B with 50% and about 20% serogroup C. There is no major serotype being isolated. 2004 with 54 isolates 25 different sero-/serosubtypes were identified. The age distribution shows 34% of invasive meningococcal disease in the 0-4 year olds and 72% of all cases are < 20 years. The highest incidence is in the age group <1 year with 22.06/100.000. The age groups 1-4 and 15-19 have respectively 3.9/100.000 persons. 18% of the cases were confirmed with non-culture methods.