

DANMAP 2004

**DANMAP 2004 - Use of antimicrobial agents and
occurrence of antimicrobial resistance in bacteria from
food animals, foods and humans in Denmark**



**Statens Serum Institut
Danish Veterinary and Food Administration
Danish Medicines Agency
Danish Institute for Food and Veterinary Research**



Report 2

Staphylococcus aureus* bacteraemia and methicillin-resistant *S. aureus

In Denmark, nationwide surveillance of *Staphylococcus aureus* bacteraemia and of methicillin-resistant *S. aureus* (MRSA) is performed through referral of isolates from the local clinical microbiology laboratories to the Staphylococcus Laboratory, Statens Serum Institut. Clinical and epidemiological information regarding cases is retrospectively requested from hospitals and general practitioners.

In 2004, *S. aureus* bacteraemia isolates were submitted by 15 of the 16 local clinical microbiology laboratories, whereas MRSA isolates from bacteraemia and all other types of infection were submitted by all laboratories. Based on the clinical information, MRSA isolates were classified as "screening" or "infection" and according to origin ("imported", "hospital acquired", "community onset", or "unknown"). Community onset MRSA infections were further divided according to risk factors ("healthcare associated", "community risk", or "no apparent risk" (for further details see Faria *et al.* J. Clin. Microbiol. 2005;43:1936-42)). Only new cases, i.e. without recorded prior isolation of MRSA since 1997, are reported. The results of this surveillance are published annually and can be found at <http://www.ssi.dk/sw3425.asp>.

In 2004, a total of 1,575 *S. aureus* bacteraemia cases were reported corresponding to an incidence of 0.306/100,000 inhabitants. This is the highest number of *S. aureus* bacteraemia cases yet reported in Denmark.

In 2004, a total of 550 new MRSA cases were found and the numbers has thereby doubled each of the last two years. The number of new MRSA cases is now 10 times higher than in the mid-1990s (Figure 1). Seventy-four percent of the cases were infections, whereas active screening accounted for 26% of cases. Ninety percent of infections were acquired in Denmark. The distribution of all cases according to origin is shown in figure 2. Sixty-two percent of the infections had a community onset and 41% of the infections were considered to be community acquired (CA-MRSA), i.e. community onset with community risk or no risk factor. CA-MRSA infections mainly were skin and soft tissue infections (88%). Among the 116 hospital acquired MRSA infections, 24% were bacteraemias or deep wound infections. Overall, the number of MRSA bacteraemia cases has increased from 7 (0.5% of *S. aureus* bacteraemia cases) in 2003 to 19 (1.2%) in 2004, which is the highest reported number since the mid-1970s.

In conclusion, both the number of *S. aureus* bacteraemia cases and the number of MRSA infections has increased in Denmark. The latter is of utmost concern as it confirms the increase in MRSA cases reported in 2003. This increase is predominantly seen in the community and parallels the increase in MRSA seen in other low prevalence countries with a "search and destroy" MRSA policy. However, the increase in MRSA in Denmark is also observed for hospital acquired infections, where it is responsible for severe infections including bacteraemia. In response to the increase in and the changing epidemiology of MRSA in Denmark, the national guidelines for control of MRSA are presently being revised and efforts are made to make reporting of MRSA infection and carriage mandatory.

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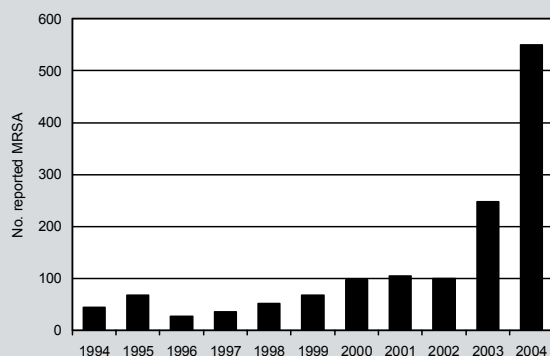


Figure 1. Reported methicillin-resistant *Staphylococcus aureus* (MRSA), Denmark, 1994-2004.

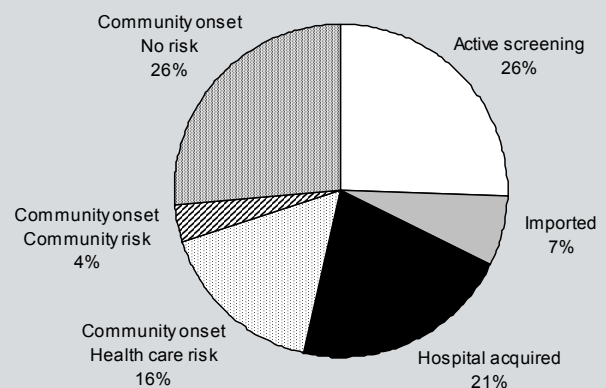


Figure 2. Distribution of reported methicillin-resistant *Staphylococcus aureus* (MRSA) according to origin, Denmark, 2004.