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Abstract (poster session)

Population dynamics of community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) isolates in Denmark 2007-11

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Objectives: Since November 2006 MRSA has been a notifiable disease in Denmark, which imply that general practitioners and hospital doctors have submitted clinical information to the National Reference Laboratory for Staphylococci at Statens Serum Institut. In the period 1999-2006 a large expansion of the European community associated MRSA clone CC80 was observed and in the same period the first cases of the CA-MRSA USA300 appeared. The objectives were to describe the epidemiology and dynamics in the population structure of the predominant CA-MRSA clones from 2007 to 2011 based on the national surveillance of MRSA. **Methods:** In the period 2007-2011 all MRSA cases were spa typed, tested for antimicrobial susceptibility and tested for presence of the PVL encoding gene lukF-pv. All MRSA cases were classified into the categories Imported (IMP), Hospital acquired (HA), Community-onset but with a healthcare association (HACO) or Community-acquired (CA) from the clinical information. Based on spa types and presence of pvl genes the frequency of predominant CA-MRSA clones (ST8, ST30, ST59, ST80, CC93, CC398) was determined. **Statistics:** Pairwise comparisons (chi-square) with $p < 0.05$ regarded as statistically significant. **Results:** A total of 4,729 MRSA isolates were identified from 2007-11 in Denmark. The annual numbers of new MRSA cases (including both infections and from asymptomatic carriage) almost doubled: 2007 (N=663) and 2011 (N=1,293). CA-MRSA accounted for 2,573 new MRSA cases in the period and increased significantly from 336 in 2007 to 751 in 2011. The proportion of CA-MRSA isolates from infections compared to healthy carriage was rather stable (Mean: 54.5%; range 48.6% - 61.5%). 1,542 (32.6%) cases could be assigned to six predominant CA-MRSA clones: CC8 (N=333); CC30 (N=297); CC59 (N=65); CC80 (N=316); C97 (N=135); CC398 (N=396). The live stock associated CC398 increased more than 10-fold in the study period from 14 in 2007 to 163 in 2011 ($P < 0.001$). A statistically significant increase was also observed for MRSA belonging to CC97 and CC8 ($P < 0.001$) compared to the general increase among all MRSA cases, whereas CC80 did not increase in frequency. **Conclusion:** In the study period a large increase in MRSA was observed. Six major CA-MRSA clones accounted for one third of all MRSA cases in Denmark, with a significant increase in the frequency of CC8:t008 pvl+ (USA300), CC97 and LA- CC398 MRSA. Thus, a shift in predominant strains has occurred in the study period.