

15 YEARS OF METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* EPIDEMIOLOGY IN DENMARK, 2007 TO 2021

– TRENDS AND PERSPECTIVES FROM THE MANDATORY NOTIFICATION

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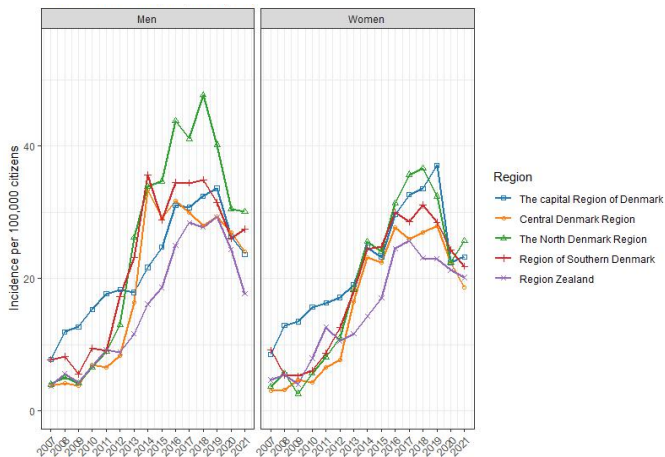


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Background

In Denmark, methicillin-resistant *Staphylococcus aureus* (MRSA) has been individually notifiable since 2006 from both patients and healthy carriers. The national guideline on MRSA has been revised twice, 2012 and 2016, to encompass changes in the epidemiology. The aim of this study was to investigate the overall trends in 15 years MRSA-epidemiology.

MRSA incidence per year per region

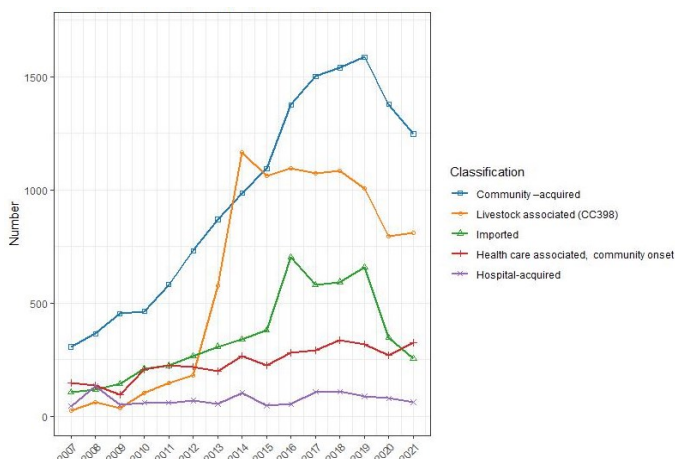


Results

Since MRSA became notifiable, the number of cases have increased six-fold (2007: n=635, 2019: n=3661) with MRSA incidences between 12.0 and 63.1 (2007-2019) and significant regional differences ($p < 0.0001$). Most cases were classified as CA (34.4% to 58.1%, 2007-2019) and with the overall highest number of infections, compared to other classifications ($p < 0.0001$).

The covid-19 pandemic caused an expected decrease in cases (both CA and imported). The age-group < 1 years has a significantly higher number of cases (increasing from 24.2 in 2007 to 263.6 in 2019) compared to all other ages ($p < 0.001$). LA-MRSA increased due to enhanced screening activity in humans from 2012; from 27 cases (2007) to 1166 cases (2014).

MRSA incidence per year per age group



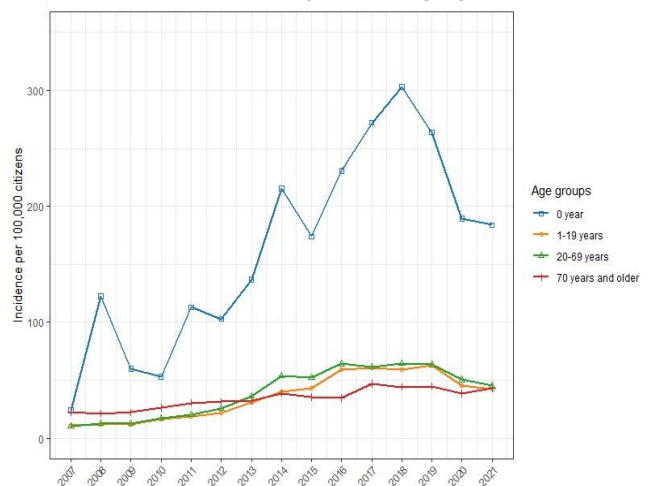
Methods

Data from individual notifications manually submitted from physicians and data from bacterial isolates submitted from the regional clinical microbiological departments (KMAs) to Statens Serum Institut (SSI), 2007 to 2021. Demographic data from Statistics Denmark.

MRSA incidences per 100.000 inhabitants were calculated by year and by region. Cases were stratified by sex (male/female), age-group (< 1 yr, 1-19, 20-69 and > 70 years, epidemiological classification; hospital-acquired, health care associated - community onset, imported, livestock associated (LA-CC398) and community-acquired (CA), and reason for sampling (screening or infection).

Descriptive statistics were used to describe data and Poisson models were used to test for differences in numbers of cases between various determinants using population size as offset.

MRSA incidence per year per age group



Conclusion

The national health services' efforts to limit the spread of MRSA in hospitals have been successful, although neonatal outbreaks are observed. CA-cases have increased to one-third of all cases. MRSA transmission patterns in the community needs further investigation.

Acknowledgements

Thanks to all health care staff reporting MRSA cases, to all regional KMAs to submit isolates to SSI, and to all SSI-staff handling notifications and MRSA isolates.