Methicillin resistant *S. aureus* in German university hospitals: Changes in Resistance 2002-2005

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**Objectives**

During the 1990s, the prevalence of methicillin resistant *S. aureus* (MRSA) increased in German hospitals while resistance phenotypes changed with a decrease in the number of resistance markers. We want to examine the changes in resistance in MRSA during recent years using the dataset of the GENARS project (German Network for Antimicrobial Resistance Surveillance), a prospective multi-center surveillance study designed to provide epidemiological data for German university hospitals.

**Methods**

Analysis was based on non-duplicate isolates of MRSA from five laboratories with continuous data collection from January 2002 to December 2005. Antimicrobial susceptibility was determined as minimal inhibitory concentrations by broth microdilution method performed by automated quality controlled test systems for antibiotics of various classes. Resistance rates were evaluated by using breakpoints according to DIN guidelines.

**Results**

The percentage of *S. aureus* isolates (n=24,152) tested as resistant to oxacillin increased from 9.4% in 2002 to 13.5% in 2005 with considerable variation between hospitals. A total of 3,048 MRSA isolates was analysed. Resistance rates to ciprofloxacin (CIP), erythromycin (ERY) and clindamycin (CLI) remained on a very high level with little fluctuation, whereas the already low rates for doxycycline (DOX), rifampicin (RAM) and quinupristin/dalfopristin (SYN) tended to decline. For gentamicin (GEN) there was a significant decrease from 31.3% in 2002 to 18.1% in 2005 (Chi²=58.75; p<=0.001). Besides this overall trend there was substantial variation between hospitals as shown in figure 1:

**Conclusions**

Data from the GENARS project confirm changes in resistance phenotypes of MRSA reported for the 1990s. Within the observed period from 2002 to 2005, the decrease of MRSA strains carrying resistance to gentamicin has been continuous. However, the situation at the local level may differ substantially from the overall trend.

**References**

(1) Wille W., Brandl C., Heas D., Uwe C. Methicillin resistant *Staphylococcus aureus* in German hospital development over strains of antimicrobial resistance. *Kurzbericht 2005. 3(J):27-34.