CORRESPONDENCE

The Reduction of Nosocomial MRSA Infection in Germany: An Analysis of Data From the Hospital Infection Surveillance System (KISS) Between 2007 and 2012

PD Dr. med. Elisabeth Meyer, Christin Schröder,
Prof. Dr. med. Petra Gastmeier, Dr. med. Christine Geffers in issue 19/2014

Different Study Methods

According to the available data, the number of participating intensive care units increased by 180 and that of surgical wards by 249, whereas the total increase in cases of nosocomial infection due to *Staphylococcus aureus* came to 202, with the proportion of MRSA infection reduced from 32.8% to 26.4%. What was not explained was the extent to which the structure of participating institutions might have changed over the time period—that is: has the relative proportion of wards and departments from medical centers offering the complete range of healthcare services, with a high proportion of high-risk patients, fallen as a result of an increase in participation by medical centers with a lower proportion of high-risk patients? Does an association exist between the change in participants and the differences in occurrence in the German federal states? Reviewing the situation under the aspect of population density cannot provide any further clues as to the reasons of the increased proportions of MRSA among the *S aureus* population if a state such as North Rhine-Westphalia is compared with Mecklenburg-Western Pomerania. Different study methods may also be relevant in terms of the described differences in MRSA rates in south Brandenburg and Saarland (0.8% *vs* 2.2%) (1, 2). Further possible reasons for regional differences include population structures with regard to age and comorbidity, or the ratio of healthcare personnel to patients. The question of how the epidemiological changes in Barden-Württemberg should be interpreted remains unanswered. The increase in urinary tract infections and "sepsis" between 2011 and 2012 also remains unexplained.

The analysis of infections caused by bacterial pathogens with special resistance mechanisms allows for important insights in dealing with such infections and approaches to preventing them. I doubt whether that would be possible by using the data presented by the authors. The crucial issue has always been the analysis of the local epidemiology, the risk factors for MRSA colonization or infection, the type and extent of screening and hygiene measures, and the engagement of all relevant parties.

DOI: 10.3238/arztebl.2014.0615a

REFERENCES

1. Van Horn KG, Audette CD, Tucker KA, Sebeck D: Comparison of 3 swab transport systems for direct release and recovery of aerobic and anaerobic bacteria. Diagn Microbiol Infect Dis 2008; 62: 471–3.
2. Smismans A, Verhaegen J, Schuermans A, Frans J: Evaluation of the Copan ESwab transport system for the detection of methicillin-resistant Staphylococcus aureus: a laboratory and clinical study. Diagn Microbiol Infect Dis 2009; 65: 108–11.
3. Meyer E, Schröder C, Gastmeier P, Geffers C: The reduction of nosocomial MRSA infection in Germany—an analysis of data from the Hospital Infection Surveillance System (KISS) between 2007 and 2012. Dtsch Arztebl Int 2014; 111: 331–6.

Prof. Dr. med. habil. Dr. med. Wolfgang R. Heizmann
Arzt für Mikrobiologie und Infektionsepidemiologie,
Bad Griesbach
orgamed.consulting@aol.de

Large Numbers Do not Make for Great Science

The presented data on time trends are essentially summarized in Table 1. Every two-year period represents a different group of institutions, so that a comparison without detailed confirmation of homogeneity of the compared groups of intensive care units and surgical wards is not actually valid. From a statistical perspective, the given baseline population differs in each period. Their similarity could be made plausible on the basis of the KISS data, but the authors omitted to do this. I was perplexed by the small rise in confirmed cases of S. aureus infections which was below 10% from 2007/2008 to 2011/2012, while during the same time period the numbers of participating institutions rose by 38% and 57%. This is obviously due to the effect of relevant variables that were ignored but would have deserved attention; instead, discrete changes of the absolute and relative incidence of nosocomial MRSA infections were focussed on that cannot be interpreted in any meaningful way because of the lack of background information.

DOI: 10.3238/arztebl.2014.0615b

REFERENCES

1. Meyer E, Schröder C, Gastmeier P, Geffers C: The reduction of nosocomial MRSA infection in Germany—an analysis of data from the Hospital Infection Surveillance System (KISS) between 2007 and 2012. Dtsch Arztebl Int 2014; 111: 331–6.

Dr. med. Andreas Heer-Sonderhoff
Diakoniekrankenhaus Friederikenstift,
Hannover
a.s.sonderhoff@gmx.de

In Reply:

Heer-Sonderhoff criticized the fact that the baseline totals of intensive care units and surgical wards did not remain the same, but actually increased, over the six-year time period. We therefore redid our calculations, including only the wards/departments that continuously provided data throughout. The results are comparable: the proportion of MRSA among nosocomial *S aureus*

infections fell—still significantly—in our new analysis: from 33% MRSA in 2007 to 27% in 2012 (wound infections from 21% to 16%, sepsis from 37% to 32%, and respiratory tract infections from 37% to 31%).

Heizmann requested for the following parameters to be analyzed in order to explain the regional differences: differences over time in the structure of participants, in the federal states' population density, in the study methods, and in the ratio of patients to healthcare personnel.

These parameters either did not change or did not affect our results, or they were not retrieved. The composition remained the same over time: university medical centers accounted for 7% in 2007 and 6% in 2012.

Furthermore, our results remained the same when only participating institutions were included that provided continual data. Our study investigated only the proportions of nosocomial MRSA infections; the population density in individual states is of absolutely no relevance in this setting. We did not retrieve the study methods and the ratio of patients to healthcare staff, but we do not believe that they would be so drastically different in different federal states as to provide an explanation for the regional differences. The age dependency ratio (number of patients aged 65 and older/100 patients aged 20–65) was lowest in Berlin in 2008, at 29, although the proportion of MRSA among cases of nosocomial S aureus infection was significantly higher than in other German states. By contrast, the age dependency ratio in Brandenburg was high, at 35, although the proportion of MRSA was significantly lower (1). This cannot be the reason for the regional differences—large regional differences, which have also been described for countries such as the US and Switzerland.

DOI: 10.3238/arztebl.2014.0615c

REFERENCES

1. Statistisches Bundsamt: www.destatis.de/laenderpyramiden/ Last accessed on 2 July 2014
2. Meyer E, Schröder C, Gastmeier P, Geffers C: The reduction of nosocomial MRSA infection in Germany—an analysis of data from the Hospital Infection Surveillance System (KISS) between 2007 and 2012. Dtsch Arztebl Int 2014; 111: 331–6.

PD Dr. med. Elisabeth Meyer
Klinikhygiene, Klinikum München
Elisabeth.Meyer2@klinikum-muenchen.de

Conflict of interest statement
The authors of all contributions declare that no conflict of interest exists.