

Recent patterns of antibiotic use in 150 acute care hospitals in Germany – no correlation of drug use density with hospital size

#P1166

Katja de With^{1,2}, Anna Christoph¹, Gesche Först^{3,4}, Michaela Steib-Bauert³, Matthias Fellhauer^{5,6} and Winfried V. Kern^{3,7}

¹Clinical Infectious Diseases and Antimicrobial Stewardship Unit, Carl Gustav Carus Technical University Hospital, Dresden, ²DGI-German Society for Infectious Diseases, Berlin, ³Division of Infectious Diseases, and ⁴Pharmacy Service, University Hospital & Medical Center, Freiburg, ⁵Pharmacy Service, Schwarzwald-Baar-Klinikum Villingen-Schwenningen, ⁶ADKA-Bundesverband Deutscher Krankenhausapotheker, Berlin, ⁷Albert-Ludwigs-University Faculty of Medicine, Freiburg, all in Germany

Background

Continuous hospital-wide antibiotic use surveillance has recently been established in Germany. Participating hospitals contribute on a voluntary basis (see www.antiinfektiva-surveillance.de). Feedback reports for benchmarking stratified according to hospital size (<400 beds, 400-80 beds, >800 beds) are provided every year.

The aim of the present study was

- to describe the level of antibiotic use in pediatric and psychiatric services compared with core service use
- to describe patterns and estimate proportions of intensive care unit and normal ward drug use per total use, and
- to reassess the impact of hospital size on drug use density.

Methods

Electronically delivered quarterly consumption data are transformed into “recommended” (hospital-adapted) daily doses (RDD) (www.antiinfektiva-surveillance.de) and expressed as RDD per 100 patient days (RDD/100).

Hospital type/size	n	DDD/100		
		Median	Interquartile range	
Non-university hospitals	135	53,6	46,0	62,2
<400 beds	83	53,6	47,1	63,5
400-800 beds	37	52,1	44,4	59,6
>800 beds	15	57,0	48,7	61,4
University hospitals	15	73,8	68,7	82,6

WHO-DDD (version 2016) were also calculated.

We here describe the most recent analysis for acute care hospitals (n=150) that delivered complete data for at least four consecutive quarters in 2014/15.

Results

The 2014/15 sample included 135 non-university hospitals (with a median number of 331 beds [IQR, 201 to 513]) and 15 university hospitals.

Use densities were:

- psychiatric services 2.8 RDD/100 (n=44)
- pediatric services 25.5 RDD/100 (n=65)

These services contributed 0.7% and 3.6%, respectively, to the total RDD reported.

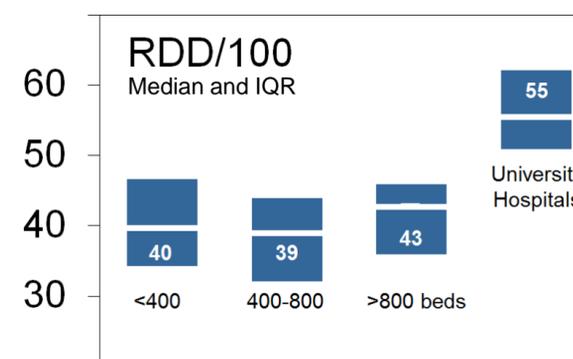
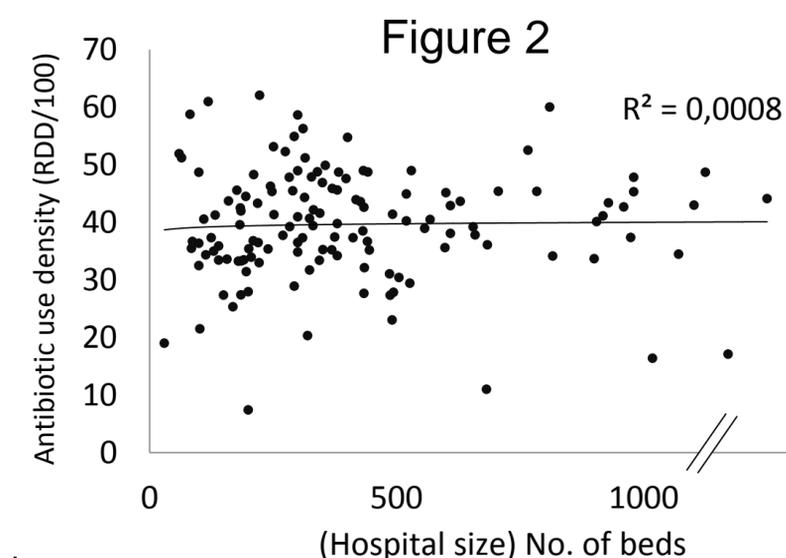


Figure 1

Median yearly antibiotic use density in the core services (psychiatry and pediatrics excluded) was 40.4 RDD/100 (IQR 34.1 to 45.9) with a significant difference between university and non-university hospitals in overall use (55.3 versus 39.8 RDD/100, $p < 0.01$ [Figure 1]; or 73.8 versus 53.6 WHO-DDD) (Table).

Although antibiotic use density in intensive care was twice as high as on normal wards, intensive care contributed no more than 12.2% (pooled data, median 10.8%, IQR 8.6% to 13.7%) versus 17.8% (pooled data, median 16.9%, IQR 15.4% to 21.0%) of the total core service RDD reported in university and non-university hospitals, respectively.



For non-university hospitals, there was no correlation between overall use density and hospital size (Figure 2)

Conclusions

The current analysis demonstrated university hospital as a major factor for overall use density while among non-university hospitals there was no measurable impact of hospital size on use density. The contribution to overall use was <5% for pediatrics (needing separate evaluation) and <1% for psychiatry, and the contribution of ICU antibiotic use within the core services was <20%.