

P1292

Paper Poster Session

Antimicrobial consumption in the hospital

Patterns of recent antibiotic use in German acute care hospitals - an analysis focussed on 128 non-university hospitals

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Background: Continuous hospital-wide antibiotic use surveillance has recently been established in Germany. Participating hospitals contribute on a voluntary basis ("ADKA-if-RKI" project; see also: www.antiinfektiva-surveillance.de). We here describe the most recent analysis for acute care hospitals (n=141) that delivered complete data for at least four quarters in 2013/14. The aim was to explore and provide possible benchmarks for the 128 non-university hospitals and their department/specialty services.

Material/methods: Electronically delivered quarterly consumption data are transformed into defined daily doses (DDD – according to ATC/WHO) and into "recommended" (hospital-adapted) daily doses (RDD). Yearly use density was calculated per 100 patient days. Analyses excluded pediatrics and psychiatry departments.

Results: The overall antibiotic use density (median) was 84 DDD/100 (55 RDD/100) in university hospitals, and 59 DDD/100 (39 RDD/100) in non-university hospitals, respectively. There were no significant differences in the overall use density between non-university hospitals of different sizes (<400, 400-800, >800 beds). Intensive care units and oncology-hematology services showed higher use density values than other departments/wards. The top three antibiotic drug classes in non-university as well as in university hospitals (in RDD/100) were first/second generation cephalosporins (1°/2° Ceph), aminopenicillin/β-lactamase inhibitor combinations (Amp/βLI), and fluoroquinolones. The values for narrow-spectrum penicillins, glycopeptides, tetracyclines, and aminoglycosides were low (>1 DDD/100 or RDD/100). Subgroup analysis focused on non-university hospitals showed major different patterns of the three most common drug classes according to discipline. 1°/2° Ceph were common in the different surgical services while they were not among the top three drug classes in non-surgical services (Table).

Conclusions: The system now includes >100 non-university acute care hospitals and allows analyses and benchmarking for several different specialties. The current analysis demonstrated major different patterns of use according to specialty. Of concern is the frequent prescribing of 1°/2° Ceph (cefuroxime) in surgery, presumably including postoperative "prophylaxis", and of fluoroquinolones in general which may be targets for improved prescribing programmes.

Table. Antibiotic use density (three most common drug classes, medians [with interquartile ranges], value for most common class underlined) in different disciplines/wards of 128 German acute care (non-university) hospital 2013/14.

	Amino- penicillin/BLI- combination*	Broad- spectrum penicillins	1°/2° generation cephalosporins	3°/4° generation cephalosporins	Fluoro- quinolones	Macrolides and clindamycin	Carbapenems
Surgical services							
- General surgery	3.9 (1.9-5.9)		<u>9.4</u> (6-13.7)		4.3 (2.9-5.7)		
- Urology	5.6 (2.3-13.4)		10.9 (5-21.8)		<u>11.5</u> (8.6-16.5)		
- Orthopedic surgery/traumatology			<u>8</u> (3.6-13.5)		2.1 (1.2-3.2)	1.6 (0.9-2.6)	
- Other surgical services and interdisciplinary wards	3 (1-5.8)		<u>9.4</u> (5.8-14.4)		2.5 (1.2-4.7)		
- Surgical intensive care			6.4 (3.5-14.9)		9.8 (4.4-13.5)		<u>9.8</u> (6.4-14.5)
- Other surgical and interdisciplinary intensive care		<u>12.2</u> (9.4-12.4)			9.3 (6.3-16.2)		10.8 (7.4-13.6)
Non-surgical services							
- General medicine	<u>7.4</u> (3.6-6.9)				5.2 (3.6-6.9)	4.6 (2.9-7)	
- Oncology		<u>9.2</u> (5.9-11.6)			7.2 (4.9-12.2)	4.6 (3.1-7)	
- Other non-surgical services	1.7 (1-3.6)			<u>3.2</u> (1.5-5)	1.8 (1.2-2.4)		
- Medical intensive care		<u>12.5</u> (8.3-19.4)			9.8 (6.3-13.5)		9 (6.2-12.3)
- Other non-surgical intensive care		3.5 (1.2-8.7)		<u>10</u> (7.7-11.8)		5.2 (2.5-6.6)	