



Serbia



# The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS):

## Results of antimicrobial prescribing in Serbian hospitals

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### INTRODUCTION AND PURPOSE

Point Prevalence Survey (PPS) is an adequate surveillance method to study antimicrobial prescribing in hospitals and evaluate the changings over time. In Serbia there were 3 national PPS (1999, 2005, 2010) of hospital infections and antimicrobial prescribing, supported by Serbian Ministry of Health. In 2015, Serbian Association of Prevention and Infection Control (SAPIC) called Serbian hospitals to use the Global-PPS standardized method for surveillance of antimicrobial use and to assess the variation in antimicrobial prescribing in Serbia.

### METHODS

Point prevalence study was performed voluntarily in one secondary care and 5 tertiary care Serbian hospitals in April-September 2015 using a Global PPS method. The survey included all inpatients receiving an antimicrobial on the day of survey. Relevant variables were collected like age, department of hospitalization, antimicrobial agents, doses, reasons and indications for treatment, microbiological data, compliance to guidelines, documentation of reasons and stop/review date of prescription. Denominators included the total number of inpatients. A web-based application was used for data-entry, validation and reporting as designed by the University of Antwerp ([www.global-pps.com](http://www.global-pps.com)) .

### RESULTS

**Table 1. Antimicrobial prevalence**

SERBIA		Adults N (%)	Children N (%)	TOTAL N (%)
Total number of patients studied in participating hospitals		2303 (=n)	431 (=n)	2734 (=n)
Total number of surgical patients studied		923	45	968
Total number of medical patients studied		1082	369	1451
Total number of ICU patients studied		298	17	315
Total number of pediatric patients studied		/	248	248
Total number of neonatal patient studied		/	183	183
Antibiotic prevalence for all reasons (CAI / HAI / prophylaxis); Total AM given including multiple antibiotics per patient		1451 (63.0%)	227 (52.7%)	1678 (61.4%)
Antimicrobial use/prevalence as prophylaxis	TOTAL	700 (30.4%)	72 (16.7 %)	772 (28.2%)
	Surgical prophylaxis n=surgical pts	498 (53.6%)	18 (40%)	516 (53.3%)
	Medical prophylaxis n= 2303	202 (8.8%)	50 (11.6%)	252 (9.2%)
Antimicrobial use for therapy	TOTAL	751 (32.6%)	155 (36%)	906 (33.1%)
	- in CAI	483 (21%)	113 (26.2%)	596 (21.8%)
	- in HAI	268 (11.6%)	42 (9.7%)	310 (11.3%)
Antimicrobial use in therapy	TOTAL	(n=) 751	(n=) 155	(n=) 906
	- Targeted	246 (32.7%)	23 (14.8%)	269 (29.7%)
	- Empirical	505 (67,2%)	132 (85.2%)	637 (70.3%)
Quality indicators	Reason documented (n= total AM given)	423 (29.1%)	179 (78.8%)	602 (35.9%)
	Guideline used (n= total AM given)	660 (45.5%)	37 (16.3%)	697 (41.5%)
	Guideline compliant (n= guideline used)	497 (75.4%)	35 (96.4%)	599 (85.9%)
	Stop/review date documented (n= total AM given)	201 (13.9%)	11 (5%)	159 (9.5%)

The total number of patients surveyed was 2303 adults and 431 children, with antimicrobial (AM) utilization of 63% and 53%, respectively (Table 1). Distribution of patients, AM prevalence rates for prophylaxis and therapy, frequency of empirical and targeted prescription and quality indicators of utilization of AM are shown in Table 1. Out of all patients, 88% received more than one day AM surgical prophylaxis, 10% received one day and only 2% single dose (Figure 1). Empirically prescription of AM was registered in 67% of adults and in 85% of pediatric and neonatal patients. Only in 35% adults and in 8% pediatric and neonatal cases AM prescription was done using a guideline, but the compliance was 75% and 96%, respectively. Reason in notes could be seen in almost every second pediatric/neonatal patient and every third adult patient. Stop/review order was not really a common practice in our hospitals. Top 5 antimicrobials are shown in Table 2.

### CONCLUSION

The result of the G-PPS in Serbian hospitals identify a clear need for antimicrobial stewardship program implementation. It is necessary to improve antimicrobial prescribing: to create and regularly update local guidelines, with an appropriate agent, dose and route of administration and duration of therapy and prophylaxis and to reach a high guideline compliance in practice.

Disclosures: "bioMérieux is the sole sponsor of the GLOBAL Point Prevalence Survey. The funder has no role in study design, data collection, data analysis, data interpretation, or writing the report. Data are strictly confidential and stored anonymous at the coordinating centre of the University of Antwerp."

**Table 2. Top 5 prescribed antibiotics**

Surgical prophylaxis, N=498		Medical prophylaxis, N=252		Sepsis, N= 46		Pneumonia, N=159	
Ceftriaxone	30.3%	Ceftriaxone	15.2%	Ampicillin	8.7%	Ceftriaxone	24.5%
Metronidazole	16.9%	Amoxicillin	14.7%	Vancomycin	8.7%	Ciprofloxacin	12.6%
Cefuroxime	13.8%	Gentamicin	10.9%	Meropenem	8.7%	Levofloxacin	11.9%
Ciprofloxacin	9.4%	Metronidazol	10.9%	Gentamicin	8.7%	Ceftazidime	11.3%
Gentamicin	5.6%	Ciprofloxacin	9.9%	Ceftazidime	8.7%	Metronidazole	9.4%

**Figure 1. Duration of surgical prophylaxis in Serbian hospitals**

