



The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS): Results of Antimicrobial prescribing in Kosovo hospitals

Denis Raka¹, Ann Versporten², Kreshnik Hoti¹, Naim Morina¹, Jetëmira Bytyçi⁴, Albiona Rashiti³, Zana Deva⁴, Besa Bahtiri⁴, Herman Goossens², Lul Raka^{3,4}

¹Pharmacy Department, Medical School, University of Prishtina, Prishtina, Kosovo; ²Laboratory of Medical Microbiology, VAXINFECTIO, University of Antwerp, Antwerp, Belgium; ³National Institute of Public Health of Kosovo, Prishtina, Kosovo; ⁴Medical School, University of Prishtina, Prishtina, Kosovo

Contact:

lul.raka@uni-pr.edu



INTRODUCTION AND PURPOSE

Kosovo is located in southeastern Europe in Balkan region with a population around 2 million in an area of 10,908 km². There is no health insurance established yet and health care system faces many obstacles. Antimicrobial resistance in Kosovo is one of the major health care problems, which is promoted by decades of unrestrictive antibiotic prescribing and use in healthcare and community setting.

By means of the Global-PPS, we aimed to determine the variation in quantity and quality of antibiotic prescribing in adults and children admitted in Kosovo hospitals; and to identify targets for improvement to help hospitals in designing interventions that aim prudent antibiotic use.

METHODS

PPS was conducted in June-July 2015, in 6 regional hospitals and one teaching hospital in Kosovo. The survey included all inpatients receiving an antimicrobial on the day of PPS. Data collected included age, gender, weight, 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).

RESULTS

A total number of 1748 patients from 189 wards were surveyed, out of which 688 (39.3%) received at last one antibiotic during hospital stay (**Table 1**). Hospital bed occupancy was 52.2%; 38.4% adults, 58.3% children and 30.9% neonates were treated with antibiotics. Top 3 antibacterial subgroups (ATC level 3) were other beta-lactam antibacterials (J01D) 47.6%, followed by antituberculous drugs (J04A) 15.9% and aminoglycosides (J01G) 13.7% (**Figure 1**). Ceftriaxone was the most prescribed antibiotic (31.8%), mainly prescribed for CAI and surgical prophylaxis (44.5% vs. 39.7%), followed by cefazolin (10.7%) mainly prescribed for prophylaxis (83.3%) and gentamicin (9.7%) also mainly prescribed for prophylaxis 67%. 93.4% of patients received parenteral antibiotics for systemic use (J01 – excluded NMW and NICU patients).

Figure 1. Proportional antimicrobial use in Kosovo hospitals

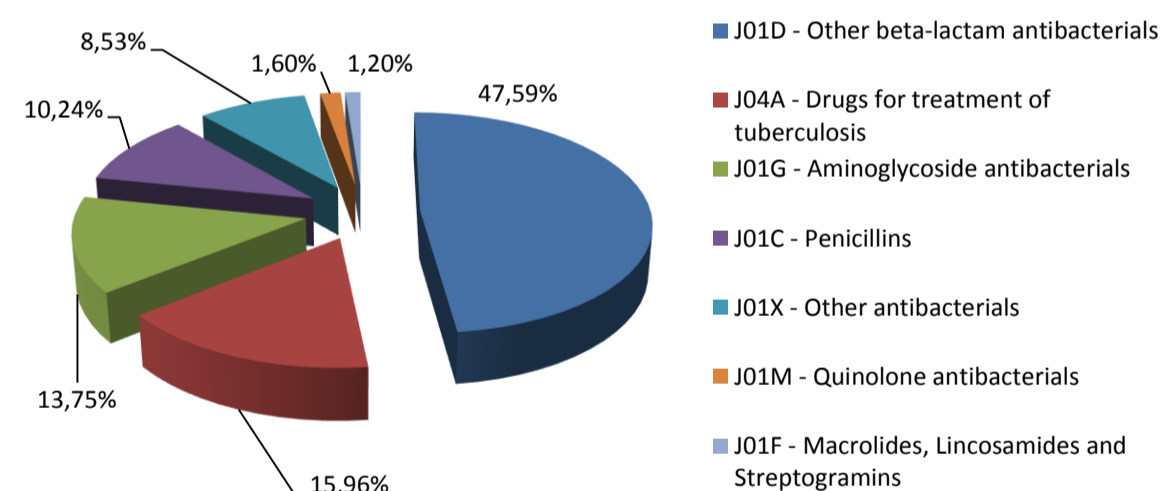


Figure 2. Top 10 diagnoses treated with antimicrobials

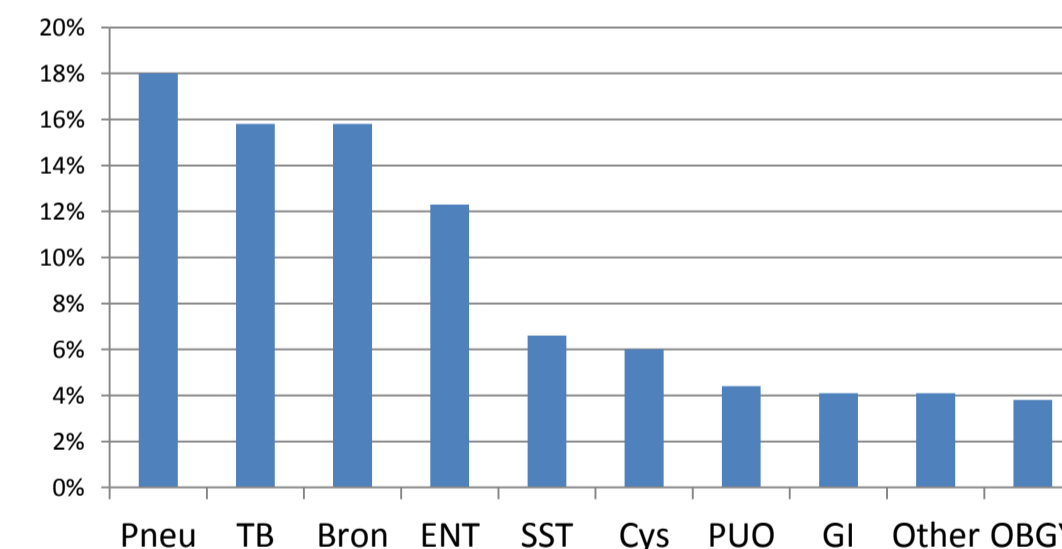


Table 1. Antimicrobial prevalence rates (%) by hospital

Hospital	N Patients	N treated patients	%	% of bed occupancy
UÇCK	933	325	34.8	63.6
Prizren	232	109	47.0	52.0
Peja	156	88	56.4	43.6
Gjilan	169	72	42.6	41.2
Gjakova	190	66	34.7	45.1
Ferizaj	24	11	45.8	24.2
Mitrovica	44	17	38.6	30.1
Total	1748	688	39.3	52.2

Table 2. Quality indicators of antibiotic prescribing

	Medical (%)	Surgical (%)	ICU (%)
Reason in notes	85.9	99.7	96.8
Guidelines missing	97.3	99.7	100
Guideline compliant	100	0	0
Stop/review date documented	2.4	5	3.2

Empiric prescribing was the main physician choice for prescribing (88.4%). The main reason for treatment with an antibiotic was pneumonia (18%), tuberculosis (15.8%) and bronchitis (15.8%) (**Figure 2**). **Table 2** shows quality indicators of antibiotic prescribing. 92.3% of prescriptions were for CAI (58.9% empirical vs. 41.1% targeted) and 7.7% for HAI (82.1% empirical vs. 17.9% targeted). Surgical prophylactic prescribing was 80.3% and medical prophylaxis 19.7%. Duration of prophylactic treatment was more than one day in all recorded cases. Antimicrobial susceptibility results were collected from 298 isolates from blood and cerebrospinal fluid in 7 public laboratories. In Enterobacteriaceae, 88% of *K. pneumoniae* isolates were resistant to 3rd generation cephalosporins. Resistance levels in *Acinetobacter spp.* to carbapenems was 92%, whereas 38% of *S. aureus* were MRSA.

CONCLUSION

Antimicrobial prescribing is very high in Kosovo hospitals, especially cephalosporins, with antimicrobial susceptibility results showing high resistance to 3rd generation cephalosporins. Protocols for treatment and prophylaxis do not exist. Gathered data will be an important tool to identify targets for quality improvement in Kosovo and will support the preparation of guidelines and protocols for prudent use of antibiotics. A working group by the Ministry of Health is already established with a mandate to prepare restrictions in usage of antibiotics in all levels of health care.