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### MEETING ABSTRACT

#### A5.3

##### **A link between antibiotic resistance and antibiotic consumption in Greece, Serbia and Norway**

Nebojša STILINOVIĆ\*, Christina PATELI, Nikola MARTIĆ, Boris MILIJAŠEVIĆ, Saša VUKMIROVIĆ and Aleksandar RAŠKOVIĆ

*Department of Pharmacology, Toxicology and Clinical Pharmacology, Faculty of Medicine, University of Novi Sad, Novi Sad, Serbia*

**Background:** Increasing human antimicrobial consumption is widely considered highly influential, with agricultural use, environmental pollution, clonal and horizontal spread and long-term persistence also contributory. Recent evidence comes from meta-analyses that report positive associations between antimicrobial consumption and the development of resistance at both population and individual levels. The aim of this study was to measure the consumption of antimicrobial drugs in Greece, Serbia and Norway from 2012 to 2015 and to evaluate the relationship between consumption and resistance of selected bacterial strains in these countries.

**Methods:** This was a retrospective, observational, cross-sectional, population-based study of routinely collected data for consumption of antimicrobial drugs (from 2012 to 2015) and national antimicrobial resistance rates in Greece, Serbia and Norway (2014). The correlation (Pearson's *r*) between antimicrobial consumption values for the antibiotic class specific to the resistant strain and the rates of resistance in that strain was assessed.

**Results:** The results for year 2015 have shown that Norway is the country with the lowest consumption of antimicrobial drugs, followed by Serbia and finally Greece. Regarding trends in antibiotics use it can be noticed that both Greece and Serbia have increasing rates of consumption in the years 2012–2015, whereas Norway has a decreasing tendency. From the analysis of antibacterials subgroups it can be seen that  $\beta$ -lactam/penicillins are the drugs of choice in all three countries. Furthermore, the results from this study confirm the relationship between community antimicrobial consumption and serious resistant infections in patients.

**Discussion:** This study has emphasized the strength of relationship between community consumption rates and antimicrobial resistance rates in *E. coli*, *Acinetobacter* spp. and MRSA. As antibacterial resistance is a multifactorial problem, a multisectoral effort is needed to control it. The key areas of community recommendations for the control of bacterial resistance are surveillance of antibiotic consumption, awareness and understanding of antimicrobial resistance, optimizing antibiotic use, education, prevention and, finally, investment in new medicines and diagnostic tools.

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\*Corresponding author e-mail: [nebojsa.stilinic@mf.uns.ac.rs](mailto:nebojsa.stilinic@mf.uns.ac.rs)