

S pneumoniae, to fully understand the effects of antimicrobial use. We hope our activities will generate interest from other countries.

I declare no competing interests.

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Kosovo's national action plan for antimicrobial resistance

Antimicrobial resistance is one of the major public health challenges worldwide.¹ Antibiotic consumption and related resistance are increasing around the globe, particularly in developing countries. Kosovo is located in southeast Europe and has a population of 1.7 million inhabitants. The main challenges regarding antimicrobial resistance in Kosovo are limited financial and human resources, over-the-counter sale of antibiotics, and scarcity of clinical guidelines authorised by the Ministry of Health. The prevalence of antimicrobial resistance in Kosovo is two to five times higher for the majority of bacteria and

corresponding antibiotic groups compared with the means in EU countries.²

To address the challenge of antimicrobial resistance, the Ministry of Health has initially completed the National Strategy and Action Plan to Combat Antimicrobial Resistance 2011–15. Surveillance of antibiotic consumption was one of the main success stories during the implementation of the first strategy for antimicrobial resistance. Wholesalers' data suggest that antibacterial use in Kosovo in 2011 was 26.3 defined daily doses per 1000 inhabitants per day.³ However, the latest WHO publication on antibiotic consumption in Europe showed a substantial decrease in antibiotic consumption by almost 25%.⁴

In all seven hospitals in Kosovo, 56.8% of inpatients were using at least one antibiotic with ceftriaxone as the most prescribed antibiotic. At the primary care level, antibiotic therapy prescription with generic names was noted only in 31% of cases and the most prescribed antibiotic was also ceftriaxone.

No systematic monitoring of antibiotic consumption in the veterinary sector has been implemented. Kosovo participated in global surveillance of antimicrobial resistance from sewage in capital cities of Europe. The most common antimicrobial resistance genes identified in sewage of the capital city, Prishtina, were *msr(E)*, *blaOXA*, and *aaDa*.

On Dec 5, 2018, the Minister of Health signed a new National Action Plan for Antimicrobial Resistance for a period of 3 years. This plan aims to establish the framework of measures and interventions to limit the emergence and spread of antimicrobial resistance in our country. Planned activities of the action plan are in line with the WHO Global Action Plan for Antimicrobial Resistance⁵ and Council of Europe Conclusions on

Antimicrobial Resistance.⁶ This action plan has five strategic objectives and 47 activities. The cornerstone of this action plan will be antimicrobial stewardship and the One Health approach.

Specific objectives of the action plan for antimicrobial resistance are to strengthen intersectoral coordination; empower awareness, education, and training of the population and health-care workers; improve the monitoring capacity; optimise the use of antibiotics in human and veterinary medicine; reduce infections; and promote research and international co-operation.

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