



# Does antibiotic consumption predict the incidence density of healthcare-associated infections?

A. Perić<sup>1\*</sup>, S. Vezmar Kovačević<sup>2</sup>, B Milenković<sup>1</sup>, V. Šuljagić<sup>3\*</sup>

<sup>1</sup> Sector for Pharmacy, Military Medical Academy, Belgrade, Serbia

<sup>2</sup> Department of Pharmacokinetics and Clinical Pharmacy, Faculty of Pharmacy, University of Belgrade, Belgrade, Serbia

<sup>3</sup> Department of Healthcare-related Infection Control, Military Medical Academy, Belgrade, Serbia

\* Faculty of Medicine of the Military Medical Academy, University of Defence, Belgrade, Serbia

## Objectives

The decrease of health-care associated infections (HAI) in intensive care units (ICUs), related to surgical-site infections (SSIs) and *Clostridium difficile* infections (CDIs) as well as antibiotic consumption are main goals in the hospital setting.

The aim of this study was to evaluate the antibiotic consumption, and to relate it with HAI incidence density (ID) and incidence rate (IR).

## Methods

The study was conducted from 2011 to 2016 in a tertiary hospital. Through regular hospital surveillance, we identified all patients with a new HAI. Data on the use of antibacterials for systemic use were expressed as defined daily dose per 100 bed days (DDD/100 BD).

## Results

The highest ID of HAIs was observed in patients in surgical ICUs (25.5-47.2/1000 patients-day), while the IR of SSI was 3.7%. Moreover, the highest ID of CDI in medical patients was 6.2, while in surgical patients it was 4.3 per 10 000 patient-days. At the same time the antibiotic consumption was the lowest (31.2 DDD/100 BD). The most frequently used antibiotics, in average, were cephalosporins, aminoglycosides and carbapenems (16.0±2.3, 4.8±0.7, 4.3±0.7 DDD/100 BD, respectively). The decrease in use of glycopeptides and fluoroquinolones was predictive of higher ID of medical CDIs (p<0.05).

## Conclusion

The most frequently used antibiotics were not associated with HAIs. However, the decrease in use of glycopeptides and fluoroquinolones was associated with higher ID of CDIs. Simply decreasing the consumption of antibiotics with high risk for HAIs may not be enough.

