

SURVEILLANCE OF HOSPITAL-ACQUIRED INFECTIONS AT THE NIŠ UNIVERSITY CLINICAL CENTER: ANALYSIS OF ISOLATES WITH MULTIDRUG-RESISTANT BACTERIA

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Background: It is important for healthcare facilities to have robust infection control measures in place to minimize the risk of hospital-acquired infections (HAI) and protect patient safety. By analyzing multidrug resistant bacteria, healthcare professionals can make informed decisions about antibiotic therapy, implement appropriate infection control measures to prevent the spread of resistant strains, and contribute to the development of new antimicrobial agents. The aim of the study was to investigate the microbial isolates in humane materials and compare findings with number of registered hospital-acquired infections, evaluating current preventive measures and making ground for new ones.

Methods and Objectives: Retrospective study was employed in evaluating UKC Niš Surveillance Data Base with all patients' microbial isolates during the hospitalization at University Clinical centre (UKC) Niš between January 2022 and December 2023.

Results: Out of 35,072 patients in 2022, 3,622 (10.3%) isolates were with multi drug resistance bacteria while 195 (5.38%) were registered as HAI. Out of 59,428 patients in 2023, 3,840 (6.46%) isolates were with multi drug resistance bacteria while 378 (9.8%) were registered as HAI. The most frequent isolated bacteria were *Acinetobacter* spp. (15.9%) from wound (35.94%) in 2022, and *Klebsiella* spp. (18.85%) from urine (35.36%) in 2023. Multi drug resistant microbes were most common found in category of ≥ 55 years old patients and predominantly in males (both 2022 and 2023).

A comparative analysis of the 2022 and 2023 HAI UKC Nis distribution by organizational units showed that in 2022, the clinic for anesthesia (51), pediatrics (29) and nephrology (15) reported the highest number of HAI, while in 2023, the anesthesia clinic (106), physical medicine (36) and pulmonology (28) reported the highest number. Significant number of registered HAI was "from the other healthcare institution".

Conclusions: Strong surveillance of isolates of multidrug-resistant microbes, monitoring, evaluation and adaptation of preventive measures to clinical specific characteristics are key in fighting the HAI.

Keywords: HAI surveillance, infection control, multi-drag resistance, microbial isolates, patient safety