



# Epidemiology of healthcare-associated infections and mechanisms of antimicrobial resistance of responsible pathogens in Ukraine: a multicentre study

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## SUMMARY

**Background:** Healthcare-associated infections (HAIs) caused by multidrug-resistant organisms (MDROs) have a high impact in terms of morbidity, mortality, and costs.

**Aim:** To estimate the prevalence and incidence of HAIs, and to describe phenotypic and genotypic features of antimicrobial resistance in responsible pathogens in Ukraine.

**Methods:** Prospective multicentre surveillance was conducted from January 2019 to December 2021 in 17 regional hospitals of Ukraine. Definitions of HAIs were adapted from the Centers for Disease Control and Prevention's National Healthcare Safety Network.

**Findings:** Among 37,968 patients, 6218 (16.4%) HAIs were observed. Of all HAI cases, 14.8% were detected after hospital discharge. The most frequently reported HAI types were pneumonia (24.4%), urinary tract infections (19.8%), surgical site infections (15.3%), and bloodstream infections (11.2%). Of all HAIs, 11.9% were defined as part of an outbreak. Death during hospitalization was reported in 12.6% of HAI cases. In total, 85.1% isolates from patients were found to be MDROs. Meticillin resistance was found in 41.2% of *S. aureus* (MRSA) isolates, and vancomycin resistance was found in 11.8% of enterococci. Antimicrobial resistance to third-generation cephalosporins was detected in 48.4% of all Enterobacterales. Antimicrobial resistance to carbapenems was detected in 71.3% of all non-fermentative Gram-negative bacteria. Of the all isolates tested, 25.1% were found to be multidrug-resistant (MDR).

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