The Future of Healthcare-Acquired Infections in Adult Intensive Care Unit Patients

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Blot S, Ruppé E, Harbarth S, *et al.*

Healthcare-associated infections in adult intensive care unit patients: Changes in epidemiology, diagnosis, prevention and contributions of new technologies.

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A recent review, published in *Intensive and Critical Care Nursing*, summarizes healthcare-acquired infections (HAIs) in adult intensive care unit (ICU) patients and discusses the changes in epidemiology, diagnosis, prevention, and contributions of new technologies.

HAIs remain an important cause of morbidity and mortality, despite efforts in prevention. They are a major public health burden and associated with more than 140,000 deaths worldwide each year. **Thirty percent of HAIs occur in ICU patients**. Adapting prevention measures to protect both patients and caregivers from exposure while maintaining quality healthcare is a challenge and this was highlighted during the COVID-19 pandemic.

Although **infection prevention measures** have significantly decreased the occurrence of device-associated HAIs, the HAI burden is nevertheless expected to increase due to intensification of care, ageing populations, growing prevalence of severe underlying diseases in ICU patients and the spread of multidrug resistant organisms (MDRO) in the hospital and the community.

Furthermore, new pathogens continue to emerge, which complicates treatments and threatens patient outcomes. Preventable HAIs depend on patient population, adherence to prevention precautions and type of infection. **ICU nurses play a central role in HAI prevention and management,** since they are involved in basic hygienic care, steering and implementing quality improvement initiatives, correct microbiological sampling, and aspects of antibiotic stewardship.

The **role of the microbiology lab** is increasingly important in the diagnosis and follow-up of HAIs, for both the interpretation of test results in the context of critically-ill patients and complex clinical samples and adoption of new technologies such as lab automation or multiplex PCR. Furthermore, **emerging clinical metagenomics** will contribute to a better understanding of the role of patients' microbiota and help implement optimal prevention measures.

The study authors highlighted that "…high prevalence of MDROs perpetuates the worldwide persistence of HAIs. Their decrease requires further implementation of prevention bundles coupled with antimicrobial stewardship programs."