

# Microbiological signals from a tertiary ICU: gram-negative dominance and the emergence of *Candida parapsilosis* in device-associated infections

Arif Timuroğlu

Department of Anesthesiology and Reanimation, Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital, University of Health Sciences, Ankara, Turkiye

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Corresponding Author: Arif Timuroğlu, ariftimuroglu@yahoo.com

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## To the Editor,

We would like to share an observation from our tertiary anesthesia intensive care unit (ICU) surveillance records that may be relevant to clinicians facing evolving local pathogen ecology. We retrospectively reviewed healthcare-associated infection (HAI) episodes recorded in our unit between 2020 and 2024. This dataset includes only patients who developed an ICU-acquired infection; therefore, it should be interpreted as a descriptive case series of HAI episodes rather than incidence rates.

A total of 343 HAI episodes were documented among 259 patients. Device-associated infections constituted the majority of episodes in our cohort. After harmonizing terminology in the registry, the two most frequent infection groups were ventilator-associated pneumonia (VAP) (n=137) and central line-associated bloodstream infection (CLABSI) (n=130). VAP and CLABSI were identified using standardized surveillance definitions routinely applied in our institutional infection control registry. The median time from ICU admission to infection diagnosis was 18 days (IQR 10–31), suggesting that infections tended to occur in the later course of prolonged critical illness, which remains a significant challenge in global ICU settings.<sup>1</sup> A summary of major infection types and the most frequently isolated pathogens is presented in [Table](#).

Most notably, we observed a striking predominance of Gram-negative pathogens. The most frequently reported microorganisms were *Klebsiella pneumoniae* (n=104) and *Acinetobacter baumannii* (n=68). Given the well-recognized association of these pathogens with multidrug resistance

Table. Distribution of major infection types and frequently isolated pathogens

Category	n
Ventilator-associated pneumonia (VAP)	137
Central line-associated bloodstream infection (CLABSI)	130
<i>Klebsiella pneumoniae</i>	104
<i>Acinetobacter baumannii</i>	68
<i>Candida parapsilosis</i>	25

in ICU settings, our findings may have implications for local empiric therapy pathways and infection prevention strategies.<sup>2</sup> Furthermore, *Candida parapsilosis* (n=25) appeared as a recurrent isolate. This finding is noteworthy as *Candida parapsilosis* is frequently associated with catheter-related infections and hand-borne transmission, potentially warranting a targeted review of catheter care and parenteral nutrition processes.<sup>3</sup>

It should also be acknowledged that local antimicrobial policies, infection prevention practices, and temporal factors may influence pathogen distribution, and these findings should be interpreted within the context of unit-specific ICU ecology.

We acknowledge important limitations. First, due to the absence of denominators (patient-days or device-days), we cannot provide HAI incidence densities. Second, susceptibility profiles were not available in this dataset, preventing assessment of multidrug resistance patterns. Finally, the registry is episode-based; some patients

contributed multiple infection episodes. In addition, this was a single-center study, which may limit the generalizability of the findings.

Despite these limitations, we believe that sharing local microbiological “signals” from real-world ICU surveillance may help raise awareness of evolving pathogen distributions and prompt centers to periodically re-evaluate prevention bundles and empiric antimicrobial strategies based on their own ecology.

Our five-year surveillance highlights a predominance of gram-negative pathogens and the recurrent isolation of *Candida parapsilosis* in device-associated infections. These findings reinforce the value of ongoing, unit-specific microbiological surveillance to inform infection prevention efforts and empiric antimicrobial decision-making in the ICU.

## ETHICAL DECLARATIONS

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### Peer Review Process

This letter was externally peer-reviewed.

### Conflict of Interest

The author declare no conflicts of interest.

### Financial Disclosure

No financial support was received for the preparation or publication of this letter.

### Author Contributions

The author confirms sole responsibility for the study conception, design, data collection, analysis, interpretation, and manuscript preparation. All aspects of the work were carried out by the author.

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