# SURVEILLANCE OF THE ESKAPE GROUP IN THE LAGOS MICROREGION

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## Introduction

The emergence of multidrug-resistant microorganisms constitutes a threat to public health [1]. The World Health Organization published a list of microorganisms considering the criticality and need for development of new antimicrobials [5]. Microorganisms belonging to the acronym ESKAPE - Carbapenem-resistant *Acinetobacter baumannii*, Carbapenem-resistant *Pseudomonas aeruginosa*, and *Enterobacteriaceae* resistant to carbapenems and third-generation cephalosporins were classified as critical priority, and vancomycin-resistant *Enterococcus faecium* and *Staphylococcus aureus* resistant to methicillin or with full or moderate resistance to vancomycin as high priority. These bacteria are often associated with Infections Related to Health Care Assistance (IRHCA) mainly among immunocompromised patients and patients with serious diseases and have a broad resistance profile to antimicrobials and biocides [4]. Studies on local and global epidemiology are necessary to draw epidemiological profiles of the main pathogens recognized as IRHCA agents [2]. These data contribute to better therapeutic management, as it considers the prevalence of microorganisms associated with infections as well as their antimicrobial resistance profiles. In this context, ESKAPE pathogens constitute an important group in terms of prevalence and criticality [3]. The present study consists of a characterization of multidrug-resistant strains from the ESKAPE group obtained from patients treated in public and private health establishments in the Lagos microregion/RJ, Brazil. The study was submitted and approved by the Research Ethics Committee (CAAE 48959821.0.0000.5243).

## Material and Methods

To date, 139 strains collected from March 2021 to December 2022 were analyzed. Confirmation of multiresistance was taken according to Brazilian Committee on Antimicrobial Susceptibility Test (BrCAST) and the identification by mass spectrometry (MALDI-TOF) was used as inclusion criteria in the study.

## Results and Discussion

The frequency of the identified strains was: 25.9% *Enterococcus sp.*, 12.2% *Staphylococcus aureus*, 23.0% *Klebsiella pneumoniae*, 9.4% *Acinetobacter baumannii*, 23.0% *Pseudomonas aeruginosa* and 6.5% of *Enterobacter sp,* isolated mainly from vigilance cultures. The incidence was higher in females and in the age group of 70-80 years. Among the comorbidities, diabetes mellitus and arterial hypertension were the most frequent and the death rate among colonized patients or those with infections by these microorganisms was 77.8%. The technical note “Diagnostic Criteria of healthcare-associated infections of mandatory national notification for the year 2023” to determine the prevalence of IRHCA, which was 94.7%.

## Conclusion

All microorganisms belonging to the ESKAPE group were isolated during the study period. In this study was possible to demonstrate the importance of screening for multidrug-resistant bacteria. The

affected population was precisely the most critical in terms of age and comorbidities as described before [4]. Studies like this should be carried out periodically in order to evaluate the susceptibility profile of bacteria and demonstrate the importance of using strategies to avoid nosocomial infections, as well as greater control in prescription of antimicrobials.

**Acknowledgments**

The authors would like to express appreciation for the support of the sponsors CNPQ, Fopesq-UFF, FAPERJ (E-26/210.068/2021 and E-26/210.915/2021) and CAPES (Finance Code 001).

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