

**TITLE:** RESISTENCE SURVEILLANCE CULTURES OF INTENSIVE THERAPY CARE UNIT PATIENTS FROM UFRN RELATED HOSPITALS

**AUTHORS:** BOMFIM, I.M.F.N; BARROS, A.V; LINS, J.H.J.; CARVALHO, Y.N.T; SILVA, C.M.L.; NETO, R.M.

**INSTITUTION:** UNIVERSIDADE FEDERAL DO RIO GRANDE DO NORTE, NATAL, RN (AV. SEN. SALGADO FILHO, 3000 – CENTRO DE BIOCÊNCIAS – CANDELÁRIA, CEP: 59064-741, NATAL – RN).

**ABSTRACT:**

Healthcare Associated Infections (HAI) are infections acquired in the course of a hospital internment. Intensive Care Units (ICUs) are the places where multiresistant bacteria outbreaks frequently occur due to selective pressure and the spread of resistance genes in these environments. Resistance surveillance cultures are a set of techniques for isolating and identifying of antimicrobial resistant microorganisms in colonized individuals in the purpose of preventing HAI. This work aimed to trace the phenotypic and genotype frequency of multiresistant bacteria from patients hospitalized in the Hospital Giselda Trigueiro's (HGT) ICU. The samples were collected at the axillary, nasal and rectal sites and these were processed at the Laboratório de Micobactérias/UFRN (LABMIC). The swabs from each site were seeded in BHI broth for enrichment, and the primary isolation (PI) was performed on the blood and MacConkey agars. After 24 hours of IP, the Gram staining and the biochemical tests were performed to identify the specimen. Once the bacterium was identified, the antimicrobial susceptibility test was performed using the disc-diffusion agar technique and phenotypic tests to determine the resistance profile of the bacteria were found. The bacteria with a resistance profile to carbapenems, were tested by conventional PCR to determine the presence of NDM, IMP-1, IMP-2, VIM-2 genes. Of 24 patients collected in the period between August 2018 and March 2019, 54 bacteria with a multiresistance profile were isolated and identified. Of the specimens isolated, 21 were *Klebsiella pneumoniae* producing extended spectrum beta-lactamases (ESBL), 09 *Pseudomonas aeruginosa* producing metallo-beta-lactamases (MBL), 01 *Citrobacter freundii* ESBL, 06 *Acinetobacter* spp. MBL, and *Enterococcus* spp. vancomycin resistant, 03 *Staphylococcus aureus* and 06 *Staphylococcus coagulase negative* oxacillin resistant. Of the 19 samples resistant to carbapenems, 02 *P. aeruginosa*, 01 *Acinetobacter* spp. and 01 *K. pneumoniae* expressed the NDM gene. The other genes were not expressed. The results so far confirm the presence of resistant bacteria found in the Hospital Giselda Trigueiro's ICU and point out the need for investigation and control of these to avoid outbreaks and to base medical conducts that prevent such occurrences.

**KEYWORDS:** Antimicrobial resistance. Surveillance cultures. Intensive Care Units.

**DEVELOPMENT AGENCY:** Universidade Federal do Rio Grande do Norte; A primeira autora é bolsista de Pós Graduação da CAPES