

**TITLE:** ENTEROBACTERIA IN HEALTH PROFESSIONALS'S HANDS IN A NEONATAL UNIT AFTER HANDS HYGIENIZATION

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**Abstract:**

The health professionals's hands are disseminators of microorganisms, favoring cross-infection in the hospital environment, especially Neonatal Intensive Care Units (NICU). Thus hand hygiene is relevant for infections control. The study aims to verify the presence of antimicrobial resistant enterobacteria in health professionals's hands of an NICU after sanitized with alcohol in gel. The research was carried out in a NICU, in three periods. 107 professionals were included of the study, totaling 214 samples, which were collected during their work. Before the collection, the professionals sanitized their hands with alcohol in gel, as they usually do. For collection, professionals placed their hands inside a sterile polypropylene bag containing Heart and Brain Infusion broth. The samples were incubated for 18/24 hours at  $37^{\circ} \pm 2^{\circ} \text{C}$  and seeded on Blood agar and Eosin Methylene Blue Agar. After growth, the identification was performed by the classical methodology and confirmed by MALDI-TOF. Susceptibility to antimicrobials was determined by the modified Kirby-Bauer method. From all the samples collected, 16.3% (35) isolated enterobacteria. Thirty three microorganisms were identified, *Klebsiella pneumoniae* was the most frequent microorganisms, representing 45.7% (16) of the isolates, followed by *Enterobacter* spp. with 22.8% (8) and *Serratia* spp. with 20% (7). Cefoxitime resistance was observed in 85.7% of the samples. Furthermore, 31.3% and 18.8% of *Klebsiella pneumoniae* samples was resistance to Amoxiline with Clavulanic Acid and Colistin, respectively. *Enterobacter* spp. samples 75% was resistance to Amoxilin with Clavulanic Acid and 50% to Cefepime. *Serratia* spp. samples 57.1% was resistance to Amoxiline with Clavulanic Acid and 71.4% to Colistin. Studies has shown that microorganisms of clinical importance are found in health professionals's hands, many of them resistant to antimicrobials, as showed in this study. Hand hygiene by alcohol gel is recommended, and its effects are known and confirmed in our study, which 83.7% of the positive samples did not show growth of enterobacteria after hand hygiene. In conclusion, multiresistant enterobacteria are found in the health professionals's hands even after the hygienization, thus these microorganisms can become pathogens to neonates in severe health conditions. Therefore, it emphasizes the need for improvement in the technique used and/or the frequency of hands hygiene of the professionals who work there.

**KEYWORDS:** Hand Hygiene; Microbial Drug Resistance; Neonatal Intensive Care Units.

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