

## **Title: FREQUENCY OF BIO-AEROSOLS IN A NURSERY OF A TERTIARY ASSISTANCE OF A PUBLIC HOSPITAL IN SÃO PAULO-SP**

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### **Abstract:**

Bioaerosols are known as organic dust and may have pathogenic and non-pathogenic organisms like bacteria, fungi, viruses, molecular high-weight allergen, bacterial endotoxins and micotoxins. The aim of this study was to perform the sampling of the air and to characterize the microorganisms present in a nosocomial environment. This study was performed in a neonate assistance unit of a public hospital in São Paulo. The samples were obtained using an M air T air tester (Millipore) to bacteria and fungi. The agar blood plates were incubated at 32.5°C±2.5°C, for three days and the Sabouraud agar plates were incubated at 22.5°C±2.5°C, up to five days. After these periods, the colonies were counted and the identification was done. Samples of ten bedrooms, one medication preparation room and one of a lactation room were collected. The average of bacteria was 150UFC/m<sup>3</sup> (DP 2.83) and of fungi was 37UFC/m<sup>3</sup> (DP9.9). The most frequent isolated bacteria were: *S. aureus*, in 83.3% of the rooms; *Streptococcus* spp in 33.3%; *Micrococcus* spp and BGN, in 25%. Hemolytic *Streptococcus* B and *Chromobacterium violaceum* were isolated in 8.3% of the total of rooms analyzed. In relation to the fungi, the most prevalent were: *Cladosporium* spp, *Penicillium* spp (91.7%), yeasts (66.7%) and *Aspergillus* spp (33.3%). The amount of bacteria isolated is in accordance to the RE 09 to artificial climate room. However, according to some international recommendations, this amount should be lower. Another fact that should have our attention is that *S. aureus* was isolated in almost all the environments. In the present study, the susceptibility of the samples "in vitro" were not researched, but according to the literature, *Staphylococcus aureus* and the coagulase-negative type 5 are the main pathogens associated to nosocomial infections in low-weight neonates. There is not any data, in literature, that proves that the presence of yeasts may be related to nosocomial infections development. Moreover, they were present in 66.7% of the rooms. The isolated filamentous fungi are frequently found in many environments. However, in a tertiary nursery, it is possible that these pathogens cause an increase of the incidence of allergies. After this study, it was possible to define the quantity of air to be collected. Furthermore, this study highlighted to the professionals the need of adopting measures to reduce the quantity of microorganisms in these environments.

**Keywords:** bio-aerosols, nursery, hospital

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