

عنوان مقاله:

Surveillance of Fungal Airborne Contamination in Hospital Wards in Indonesia ۲۰۲۰-۲۰۲۱: Impact of HEPA Filters and Occupancy

محل انتشار:

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خلاصه مقاله:

Background: Airborne biological agents materials in hospitals, such as fungal micro-colonies, play a significant role in life-threatening airborne infections in immunocompromised individuals. Thus, it is crucial to reduce airborne contamination and address the related several of its influencing factors. This study aimed to evaluate indoor air quality (IAQ) in terms of related to fungal contamination, the fungal genera contaminating the hospital rooms' air, and several factors that could influence IAQ in hospital rooms. Materials & Methods: This environmental surveillance study was conducted in two rooms for one year, and with ۲۸۸ air specimens were collected using the active air sampling method equipped with chloramphenicol-supplemented Sabouraud Dextrose Agar. In addition to air samples, temperature, relative humidity, and occupants' number were also recorded. The fungal colony counts were recorded and converted using the Feller table. Furthermore, the fungi were identified based on macroscopic and microscopic characteristics. Findings: The mean difference of isolated fungi between the two rooms was statistically significant ( $p < 0.001$ ). Yeast, *Penicillium* spp, and *Aspergillus* spp. were the most predominant fungi. Both rooms had been observed to have room temperature and relative humidity above the national recommended levels (above ۲۳ °C and ۶۰%). However, the number of occupants' number in the room without HEPA filter was significantly correlated with airborne fungal contamination level in the room without a HEPA filter. Conclusion: The level of airborne fungal contamination was significantly higher in the room without a HEPA filter. Yeast, *Aspergillus* spp., and *Penicillium* spp. were the most predominant fungi isolated from both rooms. Room temperature and relative humidity had no effect on influencing the level of airborne fungal contamination level. The occupants' number in the room without a HEPA filter influenced airborne fungal contamination level.

کلمات کلیدی:

Fungal count, Air filters, Air pollutants, Nosocomial infection

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