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## Indoor microbial burden of operating theatres in the University College Hospital, Ibadan

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icrobial contamination of the indoor air of operating theatres is major risk factors for the development of surgical site infections (SSI). In Nigeria, there is a dearth of information on the burden of airborne bacteria and fungi in operating rooms. Therefore, this study aimed at investigating the load and characteristics of airborne bacterial and fungi contamination of operating theatres in the University College Hospital, Ibadan, Nigeria. A descriptive cross-sectional design which involved purposive selection of seven operating theatres was adopted. Temperature and relative humidity (RH) of the indoor environments of the theatres were measured before and after surgery using multi-tester N21FR and values obtained were compared with the association of perioperative registered nurses (AORN) guideline limits of 22.0°C and 55.0% respectively. Particulate matter (PM10) concentrations in the indoor environments were measured using met-one particle counter and compared with the World Health Organization Guideline Limits (WHOGLs) of 50µg/m<sup>3</sup>. Air-borne microbial samples were collected using gravitational method and the total bacterial counts (TBC) and total fungal counts (TFC) per cubic-meter were determined and compared with the American Industrial Hygiene Association (AIHA) guideline limit of 50 cfu/m3. Data were analyzed using descriptive statistics, T-test and spearman's rank correlation at 5% level of significance. Mean indoor temperature and RH across the seven theatres were significantly higher after surgery (29.9±1.5°C and 62.1±7.0%) than before surgery (27.6±1.1°C and 61.2±8.2%) and the AORN guideline limits. Indoor PM10 after surgery (60.2±21.2µg/m<sup>3</sup>) was higher than before surgery (47.8±18.3µg/m<sup>3</sup>) and the WHOGLs. Indoor TBC and TFC after surgery (2.1x102 cfu/m3 and 0.17x102 cfu/m3) was also higher than before surgery (0.5x102 cfu/m3 and 0.03x102 cfu/m3). Streptococcus spp., Staphylococcus spp. and Aspergillus spp. were among the organisms isolated from the indoor air environment before and after surgery. Indoor bacterial load of selected operating theatres was higher than the internationally recommended values for an ideal and safe operating theatre. Therefore, effort should be made to ensure strict infection control practices in operating theatres

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