Noise levels in the operating theatres at a central hospital

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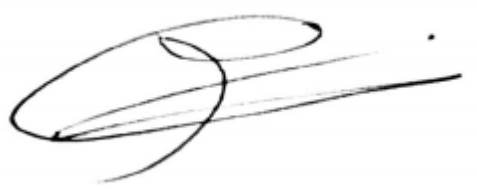
Declaration

I, Alicia Carbonari declare that this research report is my own unaided work. It is being submitted for the Degree of Master of Medicine in the branch of Anaesthesiology at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.



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Abstract

Background

Noise in operating theatres has the potential to lead to miscommunication, noise-induced hearing loss and non-auditory health effects in operating theatre staff due to prolonged exposure and can be a stressor to operating theatre staff and patients. The aim of this study was to measure noise levels in the operating theatres at Chris Hani Baragwanath Academic Hospital (CHBAH).

Methods

A cross-sectional study design was followed. A convenience sampling method was used with a sample size of 24 theatres, 18 in elective operating theatres and six in emergency operating theatres. Noise level readings at different time points, during office hours and after hours, were obtained for each surgical discipline at CHBAH and in all emergency operating theatres using a Type 2 sound level meter, the Professional ET-958 model, with IEC61672-1 standard. The acceptable average noise levels in operating theatres in this study was ≤ 35 dB(A).

Results

The highest single peak noise level recorded was 97.1 dB(A) and the lowest single noise level was 41 dB(A). The average noise levels range from 60.9 dB(A) in interventional radiology to 68.5 dB(A) in orthopaedic surgery. No significant difference was found when comparing induction, incision and emergence ($p=0.5227$). No significant difference was found between the noise levels in the emergency and elective operating theatres. None of the noise levels at different time points were found to be compliant with the recommendations of ≤ 35 dB(A).

Conclusion

The results of the study conducted at CHBAH found that the noise levels occurring in the operating theatres are not compliant with and exceed the acceptable noise levels for operating theatres according to the South African National Standards, World Health Organization and Environmental Protection Agency.