

Quiet please in the intensive care unit

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A study presented at Euroanaesthesia 2016 shows that noise levels in the Intensive Care Unit (ICU) can go well above recommended levels, disturbing both patients and the medical teams that care for them. The study is by Dr Eveline Claes, Jessa Ziekenhuis Hospital, Hasselt, Belgium and colleagues.

Noise exposure in the intensive care unit can have a [negative impact](#) on patients' well-being as well as on optimal functioning of both nursing and [medical staff](#). WHO recommends average sound levels for hospital wards below 35 [decibels](#) (dBA) with a maximum of 40 dBA at [night time](#). Reported sound levels in ICUs are significantly higher with average sound levels always exceeding 45 dBA and for 50% of the time exceeding 52 dBA. After several patient complaints and remarks from the nursing staff as well as the medical staff about [noise](#), the study authors wanted to assess a potential noise problem by measuring sound levels in one ward (12 beds) of their hospital's ICU (Jessa Hospital).

A sound level meter (Amptec 10EaZy RT) was placed bedside in a two-bed room as well as at the nursing station. Measurements were performed after a two week adjustment period to avoid potential bias from people being aware noise was being observed (known as the Hawthorne Effect). Sound levels were continuously recorded for 24 hrs at each location.

Bedside, average sound levels were 52.8 dBA during the night and 54.6 dBA during the day. A total of 14 sound peaks above 80 dBA were recorded with the highest peak at 101.1 dBA. At the nursing station,

average sound levels of 52.6 dBA at night time and 53.9 dBA at day time were recorded. Here, there were 11 peaks above 80 dBA with a maximum sound peak of 90.6 dBA. Those measurements are significantly above the WHO recommendations of 35 dBA average and 40 dBA peaks, but comparable with other ICU recordings.

Equipment noise, alarms, hospital machinery and staff activity could all have contributed to the noise, says the authors. "Since electronic sounds are more arousing than human voices, so it is highly likely that the peaks we measured are alarm activity," explains Dr Claes.

She adds: "The sound levels in our ICU clearly exceeded the WHO recommendations but are comparable with sound levels in other ICUs. Those elevated sound levels as well as frequent sound level peaks can be responsible for the subjective feeling of noise pollution experienced by patients, nurses and doctors. In our department, measures should be taken to reduce the average sound level and the incidence and magnitude of sound level peaks."

However, she adds: "It is not easy to create an ICU without noise. We need the alarms to warn us about emergencies. Various programmes of staff education, task scheduling, equipment repositioning and alarm threshold review have not lowered sound levels to within WHO-recommended levels. The practical solution at present seems to be earplugs or other ear defender devices for patients, although there may be opportunities in the future to modulate alerts through the use of smart alarm systems and to develop equipment that produces less noise."

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