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Sound ear noise warning devices cause a sustained reduction in ambient noise in adult critical care

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Critical care is a busy environment, with patients subjected to disturbances throughout day and night. Elevated ambient sound levels are associated with adverse physiological and psychological effects including sleep disturbance, itself associated with delirium, causing a longer inpatient length of stay, prolonged recovery, and excess mortality and morbidity. We aimed to determine whether a sound-activated visual noise display meter, as previously trialed in neonatal critical care and operating theatres, could cause a sustained reduction in sound levels overnight in an adult critical care unit. Sound levels were recorded overnight in a busy neurosciences, trauma, and general adult unit for eight days before and after the introduction of a visual noise display meter, with a further eight days recorded four months later after continued use. Median ambient sound levels were significantly reduced from 57.4 dB by 3.9 dB, with a sustained reduction of 3.6 dB from baseline after four months of the device operating. Peak ambient sound levels had a small but significant reduction from 66.0 dB by 0.7 dB, with a sustained reduction of 0.8 dB after four months. We conclude that sound-activated visual noise display meters can be effective in providing a sustained reduction in ambient sound overnight, which would appear to be driven by behavioural change. We feel that the SoundEar is an inexpensive addition to the technological landscape that can offer a moderate and sustained reduction in night-time noise levels in both adult and neonatal critical care units.

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