Reducing Noise Levels in Intensive Care Units Using Noise Monitoring Technology

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Abstract

Intensive care units require many medical procedures, activities, machines, and staff that contribute to high levels of noise. These high noise levels have been found to cause adverse psychological and/or physiological health effects related to sleep disturbances, increased anxiety, and increased stress. These health effects may lead to decreased patient satisfaction. The purpose of this proposal is to explore the effectiveness of the *SoundEar 3-300* device in decreasing levels of noise and as a result, increasing patient satisfaction. The current research indicates that the *SoundEar 3-300* device is successful at reducing hospital noise levels. This device allows for the measurement and visualization of noise levels in the area in which it is placed. The *SoundEar* device lights up green when noise levels are below 60 dB, orange if noise levels are between 60 dB and 70 dB, and red if noise levels increase above 70 dB. Data will be collected throughout the day shift at the beginning and end of a three-month period. The first 7 days will serve as the control, and the devices will be placed near each nurse's station with no explanation and with the light indicators turned off. During the initial 7 days, patient satisfaction surveys related to unit noise levels will be completed by applicable patients on the unit. At the start of the second week, unit staff would be made aware of the device, what the colors indicate, and its importance. At the end of three months, data will be collected over another week. Outcomes will be evaluated by gathering mean ambient sound levels determined at each time interval as well as patient satisfaction surveys gathered throughout the three months. The desired outcome is that patient satisfaction will increase and unit noise will decrease by an average of 5 dB.

Keywords: SoundEar, Intensive Care Unit, ICU, Noise Level, Sleep, Anxiety, Stress