Noise Reduction in the Neonatal Intensive Care Unit

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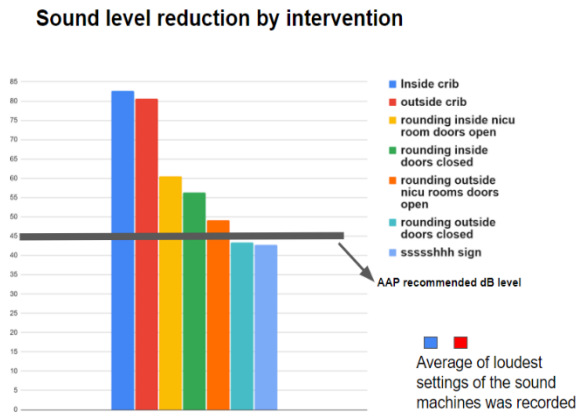
Introduction: Noise is any undesirable sound that causes stressful physiological and psychological responses. Intensity of sound is measured in decibels (Db). The exposure to ambient noise in neonatal intensive care units (NICU) can have short-and long-term adverse effects in preterm infants. Based on the adverse effects of noise on preterm infants, the American Academy of Pediatrics proposed that noise levels not exceed 45 dB in NICUs. Studies show average noise levels in NICUs range from 50 to 75dB, however, with peak levels often reaching 105 dB.

Objectives: To determine the noise levels of sound machines and to institute interventions to reduce the noise levels in the NICU.

Methods: This was an observational, descriptive study to evaluate the contribution of sound machines and the staff rounding to noise levels in the NICU rooms at Ascension St. John Children's Hospital. Sound Pressure Level (dBA) decibel readings from three sound machines were assessed. Sound levels during bedside rounds and after placing a quiet sign outside NICU doors were recorded. The sound levels were assessed using a calibrated Simpson Model 897 Dosimeter®.

Results: The baseline decibel levels for the three sound machines at their lowest setting when assessed in a sound-proof room were above the AAP-recommended noise level for neonates (45 dB). Two interventions with baseline decibel levels below the AAP-recommended level were: rounding outside the NICU rooms with the doors closed and implementation of a quiet sign.



Conclusions: Sound machines contribute to excessive noise levels; they were removed permanently from the NICU. The most-effective reductions in noise levels were achieved with rounding outside of the NICU rooms with doors closed and institution of the quiet sign.