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## A quality improvement study to evaluate the effectiveness of noise reduction package in reducing the level of noise and stress of health care providers in NICU, PGIMER, Chandigarh

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**Background:** Noise affects people psychologically and physiologically. The environment affects the delicate brain of the preterm deleteriously; thus, noise in NICU is a special concern. The AAP, 2007 recommends noise in NICU  $\leq 45$  dB.

**Aims:** To decrease the average noise in NICU by 25% from the pre-intervention levels over eight weeks and to decrease the level of stress of health care personal working in NICU by 25% over eight weeks.

**Methods:** Noise reduction program was implemented by taking baseline measurements using a digital sound level meter, Casella cell 63X at random locations. Multiple and intensive discussions was conducted with staffs of NICU and the QI group consisting of active clinicians and nurses regarding their views on noise and its effects on stress level and to formulate strategies to reduce the noise level such as sensitization program, quiet hours and so on. Interventions were grouped in Eisenhower matrix and a multiphase plan-do-study-act cycle was run. Regular feedbacks after each cycle were provided to motivate strategy adherence.

**Results:** Descriptive and inferential statistics using SPSS and QI Macros 2017 was employed to analyze the data. The overall decrease in the mean of the equivalent level is 7.03%, 7.72% and 7.74%, and a significant decrease in the peak level is 11%, 7.02% and 12.45% in the morning, evening and night shift, respectively. Major sources of noise reported to be from equipment's, alarms and human voice. Stress score significantly decreased with a mean difference of 6.45 and  $p < 0.001$ .

**Conclusion:** Findings of the study have substantial inferences for neonatal care as well as the general health of the health care providers and pinpoints the significance of noise monitoring in NICU. Constant reinforcement and regular interaction between the QI team and the staffs of NICU is essential to bring change in behavior and culture and to reach the recommended goal.

### Biography

Sandhya Ghai is working as a Principal at National Institute of Nursing Education, Postgraduate Institute of Medical Education and Research, Chandigarh, India. She has received Doctorate degree from Panjab University, Chandigarh. She published more than 100 papers in national and international journals. She was awarded with Best Educationist Award and is a life member of many organizations.

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