

The NICU environment: Not all silence is golden

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Medical technology has improved the survival rates of premature infants, but adverse developmental outcomes are a continuing problem. Researchers have turned their attention to the neonatal intensive care unit (NICU), where premature infants spend their first few weeks or months, for potential answers. In a new study scheduled for publication in *The Journal of Pediatrics*, researchers studied the relationship between different room types in the NICU and the developmental outcomes of the children at 2 years of age.

Research has suggested that the bright and noisy environment in the typical NICU may adversely affect the growth and development of premature [infants](#), so infants should be kept in a quiet environment. Therefore, many NICUs are undergoing renovations to create private rooms, rather than traditional open wards. According to Roberta Pineda, PhD, and colleagues from Washington University School of Medicine, "We hypothesized that infants hospitalized in private NICU rooms would have better neurodevelopmental outcomes than infants in open wards."

The researchers studied the outcomes of 127 infants born preterm infants were assessed again at 2 years of age, which showed that children who were in private rooms in the NICU had lower language scores and demonstrated a trend toward having lower motor scores and more externalizing behaviors.

Although there has been a trend to reduce noise exposure to infants in

NICUs by changing to a private room model, this research raises concerns that this change might result in insufficient stimulation for normal [brain development](#). Sensory deprivation is known to affect neurodevelopment, and private rooms decrease the sensory experiences, like sound and light, of the infants. Dr. Pineda notes, "Although a noisy NICU environment might well be detrimental to brain development, a lack of voice and auditory exposure with long periods of silence may also be detrimental." Further research should be directed at determining the optimum environment for infants within the NICU.

More information: "Alterations in brain structure and neurodevelopmental outcome in preterm infants hospitalized in different neonatal intensive care unit environments," by Roberta Pineda, PhD, Jeff Neil, PhD, Donna Dierker, MS, Chris Smyser, MD, Michael Wallendorf, PhD, Hiroyuki Kidokoro, MD, Lauren Reynolds, OTD, Stephanie Walker, MSOT, Cynthia Rogers, MD, Amit Mathur, MD, David Van Essen, PhD, Terrie Inder, MD, appears in *The Journal of Pediatrics*, DOI /10.1016/j.jpeds.2013.08.047

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