

Optimal NICU design and environment

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The stimuli, or lack of stimuli, from the neonatal environment will influence the brain development and neurobehavioral development in preterm infants. We have research knowledge of the significance of protecting sleep and providing skin-to-skin contact to preterm infants. Parent-infant interaction and parents' wellbeing are protective factors for child development. Hearing adult words has been shown to associate with better language development in preterm infants. On the other hand, we know that noise and bright lights cause stress in preterm infants. All these influences can both be modified by choices made in NICU design. Single family room architecture allows a good control of auditory environment and supports parents' presence by providing space and privacy. In addition, single family room architecture of a NICU associates with better medical outcomes, especially lower risk for sepsis, and better child development.

This talk reviews evidence behind NICU design and also speaker's own experience of planning a new NICU with emphasis on minimizing parent-infant separation. Important elements were implemented in the delivery room to enable very early skin-to-skin contact. The new design allowed implementing couplet care in the NICU. The new design provides the infants in the NICU with less noxious and more nurturing stimuli and better opportunity to form a healthy attachment relationship with his/her parents. Single-family rooms and couplet care bring family members together and provide privacy, individuality and a sense of closeness, which have been shown to benefit all family members.