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Infant neurobehavioral development.

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Abstract

The trend toward single-room neonatal intensive care units (NICUs) is increasing; however scientific evidence is, at this point, mostly anecdotal. This is a critical time to assess the impact of the single-room NICU on improving medical and neurobehavioral outcomes of the preterm infant. We have developed a theoretical model that may be useful in studying how the change from an open-bay NICU to a single-room NICU could affect infant medical and neurobehavioral outcome. The model identifies mediating factors that are likely to accompany the change to a single-room NICU. These mediating factors include family centered care, developmental care, parenting and family factors, staff behavior and attitudes, and medical practices. Medical outcomes that plan to be measured are sepsis, length of stay, gestational age at discharge, weight gain, illness severity, gestational age at enteral feeding, and necrotizing enterocolitis (NEC). Neurobehavioral outcomes include the NICU Network Neurobehavioral Scale (NNNS) scores, sleep state organization and sleep physiology, infant mother feeding interaction scores, and pain scores. Preliminary findings on the sample of 150 patients in the open-bay NICU showed a "baseline" of effects of family centered care, developmental care, parent satisfaction, maternal depression, and parenting stress on the neurobehavioral outcomes of the newborn. The single-room NICU has the potential to improve the neurobehavioral status of the infant at discharge. Neurobehavioral assessment can assist with early detection and therefore preventative intervention to maximize developmental outcome. We also present an epigenetic model of the potential effects of maternal care on improving infant neurobehavioral status.

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