

# STRONG CHILDREN'S RESEARCH CENTER

## Summer 2019 Research Scholar

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### ABSTRACT

**Title:** *Neurodevelopmental outcome of preterm neonates in different NICU room types – a retrospective study*

**Background:** Sensory experiences for preterm infants in the neonatal intensive care unit (NICU) can affect neurodevelopmental outcomes. To reduce overstimulation and encourage family involvement, many hospitals have remodeled their NICU's from open bays to single private rooms<sup>1</sup>. Golisano Children's Hospital made this transition in July 2015. There are contradictory findings on neurodevelopmental outcomes for neonates cared for in single rooms, with both improved and adverse outcomes reported<sup>2,3</sup>.

**Objective:** To compare the neurodevelopmental outcome of preterm neonates cared for in open bays with those cared for in single rooms

**Methods:** A retrospective cohort study of neonates born less than 27 weeks gestation admitted to the NICU at Strong Memorial Hospital/Golisano Children's Hospital in two epochs from June 2013 – December 2014 (open bay) and August 2015 – November 2016 (single room). Data were collected on maternal and neonatal demographics, significant medical conditions during admission and neurodevelopmental assessment at 22-26 months corrected age (neurological examination and Bayley-III assessment). Student t-tests were used for numerical data and Chi Square tests for categorical variables.

**Results:** 75 children were included – 39 from open bay and 36 from single rooms. Antenatal significant findings were more Hispanic mothers ( $p=0.01$ ) and lower gravidity (0.03). The only postnatal finding of significance was decreased ROP requiring treatment in the single rooms ( $p=0.02$ ). No significant differences were observed in neurodevelopmental outcomes between those cared for in open bays and single rooms.

**Conclusion:** In this small single center study, caring for neonates in single rooms does not appear to result in adverse neurodevelopmental outcomes. This may be reassuring to health care providers concerned with possible sensory deprivation in single room NICU's compared to open bays.

### References:

<sup>1</sup> White RD, Smith JA, Shepley MM. (2013). Recommended standards for newborn ICU design. *J Perinatol*, 33(S1), S2.

<sup>2</sup> Lester BM, Hawes K, Abar B, Sullivan et al. (2014). Single-family room care and neurobehavioral and medical outcomes in preterm infants. *Pediatrics*, 134(4), 754-760.

<sup>3</sup> Pineda RG, Neil J, Dierker D et al. (2014). Alterations in brain structure and neurodevelopmental outcome in preterm infants hospitalized in different neonatal intensive care unit environments. *J Pediatr*, 164(1), 52-60.