



Research Round-up September 2022

Reference: Synnes, A. R., J. Petrie, R. E. Grunau, P. Church, E. Kelly, D. Moddemann, X. Ye, S. K. Lee, and K. O'Brien. 2022. 'Family integrated care: very preterm neurodevelopmental outcomes at 18 months', Arch Dis Child Fetal Neonatal Ed, 107: 76-81.

url: <https://pubmed.ncbi.nlm.nih.gov/34145042/>

Welcome to the September 2022 Research Round-up. This month we will look at an article entitled " Family integrated care: very preterm neurodevelopmental outcomes at 18 months." This article was published in 2022 in Archives of Disease in Childhood: Fetal & Neonatal Edition. I picked this because I am passionate about family involvement. Full disclosure – I also know many of these authors and love what they are doing clinically. Click on the URL above to go to the full text. Remember to download the handouts “Critical Review of the Literature” and the Research Roundups definitions file if you need information on any of the abbreviations used. We will go through this article to better understand what was done and what we can draw from this study.

Title: The title accurately describes the study.

Abstract: The abstract summarizes the study objectives, design/methods, results and conclusions. This is a prospective cohort study.

Background or Introduction: We once again start with looking at the references, with <2012, or published ≥ 2012 as our separation window. For the entire article, there are 37 references; of these, 19 references were published prior to 2012 and 18 published in 2012 or later. In the background section, of the 17 articles cited, 6 were published prior to 2012.

The authors begin with a statement about the challenges preterm infants and their families face within the NICU environment. Preterm infants are exposed to a different sensory experience in addition to painful procedures. Both are associated with neurodevelopmental outcomes. Families are often relegated to passive observers rather than parents and are under tremendous stress. They then briefly describe the intervention they used in this study – the FICare program. This program integrates parents into parenting activities while in the NICU, including completing medical charts and providing reports during rounds. Education as well as both physical and psychological supports help parents be their child’s caregiver. A pilot study of FICare showed parents were less stressed and more confident and competent in caring for their infant. This pilot also showed significant improvements in rate of weight gain, breast feeding at discharge, reduction in incidence of nosocomial infection, number of critical incident reports and number of medication errors. The aims in this study were to evaluate whether very preterm infants whose parents were part of the FICare program would demonstrate improved outcomes at 18 months of age. Primary outcome was a Bayley-III Cognitive or Language composite score <85 at the 18-month visit. Secondary outcomes were to look at short-term morbidities as well as individual longer-term outcomes.

Study Population: This study is a follow-up cohort study of infants born within Canada, born within five NICUs who were using FICare and five NICUs who were the control group. These were part of a larger trial with 26

NICUs from three countries. Data is collected on an ongoing basis for infants within this country, as part of the Canadian Neonatal Network (CNN). Potential confounders are collected routinely. Eligible infants were those who came to the follow-up appointment. There were 217 control and 238 FICare children.

Methodology: The study included infants who were part of the Canadian NICU follow-up network. There is a standardized assessment at the 18–21-month age, which includes the Cognitive, Language and Motor domains of the Bayley-III. Anthropometrics were also collected. The child receives a physical examination that includes assessing neurological functioning, hearing, and vision.

Statistical Analysis: The authors describe their statistical analysis. They described their population using descriptive statistics and assessed differences using appropriate statistics (chi-square or Student's t-test or Wilcoxon rank sum test). They used similar statistics to look at differences in the outcomes. Finally, they used multivariable linear/logistic regressions to look at the roles of potential confounders.

Outcomes/Results: Infants in the FICare group had more brain injury and were more likely to have an employed parent/caregiver; all other demographic characteristics were not statistically significantly different. BPD was higher in the FICare group, but it was at the $p=0.07$. For the primary outcome, there was no significant difference in Bayley-III Cognitive or Language composite scores <85 – unadjusted or adjusted. FICare group had higher BMI and mean Bayley-III Motor composites ($p=0.0044$) compared to the control group.

Discussion/Conclusions: The authors begin by reiterating the results of their study. The only differences were better Motor composite scores for FICare, and better BMI. The improved BMI is like the improved growth outcomes seen in the NICU period, in the original study. I really loved reading their conclusions. The authors connected their outcomes with the fact that the best environment for infants is with their parents. They also correlated their findings with the original study. They expand on the implications of their findings – the main being that the earliest environments within which the infant develops influences development.

Does this fit with your experience: Absolutely! I loved this article. While the outcomes were not amazing, the FICare program sounds amazing. I am now going to go back and investigate it more. What about you? How much do you include parents in all aspects of parent activities while in the NICU?

Other: The authors disclose funding and explain that the funding agencies did not have any role in data collection or analysis. No competing interests were disclosed. Ethics approvals were described. The authors describe the responsibilities of all the authors as well. They list collaborators and acknowledge a statistician group. The ORCID ID is also listed.