

# An observational study of the provision of nutrition to Neonates <34 weeks gestation in the Lyell McEwin Hospital Special Care Nursery

Anna Ritan, Senior Paediatric Dietitian, Lyell McEwin Hospital, NALHN

*Early nutrition intervention for pre-term infants in the first few weeks of life is associated with improved growth and better neurodevelopment outcomes in early childhood and an improvement in long-term outcomes<sup>1,2</sup>*

## Objectives

This observational study aims to collate the types of nutrition interventions provided to inborn surviving preterm infants < 34 weeks gestation within the special care nursery of the Lyell McEwin Hospital and the time taken to meet 100% of recommended energy and protein requirements recommended by ESPGHAN<sup>2</sup>. The outcome of this project could provide a platform for funding for Dietetics within the special care nursery to provide specialist nutrition support and implementation of a multidisciplinary neonate nutrition support team and the implementation of a Lyell McEwin Hospital neonate nutrition guideline.

## Method

Potential participants were identified from case mix data as those born < 34 weeks gestation at the Lyell McEwin Hospital and admitted to the SCN from October 2018 – June 2019 (n=16). Outcome data was collected retrospectively from patient files and analysed. Primary outcomes included weight classification, first source of nutrition, exposure to breastfeeding, commencement of enteral nutrition, if and when requirements for fluid, energy and protein were met (based on ESPGHAN Guidelines), documented plans for feed upgrade, identification of feeding issues and dietetics involvement. Secondary outcome measures of anthropometric data was also collected.



### References

1. Harding et al 'Advances in nutrition of newborn infants' 2017, Lancet 389, 1660-68
2. Agostoni C et al. 'Enteral nutrient supply for preterm infants: commentary from the European Society of Paediatric Gastroenterology, Hepatology and Nutrition Committee on Nutrition 2010 J Paediatric Gastroenterology and Nutrition 50: 85-91
3. Boyce et al 'Preterm human milk composition: a systematic literature review' 2016, British Journal of Nutrition 116, 1033-1045
4. Koletzco et al 'Defining the Nutritional needs of pre-term Infants' 2014, World review of Nutrition and Dietetics 110, 4-10

## Results

### Current Practice compared to Recommendations

1. The early benefits of **breastmilk for preterm infants** include improved feed tolerance, gastrointestinal maturity and lower incidence of necrotizing enterocolitis (NEC) and infections<sup>1,2,3,4</sup>.

2. Recommendations for energy and protein intakes are based on ESPGHAN Guidelines<sup>2</sup>  
  
**75% of preterm infants met the recommendation** for energy and protein prior to discharge.

3. **Growth from Birth to Discharge:** Current recommended goals for neonatal growth are to achieve post-natal growth similar to the intrauterine rate of growth. Change in weight for age z-score is recommended for use as a single indicator for growth and nutritional status long term (> 2 weeks):  
  
Mild Malnutrition: Decline of 0.8 - 1.2- SD  
Moderate Malnutrition: Decline of 1.2- 2.0 SD

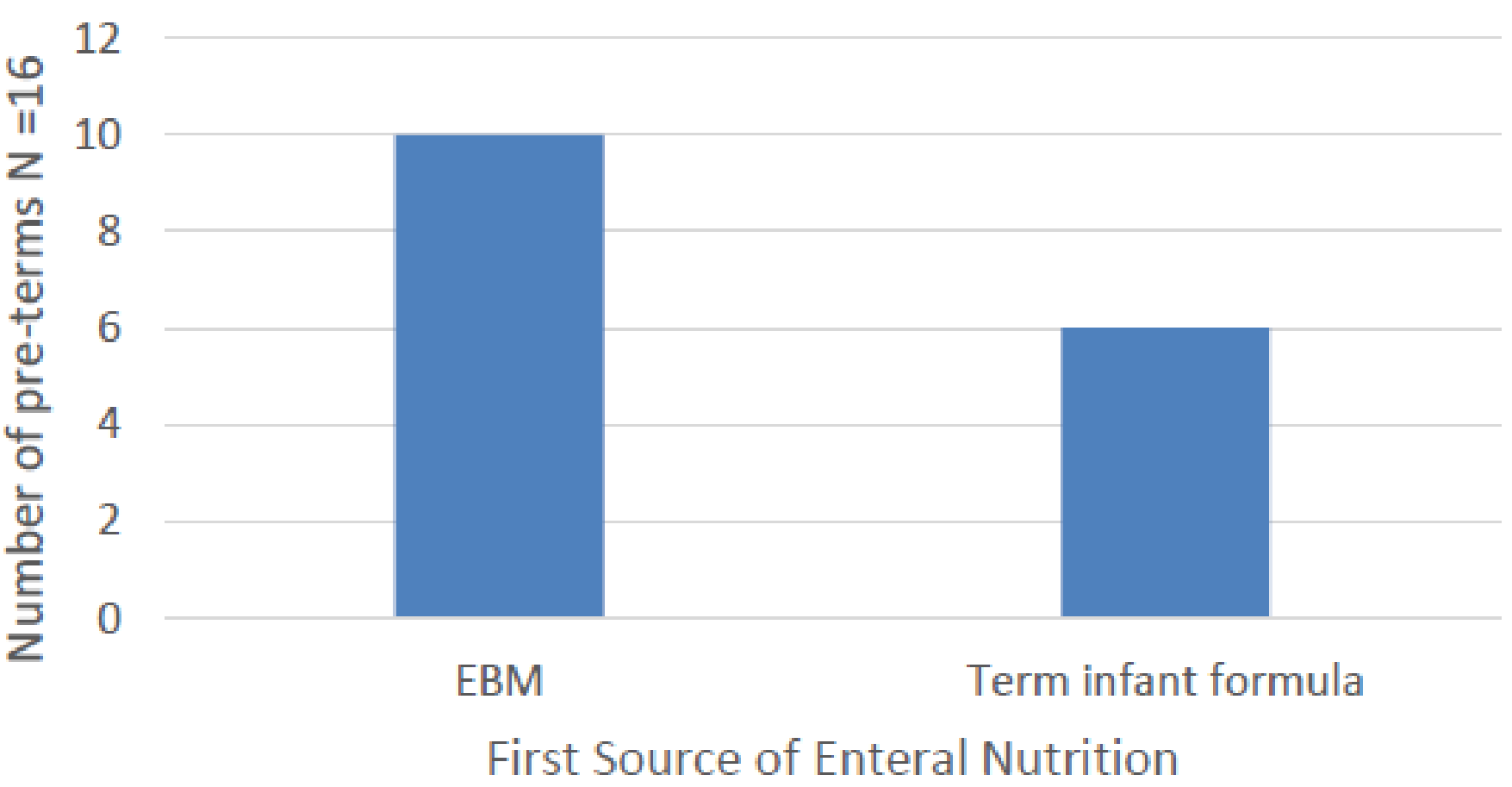


Figure 1. First source of enteral nutrition

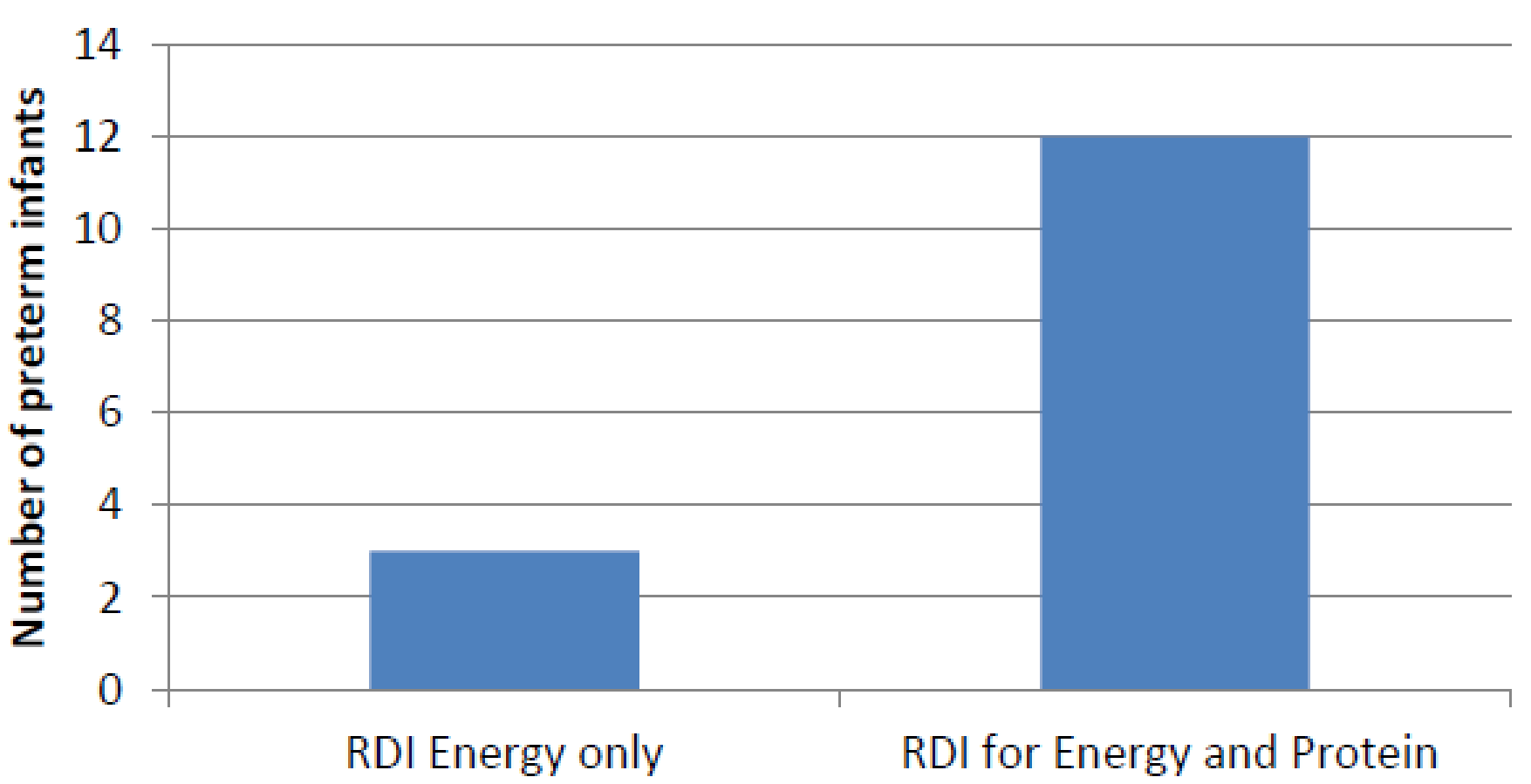


Figure 2. Number of pre-terms who met 100% RDI

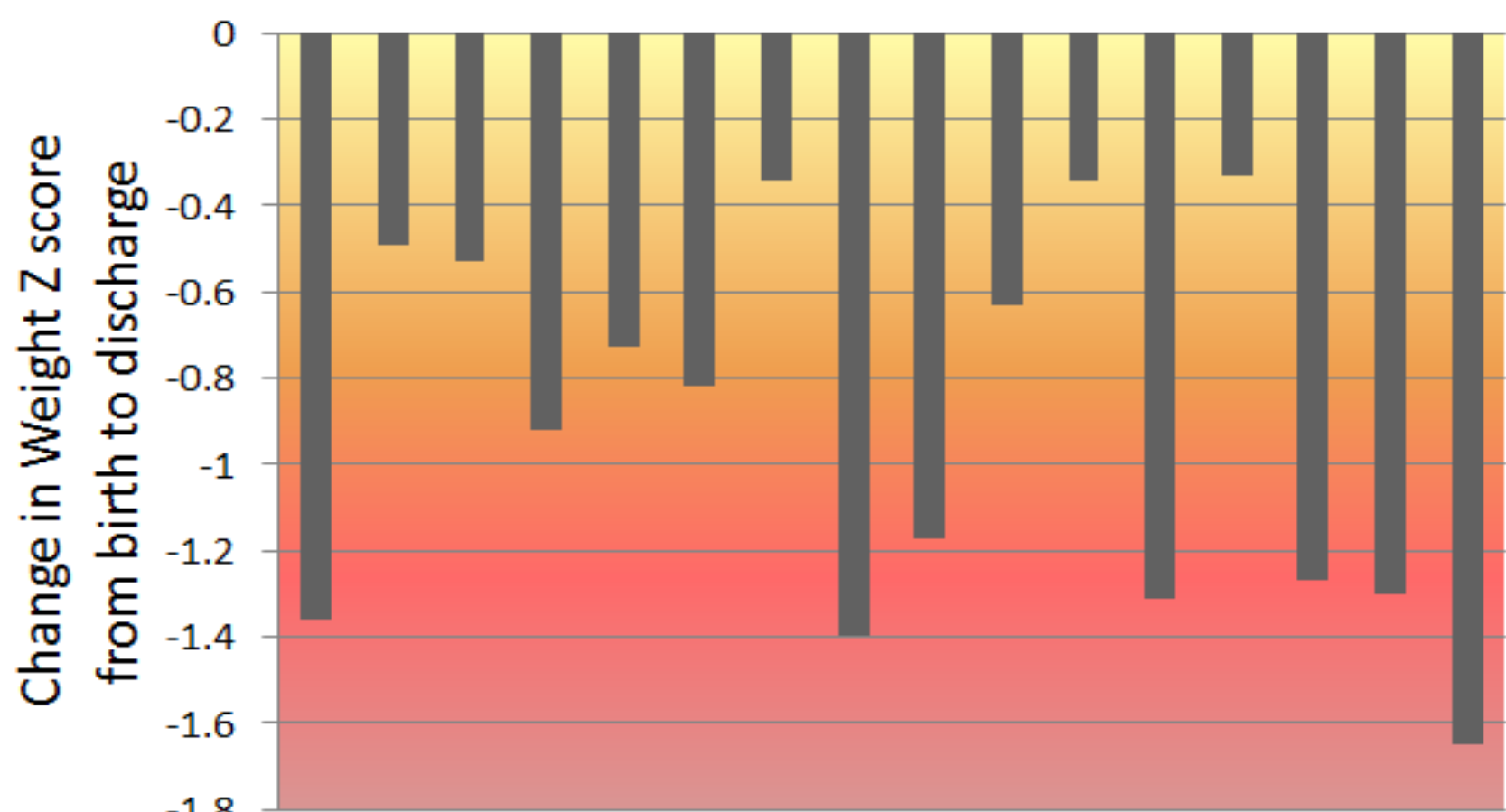


Figure 3. Change in weight z score - Birth to Discharge

**62% received Breastmilk first**

**The mean time taken to meet requirements was 7 days**

**All 16 pre-term infants dropped in percentile weight**  
  
**56% were mild to moderately malnourished**

## Summary and Recommendations

Suboptimal nutrition is provided to preterm infants < 34 weeks on the SCN. 56% of preterm infants at discharge were mildly to moderately malnourished. There is a lack of standardised feeding practices on the unit which result in delays to meet nutrition requirements.  
  
**Further investigation into standardising key areas of nutrition care and growth monitoring is recommended with specialist Dietetic support on the unit.**



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Poster created by Lucilla Chiro, Acting Senior Dietitian, LMH