Reviewer's report

Title: Determinants of rapid weight gain during infancy in participants in the NOURISH early feeding trial.

Version: 1 Date: 16 May 2011

Reviewer: Jackie Blissett

Reviewer's report:

This is an interesting study in the very valuable subject area of rapid infant weight gain that should be of interest to many readers of BMC Pediatrics.

The authors examine the predictors of rapid weight gain from birth to 4-7 months of age, based on baseline data from a cohort of infants who are part of a large RCT examining an intervention to promote positive feeding practices. The study has some important findings, but I also have some concerns about a number of aspects of the design and interpretation.

- Major Compulsory Revisions

The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

1. My primary concern with this paper is that it is a report on baseline data from an RCT prior to randomisation and administration of intervention, but that it is not clear from the outset that that the paper does not report the outcomes of the RCT nor make use of other data from the RCT, of which the methods are described. For example, methods paragraph 5 describes a questionnaire concerning food refusal, fussiness, restrictive feeding, parenting skills but the data are not reported and these measures are not mentioned again in the paper, which may be misleading or confusing for readers. I do not object to the use of these data to investigate an important question, and it has to be acknowledged that the participants came from a trial, but I think the framing of the paper, from title, through abstract and method, needs to be clearly linked to ONLY the focus of the research in question, not the trial more generally.

2. Method paragraph 6 exposure variables: groups were clustered into formula feeding and any breastfeeding. Do the authors have any data on the types of breastfeeding strategies they could present here e.g. proportion of feeds that are breast milk, expressed breast milk etc? This matters, given that someone who is mixed feeding could formula feed for the majority of the time, and express breast milk to be given in a bottle for the remaining minority of the time. This does change the dynamic of the feeding interaction and has implications for your conclusions about the mechanism of any protective effects of breastfeeding (or detrimental effects of formula feeding). Did the authors consider ‘removing’ the mixed feeding cases? Would analyses be substantially different if one compared
‘pure’ breastfeeding to formula feeding? A similar comment may be made about the division of feeding to schedule and mixed feeding style.

- Minor Essential Revisions

3. The authors need to explain why there is such variation in timing of baseline data collection. This is a weakness of the study, given that baseline data collection is therefore occurring at a period in which solid feeding is likely to commence. Whilst the study does attempt to examine this as a factor, and controls for age of infant in the models, I think it is important to explain the reasons for this variation and to include in the discussion how this may limit the study. It would be useful to know, for example, whether the age at which baseline data were collected was related to the speed of weight gain, or whether it differentiated between rapid and slower weight gain groups.

4. Method paragraph 5 under data collection: it is stated that ‘prior to the baseline assessment’ a series of measures were given. As previously discussed this needs to clearly delineate which are going to be reported on in the current study, and needs to explain more precisely when these measures were given. This paragraph also refers to a growth assessment in the last line. Is this the same as the baseline assessment?

5. Discussion paragraph two focuses on the fact that the study supports the idea that behavioural factors such as a maternal control of feeding may be important mechanisms. However, there is nothing in the study that negates the role of the bioactive components of breast milk (e.g. leptin) or the constituents of breast milk (lower calorie and lower protein). In other words, especially given that the methods of mixed feeding are not taken into account, one might argue that the study gives evidence for the potential role of bioactive aspects of breast milk, as well as the behavioural advantages of breastfeeding for self regulation. This needs to be considered.

- Discretionary Revisions

6 Background paragraph 2 I felt the sentence which describes the relationship between increased length of breastfeeding and weight gain could be rephrased to explain whether ‘in the 3-6 month group’ refers to the relationship being strongest in this age group, OR that the relationship is stronger in groups breastfed to this age.

7 Background paragraph 2 also describes the studies which have and have not found a link between breastfeeding and BMI. I wondered if it might be useful to highlight that where positive relationships are not found, the literature usually finds null effects rather than inverse effects and that this may be an issue of power for many of the studies.

8 Background paragraph 4 explains the WHO growth standards. It might be useful to explain why these particular standards were chosen as the reference for this group of infants.

9. Statistical analyses paragraph 1: ‘compared qualitatively to determine if there
were substantial differences in a contextual sense’- this did not make clear sense to me, and it was not reported whether there were any substantial differences between groups as a result of this process.

10. Results: feeding practices and styles: 32.5% of infants had started solids. However, given that some of them were over 6 months old, this is not surprising. It would be better to report the percentage of people introducing solids before national/international guidelines recommend.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests