Baby Milk Trial Summary

Title

Establishing a healthy growth trajectory from birth: Explanatory trial of a theory-based, multi-component intervention to reduce formula-milk intake and prevent excess weight gain during infancy-The *Baby Milk* trial.

Rationale for the study

Obesity is common even in young preschool children. In England by the time children start school, more than 1 in 5 are overweight or obese.

Infancy is a period of rapid growth, and there is evidence for long-term 'programming effects' of rapid-weight gain and nutrition during infancy. Hence obesity prevention in infancy may be effective.

Many Formula-fed babies are likely to be overfed. The 2004 FAO/WHO/UNU recommendations on infancy energy requirements are 15-20% lower than the previous guidance but have yet to be universally adopted. These lower recommendations form the basis of our intervention.

WHO 2006 growth charts based on the growth of breastfed babies suggest a lower plane of growth compared to the UK1990 growth charts. Growth monitoring using the new UK-WHO growth charts is one component of our intervention.

Principal research questions

The primary objective is to evaluate the cost-effectiveness and acceptability of a complex behavioural intervention to avoid excess formula-milk intake and prevent rapid infancy weight gain among babies who are introduced to formula-milk feeds within twelve weeks of birth. The primary outcome is change in weight standard deviation score (SDS) from birth to 1 year and the study is powered to detect a 0.23SDS difference between the two groups. Secondary objectives are to quantify the effects of the intervention on infant anthropometry, milk and dietary intakes, sleep, temperament, appetite and maternal attitudes.

Study design

Single (assessor) blind, parallel group, individually randomised controlled trial.

Inclusion and Exclusion criteria

All healthy term infants who are receiving some formula-milk before age 3 months will be eligible to participate. Exclusions: low birth weight (<2,500g) and pre-term infants (<37 weeks

gestation) and infants with major malformations, hormonal or metabolic diseases which might interfere with nutrition or growth. Infants who are on special formulas (soya-based, lactose-free, hydrolysed or anti-reflux formulas) at the time of recruitment will also be excluded; however infants who start on such milk formulas after randomisation will be retained.

Duration

The intervention will be delivered from infant ages 2-14 weeks to age 6-7 months. Outcome assessment will continue up to age 12 months.

Recruitment

Participants will be recruited through the local maternity hospital, community midwives, health visitors, Children's centres, GP surgeries and public advertisement. Only mothers who have already started to partially or fully use formula-milk will be recruited, so that breastfeeding rates are not affected. Mothers who have introduced formula-milk within 3 months of birth will be given the study information sheet and asked to contact the study team at the MRC Epidemiology Unit to arrange their baseline visit.

Intervention group

The intervention will be delivered by trained facilitators at 4-6 weekly intervals. The intervention consists of three components: 1) a motivational component based on Social Cognitive Theory, 2) a component to help translate motivations into actions (including goal setting, action plans and self-monitoring), and 3) a component to help mothers to cope with barriers. The intervention comprises 3 x 30-45 min face-to-face contacts (at baby's ages 2, 4 and 6 months) and 2 x 15-20 min telephone contacts (at 3 and 5 months) in addition to theory-based intervention leaflets (at 2 and 4 months).

Control group (usual care)

The control group will have the same number of contacts as the intervention group during which general information about formula-milk feeding and infant health will be discussed and continued participation in the study will be encouraged.

Ethical Approval: Cambridgeshire South Research Ethics committee. Reference number: 10/H0305/9. **Trial Registration :** ISRTCN 20814693

Assessment of safety: As the aim of the intervention is to realign the growth of formula-fed infants more closely to that of breastfed infants, we consider that the risks to the babies (and mothers) will be negligible. A 15% lower formula-milk intake will result in 0.30SDS lower weight gain (less than half the difference between two centiles lines which is 0.67SDS). However we will actively elicit and record any (seemingly related or unrelated) adverse events and report / take action as appropriate.

Eliciting adverse events

- Baby weight measurements might reveal Underweight (weight < 0.4th centile) or Weight faltering (crossing down through ≥ 2 weight centile lines).

- We will ask at each visit whether the baby has had any unplanned contacts with a health professional (i.e. other than routine immunisations or health checks) and ask the parent/carer if they have any health concerns about the baby.

Reporting of adverse events

- All adverse events will be recorded in the Case Report Form, and depending on severity and likely causality, will be reported to the Sponsor / Ethics Committee according to GCP guidelines.

- Incidental findings of Underweight or Weight faltering (as defined above) will be reviewed by our clinically trained investigators (GP or Paediatrician) and reported to the baby's GP together with advice on management. In the first instance, in the absence of other symptoms, this will usually be more frequent monitoring of weight by the Health Visitor or GP (NICE Guidance PH11 Maternal and child nutrition).

- All other incidental findings will be discussed with our clinically trained investigators who will decide whether further assessment and/or reporting to the baby's GP, and continued participation in the trial are indicated.

Trial Flow Chart: