



**Paper for discussion: Draft recommendations for the report
‘The influence of maternal, fetal and
child nutrition on the development of
chronic disease in later life’**

Agenda item: 3

Please see attached draft recommendations for the report on ‘The influence of maternal, fetal and child nutrition on the development of chronic disease in later life’. These have been written following public consultation of the draft report (comments received from the consultation are circulated for information – see paper SACN/10/15).

The draft recommendations are being presented to the Committee for the first time, so members are asked to focus their discussion on this paper.

DRAFT RECOMMENDATIONS

Recommendations for public health intervention

1. There is a need to increase appreciation amongst the public, policy makers and health professionals of the well established links between imbalanced nutrition in early life and later chronic disease risk. Improving the nutritional status of women, infants and young children has potential to reduce chronic disease risk in future generations.
2. Optimisation of fetal nutrient supply requires the achievement of adequate nutritional status prior to conception. Interventions that address dietary and lifestyle change between infancy and adolescence are central to the promotion of women's reproductive health.
3. Many young women consume diets that compromise their ability to meet the nutrient requirements associated with pregnancy. Efforts to improve diet quality should focus on the diet as a whole and not on single nutrients. Increasing fruit and vegetable consumption has the potential to improve overall micronutrient status of individuals and lower the risk of vitamin and mineral deficiencies.
4. Awareness of the appropriate use of vitamin D and folic acid supplementation must be raised amongst the public and health professionals. The Healthy Start scheme offers a means to achieve this amongst low-income families who are at greatest risk, but guidance should be addressed to all women.
5. Strategies that promote, protect and support breastfeeding should be extended and should acknowledge the impact made on long-term health outcomes. There is particular need to deliver proactive skilled support around the time of birth and during the early weeks when rates of discontinuation are highest
6. The rising prevalence of maternal obesity has potential health and economic implications for future generations, through its adverse impact on fetal development and the health of the child in later life. Women should be informed about the risks associated with excess weight during pregnancy and be supported in maintaining a healthy weight before, during and after pregnancy.
7. Health professionals must be able to provide appropriate advice and information on diet and lifestyle, particularly in the peri-conceptual period, during pregnancy and the early childhood years. The rationale for recommending certain dietary supplements should be more clearly communicated to the public.
8. Schemes such as Healthy Start offer important opportunities to address health inequalities by combining educational interventions with economic incentives. Health professionals must ensure that women eligible for Healthy Start are offered practical, tailored information, support and advice on healthy eating, breastfeeding and the appropriate use of micronutrient supplements.
9. There is a need to address the increased nutritional vulnerability of underweight women and to recognise the increased nutrient demands of those who become pregnant before completing their own growth.

Research recommendations

10. Commissioners should support large, longitudinal cohort studies capable of characterising relationships between early life nutritional exposure and adult chronic disease risk. Such studies should incorporate measures of pre-conceptual nutritional status, fetal and placental growth, offspring body composition and metabolic competence. Measurements should be repeated at intervals as postnatal growth proceeds and should describe the maturation of body composition and metabolic competence. Such data will assist further in characterising growth patterns associated with greatest risk of adult chronic adult disease.
11. The influence of early infant feeding on later body composition and metabolic function needs to be better understood. Controlled studies which investigate changes to the composition of infant formula should consider how long-term outcomes might be captured.
12. Standardisation of measures of exposure and outcome indicators used in observational research would assist accumulation of data and comparison between populations. The identification of reliable early biomarkers for later disease risk would facilitate the design of future intervention studies.
13. Consideration should be given to building a longitudinal element into future national surveys of diet and nutrition in the UK. Repeated measures of body size and dietary intake could be incorporated and possibly linked to health outcome data. The National Diet and Nutrition Survey programme should also consider recruitment of pregnant and breastfeeding women.
14. Further exploration of the variation in birthweight between ethnic groups is required. The causes and consequences need to be better understood, particularly the relationships between birthweight, body composition and metabolic competence. There is an associated need to measure any trends in these outcomes as succeeding generations are born in the UK.
15. Further controlled studies in animal models are required to expand understanding of epigenetic processes by which nutrients can alter gene expression and phenotype. There is an associated need to understand how interactions between vitamins involved in the methylation cycle may affect human pregnancy and expression of the offspring's genome.