

Health and Social Care Committee inquiry: First 1000 days of life

Written evidence from CLOSER, the home of longitudinal research

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1. Introduction

- 1.1 CLOSER, the home of longitudinal research, is an interdisciplinary partnership that brings together eight world-leading longitudinal studies with participants born throughout the 20th and 21st centuries, the British Library and the UK Data Service. [1]
- 1.2 Our work aims to maximise the use, value and impact of the UK's longitudinal studies in order to help improve our understanding of key social and biomedical challenges. See our website (www.closer.ac.uk) for more details.
- 1.3 Longitudinal studies follow the same people and households over time, often from birth, collecting a wide array of information about participants' lives and providing insights about the dynamics of individual behaviour and the influence of early life events and circumstances on later life outcomes.

2. Context

- 2.1 Whilst the 'Building Great Britons' report, published in 2015, [2] is informed by the evidence available at that time, more recent research using longitudinal studies has shone new light on this area, evidence from which informs our recommendations regarding the priorities for a national strategy.
- 2.2 Research has shown that dietary interventions starting in pregnancy can reduce weight gain and adiposity in obese women but have little effect on pregnancy outcomes, whereas the few benefits of multiple micronutrient supplementation in pregnancy appear to occur too late to fundamentally improve child health outcomes. [3] In essence, while the period after conception directly influences a baby's physical, environmental and social development, the preconception period is also vitally important.
- 2.3 The nutritional status of both women and men before conception has profound implications for the growth, development, and long-term outcomes of their offspring. Recent evidence suggests that intervening to improve men's and women's nutritional status before pregnancy improves long-term outcomes for mothers and babies. [4] Evidence from research using the Southampton Women's Survey has demonstrated the role of nutrition and lifestyle in the preconception period and its importance for future health. In summary, a woman who is healthy at the time of conception is more likely to have a successful pregnancy and a healthy child.

- 2.4 Findings from the Southampton Women’s Survey have found that educational attainment was strongly associated with quality of diet and fruit and vegetable intake before pregnancy, with the more highly educated being more likely to conform to dietary recommendations. This underlines the need for increased awareness for those women who are planning a pregnancy, with a focus on disadvantaged women. Qualitative work linked to the Southampton Women’s Survey highlighted the role of partners in influencing the woman’s diet and that of children in the home. Thus, men’s health behaviours before conception are important too. [5]
- 2.5 Research using the Avon Longitudinal Study of Parents and Children (ALSPAC) found that insufficient levels of Vitamin D in pregnancy are detrimental to child development. The study found that Vitamin D deficiency in expectant mothers during pregnancy can have a negative effect on the social development and motor skills of their children. Lack of Vitamin D in pregnancy was also found to affect a child’s social development at the age of three and a half. [6] Data from the Southampton Women’s Survey also demonstrated the importance of vitamin D, but this was in relation to bone and muscle development. [7]
- 2.6 Findings from a number of longitudinal studies indicate the value of breastfeeding. It has shown to be beneficial for cognitive development and is associated with eating habits in later life: people who had been exclusively breastfed ate more fruit, vegetables, wholemeal cereals and oily fish as adults than those who were breast and bottle-fed, or bottle-fed only. They were also less likely to eat lots of white bread, chips, added sugar and processed meat. Interestingly, the benefits were strongest for infants whose mothers faced circumstances that may have deterred them from breastfeeding, such as poor health, lower socioeconomic status, and single parenthood. [8]
- 2.7 The same research also found that breastfeeding protects against a wide range of respiratory and gastrointestinal illness, including chest wheezing or whistling, prolonged cough, chest infection, bronchitis, bronchiolitis, pneumonia, diarrhoea and vomiting. [8]
- 2.8 Research using ALSPAC has demonstrated that in addition to the known health benefits of breastfeeding, it can also bring additional economic benefits to the individual and to society. Publicly financed programmes to encourage breastfeeding that achieve an increase in breastfeeding rates would be highly cost-effective and should be supported. [9]

3. Top priorities for a national strategy

- 3.1 The following priorities for a national strategy are informed by evidence from a number of world-class longitudinal studies, including the Hertfordshire Cohort Study, MRC National Survey of Health and Development, Southampton Women’s Survey, Avon Longitudinal Study of Parents and Children, 1958 National Child Development Study, 1970 British Cohort Study, and Millennium Cohort Study. Profiles of each study are at the end of this submission.
- 3.2 Evidence from the CLOSER studies point towards a number of priorities for a national strategy. The first and fundamental point is that the most recent evidence available must

inform a national strategy and therefore a sharper focus on interventions to improve women's nutritional status and health behaviours starting in the preconception period is required.

- 3.3 Priority 1: The national strategy should recognise the importance of the preconception period.
- 3.4 Priority 2: Develop and implement new guidance on parental preparation for pregnancy, beginning before conception, to protect the health of children.
- 3.5 Priority 3: Identification of people contemplating pregnancy provides a window of opportunity to improve health before conception, while population-level initiatives to reduce the determinants of preconception risks, such as obesity and smoking, irrespective of pregnancy planning, are essential to improve outcomes. Such population-level initiatives are likely to need to start in schools as after children leave school they are hard to access to provide the necessary support. Adolescence is a crucial time when health behaviours are developed and intervening then would have the triple benefit of benefitting their current and their future health as well as that of their future children.
- 3.6 Priority 4: A renewed focus on the major risk factors that adversely influence the early years of a child's life. These are (1) mother obese before pregnancy, (2) excessive gestational weight gain, (3) smoking during pregnancy, (4) low maternal vitamin D status, (5) short duration of breastfeeding – early identification of those mothers with these risk factors and appropriate interventions developed to reduce these risks. [10]
- 3.7 Priority 5: There is a need for heightened awareness of preconception health, particularly in relation to diet and nutrition. Supporting Healthy Conversation Skills [11], which have been used in maternal and child health contexts around the world, and extending this skills training to other relevant health-care practitioners, including community health workers. Women and children in disadvantaged areas, in particular, should be supported in engaging in 'healthy conversations' to enable them to improve their diets and lifestyles.
- 3.8 Priority 6: Encouragement of protective factors, particularly breastfeeding, and the identification and provision of supplementary support for those women who struggle with breastfeeding.
- 3.9 Priority 7: Further investment in longitudinal studies with repeated measures is required to understand the impact of interventions over the life course.

4. CLOSER study profiles [12]

- 4.1 The Hertfordshire Cohort Study comprises a nationally unique study of 3,000 men and women born during the period 1931-1939 and still resident in the English county of Hertfordshire during the 1990s.
- 4.2 The MRC National Survey of Health and Development is the oldest and longest running of the British birth cohort studies; it is a nationally representative sample of men and women born in England, Scotland or Wales in March 1946.

- 4.3 The Southampton's Women's Survey is a longitudinal birth cohort with data collected on the mothers before conception. It is the only study in Europe of women and their children for which information was obtained directly from the mothers before conception. A key aim of this longitudinal study is to learn more about the dietary and lifestyle factors that influence the health of women and their children.
- 4.4 The Avon Longitudinal Study of Parents and Children charts the lives of 14,500 people born in the former county of Avon between April 1991 and December 1992 as well as the lives of their parents and their children.
- 4.5 The 1958 National Child Development Study follows the lives of 17,415 people born in England, Scotland and Wales in a single week of 1958.
- 4.6 The 1970 British Cohort Study follows the lives of 17,198 people born in England, Scotland and Wales in a single week of 1970.
- 4.7 The Millennium Cohort Study follows the lives of 19,517 children born across England, Scotland, Wales and Northern Ireland in 2000-01.

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5. References

- [1] About CLOSER: <https://www.closer.ac.uk/about/>
- [2] Building Great Britons: <https://plct.files.wordpress.com/2012/11/building-great-britons-report-conception-to-age-2-feb-2015.pdf>
- [3] Before the beginning: nutrition and lifestyle in the preconception period and its importance for future health: [http://dx.doi.org/10.1016/S0140-6736\(18\)30311-8](http://dx.doi.org/10.1016/S0140-6736(18)30311-8)
- [4] Intervention strategies to improve nutrition and health behaviours before conception: [http://dx.doi.org/10.1016/S0140-6736\(18\)30313-1](http://dx.doi.org/10.1016/S0140-6736(18)30313-1)
- [4] Preconception health Series from the Lancet journals: <https://www.thelancet.com/series/preconception-health>
- [5] Why women of lower educational attainment struggle to make healthier food choices: the importance of psychological and social factors: <https://doi.org/10.1080/08870440802460426>
- [6] Association between maternal vitamin D status in pregnancy and neurodevelopmental outcomes in childhood: <https://doi.org/10.1017/S0007114517001398>

[7] Low maternal vitamin D status and fetal bone development: cohort study:

<https://doi.org/10.1359/jbmr.090701>

[7] Maternal antenatal vitamin D status and offspring muscle development: findings from the Southampton Women's Survey: <https://doi.org/10.1210/jc.2013-3241>

[8] CLOSER Evidence Summary: <https://www.closer.ac.uk/wp-content/uploads/CLOSER-evidence-summary-Breastfeeding.pdf>

[9] Economic impact of breast-feeding-associated improvements of childhood cognitive development: <https://doi.org/10.1017/S0007114515001233>

[10] Modifiable early-life risk factors for childhood adiposity and overweight: an analysis of their combined impact and potential for prevention. *Am J Clin Nutr* 2015;101(2):368-75.

<https://doi.org/10.3945/ajcn.114.094268>

[11] Healthy Conversation Skills: increasing competence and confidence in front-line staff:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3776723/>

[12] CLOSER longitudinal studies: <https://www.closer.ac.uk/closer/explore-the-studies/>